

REPORT

OF THE

SUGAR INDUSTRY ENQUIRY COMMISSION

1974

Volume I & II

MINISTRY OF AGRICULTURE
GOVERNMENT OF INDIA

D.O. No. SIEC-8-172/74.

V. BHARGAVA
Chairman

Sugar Industry Enquiry Commission,
Ministry of Agriculture,
Government of India,
Jamnagar House,
New Delhi, February 27, 1974.

Dear Shri Ahmed,

I have great pleasure in presenting the Report of the Sugar Industry Enquiry Commission. It includes the two Interim Reports of the Commission as Volume I and II of the Report.

With regards,

Yours sincerely,
Sd.-V. Bhargava

Shri Fakhruddin Ali Ahmed, Minister of Agriculture,
Ministry of Agriculture, Krishi Bhavan,
New Delhi.

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GENERAL INTRODUCTION

1. This Commission was set up in September, 1970 by the Ministry of Agriculture, then known as Ministry of Food, Agriculture, Community Development and Cooperation, under its Notification No. S.O. 3180 dated 28th September, 1970 (Appendix A) with the following terms of reference :

(1) To study the working of the sugar industry in all its aspects, with particular reference to its performance during the last ten years and the condition of the plant and machinery in different sugar mills ;

(2) To identify the inadequacies in the performance of the sugar industry and the causes thereof;

(3) To study in detail the causes for the existence of a large number of sick sugar mills;

(4) Study the progress and the working of sugar mills in the co-operative sector;

(5) To make suggestions, in the light of such studies, for a rational and efficient organisation of the sugar industry in different parts of the country, in order to improve its working and performance, and to suggest measures for solving the problem of sick sugar mills, in the context of the demand for nationalisation of the sugar industry;

(6) To study the relationship between sugarcane suppliers and the owners of sugar mills, with particular reference to the supply of cane and the payment of cane price and to make suggestions for improvement in the present laws and practices in this behalf ;

(7) To study the problem of large fluctuations in sugarcane production and its processing into gur, khandsari and sugar and to make suggestions for securing stable conditions with a view to achieving a balanced development in these fields; and

(8) In the light of the foregoing studies, to suggest a blue-print for the development of the sugar and allied industries over a period of next ten to fifteen years.

2. For the immediate background of the setting up of the Commission, reference may be made to a debate on the question of nationalisation of the sugar industry which took place in the Rajya Sabha and the Lok Sabha in December, 1969. During the course of the discussion in the Lok Sabha, Shri Jagjivan Ram, the then Union Minister of Agriculture, made the following statement on 15th December, 1969 :—

> "The sugar industry is over 30 years old now and many developments have taken place during these years. It is, therefore, an opportune time to appoint a committee to study the working of the sugar industry in the context of the demand for nationalisation of sugar undertakings in certain areas. The scope of the enquiry would be left sufficiently wide to enable an enquiry being made into the causes underlying the present demand for nationalisation of the sugar industry and the manner in which the various problems relating thereto may be tackled. The Committee may go into the factory-grower relationship, the payment of cane prices, returns to the factory, their working and performance, the condition of plant and machinery and other relevant matters. In dealing with sick mills, the committees can suggest steps which will help improve the working of these mills. In dealing with the sugar industry in general and with the sick mills in particular, the committee should assess the financial, administrative and managerial problems involved as also the organisational structure necessary to implement the recommendations of the committee. I propose to set up this committee very quickly to go into the entire question of the sugar industry and to make recommendations".

It will be seen that the terms of reference follow the lines broadly indicated in his speech by the Union Minister of Agriculture.

Constitution of the Commission

3. According to the original notification dated 28th September, 1970, the Commission consisted of the following persons :—

(1) Shri Deep Narain Sinha, Retired Chief Justice of the Calcutta High Court. —Chairman

(2) Shri J. C. Dikshit, General Secretary, Indian National Trade Union Congress, U.P. Branch, Lucknow. —Member

(3) Shri B. N. Khosla, Industrial Consultant, Greater Kailash, New Delhi. —Member

(4) Dr. Dharam Narain, Chairman, Agricultural Prices Commission, New Delhi. —Member

(5) Director, National Sugar Institute, Kanpur. —Member (*ex-officio*)

(6) Shri Vasantrao Patil, Chairman, Maharashtra State Cooperative Bank, Bombay. —Member

(7) Shri Fazlur Rahman, M.L.C. (Bihar), Patna. —Member

(8) Lala Bansi Dhar, Viee President, Indian Sugar Mills Association, New Delhi. —Member

(9) Shri A. C. Bose, Retired Joint Seeretary to the Government of India, Department of Company Affairs, New Delhi. —Member

(10) Shri R. H. Chisti, I.A.S. (Retd.), 4, Secretariat Bungalow, Mall Avenue, Lucknow. —Member-Secretary.

Several changes have since taken place in the constitution of the Commission. Shri Sinha, Chairman, fell ill in March, 1971 and passed away in June, 1971. His place was taken by Shri V. Bhargava, retired Judge of the Supreme Court, who joined the Commission on 16th September, 1971. Dr. Dharam Narain resigned in September, 1971 and Dr. V. S. Vyas, the then Member, Agricultural Prices Commission, was appointed in his place in January, 1972. Shri Vasantrao Patil resigned in March, 1972 on his appointment as Minister, Government of Maharashtra and was succeeded by Shri P. S. Rajagopal Naidu, Director, National Federation of Cooperative Sugar Factories, who joined in May, 1972. Shri S. C. Gupta, Director, National Sugar Institute, Kanpur, ex-officio Member of the Commission retired as Director in July, 1971 and ceased to be Member of the Commission. He was succeeded by Shri S. L. Saxena as Director and ex-officio Member of the Commission in May, 1972. In the intervening period Dr. S. Mukherji, Professor of Sugar Chemistry, N.S.I., was asked to assist the Commission.

Other Commissions and Committees

4. In the past several commissions and committees were set up to study one or more aspects of the sugar industry both by the Government of India and the State Governments, beginning from the McKennon Committee of 1920. A reference to them has been made in the Reports of the Committee on Rehabilitation and Modernisation of Sugar Factories in India (1965), the Sugar Enquiry Commission (1965) and the Tariff Commission (1969). Here we shall mention only the Commissions and Committees which studied one or the other aspect of the sugar industry during the ten years preceding the setting up of this Commission.

5. The Tariff Commission was asked for the first time in 1958 to enquire into 'the cost structure of and the fair price payable to the sugar industry'. The recommendations made in its 1959 Report necessitated adjustments in the then existing price-linking formula for sharing sugar prices between cane-growers and sugar factories and the Tariff Commission was requested in 1960 to revise the formula. It submitted its Report in 1961. In 1968, the Government requested that Commission to conduct a fresh examination of the cost structure for sugar industry and the preparation of new cost sehedules to determine the fair price payable to the industry and the Commission submitted its report in 1969. For the third time the Tariff Commission was requested in 1972 to make a fresh study of the problem. Its report has been submitted only recently but has not been made public. On all these occasions the main issues were the examination of the cost structure of sugar and preparation of new cost schedules to determine the fair prices payable to the industry.

6. The Committee on Rehabilitation and Modernisation of Sugar Factories in India (known as the Gundu Rao Committee), set up in 1963, was required to examine the problems of the old and uneconomic units in the sugar industry and to make recommendations for their rehabilitation and modernisation. It submitted its report in 1965.

7. The Sugar Enquiry Commission (known as the Sen Commission) was set up in 1964 and submitted its report in 1965. Its terms of reference were : (a) the determination of the price, and the system of distribution of sugar; and (b) the policy regarding licensing of new sugar factories and the expansion of the existing sugar factories. It was also required to study certain aspects of export of sugar and the question of production of sugar of different grades.

8. The Government of India also appointed a few departmental committees to study specific subjects such as the question of payment of premium for higher sugar recovery on the basis of proportionality; the development of sugarcane in the northern States, etc. Some State Governments also appointed ad hoc committees to study the condition of the sugar industry in their respective States. We have made use of the various reports of the commissions and committees. There was one committee, however, whose report did not become available to us. This committee was set up by the Uttar Pradesh Government to consider the question of nationalisation of the sugar industry.

Scope of Enquiry

9. It will be seen that the terms of reference of our Commission are very wide and comprehensive. In his speech on 24th November, 1970, inaugurating the Commission, Shri Fakhruddin Ali Ahmed, Union Minister of Agriculture, observed as follows :

> "The problems facing the industry and others connected with it are many as well as complex and will require detailed study and analysis. It is for this purpose that Government have decided to set up the Sugar Industry Enquiry Commission and give it very wide terms of reference to enable it to study all aspects of the industry and connected fields.....".

The first Chairman of the Commission in his welcome speech on the occasion also made a pointed reference to the wideness of the terms of reference :

> "The terms of reference of the Commission are all-comprehensive and include the study of the working of the sugar industry in India in all its aspects, particularly during the last ten years and the making of a master plan for the next period of ten to fifteen years. We are also to suggest measures for solving the problems of 'sick mills' in the context of the demand for nationalisation of the sugar industry..... The scope is a vast one.....".

10. A section of the sugar industry requested the Commission more than once to enquire into the question of fixation of sugar prices and examine the cost schedules used for fixing levy prices, as recommended by the Sen Commission (1965) and later by the Tariff Commission (1969). But in this matter our view has been that a detailed study of this subject was not within our purview and that the proper authority to hold an enquiry into the matter was the Tariff Commission. As a matter of fact while the Commission was in existence, the Ministry of Agriculture requested the Tariff Commission (in 1972) to conduct a fresh enquiry into the cost structure of sugar prices and prepare revised cost schedules for determining the fair price payable to the sugar industry. However, we took an opportunity to discuss in a general way these and allied matters with the Chairman and Members of the Tariff Commission.

11. Our first term of reference required us to study the working of the sugar industry in all its aspects with particular reference to its performance during the *last ten years*. At the time the Commission was set up the sugar year 1969-70 (1st October to 30th September) was at its end and the financial year 1970-71 (1st April to 31st March) was already half way through. We, therefore, asked the factories to submit their balance sheets and profit and loss accounts and technical and other data and information for the ten years 1960-61 to 1969-70 only. Later, however, in 1973 we asked the factories to furnish certain technical and financial data for the years 1970-71 and 1971-72 also with a view to assessing the technical and financial performance on the basis of the latest available information. We also made use of the reports of the various commissions and committees and other relevant literature as background material and utilised the data and information available with the various departments and directorates concerned.

Approach of the Commission

12. The inaugural meeting of the Commission was held on 24th November, 1970. In his welcome speech the then Chairman, Shri D. N. Sinha, observed as follows :

> "In my opinion enquiries of this sort should be exhaustive, fully scientific, and in the end the result should be practical and utilitarian.... Throughout our work, we shall not forget that no report today is worth anything if it does not keep in mind the interest of the canegrowers, the workers in the mills and factories, the producers of gur and khandsari and all those whose livelihood depends upon the growth and development of sugar industry, but who are inarticulate and cannot fend for themselves. I can assure you that their interest will be our special concern....".

This thinking has informed our deliberations and discussions, at the same time keeping in view the need for maintaining an orderly, efficient and progressive sugar industry.

Method of Enquiry

13. The first step taken by us was to circulate our terms of reference to the Governments of sugar producing States and the representative organisations of the sugar industry, canegrowers and labour, inviting their suggestions about the aspects of the sugar industry which, in their opinion, the Commission should study. Suggestions received in this regard were utilised by the Commission in drawing up its detailed questionnaires.

14. One of the major aspects for study was the financial working of the factories. To this end sugar factories were directed in March, 1971, to furnish copies of their balance sheets and profit and loss accounts for each of the years 1960-61 to 1969-70.

15. As the Commission had been specifically asked to study the technical performance of the sugar industry and the condition of plant and machinery of different sugar mills, a comprehensive technical-*cum*-financial questionnaire was drawn up with the help of technical and financial experts and was issued to all the sugar factories in May, 1971 (Appendix B). The questionnaire sought from each factory detailed information about the age, specifications and condition of its plant and machinery, the additions and alterations made by it during the last ten years, cost of repairs, its programme for rehabilitation and modernisation, etc. The questionnaire also asked for technical, financial and other basic data required for assessing the financial and general performance of a factory.

16. On receipt of the replies to the technical-*cum*-financial questionnaire, a report was prepared on every sugar factory dealing with and evaluating its technical and financial performance, the condition of its plant and machinery and other important aspects.

17. The technical-*cum*-financial questionnaire was followed three months later (in August, 1971) by a comprehensive general questionnaire covering all the aspects of the sugar industry within the scope of our terms of reference (Appendix C). It was issued to the departments concerned of the Central Government, the Government of all sugar producing States, all the sugar factories, important organisations, associations and federations of the sugar industry, canegrowers, labour, sugar technologists, gur and khandsari manufacturers, distillers, paper manufacturers, sugar machinery manufacturers, etc. It was also addressed to sugar and sugarcane research and development institutes and to individual economists, industrialists, cooperators and others known for their knowledge and experience of one or the other aspect of the sugar industry. Their names and particulars are given in Appendix D. The

general questionnaire was primarily intended to obtain the views and suggestions of the various Governments and organisations and experts on matters of policy.

18. At its meetings the Commission considered working papers and draft chapters on various subjects and interviewed and held discussions with officers of the Central Government, State Governments, representatives of various organisations and individual legislators, economists, experts in various fields, etc., who were invited to give evidence before the Commission. The Chairman and Members of the Commission also held a large number of informal meetings with managements of factories, canegrowers, workers, sugar and sugarcane experts during their tours and visits to factories and research institutes.

19. In addition to obtaining the data and views and suggestions through the questionnaires and other communications, the Commission interviewed a large number of officials and non-officials and discussed with them relevant issues and problems. State Governments were requested to depute their officers dealing with the sugar industry to give evidence before the Commission. Ordinarily discussions with officers of a State Government were held after the receipt of the replies of the State Government to the general questionnaire, the replies forming the basis of discussion. At these meetings the officers were asked not only to explain the views of their State Government but also to express their personal views. Discussions with the State officers were held in two rounds. In the first round the discussions covered most of the aspects of the sugar industry as indicated in the general questionnaire; in the second round, discussions centered on the scope of development of the sugar industry in the State concerned during the next ten to fifteen years and the measures taken or proposed to be taken by the State Governments to achieve the targets aimed at. The Commission also invited several Members of Parliament and State Legislatures for discussion on important matters of policy and had the benefit of the views of such of them as found it convenient to meet the Commission. The Commission also held discussions with the Chief Ministers and other Ministers concerned of the major sugar producing States.

20. Discussions were also held with representatives of Indian Sugar Mills Association, the National Federation of Cooperative Sugar Factories, labour organisations—Indian National Trade Union Congress, Hind Mazdoor Sabha, Centre of Indian Trade Unions and United Trade Union Congress; officers of the Reserve Bank of India, the Industrial Finance Corporation, the National Cooperative Development Corporation and the Directorate of Technical Development and representatives of a few banks selected for the purpose. Machinery manufacturers were also invited for discussions.

21. The Commission sent teams of its technical, financial and other experts to selected sugar factories, to make on-the-spot studies. The main purpose of these studies was to verify the data furnished by sugar factories in their written replies, to make a physical inspection of the plant and machinery of the factories concerned and to collect additional information required. A study of the industrial relations in a few factories was made by the Labour Officer of the Commission. The working of a number of cooperative sugar factories was studied in detail by the officers deputed for the purpose. As the Commission did not have a Co-operative Officer for such studies at the time the Second Interim Report was being prepared, the Department of Co-operation of the Ministry of Agriculture and the National Cooperative Development Corporation were requested to help the Commission in the matter. They each placed the services of one officer at the disposal of the Commission for a fortnight for making detailed studies of a few cooperative factories on the lines indicated by the Commission.

22. The Chairman and Members of the Commission themselves visited a number of sugar factories. During these visits they went round the factories and studied the system of cane supplies, cane weighment, cane price payment, working of the factory at various stations, etc. They also visited sugarcane farms and beet fields. On their way to and from factories they visited a few khandsari and gur manufacturing units in different parts of the country. They held discussions with canegrowers, workers and the management of factories separately and tried to obtain first-hand knowledge of the feelings and thinking of the canegrowers and labour about the past and present working of the factories and about their future working. The number of factories visited by the Commission was 62 and those visited by its officers came to 89 (Appendix E).

23. The Commission visited the Central Sugarcane Research Institutes at Coimbatore and Lucknow and the National Sugar Institute, Kanpur and several State sugarcane research institutes and centres—Pusa (Bihar), Shahjahanpur (U.P.), Padegaon (Maharashtra) and Annakapalle (Andhra Pradesh)—and held discussions with the directors and other experts of these institutions on various aspects of sugar and sugarcane research. These visits gave the Commission a fairly clear idea of the state of sugarcane and sugar research and facilities in the country.

Meetings

24. The Commission held 71 Meetings extending over 204 days. Of them, all except three were held in Delhi. The three meetings outside Delhi were held at Calcutta, Bombay and Varanasi. In addition 15 meetings of the various committees set up by the Commission were held extending over 35 days. In connection with the preparation of the Second Interim Report, the Commission appointed a few Committees consisting of two or more of its Members to study specific problems allotted to them and to guide and supervise the preparation of working papers on the allotted subjects and to re-shape them for the consideration of the Commission. The Committees were concerned with the technical performance, the condition of plant and machinery and the financial working of the factories.

Handicaps in the Working of the Commission

25. We may mention briefly some of the factors which adversely affected the working of the Commission and retarded the progress of its enquiry. We do so in the hope that such of them as were avoidable would be avoided in the future.

Lack of Office Accommodation

26. For several months the Commission was practically without office accommodation. Though the notification establishing it mentioned Delhi as headquarters of the Commission, the Works and Housing Ministry refused to allot Government accommodation on the ground that it had not been consulted before fixing Delhi as headquarters of the Commission. Between themselves, the Ministry of Agriculture and the Ministry of Works and Housing took ten months to sort out this matter. In the meantime, the Commission itself was required to search for private accommodation and submit proposals. A proposal made to Government in November, 1970 was rejected after two months. The second proposal submitted in February, 1971 was also rejected in July, 1971. For months on end the Commission had only a couple of rooms in the Jamnagar House Hutments to serve all its requirements. Later, one or two rooms in the Jamnagar House Hutments were made available as and when they fell vacant as a result of the shifting of a part of the Directorate of Sugar and Vanaspati to Krishi Bhavan. For more than a year, there was no room for any Member of the Commission to sit or for holding meetings of the Commission.

Illness of Chairman

27. Shri Sinha, first Chairman of the Commission, was admitted to the hospital early in March, 1971 and was confined to bed till his passing away on 12th June, 1971. Another three months elapsed before his successor joined the Commission. The present Chairman, Shri Bhargava, was on leave for six weeks due to illness in the months of November and December, 1973.

Changes in Membership and delay in appointment of successors

28. There were several changes in the membership of the Commission and fresh nominations of members were made after considerable delay in the place of the resigning or retiring members. Delays in the appointment of successors and the need for them to study the previous records and proceedings with a view to coming up-to-date with the work of the Commission, retarded the progress of the work. Also during the months of January, February and March, 1971, some Members of the Commission expressed their inability to attend meetings of the Commission due to their pre-occupation with work relating to elections to the Parliament and State Legislatures.

Delay in replies to the Questionnaires

29. As mentioned earlier, the technical questionnaire was issued to all the sugar factories in May, 1971. The factories were given six weeks' time to reply to the questionnaire, but for the next four months or so very few replies were received. The Indian Sugar Mills Association, the National Federation of Cooperative Sugar Factories as well as a large number of individual factories requested repeatedly for extension of time. In spite of reminders and pressure applied through the Indian Sugar Mills Association and the National Federation of Cooperative Sugar Factories, it was only by the end of 1971 that a substantial number of replies were received. The replies were checked as and when they were received and it was found that a number of factories had been careless in giving their replies. Considerable correspondence took place between the Commission and the factories concerned to get the mistakes rectified. The replies to the general questionnaire (issued in August, 1971) were also considerably delayed. In this case also, repeated extensions of time were sought by the Association and the Federation, State Governments and the various organisations of workers, canegrowers, etc. The bulk of replies were received only by the middle of 1972. Three State Governments did not submit their replies till the very end.

Delay in posting of staff and inadequacy of staff

30. The various posts for the Commission were sanctioned in December, 1970. In so far as the technical and engineering staff were concerned, the only sources were the National Sugar Institute, Kanpur, and the Directorate of Sugar and Vanaspati, New Delhi. Recommendations for deputation of officers from the Institute and the Directorate were made to the Government even before the posts were formally sanctioned. But the first technical officer joined the Commission in March, 1971, more than five months after the establishment of the Commission. As most of the studies of the Commission were technical in their nature, they could not be taken up in the absence of technical experts. Then several posts remained vacant for very long periods. This delayed and reduced the number of on-the-spot studies of the factories. The Commission had from the very beginning been of the view that it was neither feasible nor necessary for its technical teams to make on-the-spot studies of all the sugar factories and that all that was possible and desirable was to visit from one-third to one-fourth of the factories in the country. But because two out of four posts of engineer and one and some times two posts of sugar technologist out of four remained vacant for long periods, the studies in the office as well as on-the-spot visits were adversely affected. The post of Senior Agricultural Officer remained vacant throughout except for three months. The Senior Cooperative Officer joined only in October, 1973. There was also considerable delay in the posting of secretariat staff from the Department of Food,

Delay on account of preparation of Interim Reports

31. We would have preferred to submit a single report dealing with and answering all the terms of

reference. That would have enabled the Commission to write an integrated report on the various subjects under its enquiry and would also have facilitated the completion of the task of the Commission earlier. As it was, we had to submit two interim reports—the first in August, 1972 and the second in May, 1973. The concentration of the time and energy of the Commission on the matters to be included in these reports and later in linking up the earlier reports with the final report demanded and consumed more time than would have been the case if a single report were prepared.

Scheme of the Report

32. The Report is in three parts. The second interim report on 'Rational and Efficient Organisation of Sugar Industry' submitted in May, 1973 deals with terms 1 to 5 and forms Part I. Some aspects of the industry covered by terms 6 and 7 have been dealt with in the first interim report on 'Sugarcane Price Policy and Stabilisation of Cane Supplies to Sugar Factories' submitted in August, 1972. It forms Part II. The remaining aspects of the industry included in terms 6 and 7 and term 8 have been answered in the third and the last report which forms Part III. This has involved a change in the chronological sequence of the interim reports, with a view to presenting the discussion on various aspects of the industry in the order of the terms of reference.

33. Following the submission of the second interim report the Department of Food asked for details of the organisation and personnel required for the management of units which might be nationalised. In our reply we have explained and supplemented the operative parts of the second interim report. The communication received from the Government and our reply to it have been given at Annexure E of Part I.

Thanks

34. We would like to place on record our thanks to the Ministries and Departments of the Central Government and the State Governments which responded with detailed replies to the questionnaires and communications addressed to them and deputed their officers for giving evidence before the Commission. We also thank the Members of Parliament and State Legislatures who were good enough to meet the Commission and place before it their views on various important matters under consideration of the Commission. We are particularly grateful for the Chief Ministers and other Ministers of State Governments who gave the benefit of their views to the Commission on various aspects of the sugar industry, in the country generally and in their States particularly. We thank the Indian Sugar Mills Association and the National Federation of Cooperative Sugar Factories and their various State and regional associations and federations for submitting very detailed, informative and useful replies to our general questionnaire and furnishing valuable material and suggestions in their memoranda and other communications. They also deputed their representatives to meet the Commission more than once to present and discuss with it their views on major issues and problems of the industry. They also used their good offices for expediting replies by factories to the questionnaires issued by the Commission. Thanks are also due to the Reserve Bank of India, the Industrial Finance Corporation, the National Cooperative Development Corporation, the Directorate General of Technical Development and other organisations and institutions which deputed their officers to appear before the Commission for giving evidence. We are grateful to the Department of Cooperation, Ministry of Agriculture and the National Cooperative Development Corporation (N.C.D.C.) for rendering special assistance to the Commission by placing at its disposal the services of two officers for a fortnight for carrying out certain studies. We must specially mention the trouble taken by the Directors of the Sugarcane Breeding Institute, Coimbatore, the Indian Sugarcane Research Institute, Lucknow and the National Sugar Institute, Kanpur, and the Directors of other sugarcane research institutes for making our visits to their institutes worthwhile. They and their colleagues were extremely helpful in explaining highly technical matters to us. Special thanks are due to all of them for their consideration and cooperation. We would also like to thank all the officers of the Central and State Governments and the N.C.D.C. and other organisations who assisted the Commission in its work in various ways. We express our appreciation of the cooperation given by all the factories and organisations visited by us and by the officers of the Commission during the course of the enquiry.

35. And, finally, we must record our appreciation of the valuable assistance given by the officers and staff of the Commission, most of whom gave of their best. Our experts took great pains in carrying out studies and preparing reports on various aspects of the sugar industry for the consideration of the Commission and their contribution was of a high order. The members of the staff worked most diligently and always responded most willingly to the demands of urgent and strenuous work. Without the cooperation and hard and sustained work of the officers and the staff, the Commission would not have functioned as smoothly as it did in spite of certain handicaps.

36. Special mention must be made of the outstanding performance of Dr. N. A. Ramaiah, Deputy Secretary up to the middle of December, 1973 and later Secretary to the Commission. He possesses the rare combination of being a scientist of high calibre and an efficient administrator. He showed ability, resourcefulness and tact of a high order in administering the office, in coordinating the work of the various experts attached to us and in organising the visits of the Members to sugar factories, etc. His contribution to the preparation of the questionnaires, working papers and draft reports, specially those concerning technical and technological aspects of the sugar industry was invaluable and his vast knowledge and experience of all aspects of the sugar industry proved very helpful indeed. He served the Commission with sincerity and devotion much beyond the call of duty. We place on record our deep appreciation of his work.

PART I

RATIONAL AND EFFICIENT ORGANISATION OF SUGAR INDUSTRY

(Second Interim Report submitted in May, 1973)

PART I

RATIONAL AND EFFICIENT ORGANISATION OF SUGAR INDUSTRY

(Second Interim Report submitted in May, 1973)

INTRODUCTION*

In this part of our Report we have made recommendations on the rational and efficient organisation of the sugar industry as required by term 5 in the light of the studies carried out on the various aspects of the industry indicated in terms 1 to 4. These aspects have been considered generally in the order of the terms of reference. In Chapter I we have outlined the general features of the sugar industry. Chapter II and III deal respectively with the financial and the technical performance of the sugar industry and Chapter IV with condition of the plant and machinery in factories. Chapter V covers the working of the cooperative sector of the sugar industry. Chapter VI contains the views and recommendations on Rational and Efficient Organisation of Sugar Industry by Shri V. Bhargava, Chairman, Dr. V. S. Vyas, Shri S. L. Saxena, Shri Bansi Dhar and Shri A. C. Bose, Members; and Chapter VII, of Shri J. C. Dikshit, Shri B. N. Khosla, Shri P. S. Rajagopal Naidu and Shri Fazlur Rahman, Members, and Shri R. H. Chishti, Member-Secretary. These chapters also deal with the inadequacies of sugar industry and the causes for the existence of sick sugar mills.

*The original introduction to the Second Interim Report which now forms Part I, has been given at Appendix F.

CHAPTER I

GENERAL FEATURES OF THE SUGAR INDUSTRY

1.1 The growth of the vacuum pan sugar industry in India can be traced back to the early part of this century. In 1930-31, there were 29 sugar factories producing 1.22 lakh tonnes of sugar. That was, however, not adequate to meet the internal requirements and nearly 8 lakh tonnes of sugar was imported in that year.

1.2. In 1932, protection was granted to the sugar industry. Following this, there was a phenomenal expansion of the industry and the number of sugar factories increased to 111 in 1933-34 and to 137 in 1936-37. The sugar production increased to 4.6 lakh tonnes in 1933-34 and 11.3 lakh tonnes in 1936-37. The sugar imports which were about 8 lakh tonnes in 1930-31 were almost stopped after 1936-37. Thereafter there was little development of the industry up to 1951-52.

Expansion under the Industries (Development and Regulation) Act, 1951

1.3 Before 1952, the State Governments, particularly of U.P. and Bihar where the sugar industry was mainly concentrated, exercised controls under their own legislation. The development and regulation of the sugar industry came under the control of the Government of India for the first time from May, 1952 when the Industries (Development and Regulation) Act, 1951 came into force. All the 138 sugar factories which were working before 1952 were registered under the provisions of the Industries (Development & Regulation) Act, 1951. New sugar factories were established thereafter under licences granted by the Central Government. Similarly substantial expansions were carried out in sugar factories after obtaining licences from the Central Government. From 1st March, 1970, the sugar industry, along with other industries, has been permitted to expand without a licence, provided that the value of the fixed assets of a unit after expansion does not exceed Rs. 5.0 crores and provided further that the aggregate value of the substantial expansion, whether in one stage or more than one stage, does not exceed Rs. 1 crore.

1.4 During the period 1952-53 to 1959-60, 30 factories were set up. Since then up to 28th February, 1973, 67 more factories have been established. The Statewise break-up of the 97 factories is given in Table No. 1.1.

TABLE No. 1.1

Statewise Number of New Sugar Factories established from 1952–53 *to* 28-2-1973

State	New factories established from 1952–53 to 1959–60			New factories established from 1960–61 to 28-2-1973			Total No. of factories from 1952–53 to 28-2-1973		
	Private	Cooperative	Total	Private	Cooperative	Total	Private	Cooperative	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tropical Region.									
Andhra Pradesh	2	..	2	2	6	8	4	6	10
Gujarat	..	2	2	..	6	6	..	8	8
Karnataka	1	2	3	1	5	6	2	7	9
Kerala	..	..	..	..	2	2	..	2	2
Maharashtra	1	12	13	..	21	21	1	33	34
Pondicherry	..	..	..	1	..	1	1	..	1
Tamil Nadu	2	1	3	5	6	11	7	7	14
TOTAL	6	17	23	9	46	55	15	63	78
Sub-Tropical Region.									
Assam	..	1	1	..	..	..	..	1	1
Bihar	..	..	..	..	1	1	..	1	1
Haryana	..	2	2	..	..	..	..	2	2
Madhya Pradesh	..	..	..	..	1	1	..	1	1
Orissa	..	..	..	..	1	1	..	1	1
Punjab	1	1	2	..	3	3	1	4	5
Rajasthan	..	..	..	..	1	1	..	1	1
Uttar Pradesh	..	1	1	1	4	5	1	5	6
West Bengal	1	..	1	..	..	..	1	..	1
TOTAL	2	5	7	1	11	12	3	16	19
GRAND TOTAL	8	22	30	10	57	67	18	79	97

SOURCE: Directorate of Sugar & Vanaspati, New Delhi.

It will be seen from the above table that out of 97 sugar factories set up after 1951-52, 78 were established in the tropical region and 19 in the sub-tropical region. Thus the expansion of the industry during the last two decades has been mainly in the tropical region. Of the 97 factories, more than one-third were set up in Maharashtra.

1.5 Another important feature of post-1952 development has been the setting up of sugar factories largely in the cooperative sector, due to the Government policy of giving preference to cooperatives in the matter of licensing. As a result of this policy, 79 new sugar factories were established in the cooperative sector. Applications from joint stock companies for licences were considered only for areas where cooperatives could not be organised. In all, 18 joint stock factories were set up during this period. Of these, one factory became cooperative later. Two other joint stock sugar factories also changed into cooperatives.

1.6 The total number of registered/licensed factories including those having letters of intent stood at 296 on 28th February, 1973. Out of them, 235 have already been set up. 61 sugar factories are at various stages of establishment. Out of the 61 licensed sugar factories which are yet to be established, 50 are in the cooperative sector, 6 in the public sector and 5 in the joint stock sector. After all the licensed factories have been set up, the number of cooperative factories will be 134 out of a total of 296 factories in the country. The Statewise position of the factories which have been established and factories which have been licensed but not established yet is given sectorwise in the following table.

TABLE No. 1.2

Licensed and Established Factories in Various Sectors as on 28-2-1973

State	No. of sugar factories established upto 28-2-1973				No. of factories licensed but not established			
	Private	Public	Cooperative	Total	Private	Public	Cooperative	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Andhra Pradesh	10	2	8	20	..	1	8	9
Assam	..	..	1	1	..	1	..	1
Bihar	28(5)	1	1	30	..	..	1	1
Goa	..	..	..	..	..	..	1	1
Gujarat	..	..	8	8	..	..	5	5
Haryana	1	..	2	3	..	..	2	2
Jammu & Kashmir	..	..	..	..	..	1	..	1
Karnataka	5(1)	1*	7	13	3	1	4	8
Kerala	1	..	2	3	..	..	..	..
Madhya Pradesh	5(2)	..	1	6	..	..	..	..
Maharashtra	11	..	36	47	..	..	18	18
Nagaland	..	..	..	..	..	1	..	1
Orissa	1	..	1	2	..	..	1	1
Pondicherry	1(1)	..	..	1	..	..	..	..
Punjab	2	..	4	6	..	..	..	..
Rajasthan	1	1	1	3	..	..	..	..
Tamil Nadu	10(1)	..	7	17	..	..	3	3
Uttar Pradesh	63(22)	5**	5	73	2	1	7	10
West Bengal	2	..	..	2	..	..	..	.
TOTAL	141(32)	10	84	235	5	6	50	61

NOTE: The figures in brackets show the number of private limited, partnership and proprietory concerns included in the figure of private sector factories.

*The factory at Mandya in Karnataka is a public limited company with State Government holding controlling interest.

**These five factories were taken over by the U.P. Government and vested in the U.P. Sugar Corporation in 1970–71.

SOURCE: Directorate of Sugar and Vanaspati, New Delhi.

Out of the 235 factories, 10 factories did not work during the season 1972-73. The particulars of these 10 factories are given in Table No. 1.3.

TABLE NO. 1.3

Details of Closed Factories

Location of the Factory	Sector	Year of Establishment	Crushing capacity per day (tonnes)	Season(s) when remained closed
(1)	(2)	(3)	(4)	(5)
Dalmianagar (Bihar)	Private	1933	1829	Since 1967–68
Warisaliganj (Bihar)	Private	1933–34	711	Since 1967–68
Garaul (Bihar)	Private	1933–34	813	Since 1968–69 (except in 1969–70)
Bihta (Bihar)	Private	1933–34	1219	Since 1971–72
Ryam (Bihar)	Private	1913	925	1972–73
Ahmedpur (W. Bengal)	Private	1959–60	610	Since 1964–65
Shrigonda (Maharashtra)	Cooperative	1935–36	305**	For 1964–65, 1965–66 and since 1971–72
Asurle (Maharashtra)	Cooperative	1969–70*	406	Since 1970–71 (except 1971–72)
Tanuku (Sivakami) (Andhra Pradesh)	Private	1963	305	Since 1970–71
Mailpatti (Tamil Nadu)	Private	1939–40	406	Since 1962–63 (except 1969–70)

*Second-hand plant shifted from Dhola (Gujarat).

**A new plant of 1250 tonnes cane per day capacity is being set up.

SOURCE: Directorate of Sugar & Vanaspati, New Delhi.

1.7 The Statewise number of working factories in different years is given in Table No. 1.4

TABLE NO. 1.4

Number of Working Sugar Factories

State	1950–51	1960–61	1965–66	1969–70	1970–71	1971–72	1972–73 upto 28-2-1973
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Andhra Pradesh	8(1)	11(2)	19(8)	19(8)	18(8)	18(8)	19(8)
Assam	..	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)
Bihar	29	28	29	28(1)	27(1)	25(1)	25(1)
Gujarat	..	2(2)	3(3)	5(5)	7(7)	7(7)	8(8)
Haryana	1	3(2)	3(2)	3(2)	3(2)	3(2)	3(2)
Karnataka	4	8(3)	9(4)	10(5)	11(6)	13(7)	13(7)
Kerala	1	1	3(2)	3(2)	3(2)	3(2)	3(2)
Madhya Pradesh	5	5	5	5	5	6(1)	6(1)
Maharashtra	13(1)	27(14)	32(20)	41(30)	41(30)	42(32)	45(34)
Orissa	1	1	2(1)	2(1)	2(1)	2(1)	2(1)
Pondicherry	..	1	1	1	1	1	1
Punjab	2	3(1)	5(3)	6(4)	6(4)	6(4)	6(4)
Rajasthan	2	2	2	3(1)	3(1)	3(1)	3(1)
Tamil Nadu	4	8(3)	14(5)	16(6)	15(6)	16(7)	16(7)
Uttar Pradesh	68	71(2)	71(4)	71(4)	71(4)	73(5)	73(5)
West Bengal	1	2	1	1	1	1	1
ALL INDIA	139(2)	174(30)	200(53)	215(70)	215(73)	220(79)	225(82)

NOTE: The figures in brackets indicate the cooperative factories.

SOURCE: Directorate of Sugar and Vanaspati, New Delhi.

1.8 The data in Table No. 1.5 gives the Statewise position of the installed capacity in different years and indicates the progress of the sugar industry in different regions. The installed annual sugar production capacity of the industry at the beginning of the first Five Year Plan was 15.0 lakh tonnes, which increased to 39·19 lakh tonnes by the end of 1971-72. This is likely to increase further to 43-44 lakh tonnes by the end of the Fourth Five Year Plan through the establishment of more new factories and expansion in the existing ones. As mentioned earlier, sugar industry in Maharashtra has progressed very fast. With the implementation of the licences already granted, the annual sugar production capacity in Maharashtra will reach 16·37 lakh tonnes. This State will then become the largest producer of sugar in the country.

TABLE No. 1.5

Installed Annual Sugar Production Capacity of the Sugar Factories

(Lakh Tonnes)

State	Installed Annual Sugar Production Capacity								
	50–51	60–61	65–66	66–67	67–68	68–69	69–70	70–71	71–72
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	0.87	1.21	2.24	2.40	2.40	2.40	2.83	2.83	2.83
Assam	..	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Bihar	2.78	2.89	3.12	3.18	3.18	3.27	3.39	3.39	3.39
Gujarat	..	0.28	0.45	0.53	0.79	1.03	1.03	1.42	1.66
Haryana	*	*	0.57	0.58	0.58	0.58	0.61	0.61	0.61
Karnataka	0.38	1.09	1.38	1.50	1.50	1.85	2.18	2.36	2.89
Kerala	0.04	0.04	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Madhya Pradesh	0.22	0.22	0.29	0.29	0.30	0.30	0.30	0.30	0.39
Maharashtra	1.66	4.53	6.00	6.50	6.89	7.50	8.66	9.36	9.97
Orissa	0.02	0.02	0.11	0.11	0.12	0.12	0.12	0.12	0.12
Pondicherry	..	0.15	0.15	0.15	0.15	0.15	0.19	0.19	0.19
Punjab	0.18**	0.90**	0.44	0.44	0.44	0.54	0.55	0.55	0.55
Rajasthan	0.08	0.08	0.11	0.13	0.13	0.13	0.22	0.22	0.22
Tamil Nadu	0.49	1.15	2.28	2.53	2.60	2.60	2.73	2.90	3.32
Uttar Pradesh	8.16	9.31	11.75	11.99	12.13	12.14	12.33	12.33	12.63
West Bengal	0.07	0.11	0.15	0.15	0.15	0.15	0.15	0.15	0.15
TOTAL	14.95	22.03	29.31	30.75	31.63	33.03	35.56	37.00	39.19

*Included in Punjab.

**Combined figures of Punjab and Haryana.

SOURCE: Directorate of Sugar and Vanaspati, New Delhi.

Size of Sugar Factories

1.9 Table 1.6 gives Statewise number of sugar factories in different capacity ranges.

TABLE No. 1.6

Statewise Number of Sugar Factories in different Capacity Ranges as on 28-2-1973

(in tonnes)

State	1000 and below	1001 to 1249	1250 to 1500	1501 to 2000	2001 to 2500	2501 to 3000	Above 3000	Total	Average Capacity
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	6	7	3	..	1	1	2	20	1436
Assam	1	..	..	..	..	..	..	1	813
Bihar	13	8	3	6	..	..	..	30	1147
Gujarat	..	1	5	..	..	2	..	8	1608
Haryana	..	..	2	..	..	..	1	3	1984
Karnataka	..	2	7	2	2	..	..	13	1560
Kerala	1	2	..	..	..	..	..	3	847
Madhya Pradesh	3	2	1	..	..	..	..	6	868
Maharashtra	4	12	17	8	1	5	..	47	1435
Orissa	1	1	..	..	..	..	..	2	835
Pondicherry	..	..	1	..	..	..	..	1	1500
Punjab	1	3	2	..	..	..	..	6	1095
Rajasthan	1	1	1	..	..	..	..	3	1039
Tamil Nadu	3	5	5	2	2	..	..	17	1311
Uttar Pradesh	18	17	10	15	5	3	5	73	1516
West Bengal	1	1	..	..	..	..	..	2	915
TOTAL	53	62	57	33	11	11	8	235	1387

SOURCE: Directorate of Sugar and Vanaspati, New Delbi.

In 1954-55, when licensing of new sugar factories began, a plant with a daily cane crushing capacity of 1000 tons (1016 metric tons) was considered economic. New units were therefore, licensed with this capacity and factories were set up with milling plants of 610 mm × 1220 mm (24″ × 48″) and 710 mm × 1420 mm (28″ × 56″) sizes. It was later realised that such small units left little scope for expansion. The Government of India appointed a 'Specifications Committee' in December, 1933, to examine this matter. The Committee suggested specifications for plants of two sizes—one of 1250 tonnes crushing capacity capable of expansion with a few additions and alterations to 2000 tonnes and the other of 2500 tonnes capable of expansion to 3500 tonnes. The Committee on Rehabilitation and Modernisation of Sugar Factories in India (Gundu Rao Committee) 1965, considered a unit of 1500 tonnes as of economic size. The Sugar Enquiry Commission (Sen Commission) 1965, however, was of the view that a unit of 1250 tonnes, capable of expansion to 2000 tonnes was an economic unit. Since then most of the new sugar factories have been licensed for an initial crushing capacity of 1250 tonnes.

Sulphitation and Carbonation Factories

1.10 All vacuum pan sugar factories in the country manufacture only direct consumption white sugar. Some of them produce raw sugar also when required for export purposes. For the production of direct consumption white sugar, factories follow either the sulphitation process or the carbonation process for clarification of cane juice. Thirty-two factories follow the carbonation process and the rest the sulphitation process. The carbonation factories are located only in the North.

Area under Sugarcane

1.11 The Statewise area under sugarcane during the period 1960-61 to 1970-71 is given in Table No. 1.7.

TABLE NO. 1.7

Statewise Area under Sugarcane in India from 1960–61 to 1970–71

('000 hectares)

State	1960–61	1961–62	1962–63	1963–64	1964–65	1965–66	1966–67	1967–68	1968–69	1969–70	1970–71
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	92	96	91	124	145	136	108	123	156	158	135
Assam	28	29	29	29	30	31	31	31	32	33	33
Bihar	185	197	162	141	166	170	149	117	151	168	162
Gujarat	26	22	20	24	41	40	27	30	35	37	37
Haryana	(Included with Punjab)				144	196	151	121	160	169	155
Karnataka	72	78	74	81	89	89	77	84	99	91	97
Kerala	9	9	9	9	10	9	9	8	8	8	8
Madhya Pradesh	50	55	56	54	70	78	44	37	55	67	62
Maharashtra	155	154	135	137	159	171	160	165	190	222	217
Orissa	25	25	32	40	40	46	36	36	37	39	37
Punjab	269*	271*	243*	233*	122	167	156	127	156	149	128
Rajasthan	41	34	33	30	43	57	32	20	38	51	37
Tamil Nadu	81	76	55	73	98	101	88	112	172	135	135
Uttar Pradesh	1,329	1,362	1,262	1,229	1,389	1,490	1,190	997	1,203	1,377	1,369
West Bengal	40	34	31	33	41	39	30	27	27	32	32
Other States	13	13	10	12	16	16	13	12	13	13	13
ALL INDIA	2,415	2,455	2,242	2,249	2,603	2,836	2,301	2,047	2,532	2,749	2,657

*Combined figures of Haryana and Punjab.

SOURCE: Directorate of Sugar and Vanaspati, New Delhi.

NOTE: The figures include area of adsali crop wherever it exists.

During the 11 year period, the area under cane has registered an increase in almost all the main sugar producing States except in Bihar where it has declined somewhat. Although there has been a trend towards increase in area, the increase has not been continuous. It has fluctuated from year to year. The fluctuations, however, in sugarcane area have been more marked in Uttar Pradesh. The area decreased from 14·9 lakh hectares in 1965-66 to 9·97 lakh hectares in 1967-68 and then increased to 13·77 lakh hectares in 1969-70. As Uttar Pradesh has nearly 50 per cent of the area under cane in the country, the variations in the cane acreage in this State cause substantial variations in all India cane acreage.

Yield of Sugarcane per Hectare

1.12 Statewise yield of sugarcane per hectare from 1960-61 to 1970-71 is given in Table No. 1.8

TABLE NO. 1.8

Statewise Yield of Sugarcane per Hectare from 1960-61 *to* 1970-71

(Tonnes)

State	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	74	76	81	78	84	76	74	81	77	70	78
Assam	34	39	35	40	37	33	33	38	35	48	37
Bihar	38	32	30	37	41	36	29	34	39	39	40
Gujarat	50	52	55	56	68	56	52	50	48	51	52
Haryana		(Included in Punjab)				39	34	38	42	47	45
Karnataka	72	74	78	86	76	80	90	87	92	85	88
Kerala	41	42	45	46	46	44	62	62	62	64	49
Madhya Pradesh	27	26	26	24	26	24	23	25	25	25	26
Maharashtra	71	71	79	84	67	65	62	63	66	65	68
Orissa	29	30	49	48	50	49	49	50	58	52	52
Pondicherry	..	..	..	99	86	75	93	81	102	85	78
Punjab	38	33	33	38	42	35	28	36	33	41	41
Rajasthan	24	23	25	19	15	17	12	16	14	13	33
Tamil Nadu	78	76	77	78	78	77	78	79	80	76	77
Uttar Pradesh	41	38	34	39	40	38	33	38	42	44	41
West Bengal	51	53	43	47	46	46	44	44	44	47	47
ALL INDIA	45	42	41	46	47	43	40	47	49	49	48

SOURCE: Directorate of Sugar and Vanaspati, New Delhi.

The all-India average yield of cane per hectare has been more or less static during the period 1960-61 to 1970-71. It was 45 tonnes per hectares in 1960-61, and 48 tonnes per hectare in 1970-71. The maximum all-India average yield during the 11 year period was 49 tonnes per hectare and was obtained in 1968-69 and then again in 1969-70. Among the main sugar producing States, the highest yield of about 92 tonnes per hectare was obtained in Karnataka in 1968-69. In that State there has been an improvement in the cane yields during the last 11 years. In the States of Andhra Pradesh and Tamil Nadu, the yields ranged between 70 to 84 tonnes per hectare. In Maharashtra, however, there has been a decline in the average yield during recent years. In Kerala and Orissa, there has been a perceptible increase in cane yields. In Uttar Pradesh, there has been little improvement in cane yields during the period under review.

Production and Utilisation of Cane

1.13 The Statewise production of cane during the period 1960-61 to 1970-71 is given in Table No. 1.9

TABLE NO. 1.9

Statewise Production of Sugarcane from 1960–61 *to* 1970–71

('000 tonnes)

State	1960–61	1961–62	1962–63	1963–64	1964–65	1965–66	1966–67	1967–68	1968–69	1969–70	1970–71
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	6,748	7,266	7,217	9,715	11,198	10,319	8,033	9,922	12,005	11,108	10,508
Assam	945	1,148	1,013	1,159	1,130	1,011	1,017	1,174	1,130	1,574	1,222
Bihar	7,038	6,330	4,877	5,165	6,859	6,045	4,398	4,031	5,914	6,563	6,494
Gujarat	1,300	1,142	1,076	1,362	2,376	2,316	1,403	1,490	1,661	1,866	1,937
Haryana		(Included in Punjab)			6,761	7,603	5,100	4,710	6,690	7,920	6,980
Karnataka	5,184	5,789	5,810	6,978	6,748	6,959	6,931	7,345	9,085	7,714	8,483
Kerala	381	377	417	441	440	410	549	500	503	501	376
Madhya Pradesh	1,359	1,422	1,445	1,294	1,792	1,850	1,016	951	1,417	1,619	1,631
Maharashtra	12,090	10,995	10,667	11,513	10,943	10,979	9,977	10,488	12,613	14,444	14,770
Orissa	744	747	1,575	1,952	2,003	2,297	1,769	1,809	2,108	2,022	1,915
Punjab	10,139	8,870	8,027	8,930	4,440	5,770	4,360	4,550	5,150	6,180	5,270
Rajasthan	1,002	790	828	576	637	940	393	313	524	677	1,215
Tamil Nadu	6,311	5,818	4,263	5,743	8,061	8,754	6,897	8,864	13,731	10,215	10,443
Uttar Pradesh	54,516	51,257	43,198	47,547	56,242	56,650	39,370	37,908	50,544	60,679	55,664
West Bengal	2,057	1,818	1,354	1,537	1,895	1,790	1,300	1,178	1,178	1,504	1,504
Other States	187	198	146	313	384	297	313	267	423	366	357
ALL INDIA	110,001	103,967	91,913	104,225	121,909	123,990	92,826	95,500	124,676	135,024	128,769

SOURCE: Directorate of Sugar and Vanaspati, New Delhi.

As will be seen from Table No. 1.9, sugarcane production increased in all the major sugar producing States except Bihar during the 11 year period (1960-61 to 1970-71). The sugarcane production in Uttar Pradesh which was 545 lakh tonnes in 1960-61 increased to a maximum of 607 lakh tonnes in 1969-70. In Maharashtra it increased from 121 lakh tonnes in 1960-61 to 148 lakh tonnes in 1970-71. In Andhra Pradesh and Tamil Nadu there had been a marked increase. In the former State, the cane production increased from 67 lakh tonnes in 1960-61 to a peak of nearly 120 lakh tonnes in 1968-69. In Tamil Nadu it increased from 63 lakh tonnes in 1960-61 to 137 lakh tonnes in 1968-69. In Karnataka also sugarcane production had shown an increase from 52 lakh tonnes in 1960-61 to 91 lakh tonnes in 1968-69. But cane production fluctuated from year to year in varying degrees in different States.

1.14 Sugarcane is utilized by the sugar industry as well as the gur and khandsari industries. On an all-India basis from 25 to 33 per cent of cane is crushed by the sugar factories and 60 to 65 per cent by gur and khandsari. The rest goes to seed, chewing and other purposes. The State-wise percentage utilization of sugarcane for different purposes is given in Table No. 1.10.

TABLE NO. 1.10

Percentage Utilisation of Sugarcane for Different purposes

State		1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Andhra Pradesh .	A	34	27	24	25	27	31	21	20	31	33
	B	54	61	65	63	61	57	67	68	57	55
Bihar . .	A	59	62	36	46	60	66	49	39	46	55
	B	29	26	53	42	27	22	39	50	42	32
Gujarat . .	A	28	28	34	28	18	27	29	30	50	55
	B	61	61	55	60	70	60	59	58	38	33
Haryana . .	A				(Included in Punjab)		14	10	13	11	14
	B				(Included in Punjab)		74	78	75	77	74
Karnataka . .	A	27	24	20	16	30	24	11	15	22	32
	B	62	64	68	72	58	63	77	73	66	56
Madhya Pradesh	A	28	23	25	17	23	21	8	5	12	24
	B	61	65	64	70	65	67	80	84	77	64
Maharashtra .	A	51	51	38	39	55	66	56	52	70	67
	B	37	38	50	49	33	22	32	36	18	21
Punjab . .	A	13	12	8	9	10	15	10	7	11	13
	B	75	76	80	79	78	73	78	81	78	75
Tamil Nadu .	A	24	22	19	28	36	41	29	24	31	36
	B	65	66	69	60	51	47	59	64	57	52
Uttar Pradesh .	A	27	25	20	24	24	26	19	22	26	30
	B	61	63	68	63	64	62	69	66	63	58
ALL INDIA .	A	30	28	22	25	28	30	23	24	30	34
	B	59	61	66	63	60	57	65	64	58	54

NOTE : A represents the percentage utilisation of cane for Sugar manufacture and B, for Gur and Khandsari.

SOURCE : Directorate of Sugar and Vanaspati, New Delhi.

The all-India percentage utilisation of cane by sugar factories for the manufacture of sugar increased from 30 per cent in 1960-61 to 34 in 1969-70. In the intervening period it varied from year to year, the lowest utilisation being 22 per cent in 1962-63. The rest was used in the manufacture of gur and khandsari and for chewing and seed purposes. In years of large production of sugarcane the rate of increase in supply of cane to factories is more than proportionate to the increase in acreage; in years of short production, the decrease is proportionately more. This applies to areas/States where there is gur and khandsari production.

Cane Marketing and Supplies

1.15 Most of the sugar factories depend for their requirements of cane on a large number of cane-growers. The number of farmers supplying cane varies considerably from factory to factory and region to region. In the southern States the number of cane-growers supplying cane to a factory ranges between 3,000 and 10,000 while in the North the range is from 10,000 to 40,000. In some cases the number of cane-growers supplying cane to a factory exceeds even this figure. Very few factories in the country have their own farms. Until a few years ago, the joint stock factories in Maharashtra had cane farms of their own, and their cane requirements were met from the farms in part or in full. The farms have since been taken over by the State Government and have been vested in the Maharashtra State Farming Corporation. The Corporation now supplies to the factories which owned the farms, the cane grown in their respective farms.

1.16 A noticeable feature of the sugar industry is that most of the factories obtain large quantities of cane from long distances. Only a few factories manage to get all the cane they require from their gate area, that is, an area roughly within a radius of 15 kilometers or so. In the North, arrangements for purchasing cane from distant areas are made by opening out-station purchasing centres where canegrowers deliver their cane and from where the factories transport it by rail or road to their gates. In the South except for a few factories, there are no out-station cane purchasing centres; all the cane is brought to the factory and weighed there. Delivery is taken or is deemed to be taken at the factory gate, even though the cane might be coming from 80—100 kilometers from the factory. For short distances cane is transported by canegrowers in their own or hired bullock carts and delivered at the factory gates or at their out-station purchasing centres. For transport of cane over long distances, the factories offer transport facilities to canegrowers by placing their own vehicles or hired vehicles at their disposal for transport of cane. The cost of transport is recovered from the canegrowers by adjustment in the cane prices or otherwise. In Maharashtra and Gujarat the cooperative factories have taken upon themselves the responsibility for the transport of cane from canegrowers' fields to the factories at the cost of the latter. The joint stock factories in Maharashtra have also fallen in line with the cooperative factories in this matter. Mention may also be made of the harvesting of sugarcane crop by sugar factories. This system has been introduced and enforced on a large scale and on organised basis by the cooperative factories in Maharashtra and Gujarat. Until recently the cooperative factories used to engage contract labour for harvesting cane of their members. But of late a few cooperative factories have given up the practice of engaging contract labour themselves and have advised canegrower members to engage their own harvesting labour. In either case the cost of harvesting is met by the factories. This practice of harvesting of cane by, and at the cost of, the factory does not exist anywhere else in the country.

1.17 The organisation of cane supply is generally in the hands of the factories themselves. They survey the cane areas of their canegrowers, enter into contracts with them, issue cutting orders and make other arrangements for regular supply of sugarcane by canegrowers. This practice exists in all the southern States. In the States of Uttar Pradesh, Bihar, Haryana and Punjab, however, canegrowers' societies or unions have been organised for the purpose, *inter alia*, of supplying cane to factories. In Uttar Pradesh, the entire supply of cane to factories is handled by the canegrowers' unions. In other States the cane unions handle only a part of the supplies of cane to the factories, the latter making their own arrangement for cane from areas and from canegrowers not covered by the unions.

Cane Price and its Payment

1.18 The minimum price of cane payable by a factory is fixed by the Central Government in accordance with formula. For fixing this price for an individual factory, the quality of cane is also taken into consideration. The quality is determined by the average sugar recovery percentage of that factory for a given period—referred to as the optimum period of the preceding season. In years of short production of cane when there is a great competition with the gur and khandsari manufacturers for cane, many factories offer higher prices than the minimum notified prices. As this competition is keener in the North, the factories there ordinarily pay higher cane prices than those in the South. The cooperative factories in Maharashtra and Gujarat, however, pass on to their members a large part of their surplus income, in the form of additional cane price. In this way members of cooperative factories in these States get higher prices than the minimum in most of the years irrespective of whether there is short production of cane or not.

1.19 Cane price becomes due for payment immediately on delivery. The Central Sugarcane Act and the relevant State Acts provide a grace period of 14 days to facories for payment of the cane price. In practice a very small percentage of cane price is paid immediately on delivery. The bulk of it is paid within a fortnight but a substantial part is paid within 4 to 8 weeks. There have, however, been some cases in which large amounts of cane price remained unpaid for long periods. The year 1969-70 was particularly a bad year from this point of view. Large arrears of cane price accumulated with the factories due to an abnormally long season. The factories were not altogether to blame, for there were special difficulties in the way of their clearing the cane price due to inadequate availability of bank credit. All the same the canegrowers were put to great hardship.

1.20 In view of the recurring feature of accumulation of large arrears of cane price in the past years, the Central and State Governments and the Reserve Bank of India took steps to ensure that such accumulations did not occur again. The Reserve Bank of India issued instructions to the banks not to pay to the factories the whole amount payable to them against the pledged stocks of sugar but to withold a part of it for payment of cane price. The banks were asked to maintain two accounts—one of them relating to the canegrowers' cane price. This amount now becomes available for distribution to canegrowers. The U.P. Government have legislated on the same lines.

1.21 In most parts of the country, payment is made by the factories directly to canegrowers, but where canegrowers' societies or unions exist and supply cane, payment to the members of the societies/unions is made through the society/union.

The factory pays in lump sum to the society or union and the latter distributes the amounts to its members. Sometimes the factory pays to the members of a society or union directly on behalf of or as an agent of the society or union and charges a commission for rendering this service. Generally payment is made to canegrowers in cash. In areas where canegrowers have bank accounts, payment is made to them by depositing their dues into their accounts.

Cess/Purchase tax on Cane and Excise duty on Sugar

1.22. The Governments of most of the sugar producing States levy a cane cess or purchase tax or both on the cane purchased by sugar factories. The rates of the cane cess and purchase tax differ from State to State. In some of the States the cane cess (later converted to cane purchase tax) has been in existence since 1930's; in other States it has been imposed in later years. The collection from the cane cess and purchase tax has been substantial over the years, but in many States only a part of it has been spent on cane development in the areas of sugar factories. The Central Government levies excise duty on sugar.

1.23. Table No. 1.11 shows the total amounts of cane cess/purchase tax and excise for the years 1960-61 to 1969-70.

TABLE NO. 1.11

Yearwise Collection of Cane Cess/Purchase Tax and Excise Duty

(Rs. Crores)

Year	Cane cess/ Purchase tax	Excise duty
(1)	(2)	(3)
1960-61	15	54.8
1961-62	13	58.4
1962-63	10	75.0
1963-64	13	66.2
1964-65	17	65.2
1965-66	19	75.0
1966-67	11	109.9
1967-68	13	73.7
1968-69	22	62.9
1969-70	25	100.3

Sugar Production

1.24. The requirement of sugar is steadily increasing each year, on account of the increase in population, the improvement in the standard of living and the changes in the dietetic habits of the people. The need has, therefore, been felt for gradually increasing the sugar production commensurate with the requirements. The Planning Commission had made estimates of sugar requirements for the different Five Year Plans and fixed the tragets for sugar production. The targets and total installed capacity in the sugar industry at the end of each of the First, Second, Third and Fourth Five Year Plans are given in Table No. 1.12.

TABLE NO. 1.12

Targets and Actual Production of Sugar in different Plan Periods

(Lakh tonnes)

Year	Target Capacity	Licensed Capacity	Actual installed capacity	Shortfall in the annual sugar production apacity	Sugar production
(1)	(2)	(3)	(4)	(5)	(6)
1956 (end of First Plan) . .	20.30	—	—	—	18.90
1961 (end of Second Plan) .	25.40	28.84	22.03	3.37	30.21
1966 (end of Third Plan) .	35.60	43.38	29.31	6.29	35.41
1974 (end of Fourth Plan) .	47.00	53.17*	43.00 (estimated)	4.00	—
1979 (end if Fifth Plan) . .	60.00 (estimated)	—	—	—	—

*In 1971-72

In the First, Second and Third Plan periods, the target of installed capacity could not be reached. In the Fourth Plan also the target is not likely to be achieved. Upto the end of the season 1971-72 the installed capacity was only 39 lakh tonnes. It is expected that by the end of the Fourth Plan, the installed capacity would have increased to 43-44 lakh tonnes only. This means that during the Fifth Plan period a capacity of 16-17 lakh tonnes will have to be added which is equivalent to the capacity of about 100 units of 1250 tonnes each.

1.25. The year-wise production of sugar in different States from 1960-61 to 1970-71 is given in Table No. 1.13

TABLE No. 1.13

Statewise Production of Sugar

(Ist October to 30th September)

('000 tonnes')

State	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	183	188	172	238	306	299	145	188	339	335	267
Assam	7	5	4	4	6	9	6	4	5	10	7
Bihar	385	359	170	238	392	371	211	147	259	333	293
Gujarat	28	34	37	42	43	55	42	47	77	99	84
Haryana	79	61	45	48	67	85	48	54	60	97	83
Karnataka	121	128	127	120	182	153	82	123	206	238	205
Kerala	10	10	12	8	23	28	10	7	16	21	16
Madhya Pradesh	35	31	34	21	37	36	8	3	15	37	38
Maharashtra	523	508	531	547	638	780	638	620	979	1,044	1,055
Orissa	3	4	3	6	8	11	9	5	15	17	7
Pondicherry	19	10	10	15	16	10	12	9	21	15	18
Punjab	43	29	18	21	32	74	35	27	38	69	48
Rajasthan	18	16	14	7	9	18	8	6	12	20	13
Tamil Nadu	124	126	101	143	211	229	178	188	335	289	299
Uttar Pradesh	1,427	1,204	850	1,105	1,205	1,370	711	813	1,175	1,624	1,299
West Bengal	16	16	11	10	12	13	8	7	7	14	8
ALL INDIA	3021	2729	2139	2573	3232	3541	2151	2248	3559	4262	3740

SOURCE : Directorate of Sugar and Vanaspati, New Delhi.

Although the installed capacity had been below the target in each of the first three Five Year Plan periods, the sugar production had, however, reached the targets. In 1955-56 nearly 19 lakh tonnes of sugar was produced (target 20.30 lakh tonnes). In 1960-61 the production was 30.2 lakh tonnes as against the target of 25.40 lakh tonnes and in 1965-66 it was 35.4 lakh tonnes, the target being 35.60 lakh tonnes. The industry achieved the target of production despite its low installed capacity because of longer duration in certain years.

Sugarcane Crushed by Sugar Factories

1.26 As mentioned above, the duration of a season and the production of sugar depend on the availability of sugarcane. The position of sugarcane crushed during the period 1960-61 to 1970-71 is given in Table No. 1.14.

TABLE No. 1.14

Statewise Cane Crushed

(1st October to 30th September)

('000 tonnes)

State	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	1,933	1,895	1,666	2,444	3,298	3,189	1,660	2,025	3,705	3,695	2,616
Assam	83	63	44	48	67	99	70	43	55	121	92
Bihar	4,179	3,934	1,751	2,375	4,147	3,980	2,172	1,555	2,709	3,638	3,248
Gujarat	259	311	353	383	426	535	401	446	828	1,027	821
Haryana	881	745	494	542	774	987	532	623	751	1,109	952
Karnataka	1,189	1,213	1,134	1,109	1,785	1,492	743	1,110	2,041	2,459	1,936
Kerala	120	115	147	98	268	319	135	82	200	241	183
Madhya Pradesh	380	329	356	226	414	392	82	44	164	407	407
Maharashtra	4,495	4,241	4,354	4,528	5,451	6,871	5,551	5,418	8,865	9,700	9,349
Orissa	31	49	40	70	100	133	102	60	154	196	91
Pondicherry	261	117	112	199	208	123	158	109	274	183	202
Punjab	491	356	202	253	383	872	419	326	546	794	561
Rajasthan	197	167	145	80	104	205	103	64	146	234	145
Tamil Nadu	1,380	1,339	1,072	1,631	2,364	2,708	2,008	2,126	4,222	3,671	3,325
Uttar Pradesh	14,976	12,914	8,815	11,626	13,537	14,480	7,417	8,536	12,961	18,078	14,178
West Bengal	166	158	114	104	128	127	84	71	78	148	88
ALL INDIA	31,021	27,946	20,799	25,716	33,454	36,512	21,637	22,638	37,699	45,701	38,194

SOURCE : Directorate of Sugar and Vanaspati, New Delhi.

The total cane crushed by sugar factories in 1960-61 was 310 lakh tonnes and increased to nearly 457 lakh tonnes by 1969-70. In the intervening period 1960-61 to 1969-70, there were fluctuations. In Uttar Pradesh 145 lakh tonnes of cane was crushed in 1965-66 and 74 lakh tonnes only in 1966-67. In Bihar the quantity of cane crushed in 1965-66—*viz.* 40 lakh tonnes came down to 22 lakh tonnes in 1966-67. In Karnataka and Andhra Pradesh there was a fall of nearly the same order. In order major sugar producing States also, there was a fall although not to the same extent. In Maharashtra and Gujarat the fluctuations in cane crushed have been less.

Duration of Crushing Season

1.27 The average duration of crushing season of factories in the different regions was affected by the availability of cane. The Statewise average duration for different seasons during the period 1960-61 to 1970-71 is given in Table No. 1.15.

TABLE NO. 1.15

Statewise Average Duration of Factories*

(1st October to 30th September)

State	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	147	125	93	140	159	142	79	83	152	152	98
Assam	104	83	50	64	82	116	85	56	67	138	111
Bihar	156	148	68	88	147	143	75	61	104	132	116
Gujarat	142	161	154	152	164	195	132	138	187	172	138
Haryana	160	138	90	106	148	173	92	108	124	187	162
Karnataka	180	165	143	142	211	168	96	111	182	179	138
Kerala	156	148	190	121	109	117	82	36	84	96	75
Madhya Pradesh	114	98	110	86	120	111	31	23	56	113	115
Maharashtra	166	157	157	136	155	186	149	144	200	194	167
Orissa	91	143	113	76	96	114	97	65	119	147	91
Pondicherry	284	131	128	218	226	135	161	112	247	138	135
Punjab	170	129	75	61	89	193	90	72	99	146	106
Rajasthan	132	106	91	52	73	131	66	50	91	143	66
Tamil Nadu	201	188	143	184	203	196	145	134	243	215	182
Uttar Pradesh	175	151	98	123	151	154	81	92	138	188	146
West Bengal	103	95	56	92	115	107	73	70	70	132	83
ALL INDIA	166	148	106	122	153	159	96	97	152	174	139

*Based on 22 hours per day.

SOURCE : Directorate of Sugar and Vanaspati, New Delhi.

The all-India average duration ranged from 96 days in 1966-67 to 174 days in 1969-70, the longest duration (243 days) being in Tamil Nadu. In the last 5 year period the shortest season was in Madhya Pradesh —23 days in 1967-68. Amongst the main sugar producing States, minimum variations in the duration of the season have been in Maharashtra and Gujarat, varying between 132 days in 1963-64 and 200 days in 1968-69. In other States like U.P., Andhra Pradesh, Madhya Pradesh and Karnataka there were wide variations.

Sugarcane Quality

1.28 The three important factors which determine the quality of sugarcane are sugar per cent cane, purity of the primary juice and fibre per cent cane. The relevant data have been averaged for each factory for

the first five years (1960-61 to 1964-65), for the next 5 years (1965-66 to 1969-70) and also for the 10 year period. From these data the Statewise averages have been calculated and are given in Table No. 1.16.

TABLE No. 1.16

Statewise Average Figures of Sugar per cent Cane

Primary Juice Purity and Fibre per cent Cane

State	Average sugar per cent cane for			Average of primary juice purity for			Average of fibre per cent cane for		
	Ist 5 years (1960-65)	last 5 yrs. (1965-70)	10 yrs. (1960-70)	Ist 5 years (1965-65)	last 5 yrs. (1965-70)	10 years (1960-70)	Ist 5 years (1960-65)	last 5 yrs. (1965-70)	10 yrs. (1960-70)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh	11.89	11.33	11.59	82.41	81.41	81.84	13.79	14.14	13.91
Assam	11.40	11.29	11.34	81.12	81.22	81.17	14.75	13.67	14.21
Bihar	12.23	12.25	12.23	83.38	82.83	83.09	16.64	16.28	16.46
Gujarat	12.86	12.45	12.52	83.40	81.37	81.56	13.42	13.97	13.86
Haryana	11.15	10.89	11.02	79.21	78.51	78.03	15.24	15.55	15.40
Karnataka	13.25	12.86	12.98	84.60	83.29	83.59	13.21	13.08	13.01
Kerala	10.98	10.57	10.68	80.64	79.53	79.78	13.79	14.39	14.24
Madhya Pradesh	12.07	12.13	12.23	81.38	80.89	80.91	15.35	14.82	14.97
Maharashtra	14.05	13.39	13.62	86.50	85.18	85.51	12.34	13.29	12.91
Orissa	11.21	11.15	11.30	77.63	79.76	79.23	15.11	15.00	14.75
Pondicherry	10.74	10.51	10.63	81.33	81.23	81.28	14.29	15.67	14.98
Punjab	10.78	10.54	10.61	78.82	76.95	77.56	15.77	15.33	15.40
Rajasthan	11.72	11.65	11.68	78.83	78.27	78.55	14.17	14.87	14.52
Tamil Nadu	11.53	10.95	11.12	81.02	79.06	79.67	13.81	14.03	13.92
U.P. West	11.37	11.68	11.52	81.74	80.49	81.14	14.98	14.41	14.70
Central	12.17	12.10	12.13	82.81	81.50	82.06	16.19	16.19	16.19
East	12.37	12.40	12.38	84.45	83.17	83.77	16.30	16.30	16.30
West Bengal	11.92	11.81	11.86	82.65	82.43	82.54	15.92	15.86	15.89

The data in the above table show that Maharashtra produces the sweetest cane in the country. The sugar per cent cane in Maharashtra is the highest and varies from 13.39 to 14.05. Closely following Maharashtra in this respect is Karnataka where the average sugar per cent cane is in the range of 12.36 to 13.25. The sugar per cent cane is also fairly good in Central and East U.P., Bihar and Gujarat where it is between 12 and 12.5. In most of the other States, the sugar per cent is in the range of 11 to 12 excepting in three States *viz.*, Punjab, Kerala and Pondicherry where it is below 11 per cent. It is seen from the data in Table No. 1.16 that the quality of cane deteriorated in most of the States, excepting in Uttar Pradesh, Bihar and Madhya Pradesh during the period 1965-66 to 1969-70, when compared with the previous 5 year period. The average sugar per cent cane in Maharashtra in the first 5 year period was 14.05 which decreased to 13.39 in the second 5 year period. Similarly in Karnataka it decreased from 13.25 to 12.86. In Uttar Pradesh, Bihar and Madhya Pradesh the sugar per cent cane either remained constant or improved slightly. In West U.P., the average sugar per cent cane was 11.37 in the first 5 year period which increased to 11.68 in the second 5 year period. In Bihar (and Madhya Pradesh) the corresponding figures were 12.23 and 12.25 (and 12.07 and 12.13) respectively.

1.29 The data in the above table further show that the primary juice purities have been the highest in Maharashtra. They are generally about 85 per cent. In East U.P., Bihar and Karnataka juice purities are good, and range from 83 to 85 per cent. The purities in Andhra Pradesh, Central and West U.P. and Madhya Pradesh are in the range of 81 to 82 per cent. The juice purities in Punjab, Haryana and Orissa are low.

1.30 The fibre per cent cane varies widely from State to State. In Maharashtra and Karnataka, the fibre per cent cane is 12 to 13; in West U.P. and other States, it is 13 to 15, excepting in Bihar, East and Central U.P. where it is very high being over 16 per cent.

Sugar Recovery

1.31. The Statewise average sugar recovery per cent cane during the period 1960-61 to 1970-71 is given in Table No. 1.17.

TABLE No. 1.17

Statewise Average Recovery of Sugar per cent Cane

(1st October to 30th September)

State	1960-61	1961-62	1962-63	1963-64	1964-65	1965 66	1966 - 67	1967-68	1968-69	1969-70	1970-71	1971-*72
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Andhra Pradesh	9.46	9.90	10.32	9.75	9.26	9.36	8.76	9.30	9.14	9.07	10.22	10.26
Assam	7.89	8.60	9.69	9.17	9.07	9.10	9.30	9.38	9.06	8.58	8.16	9.04
Bihar	9.22	9.12	9.71	10.02	9.44	9.32	9.72	9.45	9.58	9.14	9.01	8.86
Gujarat	10.75	10.91	10.45	10.89	10.16	10.26	10.40	10.48	9.25	9.61	10.32	10.30
Haryana	9.01	8.21	9.03	8.81	8.59	8.61	9.02	8.62	8.02	8.76	8.69	9.33
Karnataka	10.14	10.52	11.17	10.83	10.17	10.24	11.04	11.06	10.11	9.68	10.59	10.79
Kerala	8.76	8.76	8.47	8.44	8.63	8.68	7.60	8.53	7.92	8.82	8.68	8.85
Madhya Pradesh	9.25	9.41	9.62	9.46	9.00	9.15	9.18	8.12	8.91	9.17	9.29	9.55
Maharashtra	11.64	11.98	12.20	12.07	11.70	11.36	11.49	11.45	11.04	10.76	11.28	11.09
Orissa	9.12	8.69	8.81	8.26	8.39	8.61	8.44	8.90	9.67	8.79	8.32	9.13
Pondicherry	7.23	8.95	8.66	7.75	7.81	8.00	7.55	8.35	7.76	7.93	8.80	8.59
Punjab	8.78	8.27	8.84	8.39	8.30	8.54	8.32	8.17	7.02	8.72	8.58	8.75
Rajasthan	9.19	9.30	9.46	8.30	8.94	8.90	8.09	9.02	8.61	8.52	9.23	9.14
Tamil Nadu	9.01	9.37	9.43	8.75	8.91	8.47	8.89	8.83	7.93	7.87	8.99	9.18
Uttar Pradesh	9.53	9.32	9.64	9.51	9.24	9.46	9.58	9.52	9.06	8.98	9.16	9.43
West Bengal	9.66	10.18	9.44	9.54	9.39	9.98	9.71	9.52	9.64	9.47	8.73	7.62
ALL INDIA	9.74	9.76	10.28	10.01	9.66	9.70	9.94	9.92	9.44	9.33	9.79	10.04

*Provisional

SOURCE : (i) Directorate of Sugar and Vanaspati, New Delhi.
(ii) Cooperative Sugar, January, 1973, Vol. 4, No. 5.

The highest all-India average sugar recovery of 10.28 per cent was obtained in the year 1962-63 and the lowest of 9.33 per cent in 1969-70. In the remaining period only twice—that is in 1963-64 and 1971-72—the recovery was 10 per cent and above. In the rest of the years it was below 10 per cent.

1.32 Among all the States, Maharashtra recorded the highest recovery of 12.20 in 1962-63. However, average recovery in Maharashtra has been falling since. It reached the lowest figure of 10.76 per cent in 1969-70. In Karnataka, the highest average recovery of 11.17 per cent was recorded in 1962-63. Thereafter the average recovery has been well below 11 per cent except in 1966-67 and 1967-68 when it was 11.04 and 11.06 per cent respectively. In Gujarat, sugar recovery was more than 10.5 per cent during the years 1960-61 to 1963-64. In subsequent years, it fell below 10.5 per cent. In Andhra Pradesh, the recovery was in the range of 9.5 per cent to 10.3 per cent in the first 4 years (1960-61 to 1963-64). Later, it declined and has since then been 9.5 per cent, except in 1970-71 and 1971-72 when the recovery suddenly increased to 10.22 and 10.26 per cent respectively. In U.P. the recovery was in the range of 9.0 to 9.6 per cent during the period 1960-61 to 1970-71. In Tamil Nadu, the recovery was in the range 9.0 to 9.4 per cent upto 1962-63. Later, it has been below 9 per cent except in 1971-72 when it has been 9.18 per cent. In Punjab, Kerala and Pondicherry the average recoveries have been below 9.0 per cent throughout. It will be seen from the above that there has been a noticeable fall in recoveries in the States of Maharashtra, Karnataka, Andhra Pradesh and Gujarat.

Utilisation of By-products

1.33. The main by-products of the sugar industry are—(i) bagasse, (ii) pressmud and (iii) molasses. Bagasse is mostly utilised by sugar factories as fuel for generating steam. Small quantities are also utilised for paper and card board. The pressmud from sulphitation factories is almost entirely used as manure. A small quantity is utilised for extraction of cane wax. The same from carbonation factories finds very little use. In a few places it is used for preparation of building lime.

The molasses is used mainly for production of alcohol by distilleries. Some amount of molasses is also exported.

Controls in Sugar Industry

1.34 The sugar industry is a highly controlled industry. The price of sugarcane is fixed by the Government. In several States, there are rules and regulations controlling and regulating the supply of sugarcane to factories. Factories have to sell their sugar in a manner and to persons as the Central Government directs them from time to time. The quantity of sugar which a factory can sell in a week or in a given period is also regulated by the Central Government. In some years the control on sale, prices, releases and movement of sugar is complete. In some years, Government allows the factories to sell a prescribed part of their production as free quota at the best price they can obtain and in any part of the country. But even for such free quota, releases and the quantum of sales are regulated by the Central Government. The price of sugar is fixed by the Central Government in accordance with prescribed schedules recommended by the Tariff Commission with such modifications as may be found necessary. The price and disposal of molasses are also Government controlled. It will be seen from the above that the sugar industry is controlled at all important points of its business and activity.

Sugar Exports

1.35 The exports of sugar commenced from 1957 and in that year nearly 1.5 lakh tonnes was exported. Since then, almost every year exports have continued. The quantity of sugar exported from 1960-61 to 1971-72 generally varied between about 1 lakh to 4.8 lakh tonnes a year. The exports have been placed on a firm footing by entering the Commonwealth and International Agreements. An export quota has also been obtained under the U.S. Sugar Act. The exports are generally effected to U.K., U.S.A., Canada and to some other countries. A notable achievement of the industry has been the manufacture of raw sugar meeting the requirements of specifications of importing countries. As the international sugar price is generally lower than the internal cost of production, exports entail loss. These losses are mainly met by the Government and a part by the industry.

CHAPTER II

FINANCIAL ASPECTS AND PERFORMANCE

2.1 The sugar industry has grown rapidly during the decade 1960—1970. The licensing policy of the Government has been to encourage the growth of cooperative sector. Only a few licences have been issued to the private sector. Due to the weakness of the cooperative movement in the sub-tropical region, cooperative factories could not come up in the North in any appreciable numbers, while there has been a rapid growth of this sector in the South. The rate of growth and the financial position have been uneven in different regions and in different sectors. An attempt has been made to present a picture of the financial position of the industry analysing the data both by sectors and by regions. As pointed out earlier in Chapter I, the industry has been very closely controlled. A floor price has been fixed for sugarcane (which has varied from time to time) and the sale of sugar and its distribution have been controlled, though there have been intermittent periods of decontrol and in particular of partial control in recent years. The bases for the pricing policy are the zonal averages; the zones have varied in number from a maximum of 23 to a minimum of 4 at different periods. When the zones were very large and included areas with widely varying conditions of climate, soil, etc., the number of mills making profits and losses would be much greater than when zones were more compact. Most of the mills in the North are old which accentuates the inefficiency of that area. The cooperative factories in the South, with new plants involving high capital cost and high interest charges, also could not show much profits, so the profitability of the industry has been, by and large, low. Apart from the mere profit and loss, we have also to consider whether or not a sugar mill has fulfilled its socio-economic obligations which are very important in a rural agro-based industry where the mills could form centres of rural growth and development.

2.2 The Commission has been asked to study the working of the sugar industry for the last 10 years. When it was appointed—28tb September, 1970—the financial year (1970-71) had not ended while the sugar season 1970-71 had not commenced. The factories were, therefore, asked to submit their balance sheets, profit and loss accounts and other financial data for the ten years, 1960-61 to 1969-70. Of the 215 factories working in 1969-70, 212 furnished their accounts. Some 60 units submitted combined accounts relating not only to sugar but also other activities. For such units the financial position has been worked out for sugar production alone on the basis of additional information called for and obtained from them. Out of 215 factories, financial data have been compiled for 207 (excluding 3 which have not furnished separate data relating to sugar and 5 others which had trial runs only in 1969-70).

2.3 Some statements were made before us verbally alleging that the balance sheets and profit and loss accounts of the sugar factories did not represent correctly the financial position of the factories individually or the industry as a whole. Insinuations were made to the effect that they had concealed profits. However, no material was submitted to the Commission in support of any such allegation.

2.4 The financial position of the sugar industry as a whole and per factory, as at the end of 1969-70, is given in Tables 2.1 and 2.2.

TABLE No. 2.1

General Financial Position of the Suguar Industry
(1969-70)

(Rs./Crores)

Item	Private Sector		Cooperative sector	Public sector	Total
	Public Ltd.	Private Ltd./Partnership/ Proprietary			
1	2	3	4	5	6
(A) *Employed Capital*					
(i) Fixed Assets (at cost)	143.92	27.85	127.37	7.15	306.29
(ii) LESS Depreciation	77.96	16.70	49.09	4.16	147.91
(iii) Net Fixed Assets (WDV)	65.96	11.15	78.28	2.99	158.38
(iv) Working Capital	144.77	38.43	110.25	6.08	299.53
(v) Employed Capital (iii+iv)	210.73	49.58	188.53	9.07	457.91

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1	2	3	4	5	6
Financed by :					
(a) Paid up Capital	44.04	8.77	40.87	1.74	95.42
(b) Reserves	26.79	3.33	14.24	3.14	47.50
(c) Net Worth (a+b)	70.83	12.10	55.11	4.88	142.92
(d) Loans	139.90	37.48	133.42	4.19	314.99
TOTAL	210.73	49.58	188.53	9.07	457.91
(B) Aggregate Profit/Loss during 10 years period (before Development Rebate & Taxation)	89.46	7.26	4.46	3.67	104.85
(C) Aggregate Average Profit/Loss per factory per annum (Rs./lakhs).	9.08	2.09	0.91	9.41	5.63
(D) Factories for which data compiled for 1969-70 (Nos).	102	36	65	4	207
(E) Factories with aggregate losses only (Nos.)	20	14	31	2	67
(Per cent on total factories)	(19.6)	(38.9)	(47.7)	(50)	(32.4)
(F) Total factory-years in 10 years period (Years)	985	347	491	39	1862
(G) Average number of years worked per factory in the 10 years (Years)	9.66	9.64	7.55	9.75	9.00

NOTE : Item (C)—Item (B) divided by item (F)

TABLE No. 2.2

Financial Position of the Sugar Industry Per Factory (1969–70)

Item	Private Sector		Cooperative Sector	Public Sector	Total
	Public Ltd.	Private Ltd./Partnership/proprietory for			
1	2	3	4	5	6
(A) *Employed Capital*					
(*i*) Fixed assets (at cost)	141.10	77.36	195.95	178.75	147.97
(*ii*) *LESS* Depreciation	76.43	46.39	75.52	104.00	71.45
(*iii*) Net Fixed assets	64.67	30.97	120.43	74.75	76.52
(*iv*) Working Capital	141.92	106.75	169.62	152.00	144.69
Employed Capital (iii+v)	206.59	137.72	290.05	226.75	221.21
Financed by :					
(*a*) Paid up Capital	43.17	24.36	62.88	43.50	46.10
(*b*) Reserves	26.27	9.25	21.91	78.25	22.95
(*c*) Net Worth	69.44	33.61	84.79	121.75	69.05
(*d*) Loans	137.15	104.11	205.26	105.00	152.16
TOTAL	206.59	137.72	290.05	226.75	221.21
(B) Aggregate Profit/Loss per factory per annum (before Development rebate & Taxation)	9.08	2.09	0.91	9.41	5.63
(C) Aggregate Profit/Less (B) has related to Capital Employed (A)	4.4 Per cent	1.5 Per cent	0.3 Per cent	4.1 Per cent	2.5 Per cent
(D) Factories with "Aggregate Loss" only as related to total factories	19.6 Per cent	32.9 Per cent	47.7 Per cent	50.0 Per cent	32.4 Per cent
(E) Average Regd./Licensed Capacity per factory (Tonnes)	1427	1250	1237	1974	1347

The value of the fixed assets of the industry at the end of 1969-70 was about Rs. 306 crores at cost and Rs. 158 crores at written down value. The net fixed assets per factory worked out to Rs. 76.5 lakhs. The industry had buit up Reserves of Rs. 47.5 crores, the average per factory being Rs. 23 lakhs.

2.5 Capital formation in private sector occurs through issue of shares to the public, retention and utilisation of profits, etc, Cooperatives also raise their share capital in this way. But an additional feature of the cooperative sector is the compulsory deductions made from cane price payable to their grower members. The amounts collected through deductions are utilised for assets of the units. Such non-refundable deposits totalled Rs. 32 crores upto 1970-71.

2.6 The financial aspects of the working of the sugar industry have been discussed under the following heads :—

(i) Profit/loss in the industry during the 10 year period (1960-61 to 1969-70);

(ii) Appropriation of profits—plough-back into reserves, taxes and dividends;

(iii) Profit/loss as related to the capital employed;

(iv) Profit/loss as related to the net worth;

(v) Depreciation and its utilisation;

(vi) Dividends; and

(vii) Loans and investments.

Profit/Loss over the 10 Year Period

2.7 The yearly as well as aggregate profit/loss of various sugar factories during the years 1960-61 to 1969-70 is shown in Statement 2.1. The aggregate profit for the period totalled Rs. 104.85 crores covering 207 factories. Analysed sectorwise, the results are given in Table 2.3 :

TABLE 2.3

Aggregate Profit made by the Sugar Industry (1960-61 *to* 1969-70)

Sector	Total No. of factories reported	Factory working years	Total aggregate profit (Rs./Crores)	Aggregate profit per factory per annum (Rs. Lakhs)
1	2	3	4	5
(i) *Private*				
(a) Public Limited	102	985	89.46	9.08
(b) Private Ltd. / Partnership/Proprietary	36	347	7.26	2.09
TOTAL	138	1332	96.72	7.26
(ii) Cooperative	65	491	4.46	0.91
(iii) Public	4	39	3.67	9.41
Weighted TOTAL/AVERAGE	207	1862	104.85	5.63

It will be seen that the private limited, partnership and proprietary group, even with comparatively low capital cost have given a very poor performance. The cooperative sector has not been able to earn adequate profits as most of these factories were established after 1960 with high capital cost involving a large depreciation and heavy interest charges, not offset by savings in wages or increased efficiency. The public sector is represented by a very few factories and it has not materially affected the overall picture of the sugar industry. By itself, however, it seems to have done well.

2.8. The following table shows the number of factories which earned profits or incurred losses in different sectors :

TABLE No. 2.4

Sectorwise Number of Factories which earned Profit and incurred Losses (1960-61 *to* 1969-70)

Sector	Factories which Earned Profit		Incurred Loss	
	Nos.	Amount (Rs./Crores)	Nos.	Amount (Rs./Crores)
1	2	3	4	5
(i) *Private*				
(a) Public Limited	82	95.74	20	6.28
(b) Private Ltd/ Partnership/Proprietary	22	11.49	14	4.22
TOTAL	104	107.23	34	10.50
(ii) Cooperative	34	15.87	31	11.41
(iii) Public	2	4.41	2	0.75
TOTAL	140	127.51	67	22.66

The units which incurred losses formed about 25 per cent of the total factories in the private sector, 48 per cent in the cooperative and 50 per cent in the public sector. The private limited/partnership/proprietary group depressed the average of the private sector; public limited companies seem to have had the best results. The percentage of cooperative factories which incurred losses was high. The average sectorwise profit/loss per factory for the 10 year period works out as follows :

TABLE No. 2.5

Average Profit/Loss per Factory (1960-61 *to* 1969-70)

Sector	Profit (Rs. / Lakhs)	Loss (Rs./ Lakhs)
1	2	3
(i) *Private*		
(a) Public Limited	116.8	31.4
(b) Private Limited/Partnership/Proprietary	52.2	30.2
Weighted average	103.1	30.9
(ii) Cooperative	46.7	36.8
(iii) Public	220.7	37.3
All India weighted average (i) to (iii)	91.1	33.8

One public sector factory with large capacity, which earned a substantial profit of Rs. 392 lakhs, accounted for the high average of the public sector. The private sector had shown the next best results. In the matter of average losses, this sector appears to be much better than others. The private limited/partnership/proprietory group and the cooperative factories had lower profits.

2.9 For the purposes of fixation of levy prices of sugar, the country has been divided into a number of zones and sale prices for each zone have been determined from time to time according to the prescribed schedules and procedures. The zonal levy prices are based on the weighted averages of duration and recovery of all the units in each zone. The zonal averages adversely affected the factories with higher costs of production and favoured those with lower costs. The number of zones (and the number of factories included in each zone) has been varying from 4 to 23 during the period, so the same factory has been grouped with varying number of different factories in changing zones. This may be one of the factors leading to different factories making profits or incurring losses in different years. The position of factories which suffered losses during the 10 year period is given in Statement 2.2.

2.10 It is seen that in each year, 20 per cent or more number of factories incurred losses, the highest percentage (49) being in 1966-67. In 1969-70 also, 47 per cent of the factories incurred losses.

Appropriation of Profits

2.11 Organisations which earn profits are liable to corporate taxation. Some relief in taxation was granted in the form of development rebate and 'tax-holiday' for a period of 5 years in the case of new factories. The gross profits are utilised for (i) taxation, (ii) dividends, and (iii) reserves.

2.12 The industry built up a reserve fund of Rs. 47.5 crores upto the end of 1969-70. Of this, a reserve of Rs. 28.8 crores was created during the 10 year period. The reserve fund is utilised as working capital and also to some extent for additions to fixed assets. The following table gives the plough-back into the industry during the 10 year period.

TABLE No. 2.6

Sectorwise Distribution of Profits (Overall Activities) (1960-61 *to* 1969-70)

Sector	Reserves (per cent)	Taxation Provision (per cent)	Dividends (per cent)
1	2	3	4
(i) *Private*			
(a) Public limited	26.0(12.6)	45.7	28.3
(b) Private Ltd./ Partnership/Proprietory	12.4(11.6)	60.5	21.1
Weighted average	25.2(12.5)	46.5	28.3
(ii) Co-operative	78.7(56.8)	15.5	5.8
(iii) Public	29.5(8.2)	41.5	29.0
All India weighted average	29.8(16.0)	43.7	26.5

NOTE : Development rebate figures are shown in brackets.

The data on taxation, dividends and reserves cov the entire overall activities of each unit. It has n been possible to get separate figures for sugar alon The figures for sugar alone in the case of units havir other activities have been worked out by utilising th above percentages under the various heads. Th results for sugar activity for all the 207 factories an also per factory are given in the following table :

TABLE No. 2.7

Distribution of Gross Profits

(Rs./Crores)

Sector	Aggregate Profit (10 Years)	Distribution of Profits		
		Taxation	Dividends	Reserves
1	2	3	4	5
207 Factories				
(i) *Private*				
(a) Public Limited	89.46	40.88	25.31	23.27 (11.27)
(b) Private Ltd./ Partnership/Proprietory	7.26	4.39	1.97	0.90 (0.84)
TOTAL	96.72	45.27	27.28	24.17 (12.11)
(ii) Co-operative	4.46	0.69	0.26	3.51 (2.53)
(iii) Public	3.67	1.52	1.07	1.08 (0.30)
ALL INDIA TOTAL	104.85	47.48	28.61	28.76 (14.94)

(Rs./Lakhs)

Per Factory					
(i) *Private*					
(a) Public Limited	9.08	4.15	2.57	2.36	(1.14)
(b) Private Ltd./ Partnership/Proprietory	2.09	1.26	0.57	0.26	(0.24)
TOTAL (AVERAGE)	7.26	3.40	2.05	1.81	(0.91)
(ii) Co-operative	0.91	0.41	0.05	0.72	(0.52)
(iii) Public	9.41	3.91	2.73	2.77	(0.77)
All India weighted average	5.63	2.47	1.48	1.68	(0.90)

NOTE : Development rebate figures are shown in brackets.

The plough-back *i.e.*, reserves; ranged from Rs. 0.26 lakhs to Rs. 2·77 lakhs or an average of Rs. 1·68 lakhs per factory per annum for the industry. This plough-back is hardly adequate for proper rehabilitation or modernisation on a reasonable scale. The plough-back in the private limited/partnership/proprietory mills is very low primarily because of their low profits. Modernisation or rehabilitation in these factories, therefore, mainly depended upon the personal resources of the managements.

Profit/Loss as related to the Capital Employed

2.13. The employed capital comprises two elements *viz.*, fixed block and working capital. The data in respect of 207 factories on the employed capital as well as its split-up is given in the following table :

TABLE No. 2.8

Employed Capital for the year 1969–70

(Rs./Crores)

Sector	Fixed Assets (W.D.V.)	Working Capital	Employed Capital	Split up of Employed Capital		
				Paid-up Capital	Reserves	Loans
1	2	3	4	5	6	7
			For 207 Factories			
(*i*) *Private*						
(*a*) Public Ltd.	65.96	144.77	210.73	44.04	26.79	139.90
(*b*) Private Ltd./Partnership/Proprietory .	11.15	38.43	49.58	8.77	3.33	37.48
TOTAL	77.11	183.20	260.31	52.81	30.12	177.38
(*ii*) Co-operative	78.28	110.25	188.53	40.87	14.24	133.42
(*iii*) Public	2.99	6.08	9.07	1.74	3.14	4.19
TOTAL	158.38	299.53	457.91	95.42	47.50	314.99

(Rs. lakhs)

			Per Factory			
(*i*) Private						
(*a*) Public Limited 65	65	142	207	43	27	137
(*b*) Private Ltd./Partnership/proprietory . .	31	107	138	25	9	104
Weighted Average	56	133	189	38	22	129
(*ii*) Co-operative	120	170	290	63	22	205
(*iii*) Public	75	152	227	44	78	105
All-India Weighted Average	77	144	221	46	23	152

The paid up capital and reserves adequately cover the fixed assets (at written down value) in all but the cooperative sector. The high capital cost of comparatively new fixed assets in the co-operative sector had been financed through borrowings from public institutions for capital purposes also.

2.14. The working capital is met mainly from borrowings and in some cases from the reserves which have not been utilised in fixed assets. During the 10 year period, the industry earned an aggregate profit of Rs. 104·85 crores which was equal to Rs. 5.63 lakhs per factory per annum (before

allowing for development rebate and taxation but after depreciation and interest charges). The sector-wise profit on employed capital is given in the following table :

TABLE No. 2.9

Sectorwise Profit on Employed Capital (1960-61 *to* 1969-70)

Sector	Total employed capital (Rs./Crores)	Average employed capital per factory (Rs./Lakhs)	Profit earned per factory per annum (Rs./Lakhs)	Rate of profit on employed capital (per cent)
(*i*) *Private*				
(*a*) Public Limited	210.73	207	9.08	4.4
(*b*) Private Ltd./ Partnership/Proprietory	49.58	138	2.09	1.5
TOTAL/AVERAGE	260.31	189	7.26	3.8
(*ii*) Cooperative	188.53	290	0.91	0.3
(*iii*) Public	9.07	227	9.41	4.1
ALL INDIA TOTAL/ AVERAGE	457.91	221	5.63	2.5

The profits earned by different sectors ranged from 0·3 per cent (cooperative) to 4·1 per cent (public sector). In the private sector in which the rate of profit was 3·8 per cent, the public limited companies earned at the rate of 4.4 per cent on their employed capital as against 1·5 per cent in private limited, partnership and proprietory factories.

Profit/Loss as relating to Net Worth

2.15. The net worth represents the paid up capital and the reserves. Generally the profit-ability of an organisation is adjudged by its capacity to earn a reasonable quantum of profit say 8 to 10 per cent on net worth as indicated in Reserve Bank of India's survey summarised later in this Chapter. The position in respect of different sectors is given below :

TABLE No. 2.10

Rate of Profit on Net Worth (1960–61 *to* 1969–60)

Sector	Average Net Worth		Average Profit per Factory per Annum		Rate of Profit on Net Worth	
	Total Rs./ Crores	Per Factory Rs./ Lakhs	Before Taxation Rs./ Lakhs	After Taxation Rs./ lakhs	Before Taxation per cent	After Taxation per cent
1	2	3	4	5	6	7
(*i*) *Private*						
(*a*) Public Ltd.	58.9	59	9.08	4.93	15.4	8.4
(*b*) Private Ltd./Partnership/Proprietory	11.0	30	2.09	0.83	7.0	2.8
TOTAL/WEIGHTED AVERAGE	69.9	52	7.26	3.86	14.0	7.4
(*ii*) Cooperative	34.2	71	0.91	0.77	1.3	1.1
(*iii*) Public	4.2	104	9.41	5.50	9.0	5.3
TOTAL/WEIGHTED AVERAGE	108.3	58	5.63	3.16	9.7	5.4

The aggregate profit per factory per annum on an all-India basis after taxation was 5·4 per cent on net worth. This rate of profit is considered low. The highest profit of 8·4 per cent was in the case of public limited factories. For public sector factories, the rate was 5·3 per cent. The rate of profit was low—2·8 per cent in private limited, partnership and proprietory group and 1·1 per cent for cooperatives. since the object of the cooperative factories is the diffusion of profits to grower members, the net profits are low.

Depreciation and its Utilisation

2.16 Accumulated total depreciation in the industry is utilised for increasing the fixed assets either for rehabilitation and modernisation or expansion. Factories which have composite activities generally do not have separate figures for either the depreciation or the additions to fixed assets for sugar activity alone in their balance sheets. The figures for depreciation and its utilisation have been analysed separately for (i) factories which produce only sugar, (ii) factories which have composite activities but have furnished separate data for sugar, and (iii) factories which have composite activities and did not furnish separate data for sugar activity. The analysis is shown below :—

TABLE No. 2.11

Depreciation Earned and Additions made to Fixed Assets during 1960-61 *to* 1969-70

Details	No. of Factories	Depreciation (Rs./ Crores)	Additions to Fixed Assets (Rs./ Crores)
1	2	3	4
(*a*) Factories which have only sugar activity .	151	68.10	81.59
(*b*) Factories which have composite activities but have furnished separate data for sugar activity .	17	12.08	12.84
(*c*) Factories which have composite activities .	42	54.36	63.70
	210	134.54	158.13

During the 10 year period, the total depreciation accumulated by all the factories was about Rs. 135 crores and the additions during the same period totalled Rs. 158 crores. The overall additions are higher than the accumulated depreciation during the period.

2.17. It would be useful to analyse the figures of the 139 old factories (*i.e.*, those which were established prior to 1952) so as to assess the extent of utilisation of depreciation towards additions to fixed assets. The following table shows the position :

TABLE No. 2.12

Depreciation Earned and Additions to Fixed Assets by old Factories during 1960-61 *to* 1969-70

Details	No. of Factories	Depreciation (Rs./ Crores)	Additions to Fixed Assets (Rs./ Crores)
1	2	3	4
(*i*) Factories with sugar activity only . .	92	26.27	34.74
(*ii*) Factories with composite activities . .	47	57.86	65.61
TOTAL . . .	139	84.13	100.35

Break Sectorwise

Details	92 Factories with Sugar activity only		47 Factories with Composite Activities	
	Depreciation	Additions	Depreciation	Additions
1	2	3	4	5
(*i*) *Private Sector*				
(*a*) Public Limited	14.37	20.75	52.79	57.86
(*b*) Private Ltd./ Partnership/ Proprietory	8.17	9.44	1.03	2.14
TOTAL	22.54	30.19	53.82	60.00
(*ii*) Cooperative Sector . .	3.68	4.54	0.31	0.46
(*iii*) Public Sector	0.05	0.01	3.73	5.15
TOTAL/ALL SECTORS	26.27	34.74	57.86	65.61

Even the old sugar factories in all the sectors have spent by and large more than the accumulated depreciation amounts on additions to the fixed assets.

2.18 The following table indicates the number of factories which have spent less on additions than the accumulated depreciation.

TABLE No. 2.13

No. of Factories spending on Additions less than Accumulated Depreciation

Sector	No. of Factories with sugar activity only	No. of factories with composite activities
1	2	3
(*i*) *Private*		
(*a*) Public Limited .	13	11*
(*b*) Private Ltd./Partnership/Proprietory. .	12	1
(*c*) Total/Private . .	25	12
(*ii*) Co-operative . . .	3	—
(*iii*) Public	1	1
TOTAL . . .	29	13

*This figure includes 2 factories of one company where sugar is a minor acitivity.

Out of 92 old factories having sugar activity alone (Table 2.12), 63 factories had spent equal or more amount than the accummulated depreciation and 29 spent less. The corresponding figures for 47 old composite units, are 34 and 13 respectively.

Dividends

2.19 Dividends are declared by units on their equity capital. The rate of dividend varies with profits. In the Cooperative Sector the profit and loss accounts do not generally indicate the dividend figures. The following table gives the analysis of the remaining 145 factories in respect of the dividends.

TABLE No. 2.14

Number of Factories declaring Dividends and the Number of Years in which Dividends declared

Sector	Number of factories analysed	Number of factories which declared dividends	Total Factory years when dividends were declared	Total Factory years as per Balance Sheets	Percentage of col. 4 to col. 5
1	2	3	4	5	6
(i) *Private*					
(*a*) Public Ltd. .	104	94	625	1005	62.2
(*b*) Private Ltd./ Partnership/ Proprietory	37	17	87	357	24.4
TOTAL/AVERAGE	141	111	712	1362	52.3
(ii) *Public*	4	3	21	39	53.8
TOTAL/AVERAGE	145	114	733	1401	52.3

2.20 The following table gives the number of factories which declared dividends over 10 per cent.

TABLE No. 2.15

Factories which declared Dividends over 10 per cent and the Range of Dividends

State	Number of Factories	Range of Dividends (percentage)	Number of years in which dividend was over 10 per cent
1	2	3	4
Punjab . . .	A 1	12 to 25	6
Haryana . . .	A 1	12 to 20	6
U.P. West . . .	A 11	12 to 31	6
	B 2	11 to 45	9
U. P. Central . .	A 7	12.5 to 72.5	8
	B 5	12 to 25	3
U. P. East . . .	A 8	12 to 21.4	3
	B 3	12 to 30	1
Bihar North . .	A 11	12 to 36.5	6
	B 5	11 to 27.3	2
Madhya Pradesh . .	A 2	12.5 to 15	1
Maharashtra . .	A 11	12 to 50	6
Karnataka . . .	A 2	12 to 15	4
	B 1	15 to 30	6
Andhra Pradesh . .	A 6	15 to 20	5
	B 1	12 to 23	7
Tamil Nadu . .	A 7	11 to 21.4	3
Pondicherry . .	B 1	38.6	1
West Bengal . .	A 1	15 to 35	6
TOTAL	86		

A — represents public limited companies.
B — represents private limited, proprietory and partnership concern.
C — represents public sector factories.

Only 86 factories have declared dividends in excess of 10 per cent on par values of shares, in certain years. The average period of such payments in each zone varied from 1 to 9 years. Out of the 86 factories, 16 were Private Ltd., Partnership and Proprietory concerns, 2 public sector factories and the remaining 68 were public limited companies. In Cooperatives (not included in the above table), the dividends are statutorily limited to 6 per cent.

2.21 Even though no profits were earned in certain factories during 10 years period, 26 factories declared dividends out of their reserves. Of these, 18 were public limited companies and 8 were private limited, proprietory and partnership concerns.

Loans and Investments

2.22 In computing the loans, the loans given to staff or canegrowers have been excluded and only those loans have been taken into consideration which were made to persons or entities not connected with the business of the unit advancing loans. Out of 215 factories, 67 had advanced such loans. The following table shows statewise the number of factories which gave loans to outsiders and the average amount of outstanding loan per annum:

TABLE 2.16

Average Amount of outstanding loans per factory per annum (1960-61 to 1969-70)

State	Number of factories which Advanced loans	Average amount of outstanding loan per factory per annum (Rs./Lakhs)
1	2	3
Haryana	1	4.35
U.P. West	9	10.59
U.P. Central . . .	13	7.26
U.P. East	19	9.82
North Bihar . . .	12	6.88
South Bihar . . .	1	3.17
Madhya Pradesh . . .	1	5.49
Maharashtra . . .	9	19.16
Tamil Nadu . . .	1	0.24
West Bengal . . .	1	0.80
TOTAL/WT. AVERAGE . .	67	9.95

Out of 67 factories which had given loans, 41 are in U.P. and 13 in Bihar, 9 in Maharashtra and others in the remaining States. The sector-wise break-up of the factories which had given loans in different ranges is given below :

TABLE No. 2.17

Number of Factories and the Ranges of Outstanding Loans (1960--61 *to* 1969-70)

Range average of loan given (per annum)	No. of Factories with Outstanding Loans			
	Public Ltd.	Private Ltd. Partnership/ Proprietory.	Cooperative	Total
1	2	3	4	5
Below Rs. 5 lakhs	25	15	1*	41
Between Rs. 5 lakhs and below Rs. 10 lakhs	8	2	..	10
Between Rs. 10 lakhs and below Rs. 15 lakhs	3	..	..	3
Between Rs. 15 lakhs and below Rs. 20 lakhs	..	1	..	1
Between Rs. 20 lakhs and below Rs. 25 lakhs	1	..	..	1
Between Rs. 25 lakhs and below Rs. 30 lakhs	..	2	..	2
Between Rs. 30 lakhs and below Rs. 35 lakhs	2	..	..	2
Between Rs. 35 lakhs and below Rs. 40 lakhs	3	2	..	5
Between Rs. 40 lakhs and below Rs. 45 lakhs	..	..	..	..
Between Rs. 45 lakhs and below Rs.50 lakhs	..	..	..	..
Rs. 50 lakhs and over	..	2	..	2
TOTAL	42	24	1	67

*One cooperative factory gave loan to a cooperative distillery of which this factory is a member.

Forty-one factories had advances loans below Rs. 5 lakhs per annum. Of these, 25 are public limited, 15 are private limited partnership and proprietory concerns and 1 is cooperative. Eight public limited companies and 2 private limited partnership and proprietory concerns gave loans between Rs. 5 lakhs and below Rs. 10 lakhs per annum. The remaining 16 factories advanced loans between Rs. 10 lakhs and over Rs. 50 lakhs.

2.23. Investments by sugar companies may be either (a) internal *i.e.* in its own activities other than sugar or (b) outside the organisation. Two-thirds of the factories in the industry have sugar activity only while the remaining one-third have composite activities. The investments made by all factories including the complex units and the return from such investments are given below:

(i) Total investment outside the factories at the end of 1969/70 . . . — Rs. 20.66 crores

(ii) Income from investments — Rs. 44.89 lakhs

(iii) Average income from investments — 2.2 per cent

It will thus be seen that the income from investments was only 2.2 per cent as against general borrowing rates of interest of about 8 to 10 per cent. The investments do not, therefore, appear to benefit the factories particularly in view of the fact that many have borrowed at higher interest rates.

Comparative Study of Sugar Industry with other Industries

2.24. The Reserve Bank of India in their Bulletin of September, 1972 Issue has made a comparative study of the public limited companies of certain industries including sugar. This is given in the following table :

TABLE No. 2.18

Comparison of the Profits of the Sugar Industry with other Agro-based Industries

Industry	No. of companies studied	Gross Profit as per cent of total capital employed		Profit after tax as per cent of net worth		No. of companies for which pre-tax profits were negative		Total dividends as percentage of total paid up capital	
		65–66	69–70	65–66	69–70	65–66	69–70	65–66	69–70
1	2	3	4	5	6	7	8	9	10
Sugar	77	10.2	8.4	10.7	7.5	5	24	10.2	8.9
Tea Plantations	135	9.2	8.4	5.7	4.1	26	60	11.7	9.0
Coffee Plantations	20	9.6	16.2	9.1	9.5	3	5	13.9	12.9
Rubber Plantations	21	12.2	14.6	7.8	7.9	4	2	11.3	10.6
Tobacco	5	18.4	16.9	9.2	10.5	1	..	11.7	12.7
Cotton Textiles	261	5.4	7.9	1.3	6.4	109	77	8.8	7.9
Jute Textiles	44	5.8	3.0	4.4	—4.9	7	21	6.5	2.5
ALL-INDIA	1501	10.1	9.6	8.9	9.5	313	382	9.8	9.3

The study shows that the gross profit as percentage of total capital employed for all-India (1501 companies) as in 1965-66 was 10.1 per cent and the sugar industry compared favourably with this. The only other industries which showed better results during 1965-66, were rubber plantation and tobacco. The position of sugar, however, deteriorated in 1969-70, when the percentage came down to 8.4 compared with all India percentage of 9.6. Only cotton textiles and jute textiles showed poor performance than sugar.

2.25. Similarly the profits after tax as percentage of net worth in 1969-70 showed a decline in sugar when compared with 1965-66 from 10.7 to 7.5 per cent whereas the all-India profits after tax as percentage of net worth improved from 8.9 per cent in 1965-66 to 9.5 per cent in 1969-70. This study shows that whereas 5 sugar companies out of 77 suffered losses during 1965-66, 24 companies out of 77 suffered losses during 1969-70. The percentage of losing sugar companies (out of 77) increased from 6.5 per cent to 31.2 per cent. The all-India percentage of losing concerns was 20.3 per cent (out of 1501 companies) in 1965-66 and 25.4 per cent in 1969-70. The total dividends percentage of total paid up capital for sugar companies declined from 10.2 per cent in 1965-66 to 8.9 per cent in 1969-70 compared with all-India percentage of 9.8 per cent in 1965-66 and 9.3 per cent in 1969-70.

Conclusion

2.26. Sugar industry helped the economic development of millions of canegrowers and lakhs of skilled and unskilled workmen employed in factories. In addition, it also contributed in large measures to the Central and State exchequers. The following table gives the financial contribution of the sugar industry on different counts:

TABLE No. 2.19

Contribution of the Sugar Industry to the National Economy

Year	Cane price paid	Value of sugar output including Excise Duty	Annual Wage Bill	Excise Duty	Cane Cess/-purchase Tax	Cooperative Society's commission	Income Tax and sur-Tax
1	2	3	4	5	6	7	8
1960–61	140	313	25	54.8	15	2.5	5.9
1961–62	126	292	23	58.4	13	2.2	5.6
1962–63	93	233	20	75.0	10	1.4	4.9
1963–64	123	306	22	66.2	13	2.0	8.1
1964–65	184	399	28	65.2	17	2.6	8.1
1965–66	200	458	31	75.0	19	2.4	9.3
1966–67	130	304	29	109.9	11	1.4	4.5
1967–68	300	508	36	73.7	13	1.6	14.4
1968–69	358	645	41	62.9	22	2.5	13.9
1969–70	353	680	46	100.3	25	3.5	6.0
1970–71	290	630	48	135.0	21	2.7	10.0

Apart from the large amounts paid by the industry to the Central and State Governments, it paid during the last 10 years Rs. 300 crores to Rs. 350 crores a year to the canegrowers of the rural community. The disbursal of these amounts in addition to the welfare activities, such as schools, hospitals, roads, etc., had enormous impact on the rural economy in particular and on national development as a whole.

STATEMENT 2.1

Aggregate Profit/Loss for the different Sugar Factories in each Year during 1960-61 to 1969-70 (before Taxation and Development Rebate) Sugar activity only

(See page 19)

Sl. No.	Location	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
I.	*Haryana*											
	1. Yamunanagar	26.71	7.24	14.78	12.35	32.89	37.45	30.24	6.32	74.86	18.46	261.30
	2. Rohtak	3.02	—11.80	0.42	12.88	9.05	11.98	—2.67	11.35	—31.04	21.42	24.61
	3. Panipat	8.15	11.51	5.97	4.63	23.91	22.25	—10.72	14.27	—16.29	16.72	80.40
	TOTAL	37.88	6.95	21.17	29.86	65.85	71.68	16.85	31.94	27.53	56.60	366.31

1	2	3	4	5	6	7	8	9	10	11	12	13
II. *Punjab*												
4.	Morinda	..	..	—1.95	—15.74	—0.56	—2.21	—11.99	5.03	—31.36	1.01	—57.77
5.	Phagwara	6.89	3.19	8.39	0.28	6.66	17.30	3.09	1.69	—11.64	13.68	49.45
6.	Dhuri	—1.21	—12.74	—11.06	—9.37	—1.12	3.62	—0.73	—0.41	—2.28	5.22	—30.08
7.	Bhogpur	4.78	2.52	—11.39	—6.67	—9.22	13.16	—1.64	—5.38	—11.68	4.99	—20.53
8.	Nawanshahr	..	..	..	..	..	..	..	..	—42.14	—18.61	—60.75
9.	Batala	..	..	..	—11.45	—26.47	14.23	—13.61	—1.78	—7.92	2.48	—44.52
	TOTAL	10.46	—7.03	—16.09	—42.95	—30.71	46.10	—24.88	—0.85	—107.02	8.77	—164.20
III. *Rajasthan*												
10.	Bhupalsagar	2.93	6.36	2.84	—4.85	5.94	7.95	1.23	—6.59	1.73	4.14	21.68
11.	Sriganganagar	6.80	0.11	—1.62	—6.38	—6.58	2.15	1.50	2.42	—3.74	—1.54	—6.88
12.	Keshoraipatan	—New Factory—Production started in 1969—70—No sales in 1969-70										
	TOTAL	9.73	6.47	1.22	—11.23	—0.64	10.10	21.73	—4.17	—2.01	2.60	14.80
IV. *Uttar Pradesh—West*												
13.	Modinagar	6.99	1.45	0.26	2.80	0.12	9.32	—4.98	—5.66	2.92	12.42	25.64
14.	Mohiuddinpur	2.42	1.08	1.73	2.67	2.85	2.74	1.93	2.28	—0.66	—5.27	11.77
15.	Meerut	7.33	4.25	2.31	3.82	5.21	9.96	1.23	12.97	—0.31	6.50	53.27
16.	Daurala	2.02	8.10	2.59	—5.33	1.48	21.25	19.51	8.15	51.82	28.16	137.75
17.	Sakhoti Tanda	—2.07	—2.77	—7.08	3.13	—2.44	9.38	—7.90	—5.55	—7.91	—6.35	—29.86
18.	Mawana	6.93	7.16	0.06	—33.96	—51.17	—8.40	—10.90	3.42	77.53	53.44	44.11
19.	Bagpat	4.19	—2.84	0.21	—9.45	4.67	25.54	—16.31	—2.77	—27.52	29.08	4.80
20.	Simbhaoli	7.79	4.77	7.49	7.37	8.13	6.15	6.77	10.90	5.38	—4.39	60.36
21.	Khatauli	27.28	16.60	3.84	17.22	—16.59	36.57	—9.61	36.73	15.08	1.85	128.97
22.	Mansurpur	8.77	0.78	—0.64	10.96	—7.92	17.46	—3.38	—3.37	—3.26	13.73	33.13
23.	Rohanakalan	0.90	—3.99	—7.64	—8.71	—3.90	4.38	—0.33	9.20	3.21	—4.72	—11.60
24.	Shamli	5.05	—26.44	9.44	1.71	24.26	35.48	—18.67	14.03	57.92	44.96	147.74
25.	Bulandshahr	..	—3.94	—5.23	5.69	7.76	6.16	0.57	—3.52	—15.87	—2.67	—11.05
26.	Doiwala	4.20	2.17	0.17	1.22	6.35	7.57	1.77	1.02	2.07	5.21	81.75
27.	Deoband	24.11	29.41	25.45	24.65	12.22	26.51	—3.97	44.99	18.54	31.11	233.02
28.	Saharanpur	1.73	0.77	0.22	6.91	0.54	0.74	—2.27	9.20	6.00	—5.29	18.55
29.	Sarsawa	..	..	—13.77	—13.55	—11.65	—9.13	—14.96	0.04	—7.36	12.24	—58.14
30.	Lhaksar	22.22	14.33	19.50	24.56	14.42	20.76	26.06	32.26	21.54	—5.90	189.75
31.	Iqbalpur	22.35	—1.86	6.30	14.92	—9.72	20.05	—14.82	5.04	—0.46	12.78	41.98
	TOTAL U. P. WEST	151.91	49.03	32.61	56.63	—15.38	242.49	—50.26	169.36	198.66	216.89	1051.94
V. *Uttar Pradesh Central*												
32.	Bijnor	..	—6.90	—12.78	—1.28	—9.56	—4.92	—9.77	1.53	—31.75	N.A.	—75.43
33.	Seohara	31.60	37.53	40.10	58.51	26.15	29.48	33.10	9.74	76.66	5.15	348.02
34.	Dhampur	12.34	—3.11	10.94	39.25	13.79	36.45	8.85	19.84	18.06	31.91	188.32
35.	Raja-ka-Sahaspur	17.96	—0.85	—5.73	7.88	22.56	13.83	—5.69	—3.68	—4.67	8.20	61.27
36.	Amroha	8.53	—1.79	—11.27	2.29	2.30	—1.32	4.72	—13.89	—36.75	—3.30	—50.48
37.	Rampur	4.88	19.42	20.98	8.82	13.78	—55.32	—37.44	—55.27	—11.11	—20.87	—112.13
38.	Bareilly	—1.03	0.95	1.56	7.53	3.97	—0.39	—4.03	—11.88	—3.90	1.58	—5.64
39.	Baheri	8.20	8.51	3.13	10.38	14.42	1.12	0.91	—3.93	20.93	2.55	66.22
40.	Rosa	N.A.	N.A.	N.A.	N.A.	N.A.	—4.07	—10.83	10.87	—13.82	—19.77	—37.62
41.	Pilibhit	6.37	—0.80	4.29	17.17	8.20	—4.03	—8.16	—3.32	2.05	—2.08	19.69
42.	Majhola	..	..	..	..	..	—4.41	—6.72	—12.61	1.83	12.12	—9.79
43.	Kashipur	0.46	9.94	13.28	15.03	20.75	8.40	—0.71	14.43	14.70	1.80	98.08
44.	Bazpur	—5.51	2.92	1.50	10.72	25.79	16.90	7.89	—6.51	N.R.	N.R.	53.70
45.	Neoli	8.04	1.84	2.96	7.59	11.53	9.08	6.69	—7.57	5.74	7.34	53.24
46.	Hargaon	36.55	35.81	61.06	60.72	50.04	45.65	25.61	37.08	73.06	—1.12	424.46
47.	Maholi	20.09	5.89	7.88	2.93	7.18	—5.02	—10.90	33.30	3.89	—14.97	50.27
48.	Biswan	2.57	0.89	4.45	5.11	2.21	2.18	—2.14	10.19	5.63	—3.11	27.98
49.	Golagokaran Nath	54.99	63.92	43.08	90.85	72.60	80.81	52.87	122.14	112.90	88.56	782.72
50.	Aira	17.10	7.49	6.18	32.87	13.25	19.70	6.54	19.51	25.87	0.48	148.99
51.	Hardoi	13.90	12.67	16.30	14.93	21.62	8.70	—7.60	—6.32	4.29	8.36	86.85
	TOTAL U. P. CENTRAL	237.04	194.33	219.37	391.30	320.58	192.82	43.19	153.65	263.61	102.83	2118.72

1	2	3	4	5	6	7	8	9	10	11	12	13
VI.	*Uttar Pradesh—East*											
	52. Seorahi	2.61	—11.15	—1.26	5.15	17.60	—0.40	6.20	15.94	12.51	—5.47	41.73
	53. Baitalpur	3.47	—0.87	3.41	5.19	7.13	1.07	—2.08	8.14	—10.39	10.64	25.71
	54. Gauribazar	10.55	2.39	4.60	3.53	2.11	—5.40	—1.37	12.74	0.92	—4.34	25.73
	55. Deoria	—3.50	—6.46	2.02	2.26	6.23	3.34	—0.35	3.40	5.77	—3.03	9.68
	56. Captainganj	—4.56	—1.38	—2.20	—1.05	12.54	1.89	13.19	18.63	4.96	—0.27	41.75
	57. Khadda	0.43	—7.68	—0.43	5.19	0.36	—6.93	—0.74	—9.42	—6.21	—19.54	—44.97
	58. Chhitauni	—3.45	—6.85	—7.34	7.71	8.87	—4.42	2.02	7.32	—5.16	—14.23	—15.53
	59. Lakshmiganj	—3.03	—3.93	—4.93	0.57	2.84	—3.60	3.12	7.42	—17.07	—6.34	—31.19
	60. Ramkola	5.72	5.30	—0.10	12.22	28.20	13.77	23.29	2.95	32.70	23.93	147.98
	61. M. K. Ramkola	—11.55	—2.05	—12.11	4.30	11.01	—0.77	—5.74	—3.62	—10.87	—19.16	—50.56
	62. Padrauna	—9.01	—14.68	—7.69	6.01	—1.29	—5.96	3.08	11.08	—2.05	—32.41	—52.92
	63. Kathkuiyan	—4.40	—11.28	—9.11	—2.31	—1.36	—4.64	6.03	8.85	3.32	—11.28	—26.18
	64. Mairwa	—3.09	—3.60	—4.82	3.02	7.88	3.74	3.85	1.76	5.31	1.14	15.19
	65. Bhatni	—5.53	—11.42	—4.66	—1.37	0.72	—0.49	—0.65	1.12	6.96	N.A.	—15.32
	66. Sardarnagar	13.80	3.05	—6.31	—1.83	11.84	—6.84	—7.94	41.13	4.37	—12.86	—38.41
	67. Pipraich	—0.06	—2.87	—5.83	1.20	10.37	2.42	3.02	8.68	1.43	—8.91	9.45
	68. Ghughli	—4.99	—6.09	—1.8	15.74	11.81	5.76	11.74	18.42	—2.54	—5.82	42.20
	69. Siswabazar	0.10	—0.43	2.15	8.05	5.53	—2.65	3.90	12.11	—18.06	—5.77	4.93
	70. Anandnagar	2.46	0.67	—1.56	3.81	15.95	2.32	—0.83	23.27	9.53	3.79	59.41
	71. Mundarwa	4.10	—1.73	—3.79	0.57	3.68	1.65	2.12	8.10	1.18	—1.74	9.90
	(72. Basti	12.23	8.61	1.05	8.82	18.42	7.05	—12.38	14.93	21.22	—21.47	58.48)
	(73. Walterganj	———Included in U.P.—60 : Separate data not furnished by the factory———										)
	74. Khalilabad	4.87	—0.72	1.69	—1.04	4.81	1.40	—1.31	5.76	1.28	0.26	17.00
	75. Bobhnan	8.70	7.55	5.02	7.00	5.46	1.96	—4.18	16.84	—6.37	1.15	43.13
	76. Nawabganj	3.71	—3.71	—3.28	0.28	18.78	4.52	—4.93	13.69	—0.07	—8.67	20.32
	77. Balrampur	1.74	1.05	—1.66	2.05	8.07	1.62	—6.54	8.64	8.89	7.29	31.15
	78. Tulsipur	0.83	—0.47	—2.63	10.30	13.91	5.87	0.78	6.26	9.51	—0.35	44.01
	79. Jarwal Road	2.46	—0.04	3.29	2.84	2.78	—8.03	—6.41	—0.87	—12.67	—13.71	—30.36
	80. Burwal	6.73	—2.40	—2.72	0.61	2.74	—6.53	—7.19	—11.37	—18.67	—25.87	—64.67
	81. Barabanki	1.29	—3.62	—1.77	—0.16	4.44	—3.47	—2.31	4.16	—18.04	—28.94	—48.42
	82. Shahganj	7.10	3.34	1.85	1.46	3.87	2.75	—7.59	14.26	0.04	4.95	32.03
	83. Motinagar	8.17	1.82	4.29	8.22	6.78	7.04	10.08	11.35	—3.60	—1.61	52.54
	TOTAL	47.90	—69.65	—56.66	118.34	252.08	8.04	9.40	281.67	—1.87	—198.64	390.61
VII.	*Bihar—North*											
	84. Lohat	—1.36	5.09	3.82	12.56	26.85	10.68	—5.11	18.38	3.58	—6.59	67.90
	85. Sakri	———Separate data not furnished by the factory———										
	86. Nassanpur Road	4.10	8.24	10.91	29.79	23.37	31.61	19.00	16.63	21.13	6.89	171.67
	87. Ryam	—13.24	—9.61	—5.93	—1.41	8.14	8.14	2.24	5.60	5.22	11.67	10.82
	88. Samastipur	—3.22	—1.00	—10.11	—5.29	4.98	1.20	—8.64	—5.08	—4.52	—2.62	—34.30
	89. Righa	5.72	5.09	—0.31	1.55	17.17	8.72	6.91	10.19	10.63	7.43	73.11
	90. Motipur	2.52	8.53	3.68	13.82	16.34	5.42	5.05	7.31	7.99	—6.01	64.65
	91. Garaul	—0.36	—6.97	—7.19	—3.52	0.97	—8.01	—8.34	—7.48	N.R.	N.R.	—40.90
	92. Motihari	—3.16	1.25	—6.61	9.16	6.61	7.71	1.89	5.38	—34.46	3.12	—9.11
	93. Majlishaulia	11.42	11.25	2.38	19.68	18.68	11.25	21.82	31.33	33.47	7.79	169.07
	94. Chanpatia	—4.47	0.23	1.67	13.50	4.37	3.50	10.61	18.95	18.46	1.73	77.49
	95. Lauriya	6.12	—4.79	—0.98	8.88	3.30	—8.33	7.25	11.45	—4.38	—15.54	2.98
	96. Narainpur (Bagaha)	—2.09	1.04	3.88	12.88	14.00	7.03	8.31	16.07	12.09	6.47	66.74
	97. Narkatiaganj	———Separate P & L Accounts not furnished by the factory———										
	98. Harinagar	2.25	3.02	4.98	21.15	13.38	10.41	26.92	41.49	21.09	21.78	166.47
	99. Sagauli	1.87	—6.82	—7.52	2.82	8.46	8.37	7.18	8.57	2.43	—9.69	15.67
	100. Barachakia	4.33	—9.21	—0.18	—2.39	4.24	—7.33	—3.29	—3.17	—9.63	—18.89	—45.52
	101. Siwan (New Savan)	2.53	0.18	—5.96	0.48	0.48	—4.19	—3.10	—11.17	0.65	2.28	—17.82
	102. Pachrukhi	———Separate data for sugar not furnished by the factory———										
	103. Mirganj (Hathua)	———Separate data for sugar not available—Merged with B—12———										
	104. Sidhwalia	5.89	7.05	5.98	10.83	16.65	7.89	—2.00	6.03	8.37	3.87	70.56

1	2	3	4	5	6	7	8	9	10	11	12	13
	105. Marhowrah	2.04	2.75	0.07	0.38	2.60	—2.25	—8.79	—0.74	—8.72	—3.76	—14.94
	106. Sasamusa	1.83	1.41	5.61	4.91	14.67	.. 0.59	6.92	10.94	—0.46	—11.37	35.05
	107. Gopalganj	—0.05	0.29	—2.05	1.66	3.28	0.26	5.16	15.8	5.49	0.05	29.27
	108. Banmankhi	..	..	..	..	..	..	..	..	.	—10.09	—10.09
	109. Siwan (SKG)	———Separate data not furnished by the factory—Merged with B-12 ———										
	TOTAL—NORTH BIHAR	31.61	17.02	—3.85	151.44	208.54	92.68	89.99	197.34	88.43	—24.42	848.77
VIII.	*Bihar—South*											
	110. Gurarn	N.R.	—1.05	—4.81	—3.27	0.87	—8.64	—9.75	—5.07	—18.02	—18.02	—67.76
	111. Warisaliganj	———Closed Mill—Data not available———										
	112. Bihta	—6.75	—4.13	—11.57	—10.72	—5.94	—8.88	—7.71	—4.98	—18.29	—12.32	—91.29
	113. Dalmianagar	———Closed Mill—Data not available———										
	TOTAL—SOUTH BIHAR	—6.75	—5.18	—16.38	—13.99	—5.07	—17.52	—17.46	—10.05	—36.31	—30.34	—159.05
IX.	*Gujarat*											
	114. Bardoli	10.85	—3.36	26.11	23.39	10.36	13.39	10.75	12.49	8.56	—2.28	110.26
	115. Gandevi	..	—4.22	—6.19	—0.01	NIL	6.30	NIL	4.00	1.31	—5.11	—3.92
	116. Kodinar	1.55	12.83	36.03	22.87	36.17	33.45	24.04	17.66	20.84	11.95	217.39
	117. Una	..	..	..	..	..	..	..	..	—42.70	—11.69	—54.39
	118. Madhi	..	..	..	..	..	..	..	..	—18.76	3.01	—15.75
	TOTAL	12.40	5.25	55.95	46.25	46.53	53.14	34.79	34.15	—30.75	—4.12	253.59
X.	*Madhya Pradesh*											
	119. Dabra(Gwalior)	7.46	0.34	2.42	—12.78	4.07	2.78	—8.71	—6.30	—5.50	—0.12	—16.34
	120. Jaora	0.80	—3.03	4.57	5.82	2.39	—6.61	—2.39	—2.90	3.80	12.16	14.61
	121. Dalauda	0.57	—1.66	0.39	—0.84	0.83	1.62	—2.45	—2.90	—0.45	3.55	—1.34
	122. Sehore	4.43	0.71	1.17	3.79	8.91	1.36	—6.29	—13.41	—8.18	20.58	13.07
	123. Mehidpur Road	—0.87	—3.06	1.81	—1.79	—0.53	3.39	—2.61	0.43	0.47	6.24	3.48
	TOTAL	12.39	—6.70	10.36	—5.80	15.67	2.54	—22.45	—25.08	—9.86	42.41	13.48
XI.	*Maharashtra*											
	124. Malinagar	14.55	8.65	13.95	12.58	9.23	16.31	1.41	4.32	10.47	7.39	98.86
	125. Shreepur	10.58	8.14	4.89	12.31	0.55	0.40	—5.27	46.67	25.71	13.12	123.10
	126. Akluj	..	..	—0.49	4.24	8.51	2.20	0.69	7.39	2.55	2.77	27.86
	127. Ravalgaon	1.69	8.79	18.49	21.58	11.70	12.76	10.87	22.58	18.23	20.53	147.22
	128. Dabhadi (Girna)	3.40	0.33	0.05	—5.62	—0.51	13.24	—4.00	8.36	6.51	3.42	25.18
	129. Bhaushebnagar	..	..	..	..	—15.30	—10.24	—3.20	5.40	15.24	39.41	31.31
	130. Sakarwadi	52.60	41.26	58.18	30.53	17.29	37.54	—10.22	105.51	20.27	64.68	417.64
	131. Lakshmiwadi	——Sakarwadi & Lakshmiwadi combined—Separate data not furnished by the factory.										
	132. Chandeonagar	23.07	22.69	42.50	23.34	21.27	27.73	16.43	44.04	41.63	42.54	305.24
	133. Tilaknagar	———Separate data not furnished by the factory———										
	134. Kolpewadi	5.57	5.62	4.87	7.73	4.25	3.25	0.69	3.26	0.38	0.23	35.85
	135. Harigaon (Balapur)	68.96	46.09	61.68	75.73	50.03	44.49	19.06	57.80	81.89	42.17	547.90
	136. Pravaranagar	5.57	4.56	3.89	4.43	8.94	2.20	0.14	1.03	7.48	10.25	48.49
	137. Ashoknagar	6.29	3.75	6.82	5.44	7.92	1.60	1.42	2.13	1.97	4.62	41.96
	138. Ganeshnagar	3.66	5.38	3.17	3.35	5.92	2.91	1.66	4.53	1.53	1.01	32.22
	139. Takli(Kopargaon)	..	..	..	—0.56	—3.68	3.82	6.04	7.38	6.40	16.03	35.43
	140. Rahuri	5.66	3.55	4.65	5.52	5.62	2.72	1.21	2.41	4.66	1.45	37.45
	141. Shrigonda	..	..	..	..	..	..	—5.67	—1.82	—2.47	—7.00	—16.96
	142. Shahunagar (Bhogwati)	9.35	N.R.	N.R.	N.R.	11.10	8.97	6.95	8.44	2.04	1.66	48.51
	143. Kolhapur	24.68	24.23	29.25	41.76	36.99	18.48	1.81	50.77	49.08	16.10	293.15
	144. Ichalkaranji	8.49	2.69	5.90	8.93	10.78	3.78	4.75	12.06	11.98	13.14	82.50
	145. Waranangar	2.83	3.81	6.43	13.53	6.49	1.37	1.89	2.10	5.72	0.84	45.01

1	2	3	4	5	6	7	8	9	10	11	12	13
146.	Koparde(Kumbhu Keshari)	..	..	..	—11.58	2.46	6.16	2 32	17.35	4.56	2.36	23.63
147.	Bidri	..	..	—10.34	—16.38	—5.80	—0.39	8.11	23.2 5	10.81	1.89	11.15
148.	Walchandnagar	4.46	11.66	11.95	14.19	18.30	8.94	13.91	82.75	36.94	15.62	218.92
149.	Bhavaninagar	4.69	1.85	1.14	4.55	5.66	4.14	15.49	6.22	1.61	0.79	46.14
150.	Malegaon	5.48	4.66	4.75	4.62	6.92	6.45	0.74	9.38	2.18	0.85	46.03
151.	Nira	..	..	—0.28	1.42	—9.14	12.16	NIL	5.87	8.45	13.47	31.95
152.	Raghunathnagar(Gangapur)	—4.36	9.36	1.06	—11.39	3.01	8.49	—18.17	—17.97	0.64	0.26	—29.07
153.	Rethare Budruk	—4.22	2.91	7.23	8.94	11.30	10.40	3.26	14.16	2.66	2.12	58.76
154.	Phaltan (Shriram)	5.77	5.05	7.53	4.79	7.88	0.72	0.14	0.53	1.00	—6.37	27.04
155.	Sakharwadi(Phaltan)	9.30	7.50	33.97	34.01	17.52	21.46	16.27	52.77	34.13	7.85	234.78
156.	Sangli	15.19	3.03	7.14	9.01	6.62	1.43	—1.92	5.65	8.80	0.65	55.60
157.	Sangamner	..	..	..	..	..	..	..	..	—4.32	—11.76	—16.08
158.	Dhoki	..	..	..	..	..	..	..	—3.07	2 .41	6.83	6.17
159.	Bhupalwadi(Kalambar)	..	..	..	..	..	..	..	..	—13.38	—10.30	—23.68
160.	Sadashivnagar	..	..	..	..	..	..	..	(New factory—Trial Run 1969/70)			
161.	Sakri (Panzarakan)	..	..	..	(New Factory Trial Run 1969/70)					..	—6.47	—6.47
162.	Shukrawar(Theur)	..	..	..	..	(New Factory——1969/70)						
163.	Islampur(Wlawa)	..	..	..	..	(New Faetory——1967/70)				..	..	..
164.	Asurle	..	..	..	..	(New Factory——1969/70)				..	..	..
	TOTAL	283.46	235.56	328.38	307.00	266.93	273.49	86.81	591.25	407.76	312.15	3092.79
XII.	*Mysore*											
165.	Pandavapura	16.62	16.51	22 .27	4.50	21.14	13.17	—4.58	—11.07	33.49	14.12	126:17
166.	Hospet	11.53	7.13	10.27	9.15	8.47	..	11.35	50.48	..	7.05	115.43
167.	Kampli	12.50	—0.57	2.47	1.13	9.12	—9.47	1.15	38.21	—17.94	—30.65	5.95
168.	Munirabad	4.41	0.06	4.39	7.39	3.40	—1.94	—0.57	29.28	6.62	—4.54	48.50
169.	Ugar Khurd	24.44	18.64	19.71	30.44	28.54	23.56	18.91	52.10	11.89	—15.49	212.65
170.	Sankeshwar	..	4.67	3.15	3.26	1.85	1.68	9.19	18.35	14.27	10.25	66.67
171.	Shimoga	—0.19	5.08	0.96	—0.51	10.19	7.05	6.40	24.26	11.32	28.26	92.82
172.	Gauribidanur	..	..	..	..	..	..	—35.79	—28.90	—17.29	—3.26	—85.24
173.	Mandya	14.33	10.47	3.40	13.83	—13.36	—9.30	1.51	—34.54	56.52	6.52	49.38
174.	Bidar	..	..	..	..	..	..	..	..	—21.06	—1.43	—22.49
	TOTAL	—83.64	61.99	66.62	69.19	69.26	24.75	7.57	138.17	77.82	10.83	609.84
XIII.	*Andhra Pradesh*											
175.	Pithapuram(Kirlampudi)	1.08	0.46	—15.79	2.67	7.46	—1.78	—9.91	8.30	13.86	—5.97	0.38
176.	Chelluru	—5.27	6.80	0.67	9.60	10.93	6.29	13.32	32.38	32.47	—7.92	99.27
177.	Samalkot	5.36	4.31	15.95	13.17	8.13	7.40	15.60	50.90	29.91	—13.18	137.25
178.	Tanuku(Andhra)	15.11	25.01	18.26	16.72	19.25	19.11	35.62	95.53	56.87	—9.00	292.48
179.	Palakot	..	..	—7.09	—19.29	5.67	0.64	2.79	28.48	10.82	—12.43	4 59
180.	Chagallu	..	..	..	..	..	8.19	15.03	48.53	53.72	—33.36	92.11
181.	Tanuku	..	..	..	—2.16	—4.20	—4.97	—3.91	—0.31	—5.01	—3.45	—24.01
182.	Chodavaram	..	..	—9.34	—12.53	—12.09	—8.67	—17.70	—8.68	11.31	9.56	—48.14
183.	Anakapalle	0.77	3.85	2.66	—0.97	—4.23	—7.57	—10.3 8	—11.61	1.53	2.54	—23.41
184.	Etikoppaka	6.14	—5.06	—3.04	1.06	4.57	—1.53	—5.54	14.80	18.12	0.29	29.81
185.	Payakorapeta(Tuni)	..	—2.30	—1.01	0.87	—5.63	—9.44	—6.27	—0.34	0.80	4.82	—18.50
186.	Bobbili	3.97	3.24	8.21	3.47	7.50	—5.07	—12.13	—4.69	—0.50	3.05	6.99
187.	Seethanagram	1.02	2.62	1.35	9.67	7.12	1.57	—1.75	2.60	4.97	1.92	31.09

1	2	3	4	5	6	7	8	9	10	11	12	13
188.	Amadalavalasa	..	..	—19.97	—16.30	—18.25	—15.64	—16.77	9.60	10.48	31.81	—35.04
189.	Vuyyuru	22.26	28.51	54.44	74.86	58.53	43.94	39.09	149.79	162.38	21.05	654.85
190.	Challapalli	2.87	9.15	14.83	15.76	10.61	8.16	—1.00	22.58	12.52	—19.93	75.55
191.	Shakarnagar	59.05	25.66	35.86	24.88	29.89	13.81	—19.07	104.84	85.99	31.04	391.95
192.	Nizamabad	..	..	..	..	—11.64	—5.67	—12.17	—1.19	3.63	7.86	—19.18
193.	Chittoor	..	..	—11.65	—11.80	—0.16	—17.20	—27.32	7.42	12.80	—1.03	—48.94
	TOTAL	112.36	102.25	84.34	109.68	113.46	31.57	—22.47	543.93	516.28	7.67	1599.07
XIV.	*Tamil Nadu and Pondicherry*											
194.	Pugalur	14.97	15.83	14.76	5.66	9.20	7.98	4.21	26.27	39.83	—7.71	131.00
195.	Pettaivitalai(Cauvery)	13.46	11.18	10.55	11.90	14.41	—5.25	8.99	39.68	7.80	—40.98	71.74
196.	Lalgudi	..	..	—0.16	NIL	20.08	6.54	9.59	37.32	—14.86	—32.89	25.62
197.	Nellikuppam	15.14	9.25	23.56	6.32	1.56	—8.17	22.35	149.96	44.73	—65.85	198.85
198.	Mundiyampakkam	—No sugar activity——				12.22	—6.14	1.04	41.33	48.53	—41.72	30.82
199.	Pennadam(Aruna)	..	..	..	..	..	12.48	7.91	24.05	22.40	—7.42	59.42
200.	Kallakurichi	..	..	..	..	..	..	—12.06	1.01	5.37	—18.39	—24.07
201.	Randiarajapuram	8.47	10.45	5.38	2.69	—6.90	0.20	3.30	14.77	6.01	—4.38	40.04
202.	Alanganallur	..	..	..	..	..	..	—13.55	—20.52	—18.27	—20.82	—73.16
203.	Vadapathimangalam	5.82	11.66	—10.57	—9.46	14.22	5.53	10.78	43.20	18.15	—25.89	73.44
204.	A. K. Puthur (Amaravathi)	—3.10	0.75	—17.30	—20.56	—5.18	—5.99	—9.85	—13.09	23.64	8.25	—42.43
205.	Appakudal(Sakthi)	——New Factory——					11.67	—21.36	52.43	6.34	—6.79	18.95
206.	Amhur	2.03	6.92	6.37	3.93	11.47	3.82	8.88	20.16	—8.25	—10.69	44.64
207.	Mailpatti	..	..	..	..	..	..	..	..	..	—8.39	—8.39
208.	Padalam (Madurantakam)	—8.07	—15.39	—4.43	0.59	—5.26	—0.93	—0.66	11 25	9.74	—10.77	—23.93
209.	Mohanur(Salem)	..	..	.	—10.17	7.43	12.73	14.64	—14.78	25.05	—15.22	19.66
	TOTAL	48.72	50.65	28.16	—9.10	48.81	11.13	34.21	413.04	216.19	—299.61	542.20
	Pondicherry											
210.	Sacrur(New Horizon)	8.88	6.48	7.18	—5.80	—0.98	—23.22	—1.08	14.46	24.12	—35.46	—5.42
XV.	(a) *Orissa*											
211.	Rayagada	1.02	—0.51	3.73	5.39	1.97	0.31	1.83	11.47	7.72	—3.16	29.83
212.	Aska	..	..	..	..	—12.17	—5.38	—6.88	—2.90	0.96	0.90	—25.47
	TOTAL	1.02	—0.51	3.73	5.39	—10.20	—5.07	—5.05	8.57	8.68	—2.20	4.36
	(b) *Assam*											
213.	Baruabamungaon	—10.28	—2.65	—3.40	—4.66	—2.42	2.77	—4.38	8.14	6.81	—2.20	—12.27
	(c) *Kerala*											
214.	Tirvalla	N.A.	4.58	8.84	7.93	6.25	3.81	1.88	14.73	—9.46	—8.02	30.54
215.	Pandalam(Mannam)	..	..	..	—6.55	—30.11	—28.40	—21.99	—13.89	—28.08	—27.02	—156.04
216.	Chittur	..	..	..	..	—3.81	—1.19	—16.66	—11.48	—7.97	—13.78	—54.89
	TOTAL	..	4.58	8.84	1.38	—27.67	—25.78	—36.77	—10.64	—45.51	—48.82	—180.39
	(d) *West Bengal*											
217.	Plassey	15.66	15.31	1.57	4.99	5.58	8.89	1.33	18.37	4.53	23.14	99.37
218.	Ahmedpur	——————Closed factory Data not available——————										
	TOTAL	15.66	15.31	1.57	4.99	5.58	8.89	1.33	18.37	4.53	23.14	99.37
	All-India Aggregate Profit(Rs./Crores)	10.88	6.64	7.73	11.98	13.20	10.01	1.42	25.54	16.07	1.38	104.85

STATEMENT 2.2

Zonewise Number of Factories incurring Losses in different Years (1960-61 *to* 1969-70)

(See page 24)

Zone	1960-61		1961-62		1962-63		1963-64		1964-65		1965-66		1966-67		1967-68		1968-69		1969-70	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Punjab	3	1	3	1	4	3	5	4	5	4	5	1	5	4	5	3	6	6	6	1
Haryana	3	..	3	1	3	..	3	..	3	..	3	..	3	2	3	..	3	2	3	..
Rajasthan	2	..	2	..	2	1	2	2	2	1	2	..	2	..	2	1	2	1	2	1
U.P. West	17	1	18	6	19	6	19	5	19	7	19	2	19	12	19	5	19	8	19	7
U.P. Central	17	2	18	5	18	2	18	1	18	1	20	8	20	11	10	9		6	18	7
U. P. East	32	11	32	22	32	21	32	6	32	2	32	14	32	19	32	4		14	31	21
North Bihar	23	8	23	6	23	10	23	4	23	..	23	6	23	8	23	4	22	7	23	11
South Bihar	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
Madhya Pradesh	5	1	5	3	5	..	5	3	5	1	5	1	5	5	5	4	5	3	5	1
Gujarat	2	..	3	2	3	1	3	1	3	..	3	..	3	..	3	..	5	2	5	3
Maharashtra	25	2	24	..	27	2	29	5	31	5	31	2	32	7	33	3	35	3	36	5
Karnataka	7	1	8	1	8	..	8	1	8	1	8	3	9	3	9	4	9	3	10	5
Andhra Pradesh	10	1	11	2	15	7	17	6	18	7	18	10	19	13	19	7	19	2	19	9
Tamil Nadu & Pondicherry	9	2	9	1	10	4	11	4	12	5	14	7	16	6	16	3	16	3	17	16
Orissa	1	..	1	1	1	4	1	..	2	1	2	1	2	1	2	1	2	..	2	1
Assam	1	1	1	1	1	1	1	1	1	1	1	..	1	1	1	..	1	..	1	1
Kerala	..	..	1	..	1	..	2	1	3	2	3	2	3	2	3	2	3	3	3	3
West Bengal	2	..	2	1	2	1	1	..	1	..	1	..	1	..	1	..	1	..	1	..
TOTAL	160	32	166	54	176	61	182	46	188	39	192	59	197	96	198	152	201	65	203	95
Percentage of factories incurring loss	20		33		35		25		21		31		49		26		32		47	

Col. (*a*) represents the total factories.

Col. (*b*) represents the number of factories with aggregate losses.

Col. (*c*) —Col. (b) represents the number of factories with aggregate profit.

Col. (b) represents the number of factories with aggregate losses.

Col. (c) —Col. (b) represents the number of factories with aggregate profit.

CHAPTER III

TECHNICAL PERFORMANCE

3.1 Sugar factories in India are required to carry out day to day accounting of the sugar input from cane and the output of crystal sugar and the process losses at the different stages of manufacture. This accounting is essential for process control. For this purpose, every factory is statutorily required to maintain a laboratory to control the process in the factory. The data collected are sent to several authorities, such as the Directorate of Sugar and Vanaspati, Ministry of Agriculture, New Delhi, Central Excise Department and the National Sugar Institute, Kanpur. These technical data are useful not only for process control but also for judging the performance of the industry year after year. We find that Sugar Technologists' Associations at national and regional levels annually hold their conventions and seminars to discuss the technical performance of factories. At these meetings, new processes and innovations and their application are also discussed. This appears to be the practice not only in India but in other countries too.

3.2 The Commission has been asked to study the performance of the sugar industry in all its aspects. One of the important aspects is the technical performance of the industry. Relevant data from all the sugar factories relating to the 10-year period 1960-61 to 1969-70 were obtained through the Technical-*cum*-financial Questionnaire, issued by the Commission. Out of 215 factories working in 1969-70, replies were received from 209 factories, but some factories did not furnish complete replies to one or the other part of the Questionnaire.

Norms for Technical Efficiency

3.3 The technical efficiency of a sugar factory depends upon its recovering maximum sugar from cane. The role of the technologists—chemists and engineers—in attaining high efficiency, is important. The chemists and engineers are able to achieve maximum efficiency by proper maintenance and use of modern technology and equipment. The technical efficiency is an index of not only good maintenance of plant and machinery but also of efficient processing. This is, however, possible without sacrificing the economic rate of crushing, if the processors keep pace with the technological advancement and realise the disadvantages of obsolescence. It was brought to our notice that some entrepreneurs were conscious of maintaining technical efficiency of their factories and whenever, in their opinion, the efficiency of the factory fell, they sought and obtained the advice of the National Sugar Institute, Kanpur.

3.4 The technical efficiency at various stages of sugar manufacture is judged by the following :—

(i) loss of sugar in bagasse,
(ii) loss of sugar in pressmud,
(iii) loss of sugar in molasses,
(iv) undetermined loss,
(v) total sugar losses,
(vi) reduced mill extraction,
(vii) reduced boiling house extraction, and
(viii) reduced overall extraction.

Of these, the last mentioned factor, *viz.* the reduced overall extraction, which is derived from reduced mill extraction and reduced boiling house extraction, gives the overall efficiency of the factory. The other factors show the efficiency of operation of different stations which are independently controllable.

3.5 Every industry works with certain targets of efficiency and establishes certain norms for judging its performance. The data in respect of the sugar per cent bagasse, total sugar losses per cent cane [sum of (i) to (iv) above], reduced mill extraction, reduced boiling house extraction and reduced overall extraction for period 1940—60 have been analysed. The following table gives the average all-India figures for these 20 years.

TABLE NO. 3.1

All India average figures of important technical efficiency factors for the period 1940-41 *to* 1959-60.

Year	Sugar per cent bagasse	Total sugar losses per cent cane	Reduced Mill extraction	Reduced Boiling House extraction	Reduced overall extaction
1	2	3	4	5	6
1940-41	3.15	2.49	93.53	90.89	85.01
1941-42	3.25	2.47	93.16	90.47	84.28
1942-43	3.14	2.36	93.77	90.08	84.47
1943-44	3.20	2.45	93.53	90.41	84.56
1944-45	3.24	2.42	93.52	90.47	84.61
1945-46	3.17	2.43	93.62	90.58	84.81
1946-47	3.08	2.38	93.61	90.44	84.66
1947-48	3.22	2.43	93.37	90.69	84.68
1948-49	3.25	2.52	93.36	90.99	84.95
1949-50	3.09	2.33	93.66	90.13	84.42
1950-51	3.08	2.38	93.75	90.30	84.66
1951-52	3.10	2.49	93.38	90.72	84.71
1952-53	3.04	2.43	93.90	90.49	84.97
1953-54	3.07	2.29	93.73	90.58	84.89
1954-55	3.09	2.46	93.65	90.42	84.68
1955-56	3.17	2.58	93.51	89.99	84.15
1956-57	3.21	2.52	93.35	90.10	84.11
1957-58	3.25	2.56	93.39	89.87	83.93
1958-59	3.23	2.51	93.25	89.67	83.62
1959-60	3.27	2.55	93.19	90.01	83.88
Arithmatic average.	3.17	2.45	93.51	90.37	84.50

SOURCE: (i) N.S.I. Kanpur & Indian Sugar Manual, 1961.
(ii) Cooperative Sugar, Jan. 1973, Vol. 4, No. 5.

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The average of the working results for 20 years evens out any abnormalities that might have existed in some years and should, therefore, serve as a reasonable guide for fixing the norms of efficiency.

3.6 The Commission also collected some data on the working results of factories in other countries. The data, as available, are given below :—

TABLE NO. 3.2

Item	Mauritius (1970)	Hawaii (1971)	Queensland (1969)	Louisiana (1970)	Guyana (1968)	South Africa (1971-72)	Jamaica (1964)
1	2	3	4	5	6	7	8
Fibre per cent cane	13.17	13.09	13.53	11.38	15.94	14.82	14.54
Pol per cent bagasse	2.12	1.99	2.43		2.62	1.61	2.63
Reduced boiling house extraction	88.4	89.76			91.80	89.28	91.46
Reduced mill extraction	95.8	95.37	96.00		93.94	96.64	94.28
Reduced overall extraction	84.6	85.60			86.24	86.28	86.23
Total sugar losses per cent cane	1.76	1.73		2.14	2.04	1.85	2.04

SOURE: (a) Mauritius Sugar Industry Research Institute, 18th Annual Report, 1970.
(b) 1971 Factory Report of the Sugar Technology Deptt. of Hawaii Sugar Planters Association Experiment Station.
(c) The Australian Sugar Year Book, 1971.
(d) Sugar Y Azucar Year Book 1972.
(e) National Sugar Institute, Kanpur.
(f) Proc. of the 46th Annual Congress of South African Sugar Technologists' Association, 1972.
(g) National Sugar Institute, Kanpur.

Except for milling, other operations in most of the above countries differ slightly from those in India. As mentioned in Chapter I, many of the foreign countries produce raw sugar while our country manufactures plantation white sugar. There is a slight difference in the clarification techniques followed in India and elsewhere, but that does not significantly affect the operational efficiency.

3.7 Here a reference may usefully be made to the norms of efficiency mentioned in the Report of the Committee on Rehabilitation and Modernisation of Sugar Factories in India (Gundu Rao Committee) 1965. According to that Committee the norms are as follows :—

(i) Total sugar losses per cent cane.	
(a) for carbonation factories	2.3
(b) for sulphitation factories	2.5
(ii) Reduced Overall Extraction	84
(iii) Total Fuel Consumption per cent Cane (in terms of bagasse)	26

3.8 A reference may also be made to an article by a renowned sugar technologist. Arthur G. Keller*. In his opinion, the following standards could be set for evaluating technical performance of a sugar factory : —

Pol loss in final molasses per cent cane	0.70—0.90
Pol loss in filter cake per cent cane	0.10—0.25
Undetermined pol loss per cent cane	0.05—0.10
Total boilling house loss per cent cane	0.85—1.25
Pol loss in bagasse per cent cane	0.90—1.25
Total loss per cent cane	1.75—2.40

*Sugar Journal, USA 1966, Jan. p. 23.

3.9 The representatives of the Indian Sugar Mills Association (ISMA) discussed with us the norms of efficiency and also submitted a written memorandum on this subject. The Commission also invited the views of the Sugar Technologists' Association of India (STA), South Indian Sugar Technologists Association (SISTA) and the Deccan Sugar Technologists Association (DSTA). The main points made by the ISMA and the Technologists Associations are as follows :—

(i) Technical efficiency depends upon the quality of cane which varies from region to region and factory to factory. The varying nature of fibre, non-sugars in cane, etc., affect the losses in sugar factories. The norms have to be fixed taking into consideration primarily the changes in the composition of the raw material over which a factory has no control ;

(ii) no rigid norms for technical performance can be prescribed ; and

(iii) analytical data for determining the technical efficiency factors are based on the estimation of pol which is at times misleading, the only correct measure being sucrose determination.

3.10 Of the three Technologists' Associations, DSTA stated that in view of the many variables it was difficult to lay any standard norms. The other two Associations suggested the following norms :—

	S.T.A.	S.I.S.T.A.
Total sugar losses per cent cane	—	2.25 to 3.0
Reduced Mill Extraction	93	92-93 for 12 roller mill. 93-94 for 18 roller mill.
Reduced Boiling House Extraction	85	81—87
Reduced Overall Extraction	79	75—81

3.11 One important factor which did not find a place in the memorandum of the ISMA and the replies of ISMA or the Technologists' Associations excepting DSTA is the major role played by the condition of the plant and equipment on technical performance. In their opinion, the quality of cane alone was responsible for technical deficiencies and not the condition of the plant and machinery. This approach does not appear to be reasonable. Though the variations in the quality of cane do have some effect on the day-to-day working and on the total losses, the condition of the plant and machinery definitely contribute to the efficiency of a factory. The quality of the technical personnel also affects the performance of the factory. In this connection, it will be interesting to refer to the proceedings of a seminar* on the losses in sugar factories due to pan boiling operations :

> "Considering the great advances made in pan boiling techniques and the present standard of operation in sugar factories in India, there is great scope for improving pan boiling. A recent review of the equipment at the pan, crystallisers and centrifugal stations which have to do with successful commercial crystallisation, has shown that there is a great gap between what exists and what is required. There are still several factories having coil pans and old type calandria pans with steep cones and coils, narrow downtakes and high boiling levels. There are not even the necessary slopes for handling thick massecutes. The control condensing systems are common. Individual multijet condensers are only recent and on the increase. There is considerable shortage of steam due to steam imbalance in the factories. Weaknesses at the crystallisers and centrifugal stations, absence of proper classification of molasses, lack of molasses conditioning, recirculation of molasses due to poor centrifugal performance, etc., are still the features in a number of factories. Instrumentation is almost absent except perhaps in a few factories using fuitometers. The necessity of maintaining instruments in proper condition is greatly felt. It is also necessary to properly calibrate the instruments so that they give a proper indication of the operating conditions instead of misleading. There is considerable lack of trained personnel who can follow scietific pan boiling with the use of instruments. The modernisation of the equipment on the pan floor, instrumentation and increasing application of the available knowledge and the principles are of the greatest need to put commercial sugar crystallisation in India at a high level."

The above example relates only to the pan boiling operations in sugar factories.

3.12 The representatives of ISMA have stated that there cannot be any rigid norms for technical efficiency factors. The Commission is aware of the working conditions of sugar factories and the variations that result from the need to regulate factory operations to meet the day-to-day exigencies. But every sugar factory does in fact operate keeping in view certain expectations or targets or norms of efficiency. Without targets or such norms, no management or technologist can work. They are fully aware of the need for achieving and maintaining efficiency at requisite standards both from the technical and economic points of view. In this connection, the following views expressed by a reputed technologist, Dr. Payne** (Hawaii) are relevant :

> "On the question of extraction, we set our target at 1 (one) pol in bagasse and forget about extraction. So the engineers and the processing people who are operating it, are looking only at the pol in bagasse, because if you get the pol in bagasse one or below, you do not have to worry about extraction. Presumably, the extraction is going to be 97 or better, regardless of the quality of cane. So the quality of cane does not affect. With the diffusers and with very low pols in cane, one need to worry about extraction. It takes care of itself automatically."

This establishes firmly that there has to be a target or a norm for judging technical efficiency.

3.13 The representatives of ISMA have questioned the validity of the technical data based on the pol readings. Their main point is that the data based on sucrose purities are more reliable and give a true picture, and that one cannot draw conclusions on the pol data. This is an extreme view.

3.14 The following extract from the proceedings of a technical seminar† held under the auspices of the Sugar Technologists' Association of India is relevant to the matter under consideration :

> "Generally pol balances (direct polarisation) are reported. In very rare cases sucrose balances (double polarisation) are prepared. Pol per cent and purity of mixed juice and clarified juice are generally lower by 0.2 and 1.4 respectively as compared to the sucrose figures. Sucrose purity of waste molasses is always higher than pol purity by 3-4 units."

The above variations are due to leverotatory mixture of glucose and fructose affecting the estimation of dextrorotatory sucrose. In a factory the sugar accounting starts from the estimation of sugar in mixed juice. As the sucrose percent is generally higher than the pol per cent by about 0.2, as mentioned above, the sucrose that actually enters into the boiling house is more than what is indicated by the pol balance. This affects favourably the efficiency figures of the boiling house.

*Held under the auspices of Sugar Technologist's Association of India at New Delhi in 1966 (Part-II, page 19).

** Proceedings of the All-India Technical Seminar Cane Diffusion (S.T.A.) held at Madras in 1969, p. 10-B.

†Proceedings of Technical Seminar (S.T.A.) held at New Delhi in 1966, Part-II, p. 34.

That is, the boiling house losses are shown always lower on pol basis than on sucrose basis. So far as the losses in molasses are concerned, as the sucrose purities are higher by 3-4 units than pol purities, the effect would be to depress actual sugar loss in molasses. In other words, losses in molasses are actually shown loss on pol basis than on sucrose basis. This difference which is about 0.12 to 0.15 per cent on cane between the actual sugar loss in molasses and that determined on pol basis is reflected in the unknown losses. The total boiling house losses on pol basis are not higher than those determined on sucrose basis. Rather they are somewhat lower. Thus the adoption of pol basis in laboratory analysis is reasonably dependable.

3.15 The question of sugar accounting by sucrose basis was also discussed by the technologists at the Delhi Seminar (p. 43). The following observations were made :—

> "To begin with, the group discussed the feasibility of the sucrose balance against the pol balance. The group was of the opinion that with the present staff in the laboratory and the care and accuracy required in sucrose determination, it was not practicable for factories to adopt sucrose balance instead of pol balance."

In view of the above, the suggestion of ISMA to have sucrose determination for technical control in factories does not appear to be a practicable proposition.

3.16 The Sugar Technologists' Association of India has reported to the Commission an efficiency figure of 79 for reduced overall extraction. This appears to us a very low figure. Even the average of the working of the sugar factories for the 20 years (1940-41 to 1959-60) shows that the reduced overall extraction has always been above 84 except in the last three years when it was between 83 and 84. In view of this it is difficult to accept the low figure of 79 reported by the S.T.A.

3.17 After considering the various aspects discussed above, the Commission is of the view that the following norms should be adopted with justification for assessing the technical performance of the factories during the 10 year period (1960-61 to 1969-70) :—

Particulars	Norms
Sugar per cent bagasse . . .	3.0
Total sugar losses per cent cane	
(a) for carbonation factories . .	2.3 to 2.5
(b) for sulphitation factories . .	2.3 to 2.7
Reduced mill extraction . . .	93
Reduced boiling house extraction . .	90
Reduced overall extraction . . .	84

The break-up of the total sugar losses is as follows :—

(i) Loss of sugar in bagasse per cent cane.	0.9 to 1.1 depending upon quality of cane.
(ii) Loss of sugar in presscake per cent cane	0.1
(iii) Loss of sugar in molasses per cent cane.	1.2 to 1.4 depending upon quality of of cane.
(iv) Undetermined loss of sugar per cent cane.	0.1

The technical performance of various sugar factories has, therefore, been considered on the basis of the above norms.

Sugar Loss in Bagasse

3.18 The sugar loss in bagasse per cent cane depends upon sugar per cent bagasse and bagasse per cent cane. As discussed earlier, the sugar per cent bagasse can be about 3.0 and, with good milling, it can even be less. The following table gives, State-wise, the number of factories in different groups of sugar per cent bagasse. These results are based on the average for 10 years 1960-61 to 1969-70.

TABLE No. 3.3

Statement showing the number of factories falling under various groups of sugar per cent bagasse on the basis of 10 *years' average* (1960-61 *to* 1969-70)

State	No. of factories reported	Sugar per cent bagasse								
		2.9 & below	Above 2.9 & upto 3.0	Above 3.0 & upto 3.1	Above 3.1 & upto 3.2	Above 3.2 & upto 3.3	Above 3.3 & upto 3.4	Above 3.4 & upto 3.5	Above 3.5 & upto 4.0	Above 4.0
1	2	3	4	5	6	7	8	9	10	11
Andhra Pradesh	19	2	1	..	2	3	1	4	5	1
Assam	1	..	..	..	..	..	1	..	..	..
Bihar	24	3	4	1	3	2	3	2	6	..
Gujarat	5	..	..	..	2	..	..	1	1	1
Haryana	3	..	1	2	..	..	..	..	..	..
Karnataka	10	..	..	2	..	..	..	1	3	4
Kerala	3	..	..	1	1	..	1	..	..	..

1	2	3	4	5	6	7	8	9	10	11
Madhya Pradesh	4	..	..	1	..	1	...	..	2	..
Maharashtra	36	7	2	6	2	2	4	4	7	2
Orissa	2	..	..	1	..	..	..	1	..	..
Pondicherry	1	..	..	..	..	1	..	..	..	..
Punjab	6	..	1	2	1	2	..	..	..	..
Rajasthan	2	..	..	..	..	1	..	..	..	1
Tamil Nadu	16	3	1	1	2	4	2	2	..	1
U.P. West	18	1	1	4	3	2	1	1	5	..
Central	20	1	..	3	3	2	5	3	3	..
East	32	3	..	3	3	4	3	4	10	2
West Bengal	1	1	..	..	..	..	..	..	..	..
TOTAL	203	21	11	27	22	24	21	23	42	12

Out of 203 factories, there were only 32 sugar factories where the sugar per cent bagasse was 3.0 and below. Thus a very large number of factories were having high losses in bagasse. In 12 factories, the sugar per cent bagasse was even more than 4.0 per cent. This loss is extremely high.

3.19 In Maharashtra, where the factories have modern equipment and where fibre content is comparatively low, only 9 out of 36 factories have sugar per cent bagasse of 3.0 and below. The rest of the factories have more bagasse losses. In Karnataka, none of the 10 factories, has sugar loss in bagasse of 3 and below ; 4 factories have losses of even more than 4 per cent. In U.P., 64 out of 70 factories and in Bihar, 17 out of 24 have sugar per cent in bagasse of above 3.0. Similarly, in other States also, the milling was poor as the sugar per cent bagasse was appreciably higher than 3.0. Thus in most of the factories the mill performance has been poor.

Bagasse per cent cane

3.20 Statewise number of factories in different groups of bagasse per cent cane are given in the table below :—

TABLE No. 3.4

Statement showing the number of sugar factories falling under different categories of bagasse per cent cane on the basis of 10 *years' average* (1960-61 *to* 1969-70)

State	No. of factories reported	Bagasse per cent cane						
		Upto 26	Above 26 & upto 28	Above 28 & upto 30	Above 30 & upto 32	Above 32 & upto 34	Above 34 & upto 36	Above 36
1	2	3	4	5	6	7	8	9
Andhra Pradesh	19	1	4	6	5	3	..	..
Assam	1	..	..	..	1	..	..	..
Bihar	24	..	..	..	..	2	15	7
Gujarat	5	..	..	4	1	..	..	..
Haryana	3	..	..	..	..	3	..	..
Karnataka	10	3	..	4	1	2	..	..
Kerala	3	..	..	2	1	..	..	..
Madhya Pradesh	4	..	..	1	1	1	1	..
Maharashtra	37	6	17	12	1	..	1	..
Orissa	2	..	..	1	..	1	..	..
Pondicherry	1	..	..	..	..	1	..	..
Punjab	6	..	..	..	1	5	..	..
Rajasthan	2	..	..	1	..	..	1	..
Tamil Nadu	16	..	5	5	4	2	..	..
U.P. West	18	..	..	..	6	10	2	..
Central	20	..	..	..	1	..	10	9
East	32	..	..	..	..	8	16	8
West Bengal	1	..	..	..	..	1	..	..
TOTAL	204	10	26	36	23	39	46	24

The Central U.P., East U.P. and Bihar sugar factories have recorded appreciably high bagasse per cent cane over 34 per cent. That is due to high fibre in cane. In other States it varies from 30 to 34 per cent, except in Maharashtra, where it is below 30 per cent. On the basis of a figure of 3.0 for sugar per cent bagasse, sugar loss in bagasse per cent cane should, by and large, not exceed 1.1 even in areas where bagasse per cent cane is a high as 36. In other areas, it could be well below this figure. On this basis, the sugar losses in bagasse in 72 factories, where bagasse per cent is 30 and below, normally should not have exceeded 0.9. But as the following table indicates, sugar loss in bagasse per cent cane is much higher in most of the sugar factories due to poor milling performance.

TABLE No. 3.5

Statement showing the number of factories falling under various groups of sugar loss in bagasse per cent cane on the basis of 10 *years' average* (1960-61 *to* 1969-70)

State	No. of factories reported	Sugar loss in bagasse per cent cane						
		upto 0.7	Above 0.7 & upto 0.8	Above 0.8 & upto 0.9	Above 0.9 & upto 1.0	Above 1.0 & upto 1.1	Above 1.1 & upto 1.2	Above 1.2
1	2	3	4	5	6	7	8	9
Andhra Pradesh	19	1	..	1	7	5	3	2
Assam	1	..	..	..	..	1	..	..
Bihar	22	..	..	..	5	4	6	7
Gujarat	3	..	..	..	1	1	..	1
Haryana	3	..	..	..	1	2	..	..
Karnataka	10	..	1	..	4	..	1	4
Kerala	3	..	..	1	1	1	..	..
Madhya Pradesh	3	..	..	..	1	1	1	..
Maharashtra	35	1	10	11	7	4	..	2
Orissa	2	..	..	1	..	..	1	..
Pondicherry	1	..	..	..	..	1	..	..
Punjab	6	..	..	..	1	5	..	..
Rajasthan	2	..	..	..	..	..	1	1
Tamil Nadu	16	..	2	5	3	4	2	..
U.P. West	18	..	..	1	5	6	4	2
Central	19	..	..	..	1	1	12	5
East	31	..	..	1	2	6	..	14
West Bengal	1	..	..	1	..	..	..	..
TOTAL	195	2	13	22	39	42	39	38

On an all-India basis (10 years, average) there are only 37 factories where sugar loss in bagasse per cent cane is 0.9 and below. However, as mentioned above, there are 72 factories where the bagasse per cent cane is 30 and below and therefore one would expect that in all these factories, sugar loss in bagasse should have been limited to 0.9. Instead, only 37 factories have obtained sugar losses in bagasse of 0.9 or below. In 35 factories in Maharashtra, the sugar loss in bagasse per cent cane should have been 0.9 or below. Actually, only 22 factories fall in this range, the others having higher losses. In Central and the East U.P. and Bihar, where the fibre per cent cane is high and bagasse per cent cane generally ranges from 34 to 36, the loss of sugar per cent cane should have been about 1.1. But there are 26 factories having sugar losses even higher than 1.2 per cent. Although factories in all the States are having higher milling losses, the number is proportionately more in U.P. and Bihar. This is due to the existence of a large number of old milling plants. Milling equipment in most of the factories in U.P. and Bihar generally suffers from not only the design features, but also from lack of power in the engines and sufficient strength in the mills on account of which higher loading of the mills is not resorted to. It will be seen that, by and large, the milling performance in about 75 per cent of the factories is not satisfactory.

Sugar Loss in Press-Cake

3.21 Sulphitation sugar factories use two types of filters, batch type *i.e.*, plate and frame filter presses and the continuous vacuum filters. The plate and frame filter press is obsolete. Modern trend is to use the continuous vacuum filter by which the sugar per cent press-cake can be restricted to 1.5 to 2.0. According to the information collceted from 174 sulphitation factories, 132 factories employed the continous vacuum filters by 1969-70 and the rest used the obsolete plate and frame filter presses. In the case of carbonation factories, the filtration is still carried out by filter presses, although only recently in the season 1972-73, two sugar factories have installed continuous filters. With presses, most of the carbonation factories were able to achieve sugar per cent press-cake of below 2.0. With continuous filters in carbonation factories, the sugar loss may further be reduced.

3.22 All sugar factories having similar sugar per cent press-cake have been grouped together and are given in the following table:

TABLE NO. 3.6

Statement showing number of factories falling under various groups of sugar per cent press-cake on the basis of 10 *years' average* (1960-61 *to* 1969-70)

State	No. of factories reported	Sugar per cent press-cake							
		1.0 & below	Above 1.0 & upto 1.5	Above 1.5 & upto 2.0	Above 2.0 & upto 2.5	Above 2.5 & upto 3.0	Above 3.0 & upto 3.5	Above 3.5 & upto 4.0	Above 4.0
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	18	..	..	4	2	3	1	3	5
Assam	1	..	1	..	..	..	..	..	..
Bihar	23	1	..	3	5	2	2	5	5
Gujarat	5	..	1	1	1	1	1	..	..
Haryana	3	..	1	2	..	..	..	..	..
Karnataka	9	..	1	..	1	1	2	2	2
Kerala	3	..	..	1	1	1	..	..	..
Madhya Pradesh	4	..	..	1	..	1	2	..	..
Maharashtra	34	1	13	11	3	..	2	1	3
Orissa	2	..	..	..	1	..	..	..	1
Pondicherry	1	..	..	..	..	1	..	..	..
Punjab	6	1	2	2	..	1	..	..	..
Rajasthan	2	..	..	1	..	..	..	..	1
Tamil Nadu	16	..	1	6	4	3	..	1	1
U.P. West	18	1	4	7	..	..	3	1	2
Central	20	1	1	4	3	3	2	4	2
East	31	1	1	2	2	1	2	4	18
West Bengal	1	..	..	..	..	1	..	..	..
TOTAL	197	6	26	45	23	19	17	21	40

The sugar per cent press-cake varied within wide limits—from below 1 per cent to above 4 per cent. Out of the 197 factories, 77 factories obtained sugar per cent press-cake of 2.0 and below and in the rest of the factories, it was above this figure. The working at this station was the best in Maharashtra and very poor in Central U.P., East U.P., and Bihar. In Central U.P., 14 out of 20 factories had sugar per cent press-cake of more than 2.0. Similarly, in East U.P. out of 31 factories, 27 had a sugar loss of more than 2.0 per cent ; only four factories had sugar losses in press-cake within satisfactory limits. In Bihar also out of 23 factories, 19 had higher losses.

3.23 The sugar losses in press-cake per cent cane will depend on the sugar per cent press-cake and the press-cake per cent cane. The latter generally varies from 3.0 to 4.0 in sulphitation factories. This is nearly 2 to 2½ times more in a carbonation factory due to the use of larger quantity of lime for clarification purposes. The Statewise number of factories in different groups of sugar loss in press-cake per cent cane on the basis of 10 years' average is given in the following table :

TABLE No. 3.7

Statement showing the number of factories falling under various groups of sugar loss in the press cake per cent cane on the basis of 10 *yaers' average* (1960-61 *to* 1969-70)

State	No. of factories reported	Sugar loss in press-cake per cent cane								
		0.05 & below	Above 0.05 & upto 0.07	Above 0.07 & upto 0.10	Above 0.10 & upto 0.11	Above 0.11 & upto 0.12	Above 0.12 & upto 0.13	Above 0.13 & upto 0.14	Above 0.14 upto 0.15	Above 0.15
1	2	3	4	5	6	7	8	9	10	11
Andhra Pradesh	19	4	5	7	..	1	..	1	..	1
Assam	1	1	..	..	..	..	..	..	..	..
Bihar	22	2	3	6	1	3	2	2	..	3
Gujarat	3	2	1	..	..	..	..	..	..	..
Haryana	3	..	..	..	1	2	..	..	..	..
Karnataka	10	1	3	4	1	..	..	1	..	..
Kerala	3	1	1	1	..	..	..	..	..	..
Madhya Pradesh	4	..	2	..	..	..	..	..	..	2
Maharashtra	35	20	10	4	..	1	..	..	..	..
Orissa	2	1	..	..	..	..	..	..	..	1
Pondicherry	1	..	..	1	..	..	..	..	..	..
Punjab	6	2	1	3	..	..	..	..	..	..
Rajasthan	3	1	1	..	..	..	1	..	..	..
Tamil Nadu	16	7	5	3	1	..	..	..	..	..
U.P. West	18	..	..	6	4	4	1	1	1	1
Central	19	..	5	9	..	1	1	2	..	1
East	31	2	1	7	5	5	..	4	3	4
West Bengal	1	..	1	..	..	..	..	..	..	..
TOTAL	197	44	39	51	13	17	5	11	4	13

Out of 197 factories, 44 were having a sugar loss of 0.05 per cent and below. The loss of over 0.15 per cent was in 13 factories. Out of these 13 factories, 6 are in U.P., 3 in Bihar, 2 in Madhaya Pradesh, 1 each in Andhra Pradesh and Orissa.

3.24 With continuous filters in sulphitation factories, the sugar loss in press-cake per cent cane could be well below 0.10 but a large number of factories were having higher losses and most of them were in U.P. and Bihar. Most of the carbonation factories which used only filter presses had losses in the range of 0.12 per cent.

3.25 The higher sugar losses in press-cake in most of the U.P. and Bihar factories were due mainly to the use of the out-moded equipment *i.e.*, the filter presses. A few factories even with continuous filters had recorded more than 2.0 sugar per cent in cake due to unsatisfactory working.

Sugar Loss in Molasses

3.26 One of the major sugar losses in factories is in the final molasses. The extent of loss depends on the production as well as the purity of the final molasses. The quantity of molasses produced depends generally on the non-sugars present in the cane juice. The higher the non-sugars the higher will be the production of molasses. The purity of molasses depends largely on the efficiency of clarification of juices, working of pan, crystalliser and centrifugal stations. The following table gives the State-wise number of factories in various groups of molasses per cent cane.

TABLE No. 3.8

Statement showing the number of factories falling under various groups of Molasses per cent cane on the basis of 10 years' average (1960-61 to 1969-70)

State	No. of factories reported	Molasses per cent cane					
		3.0 & below	Above 3.0 & upto 3.5	Above 3.5 & upto 4.0	Above 4.0 & upto 4.5	Above 4.5 & upto 5.0	Above 5.0
1	2	3	4	5	6	7	8
Andhra Pradesh	19	..	2	2	11	3	1
Assam	1	..	..	..	1	..	..
Bihar	22	..	2	10	10	..	..
Gujarat	3	..	..	..	1	1	1
Haryana	3	..	..	3	..	..	..
Karnataka	10	..	1	3	3	1	2
Kerala	2	..	..	..	2	..	..
Madhya Pradesh	4	..	..	1	2	1	..
Maharashtra	35	..	7	18	6	2	2
Orissa	2	..	..	..	..	2	..
Pondicherry	1	..	..	..	1	..	..
Punjab	6	..	..	3	2	..	1
Rajasthan	3	..	..	..	1	2	..
Tamil Nadu	16	..	..	..	5	9	2
U.P. West	18	..	6	7	5	..	..
Central	19	1	1	3	13	1	..
East	31	2	..	12	15	2	..
West Bengal	1	..	..	1	..	..	..
TOTAL	196	3	19	63	78	24	9

There were 22 factories out of 196 where the molasses per cent cane was 3.5 and below. Nine factories had very high percentage of above 5 per cent. Most of the factories, however, were in the range of 3.5 to 4.5 per cent.

3.27 The following table gives the Statewise number of factories in various groups of molasses purity.

TABLE No. 3.9

Statement showing the number of factories falling under various groups of purity of final molasses on the basis of the 10 years' average (1960-61 to 1969-70)

State	No. of factories reported	Purity of final molasses.						
		32.0 & below	Above 32.0 & upto 33.0	Above 33.0 & upto 34.0	Above 34.0 & upto 35.0	Above 35.0 & upto 36.0	Above 36.0 & upto 38.0	Above 38.0
1	2	3	4	5	6	7	8	9
Andhra Pradesh	19	2	4	8	2	2	1	..
Assam	1	1	..	..	..	..	..	..
Bihar	22	..	..	1	2	6	4	9
Gujarat	3	..	..	1	1	1	..	..
Haryana	3	..	..	..	..	2	1	..
Karnataka	10	2	..	1	4	..	3	..
Kerala	3	..	..	3	..	..	..	..
Madhya Pradesh	4	..	..	1	..	3	..	..
Maharashtra	35	7	3	6	5	5	9	..
Orissa	2	1	1	..	..	..	..	..
Pondicherry	1	..	..	..	1	..	..	..
Punjab	6	..	4	..	1	..	..	1
Rajasthan	3	1	1	..	1	..	..	..
Tamil Nadu	15	4	3	2	2	2	..	2
U.P. West	18	..	1	7	3	5	2	..
Central	19	1	2	2	7	2	4	1
East	31	..	..	..	2	6	15	8
West Bengal	1	1	..	..	..	..	..	..
TOTAL	196	20	19	32	31	34	39	12

The purity of final molasses was 32 and below in 20 out of 196 sugar factories and 21 factories recorded high purities of above 38. The remaining factories were having purities between 32 and 38. The final molasses purity upto 34-35 is considered satisfactory. As many as 94 factories were having purities higher than even 35.

3.28 East U.P. factories had mostly recorded molasses purities. Out of 31 factories in East U.P., excepting two, all had purities higher than 35. Similarly, in Bihar, out of 22 factories only 3 factories had molasses purities of 35 and below and the rest had higher purities. The high purities of molasses in a large number of factories in East U.P., Bihar and Maharashtra are not entirely due to the nature of impurities and the quality of juices. In U.P. and Bihar they may be due to the old and out-moded equipment at the pan, crystalliser and centrifu stations. In Maharashtra, however, where most the plants are modern, it is difficult to understand high purities of molasses in many factories. W modern processing techniques and new plants, should not be too difficult to reduce the purity of fi molasses to 35 and below. This shows lack adequate technical control in the boiling house.

Sugar Loss in Molasses per cent Cane

3.29 In view of the wide variations in both molasses per cent cane and the purity of final mol ses, loss of sugar in molasses per cent cane also vari widely. State-wise number of sugar factories falli in various groups of sugar loss in molasses per ce cane is given in the following table :—

TABLE No. 3.10

Statement showing the number of factories falling under the various groups of sugar loss in molasses per cent cane on the basis of 10 *year average* (1960-61 *to* 1969-70)

State	No. of factories reported	Sugar loss in molasses per cent cane						
		1.0 & below	Above 1.0 & upto 1.1	Above 1.1 & upto 1.2	Above 1.2 & upto 1.3	Above 1.3 & upto 1.4	Above 1.4 & upto 1.5	Abo 1.5
1	2	3	4	5	6	7	8	9
Andhra Pradesh	19	..	2	..	4	7	4	
Assam	1	..	..	..	1	..	..	
Bihar	22	..	1	..	3	7	10	
Gujarat	3	..	..	..	..	1	..	
Haryana	3	..	..	..	2	1	..	
Karnataka	10	..	..	2	2	2	2	
Kerala	3	..	..	1	..	1	1	
Madhya Pradesh	4	..	..	..	1	1	..	
Maharashtra	35	..	1	12	10	9	..	
Orissa	2	..	..	..	1	1	..	
Pondicherry	1	..	..	..	..	..	1	
Punjab	6	..	1	..	2	2	1	
Rajasthan	3	..	..	..	..	1	2	
Tamil Nadu	16	..	..	..	1	4	6	
U.P. West	18	..	3	8	5	2	..	
Central	19	1	1	1	5	6	4	
East	31	1	..	2	5	9	6	
West Bengal	1	..	..	1	..	..	..	
TOTAL	197	2	9	27	42	54	37	

3.30 The lowest sugar loss in molasses of 1.0 per cent and below was recorded in two factories in U.P. In the next range above 1.0 and upto 1.1 per cent there were 9 factories, 4 of which were in U.P., 2 in Andhra and one each in Bihar, Maharashtra and Punjab. Twentyseven factories were in the range of above 1.1 and upto 1.2 per cent and of these 11 were in U.P. 12 in Maharashtra, 2 in Mysore, 1 each in Kerala and West Bengal. The maximum number of factories (96) had molasses loss in the range of above 1.2 and upto 1.4 per cent cane. Thirtytwo of these were in U.P., 10 in Bihar, 19 in Maharashtra and the rest in other States. These factories fall in the average categories so far as the sugar loss in molasses per cent cane is concerned. Normally, with efficient working, few factories shoul have losses higher than 1.4 per cent. But actuall as many as 63 factories had molasses losses higher than 1.4 per cent cane. Nineteen of these were i U.P. (Central and East), 11 each in Bihar and Tam Nadu and the rest in other States. Some of these 6 factories had higher losses on account of the natur of the juice. But quite a large number of them di not suffer from this disadvantage and yet recorde higher losses due to poor performance. With better working at the pan the crystalliser and the centrifug stations, losses could have been reduced.

Undetermined Sugar Loss per cent Cane

3.31 Any sugar loss in the processing of juice which is not accounted for is put under this head. Normally the undetermined loss is about 0.1 per cent cane. The following table gives the State-wise number of factories falling in different ranges of unknown sugar losses.

TABLE No. 3.11

Statement showing the number of factories falling under various groups of undetermined sugar loss per cent cane on the basis of 10 *years' average* (1960-61 *to* 1969-70)

State	No. of factories reported	Undetermined sugar loss per cent cane						
		0.10 & below	Above 0.10 & upto 0.11	Above 0.11 & upto 0.12	Above 0.12 & upto 0.13	Above 0.13 & upto 0.14	Above 0.14 & upto 0.15	Above 0.15
1	2	3	4	5	6	7	8	9
Andhra Pradesh	19	13	2	..	1	..	2	1
Assam	1	1	..	..	..	..	..	..
Bihar	22	4	..	3	1	..	4	10
Gujarat	3	1	..	..	1	..	..	1
Haryana	3	1	..	1	..	..	..	1
Karnataka	10	4	1	1	1	..	1	2
Kerala	3	2	..	..	..	..	..	1
Madhya Pradesh	4	1	..	..	..	1	..	2
Maharashtra	35	6	3	4	3	3	7	9
Orissa	2	2	..	..	..	..	..	..
Pondicherry	1	..	1	..	..	..	..	..
Punjab	6	6	..	..	..	..	..	
Rajasthan	3	2	..	..	..	..	..	1
Tamil Nadu	16	11	1	1	1	..	..	2
U.P. West	18	5	..	2	3	1	1	6
Central	19	8	2	3	2	..	2	2
East	31	10	3	3	..	3	2	10
West Bengal	1	1	..	..	..	..	..	..
TOTAL	197	78	13	18	13	8	19	48

Out of 197 factories, 78 factories had losses of 0.1 per cent on cane and below. These losses are reasonable. Seventyone factories had undetermined losses above 0.1 and upto 0.15 per cent. In 48 factories, the undetermined loss was even higher than 0.15 per cent. Normally, even in old plants, the undetermined losses could be low if they are well maintained. Surprisingly even in Maharashtra, where nearly all the plants are modern, out of 35 factories, 29 recorded losses higher than 0.1 per cent. Nine factories had losses even higher than 0.15 per cent on cane.

Total Sugar Losses per cent Cane

3.32 As discussed earlier, the total losses of sugar per cent cane, which depend not only on the quality of cane, but also on the efficiency of working of a factory and the condition of its plant and equipment, should range from 2.3 to 2.7 per cent on cane in the case of sulphitation factories and 2.3 to 2.5 per cent on cane in the case of carbonation factories. In regions like Maharashtra, where both fibre in cane and molasses production are low, the total losses should not exceed 2.3 per cent. In all other areas, except in Central U.P., East U.P. and Bihar, the total losses normally should be about 2.5 in sulphitation factories and 2.3 in carbonation factories. In Central U.P., East U.P and Bihar, however, where fibre per cent cane and molasses per cent cane were very high, losses of even 2.7 per cent on cane in sulphitation factories and 2.5 per cent on cane in carbonation factories could be regarded as reasonable.

3.33 State-wise number of factories falling in various ranges of total losses of sugar per cent cane on the basis of 10 years' average is given in the following table :—

TABLE NO. 3.12

Statement showing the number of factories falling under various groups of total sugar losses per cent cane on the basis of 10 years, averag
(1960-61 *to* 1969-70)

State	No. of factories reported	Total sugar losses per cent cane								
		2.3 & below	Above 2.3 & upto 2.4	Above 2.4 & upto 2.5	Above 2.5 & upto 2.6	Above 2.6 & upto 2.7	Above 2.7 & upto 2.8	Above 2.8 & upto 2.9	Above 2.9 & upto 3.0	Abo 3.0
1	2	3	4	5	6	7	8	9	10	11
Andhra Pradesh	19	1	5	3	5	2	2	..	..	1
Assam	1	..	1	..	..	..	..	..	..	..
Bihar	22	1	..	1	1	2	7	5	1	4
Gujarat	3	..	..	1	..	..	..	..	..	2
Haryana	3	..	1	1	..	1	..	..	..	..
Karnataka	10	1	1	2	1	..	1	1	1	2
Kerala	3	1	..	1	..	..	..	1	..	..
Madhya Pradesh	4	..	..	..	..	2	..	1	..	1
Maharashtra	35	19	7	5	2	..	..	..	..	2
Orissa	2	1	..	..	..	..	1	..	..	..
Pondicherry	1	..	..	..	..	1	..	..	..	..
Punjab	6	1	1	..	4	..	..	..	..	..
Rajasthan	2	..	..	..	..	1	..	1	..	..
Tamil Nadu	16	..	5	1	3	2	4	..	..	1
U.P. West	18	1	5	4	4	1	2	1	..	..
Central	19	1	..	3	3	2	3	5	1	1
East	31	1	..	..	6	2	7	5	3	7
West Bengal	1	1	..	..	..	..	..	..	..	..
TOTAL	196	29	26	22	29	16	27	20	6	2

In Maharashtra, where the quality of cane was good, only 19 factories (9 cooperatives) out of 35 (23 co-operatives) factories had reasonable losses of 2.3 per cent on cane and below. Seven (6 cooperatives) factories had losses above 2.3 and upto 2.4 per cent. Nine factories (8 cooperatives) had, however, losses of more than 2.4 per cent, out of which 2 (both cooperatives were having losses of even more than 2.7 per cent. In West U.P., out of 18 factories, 11 are carbonation and 7 sulphitation factories. Of the 11 carbonation factories, only one had losses of below 2.3 per cent and of the 7 sulphitation factories, only 2 had losses of 2.5 per cent and below. Thus in all, 15 out of 18 factories were having higher losses. In Central U.P., East U.P. and Bihar, where the losses of about 2.7 per cent cane in sulphitation factories and 2.5 per cent on cane in carbonation factories could be considered reasonable, 50 factories out of 72 were having higher losses. Quite a large number of factories in Tamil Nadu and Karnataka also showed higher losses. There were 74 factories which had sugar losses of more than even 2.7 per cent. Of them, 35 were in U.P., 17 in Bihar and five each in Karnataka and Tamil Nadu. The rest were in other States. Thus nearly 40 per cent of the total number of factories had very high sugar losses.

Reduced Mills Extraction

3.34 The State-wise number of sugar factories falling in different ranges of reduced mill extraction is given in the following table.

TABLE. NO. 3.13

Statement showing the number of factories falling under various groups of reduced mill extraction on the basis of 10 years' average (1960-61 to 1969-70)

State	No. of factories reported	Reduced mill extracttion						
		91 & below	Above 91 & upto 92	Above 92 & upto 92.5	Above 92.5 & upto 93	Above 93 & upto 94	Above 94 & upto 95	Above 95
1	2	3	4	5	6	7	8	9
Andhra Pradesh	18	2	3	2	6	4	1	..
Assam	1	..	..	1	..	..	..	..
Bihar	22	..	3	2	4	7	6	..
Gujarat	3	1	..	..	1	1	..	..
Haryana	3	..	..	1	2	..	..	..
Karnataka	9	3	1	3	1	1	..	..
Kerala	3	..	..	2	1	..	..	..
Madhya Pradesh	3	..	1	..	..	2	..	..
Maharashtra	35	2	..	2	3	14	12	2
Orissa	2	..	..	1	1	..	..	..
Pondicherry	1	..	1	..	..	..	..	..
Punjab	6	..	1	2	3	..	..	..
Rajasthan	2	1	..	1	..	..	..	..
Tamil Nadu	15	1	2	5	4	2	1	..
Uttar Pradesh West	18	2	3	6	4	3	..	..
Central	19	..	1	4	8	6	..	..
East	31	..	4	4	8	11	4	..
West Bengal	1	..	..	..	..	..	1	..
TOTAL	192	12	20	36	46	51	25	2

As mentioned earlier, sugar factories with proper working should get a reduced mill extraction of at least 93 per cent. In most countries of the world, mill extraction is even more than 95 per cent. By employing modern equipment such as diffusers, it is possible to get reduced mill extraction of over 97 per cent. In India, during the period 1960-61 to 1969-70, two diffusers were working—one at Belapur and the other at Phaltan, both in Maharashtra. These two factories obtained a reduced mill extraction of over 96 per cent. Out of 190 factories which had only mills, only 76 factories recorded a figure of above 93 per cent. Twentyfive of these factories recorded an extraction above 94 and upto 95 per cent. Twelve of these were in Maharashtra, 6 in Bihar, 4 in East U.P. and one each in Andhra Pradesh, West Bengal and Tamil Nadu. Most of the factories in Bihar and U.P., which recorded an extraction above 94 and upto 95 per cent had old plants. This shows that even with old units, if well maintained and properly operated, it is possible to get good extraction. There were 68 factories whose reduced mill extraction was even below 92.5 per cent. Their performance was not satisfactory.

Reduced Boiling House Extraction

3.35 The State-wise number of factories falling in different ranges of reduced boiling house extraction on the basis of 10 years' average is given in the following table.

TABLE NO. 3.14

Statement showing the number of factories falling under various groups of reduced boiling house extraction on the basis of 10 years' average (1960-61 to 1969-70)

State	No. of factories reported	Reduced boiling house extraction						
		88 & below	above 88 & upto 89	above 89 & upto 89.5	above 89.5 & upto 90	above 90 & upto 91	above 91 & upto 92	above 92
1	2	3	4	5	6	7	8	9
Andhra Pradesh	18	..	2	1	4	7	2	2
Assam	1	..	..	..	..	..	1	..
Bihar	21	6	6	3	4	1	1	..
Gujarat	3	2	..	..	..	1	..	..
Haryana	3	..	..	..	..	1	2	..
Karnataka	9	1	..	4	1	2	1	..
Kerala	3	..	..	1	..	2	..	..
Madhya Pradesh	3	..	1	..	1	..	1	..
Maharashtra	35	3	8	6	4	10	4	..
Orissa	2	..	..	..	..	1	..	1
Pondicherry	1	..	..	1	..	..	..	..
Punjab	6	1	..	..	..	1	3	1
Rajasthan	2	..	..	..	..	1	2	..
Tamil Nadu	15	1	..	..	1	7	3	..
U.P. West	18	..	..	1	2	9	6	..
Central	19	1	1	3	5	5	3	1
East	31	11	8	6	3	2	..	1
West Bengal	1	..	..	..	..	..	1	..
TOTAL	191	26	26	26	28	50	29	6

Out of 191 factories, whose data were analysed, 85 factories—27 in U.P., 14 in Maharashtra, 10 in Tamil Nadu, 11 in Andhra Pradesh and the rest distributed in other States—recorded a reduced boiling house extraction of over 90 per cent. Their performance was satisfactory. But there were 78 factories, where the boiling house performance was poor as the reduced boiling house extraction in these factories was below 89.5 per cent. Twentyfive of these 78 factories were in East U.P., 15 in Bihar, 17 in Maharashtra and the rest in other States. The main reason for low boiling house extraction in factories in U.P. and Bihar was the old and out-moded equipment. But this was not so in Maharashtra, where the equipment was modern. The low boiling house performance in the seventeen factories in Maharashtra could only be attributed to inefficient operation.

Reduced Overall Extraction

3.36 The reduced overall extraction gives the overall efficiency of operation in factories. This figure gives the quantity of sugar recovered for every 100 units of sugar in cane at 12.5 per cent fibre and 85 purity of mixed juice. The State-wise number of sugar factories falling in different ranges of reduced overall extraction on the basis of 10 years' average is given in the following table.

TABLE No. 3.15

Statement showing the number of factories falling under various groups of reduced overall extraction on the basis of 10 years' average (1960-61 to 1969-70)

State	No. of factories reported	Reduced Oveall Extraction							
		80 & below	Above 80 & upto 81	Above 81 & upto 82	Above 82 & upto 83	Above 83 & upto 83.5	Above 83.5 & upto 84	Above 84 & upto 85	Above 85
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	18	..	1	1	3	3	6	2	2
Assam	1	..	..	..	..	..	..	1	..
Bihar	22	1	1	2	13	..	2	2	1
Gujarat	3	1	..	1	..	..	..	1	..
Haryana	3	..	..	..	..	1	..	1	1
Karnataka	9	3	..	1	1	..	2	1	1
Kerala	3	..	..	..	1	..	1	1	..
Madhya Pradesh	3	..	..	..	1	..	1	1	..
Maharashtra	35	2	..	1	3	6	3	11	9
Orissa	2	..	..	..	..	..	1	..	1
Pondicherry	1	..	..	1	..	..	..	..	..
Punjab	6	..	..	..	1	..	1	3	1
Rajasthan	2	..	..	1	..	..	..	1	..
Tamil Nadu	15	..	..	..	6	1	2	5	1
U.P. West	18	..	..	3	2	3	2	7	1
Central	19	..	1	..	5	2	3	6	2
East	31	2	4	7	8	3	3	3	1
West Bengal	1	..	..	..	..	..	..	..	1
TOTAL	192	9	7	18	44	19	27	46	22

As mentioned earlier in this Chapter, the working of factories where the reduced overall extraction is 84 is regardsd as satisfactory. With efficient working, both at the mills and in the boiling house and with the use of well maintained equipment it is possible to get a reduced overall extraction of even above 85 per cent. Twentytwo factories recorded an overall extraetion of over 85 per cent. Nine (5 cooperatives) of these factories are in Maharashtra, 4 in U.P., 2 in Andhra Pradesh and the rest in other States. In 46 factories, the extraction was also good and ranged between 84 and 85. Sixteen of these are in U.P., 2 in Bihar, 5 in Tamil Nadu and the rest in other States. There are 78 factories where the redueed overall extraction was even below 83 per cent. Of these 32 are in U.P., 17 in Bihar, 6 Maharashtra, 6 in Tamil Nadu, 5 in Andhra Pradesh, 5 in Karnataka and rest scattered in other States. Thus, the reduced overall extraction in nearly 40 per cent of the factories in India has not been satisfaactory.

Quality of Sugar

3.37 All sugar factories are statutorily required to grade their sugar in terms of the Indian Sugar Standards and mark it on the bag according to the procedure laid down in the Sugar (Packing and Marking) Order, 1970, issued by the Government of India.

According to the Indian Sugar Standards now in force, there are two grades for colour and 5 grades for grain size. The colour grades are 20 and 29—grade 30 being the whitest. For grain size, the grades are A, B, C, D and E. Grain of A standard represents the boldest grain and 'E' represents the finest. For each colour and grain size, there is one set *i.e.*, in 30 colour, there are A30, B30, C30, D30 and E30. Similarly, there are five separate grades in 29 colour. Thus in all, there are ten grades in the present Indian Sugar Standards.

3.38 The quality of sugar manufactured by sugar faetories in Punjab, Haryana, Gujarat, Maharashtra and Pondicherry was by and large in the highest eolour series of 30. In the remaining main sugar producing States, the quality of sugar manufactured was both in 30 and 29 colour series. Karnataka factories produced a higher percentage of sugar in 29 eolour series. The quality of sugar manufactured in recent years in the country has shown improvement. During 1969-70 and 1970-71, sugar factories both in Andhra Pradesh and Tamil Nadu substantially improved the percentage production in 30 colour and the production in 29 colour was below 10 per cent. In Karnataka also there was a marked improvement in the quality of sugar as the percentage production in 30 colour series which was about 55 per eent upto 1966-67 increased to 81.4 per cent in 1969-70 and further increased to 90.5 per cent in 1970-71. On an all India basis, it was observed that the production in 30 colour series was ranging at about 80 per cent upto 1969-70 season. This, however, increased to 91 per cent in the season 1970-71.

3.39 Sugar factories in the North generally produced bolder grain than factories in the South, which by and large manufacture sugar of E grain size. In the main sugar producing States in the North, more than 50 per cent production was in the sizes of A, B and C. Very little sugar in these grain sizes was produced by factories in the South exeept in Maharashtra where about 40.0 per cent of the sugar produced was of bold grain size. Even in other southern States in recent years, there is a tendency for the production of grain size above E. For instance, in Andhra Pradesh, the percentage production of E grain has been gradually going down. It was 67 per cent in 1963-64, as against about 33.7 per cent in 1970-71. Similarly, there was also a gradual increase in production of sugar bolder than E grain size in Tamil Nadu.

3.40 The technical performance of the sugar industry has been analysed on the basis of certain norms of efficiency which the Commission considers reasonable (see para 3.17). The analysis shows that a large number of sugar factories have not been working upto the mark. Such factories exist in all the sectors *viz.*, the joint stock sector, the cooperative sector and the public seetor. The State-wise number of factories whose efficiency has been below the norm is given in the following table.

TABLE No. 3.16 (a)

Statewise number of factories having lower technical performance than the norms (See Para 3.17)

State	Number of factories having					
	Sugar per cent bagasse more than 3.0			Reduced mill extraction less than 93.0		
	Cooperative	Joint Stock	Public	Cooperative	Joint Stock	Public
1	2	3	4	5	6	7
Andhra Pradesh	7(8)	8(10)	1(1)	6(8)	6(9)	1(1)
Assam	1(1)	..	..	1(1)	..	..
Bihar	1(1)	15(22)	1(1)	..	8(21)	1(1)
Gujarat	5(5)	..	..	2(3)	..	..
Haryana	1(2)	1(1)	..	2(2)	1(1)	..
Karnataka	5(5)	4(4)	1(1)	3(4)	4(4)	1(1)
Kerala	2(2)	1(1)	..	2(2)	1(1)	..
Madhya Pradesh	..	4(4)	..	..	1(3)	..
Maharashtra	21(24)	6(12)	..	6(23)	1(12)	..
Orissa	1(1)	1(1)	..	1(1)	1(1)	..
Pondicherry	..	1(1)	..	..	1(1)	..
Punjab	3(4)	2(2)	..	4(4)	2(2)	..
Rajasthan	..	1(1)	1(1)	..	1(1)	1(1)
Tamil Nadu	5(6)	7(10)	..	6(6)	6(9)	..
Uttar Pradesh						
(i) West	1(1)	15(17)	..	1(1)	14(17)	..
(ii) Central	1(2)	18(18)	..	1(2)	12(17)	..
(iii) East	..	29(32)	..	..	16(31)	..
West Bengal	..	—(1)	..	..	—(1)	..
TOTAL	54(62)	113(137)	4(4)	35(57)	75(131)	4(4)

NOTE : Figures in brackets give the number of factories reported.

TABLE NO. 3.16(b)

State	Number of factories having					
	Total sugar losses per cent cane more than 2.3/2.5/2.7			Reduced overall extraction less than 84.0		
	Cooperative	Joint Stock	Public	Cooperative	Joint Stock	Public
1	2	3	4	5	6	7
Andhra Pradesh	3(8)	6(10)	1(1)	4(8)	9(9)	1(1)
Assam	—(1)	..	..	—(1)	..	..
Bihar	..	16(21)	1(1)	..	18(21)	1(1)
Gujarat	2(3)	..	..	2(3)	..	..
Haryana	2(2)	1(1)	..	1(2)	—(1)	..
Karnataka	2(5)	3(4)	1(1)	2(4)	4(4)	1(1)
Kerala	1(2)	—(1)	..	2(2)	—(1)	..
Madhya Pradesh	..	4(4)	..	..	2(3)	..
Maharashtra	14(23)	2(12)	..	12(23)	3(12)	..
Orissa	—(1)	1(1)	..	—(1)	1(1)	..
Pondicherry	..	1(1)	..	..	1(1)	..
Punjab	4(4)	1(2)	..	2(4)	—(2)	..
Rajasthan	..	1(1)	1(1)	..	1(1)	—(1)
Tamil Nadu	4(6)	6(10)	..	4(6)	5(9)	..
Uttar Pradesh						
(i) West	1(1)	14(17)	..	1(1)	9(17)	..
(ii) Central	—(2)	10(17)	..	—(2)	11(17)	..
(iii) East	..	23(31)	..	..	27(31)	..
West Bengal	..	—(1)	..	..	—(1)	..
TOTAL	33(58)	89(134)	4(4)	30(57)	91(131)	3(4)

NOTE : Figures given in brackets are the number of factories reported.

It will be seen that the milling performance has been poor in 114 out of 192 factories. Both in respect of sugar per cent bagasse and reduced mill extraction, the performance of the joint stock sector factories in Maharashtra has been better than that of cooperatives in that State.

3.41 The overall performance of the factories as analysed on the basis of total sugar losses and the reduced overall extraction has been poor in about 120 factories. In Maharashtra, out of 23 cooperatives, 12 factories have been below par, while 3 out of 12 joint stock factories have low overall technical efficiency. On an all-India basis, the overall technical performance of the cooperatives has been somewhat better than that either of the public sector or the joint stock sector.

CHAPTER IV

CONDITION OF THE PLANT AND MACHINERY IN DIFFERENT SUGAR MILLS

4.1 In term 1, the Commission has been asked to study, *inter alia,* the condition of the plant and machinery in different sugar mills. The coudition of the plant and machinery has an important bearing on the technical and financial performance of the sugar factories. The Commission obtained relevant information in respect of all sugar mills through replies to the Technical-*cum*-Financial Questionnaire. Out of 215 factories, 204 factories submitted their replies. The technical staff of the Commission also made on-the-spot studies in respect of 41 sugar factories to verify the accuracy of the replies submitted by the factories and also to assess the condition of the plant and machinery. The on-the-spot studies confirmed the technical assessments based on the replies to the Questionnaire in more than 90 per cent cases.

It is proposed to discuss the condition of the plant and machinery under the following heads :

(i) Year of installation and age of the milling plant ;

(ii) Specifications of the plant and machinery ;

(iii) Additions and alterations made ;

(iv) Amount spent on maintenance ;

(v) Time lost due to mechanical break-downs ; and

(vi) Technical performance—capacity utilisation and fuel economy.

General features of the plant and machinery in different sugar mills

4.2 Most of the factories in existence before the grant of protection in 1932 and those set up immediately thereafter, numbering about 140, had plants of 300—600 tonnes, per day capacity. They had, *inter alia,* the following main features :

(i) Generally one set of cane knives, driven by a steam engine, was used ;

(ii) The mills were low set and were driven by steam engines ;

(iii) The rollers were generally of sizes of 610 mm. × 1220 mm. (24″ × 48″) and below, mostly with cast iron headstocks ;

(iv) The surface speed of the rollers was low, being about 5 metres/minute ;

(v) Boilers were of low capacity of about 5 tonnes of steam per hour with working pressure of 11 Kg/cm^2 and below ;

(vi) Most of the units were steam driven ;

(vii) Low velocity juice heaters were used ;

(viii) Triple effect evaporators were common ;

(ix) Most of the plants had batch type settling tanks ;

(x) Filters were of plate and frame type ;

(xi) Pans were of low capacity with poor circulation characteristics including a few coil pans requiring live steam ;

(xii) The plants were provided with central condensing system with vacuum pumps ;

(xiii) Low grade massecuite crystallisers generally had inadequate cooling arrangements ; and

(xiv) The centrifugals were of small size and were water or belt driven.

4.3 Most of these factories increased their crushing capacities by making use of the built-in margins. Where extra capacity in mill engines was available, the speed of the mills was increased by replacing the gears. In some cases, engines were also run above the rated speeds generally with the approval of the manufacturers and sometimes without that. In a few cases, even the engine governors were removed. Preparation of cane was improved by increasing the number of knives, adding another set of knives or/ and by raising the power of the drives. Roller grooovings were modified. In some cases, the number of rollers was also increased. The steam generation capacity was increased by installing new or second-hand boilers. Capacity in the boiling house was also increased with suitable additions. Some units were electrified by installing small steam engine driven generator sets or by taking power from the grid. Thus, most of the old factories increased their capacities to 800—1000 tonnes per day. Factories with larger roller sizes and bigger engines were able to go even upto 1500—2000 tonnes per day. Out of the old units, 21 units also replaced their milling tandems or added another tandem for carrying out substantial

expansion to 1500—4000 tonnes per day. As a result, there are now only seven units of 500 tonnes or lower capacity in the country. During the course of these expansions, these factories modernised their equipment by installing turbo-alternators, semi-automatic centrifugals, etc. A number of improvements at various stations have been affected by some factories. In this way factories tried to keep themselves up-to-date. The expansions carried out in many cases were, however, not properly planned.

4.4 Various factories (referred to in paras 4.2 and 4.3 above) suffer from one or more of the following deficiencies :

(a) Mill extraction is generally poor ;

(b) Steam consumption per cent cane is high ;

(c) Due to improper plan of expansion, the factories are congested and consequently the sanitation in the mill and the boiling house is poor ; and

(d) Due to multiplicity of units, maintenance, operation and control have become difficult.

4.5 In the second phase of expansion of the industry that took place after 1952, 97 factories were established upto 28th February, 1973 (see para 1.3, Chapter 1). Of these, 90 were set up with new plants and machinery ; the remaining came up with old plants. The plant and machinery of the 90 new factories differ in design features from those set up earlier. The main features of the new plants are as follows :

(i) Heavy duty cane knives driven by electric motors are used ; these are capable of giving better cane preparation ;

(ii) The mills are high set and are driven by steam turbines ;

(iii) The size of the mills is generally 610 mm. × 1220 mm. (24″ × 48″) and above ; since 1964, the size of the mills has generally been 762 mm. × 1524 mm. (30″ × 60″) ;

(iv) The surface speed of rollers is higher, being above 10 metres/minute ;

(v) The mills are sturdier and capable of taking higher loads ;

(vi) Boilers used are of higher pressures and of larger capacities ;

(vii) The plants are semi-electrified and are equipped with power generating units ;

(viii) Juice heaters are of high velocity ;

(ix) Continuous vacuum filters and clarifiers are used ;

(x) Quadruple effect evaporators with provision for vapour bleeding are employed ;

(xi) High capacity pans with better circulation characteristics are used ;

(xii) Evaporators and pans have separate multijet condensers ;

(xiii) Low grade crystallizers have better type of cooling and reheating arrangements ;

(xiv) Electrically operated semi-automatic centrifugals with high gravity factors and of bigger capacities are used ; and

(xv) The lay-out of the plant is good and its maintenance and operation is simple.

4.6 The new milling plants are capable of giving better extraction. The efficiency of steam generation in the boilers is good and the steam consumption per cent cane is low. The technical efficiency of the boiling house is better. By and large, the quality of sugar produced also improves. The lay-outs of these plants leave enough scope for expansion, *e.g.*, a plant of 1250 tonnes can easily be expanded to 2000 tonnes.

4.7 The main draw-back of the new plants is that they do not have much built-in capacity, especially at the mills, unlike the plants supplied in the 1930's. Further, the sophisticated equipment, which are electrified and used at certain stations, require more skilled personnel to operate and maintain them.

4.8 Of the 97 factories set up after 1952, 7 factories were established with old second-hand milling plants, but, the lay-outs of these factories are good, and three of them have modern boiling house equipment.

4.9 The new plants set up after 1952 had originally a daily cane crushing capacity of 1000/1250 tonnes per day. Twentysix of these units have expanded their daily crushing capacity. Sixteen of them have expanded upto 2000 tonnes, mainly by increasing the number of rollers in the milling tandem. The remaining 10 factories have expanded to higher capacities by addition of new milling plants.

Year of installation and age of the milling plant

4.10 It is proposed to consider the age of the milling tandem only, as it forms the major portion of

the equipment and its cost is nearly one-third of that of the whole plant. The statewise number of tandems in different age groups is given in the following table :

TABLE No. 4.1

Statewise number of milling tandems in different age groups

State	No. of factories reported	10 years & below	Above 10 years & upto 20 years	Above 20 years & upto 30 years	Above 30 years & uptp 40 years	Above 40 years	Total
1	2	3	4	5	6	7	8
Andhra Pradesh	19	9	6	2	4	1	22
Assam	1	..	1	..	..	..	1
Bihar	23	1	..	..	16	6	23
Gujarat	5	3	2	..	1	..	6
Haryana	3	..	3	..	1	..	4
Kerala	3	2	1	..	..	..	3
Madhya Pradesh	5	..	..	3	2	..	5
Maharashtra	37	21	13	4	5	..	43
Karnataka	10	4	4	2	2	..	12
Orissa	2	..	1	..	1	..	2
Pondicherry	1	1	..	..	..	..	1
Punjab	6	3	2	..	1	..	6
Rajasthan	3	1	1	2	..	..	4
Tamil Nadu	16	13	2	2	..	..	17
U.P. West.	18	3	5	2	12	1	23
U.P. Central	20	2	5	1	18	2	28
U.P. East .	31	1	2	2	23	7	35
West Bengal	1	..	..	..	1	..	1
TOTAL	204	64	48	20	87	17	236

The data in the above table relate to 204 factories. The number of milling tandems is, however, 236 as 32 factories have 2 tandems each. Out of 236 tandems, 104 are more than 30 years old. In Bihar, out of 23 tandems, as many as 22 fall in the same age group. A few old tandems exist in other States too. The largest concentration of old tandems is in Uttar Pradesh and Bihar.

4.11 In milling plants, some parts like roller shells and chains are subjected to wear and are regularly replaced. There are, however, a number of other major pieces of equipment like mill head-stocks, engine fly wheels, gears and bed-plates which seldom require replacement. All these parts are subject to heavy stress during crushing, resulting in fatigue with age. During the visits to the factories, it was observed that head-stocks, bed-plates and gears in some of the factories were in patched-up condition. This inhibits heavy loading on mills and affects mill extraction.

Specifications of plant and machinery

4.12 The general specifications of the plant and machinery have been discussed in the following paragraphs under the following heads :—

(a) Cane milling,

(b) Steam generation,

(c) Power generation, and

(d) Boiling house.

Cane milling

4.13 Out of 204 factories whose data have been analysed, 59 factories have mechanical cane unloading devices. Of these, 29 are in Uttar Pradesh, 11 in Maharashtra and rest in other States. Mechanical unloading devices are employed generally in factories having capacities higher than 1500 tonnes per day. Mechanical unloading helps regular feeding of cane to the mills and results in better mill extraction. All sugar factories, excepting 16, have two sets of knives for the preparation of cane. The 16 factories—9 in Uttar Pradesh, 4 in Bihar and one each in Madhya Pradesh, Maharashtra and Tamil Nadu—have only one set of knives each. Out of 236 milling tandems (see Table 4.1), 179 employ electric motors for driving cane knives. The rest use steam engines. An analysis of the specifications of the prime movers of the knives shows that in about 40 cases, power is inadequate resulting in poor cane preparation and causing poor mill performance. Eighteen milling tandems use shredders in addition to the knives for cane preparation.

4.14 Milling tandems are of different sizes. The following table gives Statewise, number of factories having tandems of different sizes :

TABLE NO. 4.2

Statewise distribution of tandems according to sizes

State	No. of factories reported	Roller Sizes					
		Below 610mm × 1220mm (24″ × 48″)	610 mm × 1220mm (24″ × 48″)	685mm × 1370mm & 710mm × 142mm (27″ × 54″ & 28″ × 56″)	750mm × 1500mm (30″ × 66″)	840 mm × 1680mm (33″ × 66″) & above	Total
1	2	3	4	5	6	7	8
Andhra Pradesh	19	3	6	8	4	1	22
Assam	1	..	..	1	..	..	1
Bihar	23	..	4	14	4	1	23
Gujarat	5	1	2	..	3	..	6
Haryana	3	..	1	2	..	1	4
Karnataka	10	..	2	5	3	2	12
Kerala	3	..	..	3	..	..	3
Madhya Pradesh	5	2	1	2	..	..	5
Maharashtra	37	1	15	12	12	3	43
Orissa	2	1	..	1	..	..	2
Pondicherry	1	..	..	1	..	..	1
Punjab	6	..	1	4	1	..	6
Rajasthan	3	2	..	..	2	..	4
Tamil Nadu	16	2	2	8	4	1	17
U.P. West	18	3	7	4	7	2	23
Central	20	2	8	9	7	2	28
East	31	3	17	12	2	1	35
West Bengal	1	..	..	1	..	..	1
TOTAL	204	20	66	87	49	14	236

There are 20 tandems of sizes below 610 mm. × 1220 mm. (24″ × 48″), the smallest size being 405 mm. × 765 mm. (16″ × 30″). Of these, 8 are in Uttar Pradesh, 3 in Andhra Pradesh, 2 each in Madhya Pradesh, Rajasthan and Tamil Nadu, the rest being in other States. There are 66 tandems of 610 mm. × 1220 mm. (24″ × 48″) size. A large number of factories have tandems (87) of 685 mm. × 1370 mm. (27″ × 54″)/710 mm. × 1420 mm. (28″ × 56″). The largest size is 915 mm. × 1980 mm. (36″ × 78″). There are 4 such tandems, one each in Uttar Pradesh, Andhra Pradesh, Tamil Nadu and Karnataka. The size of the roller journal on which also depends the extent of mill loading and mill performance, is inadequate in 56 tandems. Of these, 39 are in Uttar Pradesh, 8 in Bihar and the rest in other States. Nearly two-thirds of the total number of tandems are driven by steam engines and the rest by steam turbines. The power of the prime movers in 56 tandems is inadequate. Of these, 30 are in Uttar Pradesh, 9 in Bihar and the rest in other States. The lack of power in the prime movers is another cause for poor mill performance.

Boilers

4.15 As discussed earlier, old plants established in the 1930's have small boilers of capacity 3 to 7 tonnes of steam per hour. The average number of boilers per factory works out to 7.0 in West U.P., 7.4 in Central U.P., 5.2 in East U.P. and 5.0 in Bihar. New factories generally have 2 to 3 boilers of about 15 tonnes per hour capacity each. In 10 old factories, the working pressure of some boilers is even below 9 Kg/cm². In 84 factories, there are high pressure boilers. All these boilers are provided with superheaters. Out of 140 old factories, 106 have superheaters and 34 do not have.

4.16 Heat recovery units improve fuel economy of a factory. All new factories are provided with adequate heat recovery units. Seventy-seven old factories have heat recovery units and 63 do not have.

Power generation

4.17 One of the major steps towards fuel economy in sugar factories is semi-electrification. Besides improvement in fuel economy, the maintenance of electrically operated units is cheaper and simpler. Electric power in sugar factories is produced at practically no cost excepting for the initial installation cost of the turbo-alternators. Out of 204 factories, 167 are partly or fully semi-electrified, in 43 of which factories, the power generation is not adequate. They supplement their requirements from the grid. There

are 37 factories which are steam operated. These do not have electricity generating units for running the prime movers.

4.18 The electrical power is generated with the help of turbo-alternators or high speed engine driven generators. The engine driven sets are generally of about 100—250 KW capacity each. The capacities of the turbine driven generators are given in the following table :

TABLE No. 4.3

Statewise number of turbo-alternators of different sizes

State	1000 KW & below	Above 1000 & up to 1600 KW	Above 1600 & up to 2000 KW	Above 2000 KW	Total
1	2	3	4	5	6
Andhra Pradesh	12	10	..	2	24
Assam	1	..	..	..	1
Bihar	3	3	1	..	7
Gujarat	2	4	..	..	6
Haryana	3	..	..	1	4
Karnataka	4	6	2	1	13
Kerala	1	2	..	..	3
Madhya Pradesh	..	3	..	..	3
Maharashtra	18	27	4	5	54
Orissa	1	1	..	..	2
Pondicherry	1	1	..	..	2
Punjab	2	2	..	..	4
Rajasthan	..	1	..	..	1
Tamil Nadu	5	10	2	..	17
U.P. West	9	16	..	1	26
Central	10	12	3	1	26
East	5	4	..	..	9
West Bengal	..	..	..	..	..
TOTAL	77	102	12	11	202

Boiling House

4.19 The major equipment in the boiling house consists of juice heaters, clarifiers, filters, evaporators, pans, crystallisers and centrifugals. In the last two decades considerable improvement has taken place in the design of most of these units. Some of the old factories have installed modern units. In 36 factories the boiling house equipment is partly modernised, requiring replacements of some units only. The plant and machinery of the boiling house in 98 factories are of modern design. The following table gives the Statewise number of factories having equipment of old design, which require replacement or/and modernisation :

TABLE No. 4.4

Statewise number of factories having equipment of old design at different stations

State	Numbers of factories having			
	Batch type filter presses*	Batch type settlers*	Coil** pans	Centrifugals water/belt driven
1	2	3	4	5
Andhra Pradesh	4	2	7	3
Assam	..	..	..	..
Bihar	9	3	14	16
Gujarat	1	..	..	..
Haryana	..	..	1	..
Karnataka	1	..	..	..
Kerala	..	..	..	1
Madhya Pradesh	2	1	5	4
Maharashtra	2	..	1	3
Orissa	..	..	1	..
Pondicherry	..	..	..	..
Punjab	..	..	2	2
Rajasthan	2	1	2	2
Tamil Nadu	1	..	1	1
U.P. West	4	3	8	7
Central	4	..	3	4
East	12	1	17	10
West Bengal	1	..	1	..
TOTAL	43	11	63	62@

*The figures in cols. 2 and 3 relate to sulphitation factories.

**Factories having coil pan capacity in excess of 10 per cent of total pan capacity are only given.

@This figure gives only those factories where all the centrifugals are water driven/belt driven. There are a few factories which have in addition modern electrical centrifugals. This number is not included.

Maintenance of plant and machinery

4.20 Sugar industry is seasonal, generally working for 4 to 6 months in a year. During the season, factories work continuously and stop periodically for cleaning. The plant and machinery, therefore, need to be maintained properly to minimise stoppages due to break-downs. The factories should do a thorough

over-haul of the entire equipment and replace worn out parts and machinery during the off-season. In the season also, during cleaning which generally takes place more often in the South than in the North, factories attend to repairs and maintenance. The essential object of maintenance is to keep the machinery in good condition. The results of good maintenance are reflected in the working of the plant. It reduces the time loss due to break-downs of equipment to the minimum and ensures maximum production. It also improves the overall efficiency and proper utilisation of the installed capacity. For proper maintenance of plants, particularly old ones, greater attention is required involving considerable expenditure.

4.21 The time loss in milling during the season due to mechanical break-downs in a factory is an index of the maintenance of its machinery. Plants where the break-down time due to mechanical reasons is 2.5 per cent of available hours or below are considered to be well maintained. Where the time loss ranges from above 2.5 to 4.5 per cent, the maintenance of the plant may be taken to be fair. Time loss above 4.5 per cent indicates poor maintenance. In this connection, it may be mentioned that in the steel industry which operates throughout the year, time loss due to mechanical break-downs is only 0.8 to 1.2 per cent. The following table gives the statewise number of factories having different mechanical break-down losses:

TABLE No. 4.5

Statewise number of factories having time losses due to mechanical reasons per cent available hours (1960-61 *to* 1969-70)

State	No. of factories reported	Time loss (percentage)						
		2.50 & below	Above 2.50 & up to 3.50	Above 3.50 & up to 4.50	Above 4.50 & up to 5.50	Above 5.50 & up to 7.50	Above 7.50 & up to 10.00	Above 10.00
1	2	3	4	5	6	7	8	9
Andhra Pradesh	18	6	4	3	4	1	..	..
Assam	1	..	..	..	1	..	..	..
Bihar	23	3	4	2	2	10	..	2
Gujarat	5	2	1	1	1	..	..	..
Haryana	3	1	1	..	..	..	1	..
Karnataka	10	2	3	1	..	2	..	2
Kerala	3	1	..	1	..	1	..	..
Madhya Pradesh	5	1	2	..	..	..	1	1
Maharashtra	36	20	8	5	2	1	..	..
Orissa	2	1	..	..	..	1	..	..
Pondicherry	1	..	..	..	..	1	..	..
Punjab	6	2	2	1	1	..	..	..
Tamil Nadu	16	2	6	4	2	1	..	1
Rajasthan	2	1	1	..	..	..	..	..
U.P. West	18	4	1	2	6	3	2	..
Central	19	3	4	3	3	5	1	..
East	31	1	1	9	5	8	4	3
West Bengal	1	..	..	1	..	..	..	..
TOTAL	200	50	38	33	27	34	9	9

The data in the above table show that the plants in 50 factories are well maintained and have time losses of 2.5 per cent and below. Of those, 20 are in Maharashtra—7 in the joint stock sector and 13 in the cooperative sector. The seven joint stock factories were established more than 30 years ago and have old plants, while the cooperative factories were set up only 10—16 years ago and have new plants. This shows that even in old plants, if well maintained, the time loss can be as low as in the new plants. There are 79 factories in the country where the time loss due to mechanical break-downs is more than 4.5 per cent and the maintenance is poor. Of these, 40 are in Uttar Pradesh, 14 in Bihar, 5 in Andhra Pradesh, 4 each in Karnataka and Tamil Nadu and the remaining in other States.

4.22 For the proper maintenance of plant and machinery, adequate investments are required. The expenditure on maintenance depends on the capacity and the number and type of units installed. The following table gives the average annual amounts spent during the ten year period (1960-61 to 1969-70) by the factories on repairs and maintenance stores.

TABLE No. 4.6

Statewise number of factories in different ranges of average annual expenditure (1960-61 *to* 1969-70) *on repairs and maintenance stores*

In Rupees (lakhs)

State	No. of factories reported	1.0 & below	Above 1.0 & up to 2.0	Above 2.0 & up to 3.5	Aobve 3.5 & up to 5.0	Above 5.0 & up to 7.0	Above 7.0 & up to 10.0	Above 10.0 & up to 15.0	Above 15.0
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	18	2	6	6	..	2	..	1	1
Assam	1	..	..	1	..	..	..	..	..
Bihar	22	2	7	5	7	1	..	..	..
Gujarat	5	..	1	..	4	..	..	..	..
Haryana	2	..	..	1	..	..	..	..	1
Karnataka	9	1	..	1	6	..	1	..	..
Kerala	3	..	3	..	..	..	..	..	..
Madhya Pradesh	3	..	1	2	..	..	..	..	..
Maharashtra	27	3	3	4	10	5	1	1	..
Orissa	2	1	..	1	..	..	..	..	..
Pondicherry	1	..	..	..	1	..	..	..	..
Punjab	5	2	1	2	..	..	..	..	..
Rajastban	2	1	1	..	..	..	..	..	..
Tamil Nadu	15	1	3	6	2	2	..	1	..
U.P. West	17	1	2	3	3	4	4	..	..
Central	18	..	..	6	6	4	1	..	..
East	31	1	4	13	10	2	1	..	..
West Bengal	1	..	..	1	..	..	..	..	..
TOTAL	182	15	32	52	49	20	8	3	3

Though in Maharashtra, a large percentage of factories is new, the amounts spent on maintenance stores in the majority of the factories is over Rs. 3.5 lakhs annually. In East U.P. and Bihar most of the factories have spent below Rs. 3.5 lakhs on the same account. In this region exists a large number of factories with high percentage of time loss due to mechanical breakdowns. As discussed earlier, their technical performance (Chapter III) is also poor. Most of the plants in East U.P. and Bihar are largely steam driven, while those in Maharashtra are semi-electrified. This accounts for higher breakdown losses and lower efficiency in the factories in East U.P. and Bihar.

4.23 The monetary loss to the factories because of higher breakdowns is bound to be large. If the breakdowns are reduced to a reasonable level, the factories would effect substantial savings.

Additions and alterations

4.24 During the period 1960-61 to 1969-70, some factories effected expansions to their plants. In the course of expansion they also rehabilitated and modernised their plants and machinery to some extent. Some factories also added equipment to balance their plants. The total amount spent by all the factories in the country towards additions and alterations during the ten year period was about Rs. 76 crores *i.e.* Rs. 7.6 crores annually. Of this, nearly Rs. 53 crores was spent by 117 private sector factories, Rs. 20 crores by 33 cooperative factories and Rs. 3 crores by 2 public sector factories. The following table gives the Statewise number of factories which spent varying amounts on additions and alterations.

TABLE NO. 4.7

Statewise number of factories with varying amounts spent on additions and alterations during 1960-61 *to* 1969-70

In Rupees (lakhs)

State	No. of factories reported		5.0 & below	Above 5.0 & up to 10.0	Above 10.0 & up to 15.0	Above 15.0 & up to 25.0	Above 25.0 & up to 50.0	Above 50.0 & up to 100	Above 100	Total Amount
	A	B								
1	2	3	4	5	6	7	8	9	10	11
Andhra Pradesh	17	2	3	..	1	3	2	5	3	1224
Assam	..	1	..	..	..	..	..	..	..	..
Bihar	20	3	2	3	5	1	8	1	..	449
Gujarat	4	1	1	..	..	..	1	2	..	171
Haryana	3	..	..	..	1	1	..	..	1	179
Karnataka	4	6	..	..	..	..	1	1	2	458
Kerala	2	1	1	..	..	..	1	..	..	27
Madhya Pradesh	3	2	1	..	1	..	1	..	..	43
Maharashtra	20	17	1	3	..	1	4	4	7	1723
Orissa	2	..	1	..	..	1	..	..	..	23
Pondicherry	..	1	.	..	..	..	..	..	..	..
Punjab	2	4	1	1	..	..	..	..	..	8
Rajasthan	2	1	..	2	..	..	..	..	..	12
Tamil Nadu	14	2	3	1	..	3	2	4	1	585
U.P. West	16	2	2	1	1	4	3	4	1	706
Central	16	4	..	1	..	3	5	2	5	1104
East	28	3	3	3	4	5	6	6	1	873
West Bengal	1	..	..	..	1	..	..	..	..	11
TOTAL	154	50	19	15	14	22	34	29	21	7596

NOTE : A—gives factories which have reported expenditure.
B—gives factories which have reported no expenditure.

Out of 204 factories, 21 spent over Rs. 1 crore and 29 factories spent between Rs. 50 lakhs and Rs. 100 lakhs each during the ten year period. The amount spent by these factories was mainly for expansion and totalled nearly Rs. 56 crores. The extent of expansion of these factories was in the range of 300 to 1800 tonnes per day. Thirty four factories spent between Rs. 25 lakhs and Rs. 50 lakhs each for additions and alterations, totalling about Rs. 12 crores. Of these, 23 also increased their daily cane crushing capacities by 200 to 700 tonnes. The remaining 11 factories spent varying amounts only for additions and alterations for balancing their equipment. 120 factories spent either nothing or very small amounts on additions and alterations. Of these, 50 factories did not report any expenditure. Of the remaining 70 factories, 22 factories spent between Rs. 15 lakhs and Rs. 25 lakhs, 14 between Rs. 10 lakhs and Rs. 15 lakhs, 15 between Rs. 5 lakhs and Rs. 10 lakhs and the rest (19) below Rs. 5 lakhs on additions and alterations. Between themselves, the 70 factories spent about Rs. 8 crores.

Utilisation of installed cane crushing capacity

4.25 For calculating the percentage utilisation of installed capacity in respect of each sugar factory, the following figures have been worked out for the five year period 1965-66 to 1969-70 :

(i) Average crushing rate per 24 hour operation ; and

(ii) Average crushing rate per gross season day.

The percentages of (i) and (ii) to the average installed crushing capacity of each factory during this period have been calculated. The condition of the plant and machinery as it is reflected in these two percentages has been considered separately.

Percentage utilisation of crushing capacity on 24 hour basis

4.26 The figure of cane crushed per 24 hour operation per cent daily installed crushing capacity gives an indication of whether the plant and machinery in a factory is balanced or not. The stoppages of the mill due to various reasons do not affect this figure. In well balacned and well operated sugar factories, the crushing rate for 24 hour operation should be equal to the installed capacity *i.e.* the utilisation of capacity in this respect should be about 100 per cent.

4.27 The Statewise number of factories with varying percentage utilisation of crushing capacities on 24 hour basis is given in the following table :

TABLE No. 4.8

Statewise number of factories with utilisation of installed cane crushing capacity (on the basis of average cane crushed per 24 hour operation average for 5 years 1965-66 to 1969-70)

State	No. of factories reported	Cane crushed per 24 hrs. operation per cent installed capacity							
		80 & below	Above 80 & up to 85	Above 85 & up to 90	Above 90 & up to 95	Above 95 & up to 100	Above 100 & up to 105	Above 105 & up to 110	Above 110
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	18(8)	1(1)	..	2	5(1)	2(1)	3(1)	3(2)	2(2)
Assam	1(1)	..	..	1(1)	..	..	..	..	..
Bihar	23	2	1	3	5	7	4	1	..
Gujarat	5(5)	..	..	..	2(2)	1(1)	1(1)	1(1)	..
Haryana	3(2)	..	..	..	1(1)	..	..	2(1)	..
Karnataka	10(5)	..	..	1(1)	1(1)	2	4(2)	2(1)	..
Kerala	3(2)	..	..	1(1)	2(1)	..	..	..	..
Madhya Pradesh	5	1	1	1	..	2	..	..	..
Maharashtra	36(24)	..	..	1(1)	4(3)	5(1)	14(10)	6(4)	6(5)
Orissa	2(1)	..	1	1(1)	..	..	..	..	..
Pondicherry	1	..	..	1	..	..	..	..	..
Punjab	6(4)	..	..	1	..	3(2)	1(1)	1(1)	..
Rajasthan	2	..	1	..	..	1	..	..	..
Tamil Nadu	15(6)	..	..	..	2(1)	4(2)	6(1)	3(2)	..
U.P. West	18(1)	2(1)	4	1	4	3	3	1	..
Central	20(2)	2	..	2	7(1)	5(1)	3	..	1
East	32	3	2	6	6	8	5	2	..
West Bengal	1	..	..	..	..	1	..	..	..
TOTAL	201(61)*	11(2)	10	22(5)	39(11)	44(8)	44(16)	22(12)	9(7)

The numbers of cooperative factories are given within brackets.

*Factories in the cooperative sector—in Bihar, Rajasthan, Maharashtra having trial seasons in 1969-70 are not included.

Out of 201 factories, in 75 the utilisation of the capacity on 24 hour basis, is more than 100 per cent. In 44 factories it is above 95 per cent and up to 100 per cent. These are considered satisfactory. In the remaining 82 factories it is even below 95 per cent. In other words, in 40 per cent of the factories, the machinery installed is not properly balanced or operated.

4.28 Of the 119 factories whose crushing rate is more than 95 per cent of the installed capacity, the largest number, *viz.*, 31 are in Maharashtra (out of a total of 36 in that State). In the remaining States of the tropical region, more than 75 per cent factories are in this range. In the sub-tropical region, about 50 per cent only of the factories have satisfactory capacity utilisation and have well balanced and well operated plants.

Utilisation of installed capacity per gross season day

4.29 The cane crushed per gross season day per cent daily cane crushing capacity indicates the extent up to which the factory has utilised its installed capacity during the whole season. It also shows the losses in crushing due to stoppages. The stoppages may be due to mechanical troubles, cleaning, shortage of cane, etc. Even well maintained sugar factories have to stop for periodical cleaning and have to close down for holidays and for other reasons ; the capacity utilisation in sugar factories is, therefore, bound to be generally less than 100 per cent. The Tariff Commission, in working the cost schedules, made a provision of a total time loss of about 8.5 per cent. The Committee on Rehabilitation and Modernisation of Sugar Factories (Gundu Rao Committee), 1965,

considered a total time loss 10 to 12 per cent as reasonable. A. G. Keller* considers 7 per cent time loss as reasonable.

4.30 The number of factories falling in different ranges of cane crushed per gross season day per cent installed capacity is given in the following table :

TABLE No. 4.9

Statewise number of factories with utilisation of installed cane crushing capacity per gross season day (Average for 5 years 1965-66 to 1969-70)

State	No. of factories reported	Cane crushed per gross season day percent installed capacity							
		70 & below	Above 70 & up to 75	Above 75 & up to 80	Above 80 & up to 85	Above 85 & up to 87.5	Above 87.5 & up to 90	Above 90 & up to 95	Above 95
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	19(8)	4(1)	4(1)	4(2)	2(2)	..	5(2)	..	..
Assam	1(1)	1(1)	..	..	..	..	..	..	..
Bihar	23	6	4	8	2	..	2	1	..
Gujarat	5(1)	1(1)	..	2(2)	..	2(2)	..	..	..
Haryana	3(2)	..	..	..	1(1)	..	..	2(1)	..
Karnataka	10(5)	3(2)	..	3(1)	2(1)	..	2(1)	..	..
Kerala	3(2)	1(1)	1(1)	..	1	..	..	..	..
Madhya Pradesh	5	2	1	1	1	..	..	..	..
Maharashtra	36(24)	1(1)	3(2)	4(1)	6(4)	2(2)	8(7)	6(4)	6(3)
Orissa	2(1)	1	1(1)	..	..	..	..	..	..
Pondicherry	1	..	1	..	..	..	..	..	..
Punjab	6(4)	..	2(1)	1(1)	2(1)	..	..	1(1)	..
Rajasthan	2	..	2	..	..	..	..	..	..
Tamil Nadu	15(6)	..	2(1)	3(2)	7(2)	1(1)	1	1	..
U.P. West	18(1)	6(1)	5	4	1	..	1	1	..
Central	20(2)	5	2	7(1)	4(1)	1	..	1	..
East	32	10	5	10	5	..	2	..	..
West Bengal	1	..	..	..	1	..	..	..	..
TOTAL	202(61)*	41(8)	33(7)	47(10)	35(12)	6(5)	21(10)	13(6)	6(3)

The numbers of cooperative factories are given within brackets.

*Factories in the cooperative sector—in Bihar, Rajasthan and Maharashtra having their trial seasons in 1969-70 have not been included.

The capacity utilisation in 40 factories out of 202 was over 87.5 per cent. These are considered satisfactory. Out of 40 factories where the utilisation is more than 87.5 per cent, the largest number—20 factories—is in Maharashtra. There are only 2 to 5 factories in each of the major sugar producing States in the tropical region where the utilisation is more than 87.5 per cent. There are 5 factories in Uttar Pradesh and 3 in Bihar where the capacity utilisation is of the same order. Seventy four factories have capacity utilisation of 75 per cent and below. This shows the poor performance of the industry in respect of capacity utilisation. 33 factories in Uttar Pradesh, 10 in Bihar and the remaining 31 in other States have capacity utilisation of 75 per cent and below.

Fuel consumption

4.31 The poor utilisation of the capacity, *inter alia*, affects adversely the fuel consumption in sugar factories. Bagasse is used as fuel for generating steam required for power and processing. The requirement of fuel depends on the type of equipment, its maintenance, process adopted and the efficiency of operation. In well maintained and well operated modern factories having steam economy measures, the fuel requirement in terms of bagasse is about 26—28 per cent on cane. In carbonation factories where the consumption of steam is higher, a further 2 per cent bagasse on cane is needed. In the case of well balanced

*Sugar Journal, 1966. Jan., p. 23.

old plants having fuel and steam economy measures, the consumption of bagasse per cent cane should be 30 per cent.

4.32 The Statewise distribution of factories with different fuel consumption rates is given in the following table :

TABLE No. 4.10

Statewise number of factories with different average total fuel consumption rate in terms of bagasse per cent cane (1960-61 *to* 1969-70)

State	No. of factories reported	24 per cent and below	Above 24.0 and up to 28.0	Above 28.0 and up to 30.0	Above 30.0 and up to 32.0	Above 32.0 and up to 34.0	Above 34.0 and up to 36.0	Above 36.0 and up to 40.0	Above 40.0
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh . . .	18(8)	..	3(2)	2(2)	7(3)	2	3	1(1)	..
Assam	1(1)	..	..	..	..	1(1)	..	..	..
Bihar	22	..	..	..	1	..	7	9	5
Gujarat	5(5)	..	..	1(1)	3(3)	1(1)	..	..	..
Haryana	3(2)	..	..	..	..	1(1)	2(1)	..	..
Karnataka	9(4)	1(1)	2(1)	1	2(1)	..	2(1)	..	1
Kerala	3(2)	..	1	..	..	..	2(2)	..	..
Madhya Pradesh . . .	5	..	..	..	1	..	2	2	..
Maharashtra	34(24)	1(1)	15(10)	8(7)	5(3)	1	2(1)	..	2(2)
Orissa	2(1)	..	..	..	1(1)	..	..	1	..
Pondicherry	1	..	..	..	..	1	..	..	..
Punjab	6(4)	..	..	..	..	4(3)	2(1)	..	..
Rajasthan	2	..	..	..	..	..	..	2	..
Tamil Nadu	15(6)	..	2	5	5(4)	3(2)	..	..	..
U.P. West	18(1)	..	..	..	1	7	4	4(1)	2
Central	18(1)	..	..	..	1	4(1)	7	6	..
East	32	..	..	..	..	2	10	19	1
West Bengal	1	..	..	..	..	1	..	..	..
TOTAL . .	195(59)	2(2)	23(13)	17(10)	27(15)	28(9)	43(6)	44(2)	11(2)

The numbers of cooperative factories are given within brackets.

It may be mentioned that a few factories supply steam to their ancillary industries also. Out of 195 factories, 25 have fuel consumption of 28 per cent on cane and below ; 17 factories have over 28 per cent and up to 30 per cent. All these 42 factories are located in the South and most of them have modern equipment. The fuel consmption in North Indian factories is by and large, very high. In 55 factories it is even more than 36 per cent. Most of these factories are in Uttar Pradesh and Bihar. The largest concentration of these factories is in East U. P. and Bihar. The high fuel consumption in these factories is due to their old, poorly maintained and ill balanced machinery, as well as inefficient working.

Assessment of the condition of plant and machinery in different sugar mills

4.33 The assessment of the condition of plant and machinery in different sugar factories is based on various factors enumerated in para 4.1 of this Chapter and not on any one factor alone.

4.34 Out of 218 factories existing in 1969-70, which were asked to submit the relevant data, 79 were established after 1952. All of them, except for 7 factories, were set up with new, modern plants. Of the 72 new factories, 4 did not furnish the required data. Out of the 139 factories and the 7 factories mentioned above which have old plants, 10 did not furnish

the relevant information. The more important statistical data, regarding the performance of the 204 factories and the relevant norms are given in Statement 4.1. A study of the statement will show the factories whose performance corresponds to the norms or is above them and the factories whose performance is below the norms in one or more counts. Tables 4.11 and 4.12 summarise the position.

TABLE No. 4.11

Statewise number of factories having performance above or equal to norms and below

State	Mechanical breakdowns		Reduced mill extraction		Total fuel consumption		Capacity utilisation per 24 hours working		Capacity utilisation per season day		Reduced over all extraction	
	A	B	A	B	A	B	A	B	A	B	A	B
Andhra Pradesh	13	5	5	13	3	15	12	6	5	14	4	14
Assam	..	1	..	1	..	1	..	1	..	1	1	..
Bihar	9	13	12	10	..	21	11	11	3	19	3	19
Gujarat	4	1	2	3	1	4	3	2	..	5	1	4
Haryana	2	1	..	3	..	3	3	..	2	1	2	1
Karnataka	6	4	2	8	4	5	8	2	2	8	3	7
Kerala	2	1	..	3	1	2	1	2	..	3	1	2
Madhya Pradesh	3	2	2	2	..	5	2	3	..	5	1	3
Maharashtra	32	3	28	8	16	17	31	4	19	16	21	115
Orissa	1	1	..	2	..	2	..	2	..	2	1	1
Pondicherry	..	1	..	1	..	1	..	1	..	1	..	1
Punjab	5	1	..	..	..	..	..	1	..	5	4	2
Rajasthan	2	..	..	2	..	2	1	1	..	2	1	1
Tamil Nadu	12	3	3	12	5	10	14	1	2	13	6	9
U.P. West	7	11	3	15	1	17	7	11	2	16	8	10
Central	10	9	6	13	..	17	8	11	1	18	8	11
East	10	21	14	17	..	31	18	13	2	29	3	28
West Bengal	1	..	1	..	..	1	1	..	..	1	1	..
TOTAL	119	78	78	119	31	160	125	72	39	159	69	128

A—Factories having performance above or equal to norms.

B—Factories having performance below norms.

TABLE No. 4.12

Statewise number of factories having performance below norm in one or more technical efficiency factors (See Table 4.11)*

State	Number of factories reported	Number of factories not considered **	Equal or above norm	Factories having performance below norm					
				on one account	on two accounts	On three accounts	On four accounts	On five accounts	On all accounts
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	19	1	1	1	3	1	6	4	2
Assam	1	..	..	..	..	..	..	1	..
Bihar	23	2	..	1	1	3	6	7	3
Gujarat	5	..	..	..	..	2	2	1	..
Haryana	3	..	..	..	..	3	..	..	..
Karnataka	10	1	1	1	..	3	2	1	1
Kerala	3	..	..	..	..	1	1	..	1
Madhya Pradesh	5	1	..	..	..	1	2	1	..
Maharashtra	37	5	6	7	11	4	2	1	1
Orissa	2	..	..	..	..	..	1	..	1
Pondicherry	1	..	..	..	..	..	..	..	1
Punjab	6	..	..	..	1	2	2	1	..
Rajasthan	3	1	..	..	..	..	2	..	..
Tamil Nadu	16	1	..	1	4	2	7	1	..
U.P. West	18	..	..	..	1	4	4	4	5
Central	20	3	..	..	3	4	1	3	6
East	31	..	..	..	4	2	6	13	6
West Bengal	1	..	..	..	1	..	..	..	..
TOTAL	204	15	8	11	29	32	44	38	27

*Factors considered are:—

(*i*) Mechanical break-downs;

(*ii*) Reduced Mill Extraction;

(*iii*) Total fuel consumption;

(*iv*) Capacity Utilisation per season day;

(*v*) Capacity utilisation per 24 hours operation and;

(*vi*) Reduced Overall Extraction;

**For lack of relevant data or as factory was having trial-season.

4.35 We would like to add that the condition of the plant and machinery has been studied in detail and the study indicates the need for large scale rehabilitation and modernisation. The details of the requirements of rehabilitation and its financial implications have been worked out and are given in Annexure E (Part I).

STATEMENT 4.1

Statement giving some important data on the performance of sugar factories (*See page* 61)

Description of columns

Col. No.	Description	Col. No.	Description
1.	Serial number of factory.	8.	Average annual expenditure on maintenance stores and outside repairs Rs./Lakhs 1960-61 to 1969-70.
2.	Year of installation of milling plant.	9.	Amount spent on additions/alterations Rs./lakhs 1960-61 to 1969-70.
3.	Installed capacity 1960-61 tonnes cane per day.	10.	Average total fuel consumption in terms of bagasse percent cane 1960-61 to 1969-70 (Norms new factory—sulphitation 28.0, carbonation 30.0; old factory—sulphitation 30.0, carbonation 32.0).
4.	Installed capacity 1969-70 tonnes cane per day.	11.	Average capacity utilisation per cent installed capacity 24 hours working 1965-66 to 1969-70 (Norm 95.0).
5.	Average time lost due to mechanical breakdowns per cent available hours 1960-61 to 1969-70 (Norm 4.50).	12.	Average capacity utilisation per cent installed capacity per gross season day 1965-66 to 1969-70 (Norm 87.5).
6.	Average reduced mill extraction per cent 1960-61 to 1969-70 (Norm 93.0).	13.	Average reduced overall extraction 1960-61 to 1969-70 (Norm 84.0).
7.	Amount spent on major repairs Rs./lakhs 1960-61 to 1969-70.		

1	2	3	4	5	6	7	8	9	10	11	12	13
1.	1950	1016	1016	4.87	90.77	1.92	1.40	35.35	34.84	93	76	32.04
2.	1959	813 } 1016	1500	1.35	93.14	14.25	2.00	85.40	30.11	108	89	83.92
3.	1958	508	1016	3.10	91.15	1.75	1.50	57.82	31.18	104	88	82.61
4.	1951	1016	2500	4.67	92.68	..	5.11	283.20	33.68	95	78	83.05
5.	1961	..	1016	2.08	92.92	1.92	2.70	0.08	27.68	113	90	84.97
6.	1961 } 1966	..	3000	5.64	92.81	..	5.76	243.00	30.24	91	67	83.39
7.	N.A.	305	305	..	..	2.06	0.40	15.81	..	..	51	..
8.	1962	...	1016	0.43	93.58	1.77	3.36	10.18	25.43	112	89	84.86
9.	1935	305	750	3.71	91.18	9.38	2.85	33.70	31.13	98	74	83.94
10.	1933	610	1016	2.70	92.62	0.43	3.13	23.04	30.36	95	77	82.63
11.	1962	..	508	1.71	90.37	1.12	0.61	1.96	38.61	68	51	81.08
12.	1949	457	850	3.76	92.24	15.89	2.47	54.99	32.27	100	74	83.49
13.	1940	305	610	3.99	92.51	9.62	1.15	21.43	34.09	92	71	83.90
14.	1961	..	1219	1.47	93.35	..	1.68	3.00	29.46	102	83	85.24
15.	1934 } 1968	2540	3750	2.56	94.16	122.00	13.35	200.00	30.06	105	88	83.62
16.	1956	813	1250	4.90	93.55	..	2.15	55.56	26.86	87	64	83.96
17.	1937 } 1951	3251	4572	3.46	91.19	43.30	15.62	99.31	34.13	88	73	80.62
18.	1964	..	1016	5.15	92.57	8.78	1.87	..	31.37	106	82	85.21
19.	1963	..	1016	2.44	92.23	16.11	..	..	29.74	109	79	83.73
20.	1958	813	1016	5.39	92.02	..	2.22	..	33.70	90	70	84.25
21.	1933	1219	1321	2.26	92.01	6.68	1.43	19.68	35.78	90	77	82.24
22.	1920	808	808	6.95	92.73	5.86	1.89	7.73	35.96	96	76	82.26
23.	1933	1219	1219	2.37	94.09	34.40	2.55	27.19	36.04	93	80	84.33
24.	1933	1219	1219	2.60	93.44	9.65	1.75	3.28	35.90	101	89	85.56
25.	1932	1524	1524	2.40	93.71	34.40	..	51.18	38.65	96	91	82.60
26.	1932	884	1250	5.47	93.41	4.75	2.91	38.10	30.56	87	70	82.16
27.	1905	1189	1625	7.02	92.95	15.82	4.49	47.44	38.30	88	67	82.16
28.	1936	1016	1016	3.75	93.47	5.78	3.64	14.46	36.20	93	79	83.90
29.	1932	1219	1219	3.18	93.10	8.07	1.96	14.59	36.08	94	81	83.89
30.	1932	1524	1524	5.77	94.04	15.00	6.77	11.71	34.91	97	80	84.23
31.	1933	914	914	5.93	93.36	10.55	4.94	11.26	39.52	102	79	81.08
32.	1906	947	1050	7.31	94.38	44.34	4.23	35.48	37.19	97	74	82.54

1	2	3	4	5	6	7	8	9	10	11	12	13
33.	1933	914	914	4.42	94.08	22.26	3.88	5.48	35.37	96	74	82.71
34.	1921	1128	1128	3.25	94.15	..	2.50	..	..	83	62	82.71
35.	1935	1524	1778	14.00	92.78	12.70	4.68	36.93	39.77	93	68	82.67
36.	1931	660	864	4.98	91.78	5.52	1.75	28.96	36.60	99	77	81.52
37.	1921	945	1050	6.21	94.63	..	2.94	31.12	35.29	98	78	82.74
38.	1932	813	1016	5.89	92.01	..	2.69	..	36.15	106	88	77.82
39.	1932	813	1219	11.65	92.54	31.41	3.54	42.32	42.25	102	81	80.61
40.	1970	..	1016	..	..	..	0.63	..	..	..	..	..
41.	1933	711	711	5.73	91.55	..	1.94	14.00	42.30	102	72	80.74
42.	1934	864	864	6.42	91.86	2.15	1.45	0.40	44.59	66	40	82.61
43.	1933	1219	1219	3.26	92.73	5.90	0.87	7.63	43.06	74	50	82.95
44.	1956	813	1500	2.13	92.91	..	3.57	66.91	30.16	106	87	83.49
45.	1935 } 1969 }	..	1016	4.29	90.17	..	1.52	39.84	29.42	93	77	79.06
46.	1959	1016	1500	2.31	93.13	37.32	4.74	64.17	30.15	94	79	84.31
47.	1968	..	1250	4.66	92.90	0.15	4.25	0.16	33.38	99	69	81.56
48.	1968	..	1250	2.70	93.42	..	4.69	..	31.84	105	86	83.55
49.	1933 } 1955 }	3302	3302	8.30	92.94	95.50	16.70	146.41	34.28	108	91	84.75
50.	1955	1016	1250	2.93	92.33	..	..	19.91	35.97	107	93	83.49
51.	1956	1250	1400	2.41	92.91	..	3.14	10.30	33.38	95	83	85.49
52.	1948	900	900	0.51	92.54	..	1.30	27.46	27.16	94	82	84.01
53.	1964	..	1016	6.18	92.22	..	2.03	..	34.27	87	60	83.62
54.	1965	..	1016	4.18	92.02	0.01	1.80	0.02	35.18	95	72	82.09
55.	1940	711	1118	2.62	93.16	16.59	3.50	28.88	35.89	70	59	84.18
56.	1947	559	559	2.25	91.80	13.12	1.60	1.23	38.48	99	82	83.73
57.	1939	762	762	2.73	93.56	17.72	2.14	13.25	31.57	90	78	82.96
58.	1941	305	500	10.90	..	..	..	..	34.81	84	64	..
59.	1934	1016	1016	0.98	94.13	3.59	..	7.77	26.38	98	79	83.98
60.	1951	1016	1321	1.43	94.93	52.08	5.21	33.10	31.10	92	75	84.18
61.	1962	..	1750	1.47	93.59	..	4.12	..	27.12	108	91	83.33
62.	1938	1219	1219	2.99	94.71	5.22	4.73	21.44	30.52	100	77	86.25
63.	1958	1016	1016	1.35	94.46	..	0.61	2.90	27.16	112	96	85.22
64.	1963	..	1016	2.29	93.36	..	..	..	29.06	113	97	84.01
65.	1939	1016	1016	0.97	94.10	10.00	4.64	9.21	26.98	104	98	83.89
66.	1941	1016	1200	0.54	93.86	62.47	3.28	42.91	27.00	104	100	84.05
67.	1949	813	813	0.50	94.03	28.28	2.89	..	27.81	106	93	84.79
68.	1965	1016	1727	1.93	94.48	..	..	60.00*	32.11	98	89	85.15
69.	1955	1016	1750	0.93	93.60	..	3.17	108.91	29.41	104	95	83.49
70.	1942	1016	1219	2.88	95.33	..	10.72	97.45	28.51	108	92	84.43
71.	1956	1473	2000	2.07	92.21	41.15	4.84	147.17	31.28	104	90	82.07
72.	1956 } 1968 }	1016	1500	1.98	92.90	..	5.69	..	29.60	104	90	84.04
73.	1956	1016	1270	3.84	93.40	..	4.64	..	30.15	93	81	83.04
74.	1962	..	1250	2.28	93.46	1.00	0.75	28.57	30.08	101	88	83.15
75.	1957 } 1966 }	1219	2600	1.51	93.22	34.57	5.56	244.36	26.22	98	85	83.31
76.	N.A.	305	305	5.27	89.23	..	1.28	..	46.20	101	73	73.85
77.	1958	1727	2200	0.40	94.36	..	..	..	26.70	113	96	84.79
78.	1959 } 1968 }	1016	2600	3.65	93.94	36.34	3.64	256.00	29.04	101	81	85.00
79.	1959 } 1969 }	1016	2000	3.92	95.34	60.75	..	..	27.47	106	93	86.82
80.	1963	..	1400	2.03	92.73	2.76	3.63	..	27.14	106	90	83.51
81.	1962	..	1400	2.67	93.08	..	0.51	..	..	105	88	85.13
82.	1938	1422	1778	3.34	94.36	..	8.40	61.00	34.20	101	81	85.54
83.	1964	813	1270	2.44	92.21	..	4.30	..	27.02	95	79	81.74
84.	1957	1016	1500	3.47	93.26	..	5.75	78.10	27.34	102	87	82.43

*Includes routine maintenance also.

1	2	3	4	5	6	7	8	9	10	11	12	13
85.	1962	..	1016	4.29	93.27	..	..	..	..	123	94	84.53
86.	1957	1016	1016	3.96	92.95	..	..	..	29.42	101	82	82.65
87.	1960–1969	1016	1500	2.80	94.42	..	4.50	127.81*	28.12	104	89	84.32
88.	1956	1016	1210	1.41	94.14	1.48	1.75	45.02	24.05	101	82	84.71
89.	1933	813	1500	3.38	95.00	8.21	3.22	117.09	..	96	79	85.17
90.	1958–1965	1016	2600	2.20	93.73	0.10	5.92	226.90	23.55	106	86	84.74
91.	1967	..	813	6.89	90.67	10.25	3.90	7.35	41.31	89	72	79.35
92.	1967	..	1250	2.19	92.30	..	..	..	28.90	116	98	83.40
93.	1968	..	1250	5.33	93.21	..	1.05	..	26.14	91	68	85.75
94.	1969	..	1250	..	92.74	..	..	..	35.70	..	..	84.91
95.	1970	..	1250	..	..	..	..	..	..	..	..	..
96.	1958	813	1500	2.29	92.20	..	4.14	..	34.06	103	82	84.72
97.	1956	1016	1270	4.04	91.12	..	4.23	..	30.38	110	89	81.22
98.	1958	813	1219	5.57	92.13	..	2.70	..	..	91	70	83.83
99.	1944	610	1016	6.20	89.14	..	4.20	..	29.45	103	78	79.70
100.	1941–1969	813	2000	2.86	92.43	4.49	4.22	196.93	27.31	101	81	83.79
101.	1961	1016	1750	3.33	93.11	..	4.28	60.12	21.49	103	88	85.39
102.	1957	1016	1500	3.36	92.76	40.74	3.83	35.48	34.08	97	79	82.89
103.	1966	..	1270	10.17	90.26	..	0.21	..	31.63	88	53	77.97
104.	1935–1935	N.A.	2500	10.42	86.51	82.70	9.12	165.46	40.61	97	60	76.38
105.	1968	..	1250	0.79	93.38	..	..	..	25.75	107	80	85.20
106.	1960	1219	1500	6.17	91.94	36.82	4.58	..	33.36	89	75	81.86
107.	1963	..	1016	5.24	92.08	0.99	0.22	0.25	33.16	100	78	82.92
108.	1934	864	1016	2.57	92.40	..	2.13	7.69	33.90	97	85	86.37
109.	1955	1016	1016	2.63	92.63	17.83	2.60	..	34.58	87	74	84.53
110.	1956	1016	1016	2.57	92.56	..	1.30	..	33.87	109	92	84.95
111.	1968	..	1000	2.25	91.91	..	..	..	32.85	101	83	83.80
112.	1963	..	1016	4.50	92.63	..	..	..	34.20	97	73	84.45
113.	1945–1959	508	850	2.86	90.24	13.55	1.53	6.31	38.14	96	72	81.86
114.	1945	610	1016	1.67	92.34	..	0.97	5.69	37.73	83	71	84.69
115.	1970	..	1250	..	..	..	..	..	..	..	..	..
116.	1967	1016	1500	5.34	93.64	0.40	3.40	91.56	28.36	97	81	84.38
117.	1958	813	1016	3.49	92.45	2.15	5.50	31.50	29.37	101	83	83.15
118.	1962	..	1500	4.25	92.02	..	5.02	90.00	30.02	107	85	82.95
119.	1941	2235	2235	2.01	94.81	104.00	10.86	55.19	29.48	101	84	82.42
120.	1964	..	1500	4.44	92.46	..	5.80	..	33.04	104	85	83.61
121.	1965	..	1270	3.38	90.78	4.53	2.53	23.48	27.07	98	75	84.07
122.	1966	..	1016	6.33	92.61	2.00	4.36	16.50	32.78	108	82	84.83
123.	1949	244	244	3.18	91.61	9.64	1.37	4.28	29.84	103	91	82.50
124.	1965	..	1016	3.34	92.56	0.02	2.05	0.07	31.58	99	77	83.56
125.	1956	1219	1219	3.46	93.40	4.29	2.83	5.12	30.39	94	78	85.58
126.	1960	914	914	4.28	91.54	..	1.93	3.48	33.99	100	81	82.84
127.	1964	..	1500	4.42	92.20	6.00	..	67.22	26.32	104	89	84.56
128.	1960–1969	813	1250	1.76	92.51	3.82	2.33	145.87	31.72	101	86	82.94
129.	1969	406	406	..	..	0.02	0.03	33.62	..	..	..	..
130.	1960	1016	1016	5.04	92.29	..	2.75	17.00	31.87	95	77	82.78
131.	1963	..	1250	2.78	92.88	..	1.89	..	30.23	107	72	84.51
132.	1933	1067	1067	6.99	92.86	..	3.91	10.64	36.08	100	78	93.78
133.	1933	1158	1158	8.63	91.00	0.11	1.95	5.93	33 25	83	60	81.77
134.	1944	1219	1219	3.09	93.03	9.05	3.10	21.95	34.73	93	78	84.69
135.	1932	1422	2100	3.67	92.22	66.87	8.03	29.11	33.92	82	72	82.88

*Includes routine maintenance also.

1	2	3	4	5	6	7	8	9	10	11	12	13
136.	1933–1957	1118	1219	6.86	90.54	0.59	..	0.79	41.29	91	62	81.35
137.	1949–1962	2032	3048	4.88	92.88	81.82	7.19	187.10	44.47	103	73	84.55
138.	1933–1956	2032	2032	2.32	92.11	40.62	4.06	38.66	32.62	93	68	83.41
139.	1933	1724	2300	1.54	93.05	50.15	5.28	41.87	32.71	87	75	84.55
140.	1933–1954	1829	1829	4.80	92.42	47.08	5.91	16.56	36.08	105	92	84.31
141.	1933	1372	1676	5.70	91.95	17.30	5.10	15.45	52.35	82	67	81.89
142.	1953	3048	3810	2.29	92.35	72.08	9.10	81.01	33.56	81	72	84.57
143.	1954	1016	1524	4.91	91.91	..	3.23	4.91	34.82	74	58	83.29
144.	1932	528	900	3.95	91.17	0.40	1.99	24.65	35.32	94	79	83.33
145.	1958	1626	3000	5.02	93.80	41.84	7.33	99.67	30.33	99	72	85.37
146.	1938	1321	1321	1.67	92.38	..	4.35	..	33.67	105	84	83.73
147.	1961	..	1219	7.64	92.03	..	2.93	..	37.63	79	63	82.26
148.	1933–1968	1524	1800	5.04	92.59	..	0.49	76.91	33.34	108	90	84.14
149.	1954	1829	1829	5.32	92.62	24.80	6.54	50.60	37.44	99	79	84.64
150.	1934	1067	1067	...	..	..	..	..	..	99	80	..
151.	1934–1950	3251	3658	7.69	92.34	27.87	6.48	109.59	35.38	91	70	82.53
152.	1933–1961	914	2250	5.64	92.66	49.23	5.50	139.92	..	103	82	83.90
153.	1956	1524	1700	0.90	93.46	30.91	3.62	20.77	37.09	93	78	84.23
154.	1946–1949	1255	1925	3.17	91.97	..	4.96	..	37.45	91	68	82.19
155.	1933–1964	2184	3048	2.88	92.80	..	8.35	114.00	38.77	69	54	83.13
156.	1932	1016	1016	4.34	93.11	..	4.13	8.76	35.62	103	87	84.29
157.	1933	1300	1727	5.36	92.92	90.71	3.30	42.84	33.09	90	76	83.57
158.	1925	737	1000	4.65	92.59	0.41	3.11	31.46	35.53	91	68	82.22
159.	1928–1933	1778	2200	5.79	92.93	..	6.10	25.00	35.50	94	74	83.51
160.	1965	..	1270	2.11	92.65	..	3.43	..	32.19	99	76	84.41
161.	1937–1957	1016	1800	5.56	93.07	2.25	5.51	55.60	37.0	104	74	83.42
162.	1957	1219	1600	2.73	93.94	28.47	4.55	113.00	..	93	81	86.18
163.	1933	1006	1270	4.01	93.04	23.50	2.67	44.67	33.14	99	84	84.47
164.	1932–1934	1956	2642	6.10	92.31	27.88	2.30	49.55	35.79	94	78	82.73
165.	1936	1524	1524	2.15	93.26	..	4.19	..	35.91	88	80	85.76
166.	1938	1219	1219	6.62	92.72	35.44	4.74	23.99	37.92	79	64	80.48
167.	1934–1957	3658	3658	2.61	92.96	66.00	16.40	153.00	31.18	114	95	84.07
168.	1938	1219	1219	5.03	92.07	11.12	2.55	49.05	32.76	99	85	82.08
169.	1934	1829	1829	4.42	92.50	2.88	..	62.56	39.22	97	78	84.95
170.	1933	940	1524	4.90	93.42	2.96	3.58	50.61	35.03	75	66	81.22
171.	1933	914	914	3.84	93.41	11.47	3.08	12.86	34.79	98	81	82.42
172.	1919–1938	750	850	6.46	93.60	19.75	3.40	20.42	36.50	101	75	82.11
173.	1936	965	965	2.33	93.82	17.41	3.59	11.29	35.21	97	80	84.15
174.	1934	970	1270	5.40	94.05	32.64	3.21	65.02	35.26	90	79	83.56
175.	1933	773	773	8.31	92.39	..	1.91	0.90	38.93	84	65	80.24
176.	1933	813	813	8.25	91.81	20.02	4.21	7.50	39.68	95	80	81.40
177.	1928	744	900	5.29	92.83	0.16	2.94	21.94	38.74	95	80	81.48
178.	1932–1959	1524	2000	3.93	92.00	43.73	5.55	61.34	34.65	97	80	83.14
179.	1932	791	791	5.48	91.38	..	1.42	..	38.89	96	75	79.93
180.	1922–1930	1016	1016*	6.12	92.80	24.10	6.02	70.87	36.92	96	73	80.34

*Registered capacity 1800 tcd.

1	2	3	4	5	6	7	8	9	10	11	12	13
181.	1935	610	1000	6.48	93.14	10.77	3.17	33.44	36.92	88	77	80.90
182.	1903	797	1150	4.08	94.37	45.92	4.77	20.24	34.94	90	77	82.16
183.	1922	738	1016	7.79	91.15	3.94	2.38	18.41	37.22	83	62	76.28
184.	1925 1933	2286	2642	5.81	93.19	..	9.00	..	32.54	86	68	82.99
185.	1932	813	813	6.91	92.54	15.78	4.01	10.94	36.20	108	85	80.22
186.	1925	1016	1016	5.66	92.98	4.81	3.30	27.37	35.43	95	80	82.75
187.	1932	559	900	4.24	92.72	4.76	2.21	25.49	38.37	98	74	82.94
188.	1932	1016	1219	3.41	93.35	40.80	4.58	40.21	34.93	102	88	83.79
189.	1932	711	711	4.67	92.21	0.17	2.41	0.07	38.67	102	85	82.34
190.	1968	1025	1500	9.06	92.86	39.76	3.96	161.04	37.24	92	74	85.86
191.	1932	813	813	3.82	93.76	28.09	3.19	10.87	40.65	107	88	83.37
192.	1936	559	700	4.77	92.54	5.00	2.61	5.56	34.10	104	82	82.41
193.	1935	1524	1524	3.77	93.31	29.23	3.36	21.03	37.89	76	61	83.57
194.	1933	904	1219	6.12	94.05	16.70	3.78	50.83	36.60	104	82	83.21
195.	1936	904	1200	4.46	93.31	38.92	4.87	56.10	36.55	100	78	81.91
196.	1932	1118	1118	6.26	92.41	0.81	0.04	0.69	38.74	78	59	81.55
197.	1932	661	813	10.82	92.03	..	1.49	26.09	39.68	93	69	81.86
198.	1944	806	1000	13.06	92.62	0.22	3.22	6.46	39.40	89	63	81.33
199.	1933	1016	1016	3.63	94.61	..	1.91	..	33.40	100	80	84.36
200.	1946	1321	1500	10.52	92.94	36.63	3.64	35.34	35.35	92	66	81.93
201.	1937	813	1219	3.93	94.24	0.85	3.06	11.12	33.44	100	82	86.32
202.	1936	254	450	7.47	92.20	17.88	2.15	22.19	36.87	85	67	83.59
203.	1963	..	1219	0.93	92.77	0.40	0.65	0.50	30.28	88	75	85.58
204.	1934	610	1016	8.54	91.39	..	..	..	37.95	99	71	82.34

CHAPTER V

PROGRESS AND WORKING OF COOPERATIVE SUGAR FACTORIES

5.1 Cooperation has, since the very beginning of planning in India, been recognised as an effective instrument of economic development along democratic lines, particularly of rural communities. The building up of a cooperative sector as an integral part of economic planning has been advocated in all the Five Year Plans. They have emphasized the need for organising cooperatives not only in the traditional field of agricultural credit and marketing but also in the field of processing of agricultural commodities. The Industrial Policy Resolution of 30th April, 1956 spelt out in detail the role the public sector, the private sector (other than cooperative) and the cooperative sector should play in securing a continuous increase in production and its equitable distribution. In order to realize these objectives, the Industrial Policy Resolution laid down, *inter alia,* that it was essential to build up a large and growing cooperative sector and that the principle of cooperation should be applied wherever possible and a steadily increasing proportion of the activities of the private sector developed along cooperative lines. This policy has been reiterated and re-affirmed in the Government decision on Industrial Policy announced in February 1973.

5.2 Among the various agro-based industries, the sugar industry was considered to be one of the most suitable for cooperative processing. The main objectives which the cooperative sugar factories are expected to achieve and for which they are encouraged and organised are as follows :

(i) to secure increase in production and its equitable distribution ;

(ii) to distribute equitably gains of productivity among the canegrowers, workers and the consumers ;

(iii) to create a sense of mutual obligation and concern for rehabilitation of the weaker sections of the community including labour both agricultural and industrial ;

(iv) to eliminate exploitation of workers and to provide amenities and facilities for their better living ;

(v) to provide opportunities to the rural community for gainful employment and improving living standards and working conditions;

(vi) to establish and maintain intimate relationship between the committees of management and individual families associated with the cooperative factories ;

(vii) to organize and render various services to the members for their socio-economic betterment ;

(viii) to eliminate concentration of economic power in a few hands ;

(ix) to develop and improve sugarcane cultivation particularly and agriculture generally; and

(x) to achieve results valuable to the community by drawing equally upon incentives which are social and incentives which are individual.

5.3 In pursuance of the policy laid down in the Industrial Policy Resolution the Central Government and the State Governments took steps to create conditions favourable to the establishment of sugar factories in the cooperative sector. First, the licensing policy relating to the establishment of sugar factories was so shaped and executed that most of the licences for new sugar factories went to the cooperative sector. Secondly, a scheme of financing cooperative sugar factories was evolved under which the State Governments were to participate in the share capital of the cooperative factories, and the Central and the State Governments were to guarantee loans advanced to the factories by the public financing institutions like the Industrial Finance Corporation and the Life Insurance Corporation. To enable the State Governments to participate in the share capital, the National Cooperative Development Corporation was to advance loans to them, out of the funds placed at its disposal by the Central Government.

5.4 The sources from which the cost of setting up a new cooperative sugar factory are normally to be met and the extent of assistance from each of the various sources are as follows :

(*i*) Share capital to be contributed by the member-growers/non-growers and cooperative institutions	Rs. 45 lakhs
(*ii*) Share capital to be contributed by the State Government concerned	Rs. 45 lakhs
(*iii*) Long term loans from the All-India financing institutions such as the Industrial Finance Corporation and Life Insurance Corporation .	Rs. 140 lakhs
(*iv*) Medium term loans from other financing agencies including co-operative banks	Rs. 10 lakhs to Rs. 25 lakhs
TOTAL	Rs. 240 to Rs. 255 lakh

The above sources of assistance have continued throughout with minor adjustments in the amounts contributed by each. In the case of factories situated in under-developed areas the central assistance to the State Government through the National Cooperative Development Corporation has been increased to Rs. 60 lakhs and the cooperative factories have to collect from their members Rs. 30 lakhs only instead of Rs. 45 lakhs. As the cost of establishing a sugar factory has been increasing over the years and has now reached a figure of Rs. 300 lakhs, a revised pattern of assistance is being worked out in which the contribution of the State Governments to the share capital of a factory and the amount of loan advanced by the Industrial Finance Corporation will be increased considerably.

5.5 The Industrial Finance Corporation has been the main source of block loans for establishing cooperative sugar factories. Upto September 30, 1972. the Industrial Finance Corporation sanctioned loans to the extent of Rs. 81.39 crores and disbursed Rs. 63.47 crores. At the end of September, 1972, a sum of Rs. 35.36 crores was outstanding out of Rs. 63.47 crores disbursed. Table No. 5.1 shows the Statewise position of Industrial Finance Corporation loans.

TABLE NO. 5.1

Loans sanctioned and disbursed by the Industrial Finance Corporation to Cooperative Sugar Factories since 1949-50 (*as on* 30-9-1972)

(Rs. in lakhs)

State	No. of factories	Amount sanctioned	Amount disbursed	Amount repaid	Amount outstanding (including interest)
(1)	(2)	(3)	(4)	(5)	(6)
Andhra Pradesh	6	585.00	500.00	246.22	255.41
Assam	1	60.00	60.00	60.00	—
Bihar	1	115.00	90.00	—	107.57
Gujarat	8	575.50	353.50	133.12	220.38
Haryana	2	106.00	106.00	106.00	..
Karnataka	10	852.75	702.75	234.37	468.38
Kerala	2	180.00	180.00	0.23	239.84
Madhya Pradesh	1	80.00	80.00	..	83.43
Maharashtra	32	4076.70	2922.20	1446.92	1477.83
Punjab	4	315.00	315.00	148.00	167.00
Rajasthan	1	80.00	80.00	..	87.06
Tamil Nadu	7	583.00	578.00	304.89	273.11
Uttar Pradesh	4	380.00	380.00	227.73	156.13
Goa	1	150.00	..	..	..
TOTAL	80	8138.95	6347.45	2907.48	3536.14

SOURCE : Industrial Finance Corporation of India.

Loans taken from the I.F.C. have in almost all cases been repaid in time and in many cases ahead of the payment schedule. It may be stated here that one of the conditions laid down by the I.F.C. for advancing loan to a cooperative factory was that the factory should deduct from the cane price a sum of Rs. 3.50 to Rs. 5 per tonne of sugarcane supplied by a member for the purposes of repayment of the I.F.C. loan. The factories have generally been making such deductions in the form of compulsory non-refundable deposits. This has enabled them to repay the I.F.C. loans irrespective of whether in their working they have earned profits or suffered losses. The L.I.C. has also been advancing term loans to cooperative factories since 1961 as a participant of the consortium. The amount advanced by the L.I.C. to a factory has been increasing steadily with the increase in the cost of sugar factory. Upto 1965 the amount of loan to a factory was Rs. 15 lakhs to Rs. 20 lakhs. In 1971-72 it was 40 lakhs to Rs. 50 lakhs. The total amount of loans sanctioned for the various factories was Rs. 10.5 crores and the amount disbursed was Rs. 8.11 crores as at the end of February, 1972. In the case of L.I.C. loan repayments have, by and large, been made on due dates, but there are cases in which the repayment schedule has been revised and further time given to factories at their request. As at the end of February, 1973, the loans outstanding amounted to Rs. 7.32 crores. The Statewise position is given in Table No. 5.2.

TABLE NO. 5.2

Loans advanced and disbursed to Cooperative Sugar Factories by the Life Insurance Corporation of India since 1961

(Rs. in lakhs)

State	No. of factories	Loan sanctioned	Loan disbursed	Loan repayments	Loan outstanding
(1)	(2)	(3)	(4)	(5)	(6)
Andhra Pradesh	5	130.00	80.00	36.00	44.00
Gujarat	4	170.00	119.00	12.00	107.00
Karnataka	4	165.00	115.00	10.67	108.33
Kerala	3	60.00	60.00	4.00	56.00
Madhya Pradesh	1	40.00	40.00	4.00	40.00
Maharashtra	7	290.00	243.00	20.00	223.00
Orissa	2	60.00	59.00	..	59.00
Punjab	1	15.00	15.00	..	15.00
Rajasthan	1	40.00	40.00	..	40.00
Tamil Nadu	1	40.00	..	..	..
Uttar Pradesh	1	40.00	40.00	..	40.00
TOTAL	30	1050.00	811.00	86.67*	732.33

*Includes two instalments of Rs. 4.0 lakhs each which are still outstanding.

SOURCE : Life Insurance Corporation of India.

Since July, 1970, a number of concessions have been offered by the I.F.C. for the establishment of industries in less developed areas notified as such by the Central Government. A major concession is a lower concessional rate of interest (7½ per cent instead of 9 per cent). As the L.I.C. is unable to advance loans at concessional rates the entire burden of loans for sugar cooperatives set up in less developed areas will now fall on the I.F.C.

5.6 As mentioned earlier, the share capital of a cooperative sugar factory consists of contribution by the State Governments concerned, generally in the form of redeemable shares, and by the members (mostly canegrowers but also non-growers) of the cooperative in the form of shares. The contribution of State Governments to the share capital of cooperative factories increased from Rs. 6.5 crores to Rs. 25.9 crores during the period 1961 to 1972 with the increase of cooperative factories as well as increase in the contribution to older factories. Ordinarily the State Government share is on a matching basis, corresponding to the amounts raised by the members. But the prescribed or agreed ratio or proportion is not always strictly adhered to. Any gap in growers' share capital contribution is usually made good by cooperative banks through medium term accommodation. In so far as collection of share capital from cane growers is concerned, it has been found to be an uphill task. It has not always been possible to collect the whole of the members' contribution to share capital before the commencement of production. Some schemes for the establishment of cooperative sugar factories were, however, delayed because the required share capital could not be collected from the canegrowers. The genuineness of the difficulty in raising large amounts from small farmers and from a limited rural area was realized from the very beginning and a scheme was prepared by the Reserve Bank of India under which canegrowers could be given 'term loans' to the extent of 75 per cent of the value of a share, for purchasing their shares. This facilitated contribution by farmers to share capital. However, even this facility could not be taken advantage of by farmers who were defulters to a credit society or a cooperative bank. But in spite of such difficulties in individual cases, the total share capital contributed by cane-grower members of cooperative factories increased fairly rapidly. The share capital collected by 30 cooperatives in 1960-61 was Rs. 5.64 crores from grower members out of a total share capital of Rs. 10.83 crores or 52.1 per cent of the total. In 1965-66 the grower members of 68 coopreatives held shares worth Rs. 15.5 crores in a total share capital of Rs. 23.4 crores, that is, 54.58 per cent. In 1971-72 the grower members of 121 cooperatives contributed Rs. 38.2 crores in a total of Rs. 67.7 crores, that is, 56.43 per cent of the total. Table No. 5.3 shows, State-wise, the contribution of members to the share capital in respect of 30 cooperative factories which existed in 1960-61. The figures given are as at the end of June, 1961 and 1972 :

TABLE No. 5.3

Contribution of Growers and other Members to the Share Capital of 30 *Cooperative Foctories in Operation in* 1960-61

(Rs. in Lakhs)

State	No. of factories	Growers	Non-growers including cooperative institutions	State Govts.	Total	Growers	Non-growers including cooperative institutions	State Govts.	Total
		As on 30-6-1961				As on 30-6-1972			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra Pradesh .	2	25.60	0.08	Nil	25.68	53.74	0.11	Nil	53.85
Assam . .	1	3.46	9.46	27.00	39.92	13.20	11.28	38.80	63.28
Gujarat . .	2	44.53	3.57	30.00	78.10	137.25	0.48	Nil	137.83
Haryana . .	2	32.90	23.99	40.00	96.89	59.67	11.10	40.00	110.77
Karnataka . .	3	25.74	8.17	50.00	83.91	129.97	7.48	55.00	192.45
Maharashtra .	14	341.95	12.16	140.00	494.11	1077.69	16.68	79.00	1173.37
Punjab . .	1	18.50	11.45	20.00	49.95	31.87	12.93	20.00	64.80
Tamil Nadu .	3	51.43	15.18	60.00	126.61	243.03	Nil	90.00	333.03
Uttar Pradesh .	2	20.09	27.92	40.00	88.01	79.25	27.38	49.99	156.62
GRAND TOTAL .	30	564.20	111.98	407.00	1083.18	1825.77	87.44	372.79	2286.00

The share capital contributed by 30 cooperatives from grower members which existed in 1960-61 was Rs. 5.64 crores out of a total share capital of Rs. 10.83 crores or 52.1 per cent of the total. In 1971-72 the grower members of the same 30 cooperatives held shares worth Rs. 18.26 crores in a total share capital of Rs. 22.86 crores, that is, 79.9 per cent of the total.

SOURCE : National Federation of Cooperative Sugar Factories Ltd., New Delhi.

5.7 Apart from raising the share capital as above, the cooperative sugar factories also collected from their members non-refundable deposits from the cane price. A reference to this has been made earlier. The non-refundable deposits collected from the growers upto and during the season 1970-71 came to Rs. 32 crores. Table No. 5.4 shows Statewise position of non-refundable deposits.

TABLE No. 5.4

Compulsory non-refundable Deductions made by Cooperative Sugar Factories upto 1970-71

State	Amount
(1)	(2)
	(Rs.)
Andhra Pradesh	2,08,81,696
Assam	7,81,429
Bihar	1,36,585
Gujarat	2,49,86,194
Haryana	42,29,327
Karnataka	2,86,79,699
Kerala	6,27,066
Maharasthra	17,95,81,707
Orissa	22,71,042
Punjab	74,89,253
Rajasthan	1,97,000
Tamil Nadu	2,73,62,916
Uttar Pradesh	2,24,96,320
TOTAL	31,97,20,734

SOURCE : National Federation of Cooperative Sugar Factories.

In regard to the raising of funds by compulsory deductions, we found that in some factories where the cane price paid was the minimum notified price or only a little more than that—but not sufficiently high to cover the compulsory deduction made—there was resentment among some of the members against the deductions. However, in a number of factories, compulsory deductions continued to be made at the same rate or at reduced rates, even after the I.F.C. loans had been repaid.

5.8 As a result of the State policy and action in the matter of grant of licences for new sugar factories, the generous and ready response of the public financing institutions and cooperative banks to the financial demands of cooperative sugar factories and, not the least of all, the initiative, the faith and the perseverence of the promoters—State Governments, individual officials and non-officials—of sugar cooperatives, the programme for establishment of sugar factories in the cooperative sector made a steady progress. In 1956 there were 3 cooperative factories only, the earliest of them having been established in 1932. By the end of 1971-72 there were 79 cooperative sugar faetories in production. Besides, the cooperative sector had in its hands licences for another 54 factories. The installed capacity of the cooperative sector which was 0.13 lakh tonnes in 1950-51 increased to 14.75 lakh tonnes in 1972 out of the total installed capacity of 39.19 lakh tonnes of the entire sugar industry. The cooperative sector contributed 42 per cent of the total sugar production of the year 1971-72. With the implementation of the licences already held by the cooperative sector and the private sector, the former will claim a near parity with the latter in installed and production capacity. Table No. 5.5 shows the progress of the cooperative sector.

TABLE No. 5.5

Progress of the Cooperative Sector

State	Number of Factories									
	1960-61		1965-66		1969-70		1971-72*		1972-73@	
	Coop.	Total	Coop.	Total	Coop.	Total	Coop.	Total	Coop.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Andhra Pradesh .	2	11	8	19	8	19	8	19	8	20
Assam . . .	1	1	1	1	1	1	1	1	1	1
Bihar . .	0	28	0	29	1	30	1	30	1	30
Gujarat . . .	2	2	3	3	5	5	7	7	8	8
Haryana . . .	£	£	£	£	2	3	2	3	2	3
Karnataka . .	3	8	4	9	5	10	7	13	7	13
Kerala . . .	0	1	2	3	2	3	2	3	2	3
Madhya Pradesh .	0	5	0	5	0	5	1	6	1	6
Maharashtra . .	14	27	21	32	30	41	32	43	37	48
Orissa . . .	0	1	1	2	1	2	1	2	1	2
Punjab . . .	3	6	5	8	4	6	4	6	4	6
Pondicherry . .	0	1	0	1	0	1	0	1	0	1
Rajasthan . .	0	2	0	2	1	3	1	3	1	3
Tamil Nadu . .	3	8	5	14	6	16	7	17	7	17
Uttar Pradesh . .	2	71	4	71	4	71	5	73	5	73
West Bengal .	0	2	0	1	0	2	0	2	0	2
Nagaland . .	..	..	..	..	..	..	..	..	0	1
All India . .	30	174	54	200	70	218	79	229	85	237

NOTE :—£ Included in Punjab.

* Includes 9 factories—5 in Bihar, 1 each in West Bengal, Maharashtra, Andhra Pradesh and Tamil Nadu which did not work in 1971-72 season.

@ The information relates to number of installed sugar factories as on 5-4-1973.

SOURCE : (1) Tariff Commission Report, 1969.

(2) Cooperative Sugar (Nov. 1972).

(3) Directorate of Sugar & Vanaspati.

It will be seen that the cooperative factories are unevenly distributed over the country. Of the 79 factories in existence during the season 1971-72, as many as 39 were in Maharashtra and Gujarat. These two States thus claimed almost half of the cooperative factories in the country. Further, all the sugar factories in Gujarat are in the cooperative sector. Among the major sugar producing States of U.P. and Bihar—which claim more than 100 sugar factories of all sectors—the number of cooperative factories is only 5 and 1 respectively.

5.9 The membership of the cooperative sugar factories consists largely of canegrowers—actual and potential—owing or having land in the area of operation of the factory. In addition there are individual non-grower members also, mostly from the same area but, in some cases, from far off places also (as in the case of a few cooperative factories in the Punjab). Apart from this a number of cooperative institutions are also members of cooperative sugar factories. The position of membership of the cooperative factories is shown in Table No. 5.6

TABLE No. 5.6

Growth of Membership of Cooperative Factories

Year	No. of factories	Grower Members (000)	Others (000)	Total (000)	Average No. of members per factory	Percentage of grower members to total members
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1960-61	30	151	12	163	5433	92.64
1961-62	34	168	19	187	5500	89.84
1962-63	41	185	20	205	5000	90.24
1963-64	48	213	21	234	4875	91.03
1964-65	57	227	21	248	4351	91.53
1965-66	68	258	22	280	4118	92.14
1966-67	76	288	24	312	4105	92.31
1967-68	76	316	25	341	4487	92.67
1968-69	76	341	25	366	4816	93.17
1969-70	104	420	30	450	4327	93.33
1970-71	109	475	36	511	4688	92.96
1971-72	121	518	39	557	4603	93.00

NOTE :—In Col. 2, the number of factories shown against the years 1969-70, 1970-71 and 1971-72 includes those coopeative factories also for which licences have been granted but which have not been established yet and are in various stages of planning and construction.

SOURCE : National Federation of Coopeartive Sugar Factories Ltd., Annual Report 1971-72.

It will be seen that the total number of members of cooperative factories has been increasing steadily from year to year with the increase in the number of cooperative sugar factories. But there is no such trend of increase in the average number of members per factory. Col. 6 of Table 5.6 shows that the average membership per factory has been increasing or decreasing from year to year. That is obviously due to the inclusion of figures relating to factories which were still in the process of setting up. A clearer picture can be obtained by a study of the membership statistics in respect of the same factories over a number of years. Table No. 5.7 shows the position of membership of 30 cooperative factories which were in existence in 1960-61.

TABLE No. 5.7

Growth of Membership and Cane Crushing Capacity of 30 Cooperative Sugar Factories in operation in 1960-61

State	No. of factories	Average number of grower members per factory		Average number of other members per factory		Average installed daily cane crushing capacity (Tonnes) per factory	
		As on 30-6-61	As on 30-6-72	As on 30-6-61	As on 30-6-72	1960-61	1971-72
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Andhra Pradesh	2*	3416	3617	4	5	457.5	660.5
Assam	1	3256	8460	3433	3564	813.0	813.0
Gujarat	2	2031	4163	155	6	914.5	2800.0
Haryana	2	10489	14028	1147	1042	1143.0	1325.0
Karnataka	3	2821	6036	526	645	965.3	1489.7
Maharashtra	14	1657	5017	47	74	1048.6	1930.4
Punjab	1	8977	15940	3061	2667	1016.0	1016.0
Tamil Nadu	3	2558	6620	3	1	914.3	1376.7
Uttar Pradesh	2	3357	5730	85	87	1117.5	1550.0
TOTAL	30	3005	6256	384	383	980.5	1670.8

*These two factories were established before 1937.

SOURCE : National Federation of Cooperative Sugar Factories Limited and Directorate of Sugar and Vanaspati.

The above table shows that the average number of members per factory (both of growers and others) has increased considerably over the last 12 years. In only one State, Andhra Pradesh, the increase has been slight. In all the other States, the increase has been large. This is reflected in the all-India average per factory; the growers' membership increased from 3005 to 6256 during the period 1961—1972.

5.10 It will be seen from the above that numerically and quantitatively the progress of the cooperative sector of the sugar industry has been remarkable. But one should not lose sight of the fact that this achievement became possible largely due to the policy of the Central Government of issuing most of the licences for new factories to the cooperative societies.

5.11 This brings us to a qualitative assessment of the working of the cooperative sugar factories, keeping in view the stated objectives of the cooperative sector of the sugar industry. As stated earlier the total membership of the cooperative sugar factories as well as the average membership per factory have been increasing steadily over the years. The average number of grower members per factory, on the basis of the data for 30 cooperative factories was 6256 as on 30-6-72 (vide Table 5.7). It is observed that the average number of grower members per factory in Maharashtra and Gujarat, where the cooperative movement has done well, is lower than the overall average. In Maharashtra, it is 5017 and in Gujarat 4163. This number represents about one-third to one-fourth of the cultivators of the area of operation of a factory. Thus the advantages which accrue to a cooperative factory are enjoyed by a small number of cultivators only. In some cooperative factories there is a reluctance on the part of the existing members to enlarge the membership of the factory. It is said that the cooperative factories have become a close preserve of a limited number of shareholder and families. The study of 7 cooperative factories by officers of National Cooperative Development Corporation and Department for Cooperation (Ministry of Agriculture), carried out under the direction of the Commission shows that this criticism is not justified. Most of the cooperative factories in Maharashtra have very few members from backward classes. In 12 of 15 cooperative factories in respect of which information is available, the membership from backward classes is reported to be 10 per cent or less. According to the bye-laws of many cooperative sugar factories, a farmer having less than one acre or half acre or one bigha of land is not eligible for membership of the cooperative. The value of a share of most of the cooperative factories ranges between Rs. 250 and Rs. 1000. In a factory in Gujarat, we were told that shares of the value of Rs. 500 each were being transferred at a very high premium with the knowledge of the Board of Directors. It is obvious that shares sold at high prices can be purchased by rich farmers only. The cooperative factories in Maharashtra and Gujarat also pay high prices for cane to their members whose number is limited. This also is leading to the creation of marked economic, social disparities among the rural people.

5.12 In Maharashtra the cooperative factories pay high prices, sometimes very high prices, to canegrowers for their cane. There is, therefore, little temptation to the canegrowers to divert their cane to gur. But where cooperative factories pay lesser price than the gur or khandsari manufacturers, some canegrower members divert their cane in part or whole to the latter. When visiting a factory in Andhra Pradesh, we learnt that not only the members of the cooperative factory but also some of its directors had sold their cane to gur/khandsari manufacturers as it paid them to do so. Many cooperative factories outside Maharashtra, Gujarat and parts of Karnataka cannot pay higher prices than the gur and khandsari units and the diversion of cane in their areas to gur and khandsari is noticeable. There are, no doubt, some canegrowers in every factory area who are loyal to their cooperative factory and supply their cane to it in full in spite of higher prices being offered to them by gur and khandsari manufacturers.

5.13 A sample study of the organisation of cane supplies in cooperative factories showed that the pattern of supplies was inexplicable in a number of cases. It was found that there was little relationship between the area under cane with a member and the quantity of cane supplied by him. For instance, in the case of a sugar factory in Gujarat, a shareholder having only 0.38 acres under cane in a year managed to supply 87 tonnes, while another shareholder having only a little more than 2 acres under cane succeeded in supplying 220 tonnes of cane. In one case the average yield of sugarcane per acre works out to 215 tonnes, in the other to 125 tonnes. The average yield of cane per acre in Gujarat is about 35 tonnes. A very good crop may yield even 50 tonnes. One can understand if a canegrower supplies less cane than he produces, but it passes understanding how he can supply 87 tonnes or 220 tonnes when he could not possibly have produced more than 25 tonnes or 100 tonnes respectively It shows that in some cases member of cooperative societies supplied cane produced by others in their own names.

5.14 Another peculiar practice followed by some cooperative factories came to the notice of the Commission during the course of its visits to sugar factories in Maharashtra. There is no system of formal reservation of areas for different factories in Maharashtra as there is, for example, in Uttar Pradesh, Bihar, Andhra Pradesh and some other States. As such every canegrower is free to supply his cane to any factory and any factory is free to purchase cane from any canegrower or any area. The only restriction that now applies is through the application of the bye-laws of cooperative societies. The bye-laws of a cooperative society prescribe and define the operational area of the cooperative society either by listing the names of the villages or by describing the area in terms of radius of miles or kilometres. The members of the cooperative societies are under obligation, if so directed by the Board of Directors, to supply all their cane to their cooperative society. What has actually happened in a few cases was that the total quantity of cane grown by the members

of a cooperative society within its area of operation was more than could be consumed by the factory, and, therefore, the cooperative factory arranged to supply the 'excess' cane of its members to another factory, private or cooperative, at factory-to-factory level. This has happened in more than one case. Again, in fixing the respective areas of operation of cooperative factories, the claims of private factories established earlier have been ignored in some cases. In a case which came to our notice the very village in which a private factory is located has been included in the area of operation of a nighbouring cooperative factory. In this situation, there are numerous cases of cross-traffic of sugarcane, cane grown almost at the gate of a factory being taken to another far-off factory. The justification for the cooperative factory requisitioning all the cane grown by its members, even though it did not need all that cane, and then selling the cane to another factory, was that the cooperative factory might expand its capacity in the near future and that all the cane grown in the area would then be required by the cooperative factory.

5.15 Mention may be made here of a very significant contribution that the cooperative sugar factories in Maharashtra and Gujarat have made to the improvement of the organisation of cane supplies. They have introduced in an organised manner and on a large scale the system of harvesting and transporting of cane by factories themselves. Factories engage contract labour to harvest the cane in farmers' fields. As a corollary to this, they also arrange the transport of cane from the fields to the factories, in factories' own or hired vehicles. Harvesting and transport cost is borne by the factories. This system has proved beneficial not only to the canegrowers but also to the factories. The farmer gets the cane price ex-field and saves the cost of harvesting and transport. On its part the factory can organise harvesting of cane in the fields in the order and in the manner best suited for providing mature cane to the factory and in fresh condition. As in some other activities, it is the Maharashtra cooperative factories which have given the lead in this matter and the Gujarat cooperative factories have followed. In fact, some of the joint stock sugar factories in Maharashtra have also adopted this practice. In the southern States the cooperative factories do not harvest the cane. But in some States, for example, Andhra Pradesh and Tamil Nadu, they provide transport facilities to canegrowers for transporting their cane from long distances. But ordinarily they recover the cost of transport from the farmers in part or in whole. In the northern States of Uttar Pradesh, Bihar, Haryana, Punjab, etc., this system has not been introduced as yet on account of large number of canegrowers supplying cane in small lots.

5.16 Until recently contract labour for harvesting of cane was employed by the cooperative factories directly. Recently, however, some factories have given up engaging contract labour and have advised their members that they should hire the cane-harvesting labour themselves. Presumably this has been done to avoid the possibility of the farm labour claiming to be factory labour. This arrangement has been severely criticised by workers' representatives.

5.17 The cooperative sugar factories have over the years collected from their members more than Rs. 70 crores by way of share capital and compulsory non refundable deposits. This is a sizeable contribution to the efforts at capital formation out of rural savings. But critics of the cooperative sector do not give much credit to this performance. They point out that whatever has been collected from the farmers did not really come out of their genuine savings. The canegrowers were paid unduly high prices by factories, reducing taxable profits and then a certain portion of the amount earmarked and shown as additional cane price was withheld at the time of payment and was shown as growers' contribution to this deposit or that fund. In this way, it is little more than a part of surplus income which, if not shown and paid as additional cane price, would have formed part of the profits of the factory and would have been subject to corporate tax. The legality of this procedure cannot be questioned, for it is perfectly in order for the cooperative factory to reduce its tax liability in the interest of its members and its own working. Nor need the ethics or the morality of it be questioned. But the fact remains that in Maharashtra and Gujarat, the funds have by and large been built up out of the 'extra' price paid for cane, over and above the statutory minimum price.

5.18 One of the essential features of a cooperative organisation is its autonomous character. It is supposed to be managed by elected directors. But the cooperative factories in several States function more or less as Government controlled organisations rather than as autonomous cooperatives. The only exceptions are the cooperative factories in Maharashtra and Gujarat and to a lesser extent in Karnataka. In the first two States, there is now little interference from Government in day-to-day administration. There is, however, one important matter in regard to which the Maharashtra Government exercises considerable powers. It relates to the fixation of the additional cane price which a cooperative factory may pay to the canegrowers—members only or members and non-members both. There is a Ministers' Committee at the State level with the Chief Minister as Chairman. This Committee considers the financial working results of every cooperative factory at the end of the year and determines the amount or rate of additional cane price. In this way the distribution of the income of every cooperative is fairly effectively controlled by the State Government. On the other hand, the cooperative factories in Kerala, Tamil Nadu, Madhya Pradesh, Rajasthan, Haryana, Punjab, Uttar Pradesh and Bihar are all, more or less, Government-controlled organisations. Only the methods and degree of control differ from place to place. In Kerala, the cooperative factories are little more than Government-controlled organisations and the directors, even where they are elected directors, have no effective voice in the management of the factories. In Tamil Nadu, the boards of directors of all the cooperative factories without exception are nominated boards with nominated—albeit non-official—chairmen. It was found that some of the persons nominated as a directors or chairmen became shareholders of the cooperative factory concerned only a short time before their nomination as director

or chairman. Elections have not been held for a long time and there is little contact between the nominated boards of directors and the members of the respective cooperative factories. In Andhra Pradesh, the position is only slightly better even with elected directors. In a cooperative factory in Andhra Pradesh, we found that in the appointment of its managing director, neither the non-official chairman nor the non-official elected directors had been consulted. In Madhya Pradesh, a cooperative factory has been established only recently. In this case too, the Board of Directors is a nominated board. Similar is the position in Rajasthan in respect of the single cooperative factory there. In Haryana and Punjab, though the different cooperative factories have been in existence for 5 to 15 years, the control of the Government is almost total. Due to differences between elected and nominated directors of cooperative factories in Punjab over certain matters considered by the boards, several references had to be made, according to the bye-laws, to the State Government. In the majority of cases Government agreed with the official directors and in some cases agreed with the non-official directors. In Uttar Pradesh one Government officer is the chairman of all the cooperative societies. In Bihar, the only cooperative factory has a Government officer as its chairman. From the replies received from 78 cooperative sugar factories, it appears that 28 of them have nominated boards of directors and that in 54 factories the Managing Directors have been nominated by State Government concerned. Even where there is an elected board of directors, there are two to three nominated directors also.

5.19 The bye-laws of the cooperative societies provide for the nomination of the first board of directors for a period of three years or five years as the case may be. There is also a provision either in the bye-laws of the cooperative factories or in the Cooperative Societies Acts of the States to the effect that the State Government will have the right to nominate the Chairman or/and the board of directors or/and three or four directors of a cooperative factory so long as Government funds remain unpaid with the factory. The amount which entitles a State Government to make such nominations varies from State to State—from Rs. 1 lakh in one State to Rs. 20 lakhs in some States.

5.20 One can understand the anxiety of a State Government to have an effective control over the affairs of a cooperative factory in which large public funds—its own and of public financial institutions—are involved. But the continuance of Government control over unduly long periods inhibits the cooperative from developing normally into a self-reliant organisation.

5.21 In our discussions with the State Governments at the highest level, we came across two widely different but strongly held views on this matter. Most of the State Governments have taken the view that their control over a cooperative factory is only temporary and that the control will be withdrawn as soon as the loans taken by the cooperative factory have been repaid. On the other hand, a State Government has maintained that effective Government control is essential not for any limited period but for always, if the cooperative factory is to work efficiently. According to this view, an 'effectively controlled' cooperative sugar factory functions more like a public sector undertaking and, therefore better than a cooperative undertaking and has the advantages of both—Government control as well as involvement of canegrowers. This view of the State Government will not find favour with the orthodox cooperators. It certainly does not fit in with the spirit of the cooperative movement. In fact, such a hybrid cooperative is neither a public sector nor a cooperative undertaking and suffers from the disadvantages of both. It gives little opportunity to canegrowers to run their cooperative factory themselves through their elected directors or to directors to gain experience and confidence in running their business. We find that this diarchy is resented almost everywhere by those who are or want to be directors of their factory. This resentment arises from the feeling that they are being denied an opportunity to manage the affairs of their own cooperative factory.

5.22 A reference may now be made to the elections of directors to the Boards of the cooperative factories, where the boards are no longer nominated by State Governments. In the past the elections have been held regularly in accordance with the bye-laws. But in a number of cases, the same persons came to be elected again and again as chairmen and directors. This led to the criticism that the cooperatives were controlled and dominated by a small number or coterie of persons who wielded their power and influence to get re-elected time and again. A study of the list of chairmen of cooperative societies in Maharashtra over the last 10 to 12 years showed that in 9 of the cooperative factories, the same persons had continued to be chairmen for a period of more than ten years as on 30-6-1972 and in four of them for a period of more than five years but less than ten years. The continuance of the same person on the board of directors for a long period leads to the inference that vested interests have developed and that influential men have been elected over and over again. It also shows absence of a second line of leadership. On the other hand, the inference could be that it shows the strength and stability of the organisation. If the same men dominate and manage a cooperative for long periods, the continuity of policy and administration is maintained and the cooperative benefits from the long experience gained by the directors. Either view may be taken. But when visiting such cooperatives and discussing matters with the boards of managements, canegrowers (shareholders as well as non-shareholders) and workers, we gathered the distinct impression that cooperative factories had come to be monopolized by a limited number of people who managed to keep others out. Recently, however, legislation has been enacted which prescribes that no person shall continue to be a designated officer (including chairman) of a cooperative society for a consecutive period of more than six years. This period of six years has, however, to be calculated with effect from the date from which the amendment to the relevant Cooperative Act came into force. The introduction and enforcement of such a provision is indicative of the fact that the continuance of the same person as a

chairman or director for unduly long periods was considered undesirable both by the cooperators as well as the State Governments. This provision will be welcome to other aspirants to the position of chairman and director.

5.23 The most significant feature of the cooperative sugar factories, which has been emphasized again and again, is that the producer and the processor of the raw material and the owner of the finished product and the factory are the same, *i.e.*, the canegrowers. There should, therefore, be no occasion for conflict or clash of interests between the members and the managements of cooperative factories. This is generally so where the elected boards of directors manage the cooperative factories and there is little official interference from Government. But where the cooperative factories are controlled by nominated chairmen, nominated directors and nominated managing directors, there is a lack of rapport between the members of the cooperative factories and their managements.

5.24 Where the cooperative factories have been working successfully they have also rendered considerable socio-economic services to the rural community in their areas. They have opened schools, colleges, hospitals, etc., and have provided numerous other facilities not only to their members but to the agriculturists in general. These activities and services are more in evidence in Maharashtra and Gujrat, less so in Tamil Nadu and Andhra Pradesh. The Maharashtra cooperative factories have executed a number of schemes for irrigation facilities to farmers. Lift irrigation schemes alone have cost Rs. 251 lakhs. The cooperative factories in other States have not yet developed sufficiently to be able to render such services on any significant scale. But what has been achieved by cooperative factories in Maharashtra and Gujarat suggests strongly that when fully developed the cooperative factories are capable of rendering great service to their members as well as other sections of the rural population.

5.25 In regard to worker-management relations the labour organisations have unanimously criticised the cooperative sugar factories on the ground that they have exploited consumers and workers as much as the private sector. In fact their criticism of the cooperative sector of the sugar industry is harsher and sharper than of the private sector. Both in their written representations as well as during the course of discussion, the representatives of the National Labour Oraganisations made the point that the cooperatives sugar factories had done little for the amelioration of the working conditions of their labour, that, on the other hand, the attitude of the cooperative factories towards their workers was feudalistic and that the cooperative had done little to improve the housing conditions for their workers even though many of them had made profits. Also the workers had not been given any opportunity to participate in the management of the factories.

5.26 During the course of our visits to various factories in the country, we had occasion to meet the workers of factories including cooperative factories. We found that by and large the workers were in favour of the particular organisation of the industry in which the factory was working if the relations between the labour and management were cordial and the management was alive to the needs and feelings of its workers. Subject to this general statement, the workers of most of the cooperative factories felt that they had not been given the place which they deserved in the working of the cooperatives, that in the matter of recruitment and appointment of workers, even unskilled workers, preference was being given to the kith and kin of the directors of the Boards and that the cooperative factories had not paid anything more to them than the neighbouring factories in the pirvate sector. The general impression which we gathered was that the workers, as a class, felt that they could deal with and handle the managements of private factories much more effectively than the managements of cooperative factories. They found themselves rather overwhelmed by the canegrowers who were owners of the cooperative factories. On behalf of the cooperatives, it was argued before us that the relations between the cooperatives and their workers had throughout been cordial. In support of this statement it was stated that there had hardly been a strike of workers in the cooperative factories. However, the representatives of labour construe the peaceful behaviour of the labour in cooperative factories as akin to the peace of the dead. It is stated that the workers are strongly discouraged from organising their unions and that the workers find themselves uncqual to face the large number of canegrowers in the midst of whom they live and work. A reference was also made to the observations of the National Commission on Labour about the labour in cooperative sugar factories. The National Commission on Labour expressed regret over the unsatisfactory working conditions of labour in the cooperative sector. In its view the cooperatives were expected to have a more sympathetic approach towards their labour as most of the workers employed in cooperative factories belonged to the weaker sections of the rural community.

5.27 In this regard, two approaches exist among the cooperators. One view is that the sugar cooperatives of canegrowers must function primarily and exclusively in the interest of canegrowers and that so long as they pay to their workers what is due to them according to law and practice, they have no other obligation towards their workers. The other view is that the sugar cooperatives have special socio-economic obligations and should, therefore, treat their labour much more liberally than other seetors of the sugar industry. In other words, after making reasonable provisions for improvement of the lot of their canegrower members, they should provide residential quarters and educational, recreational, medical and other facilities to their workers. Not only that but the workers should also be enabled to participate in the management of factories. There is no doubt that the sugar cooperatives will find this to their advantage and will function not only in the interest of the canegrowers but also of the workers and the consumers. The pressure of public opinion and Government labour policy and their own self-interest

will move the cooperatives in this direction. Already, the National Federation of Cooperative Sugar Factories has accepted the principle of participation of labour in the management of cooperative factories and has taken up the matter with State Governments.

5.28 A labour organisation furnished statistics of tax provisions made by the joint stock companies and the cooperative factories in Maharashtra in the years 1967, 1968, 1969 and 1970 and stated that 10 or 11 joint stock companies made a tax provision of Rs. 2 crores to Rs. 4 crores a year, while 20 to 28 cooperative factories made a tax provision of Rs. 10 lakhs to Rs. 57 lakhs only. But the data furnished do not represent a realistic picture inasmuch as there existed, in the years mentioned above, a number of cooperative units enjoying tax relief and a tax holiday and, therefore, the average taxation per factory does not really reflect the correct position on a comparable basis. On behalf of the cooperative sector, it was pointed out that the payment of the surplus income to canegrowers in the form of additional cane price led to larger supplies of sugarcane to factories which contributed to higher production of sugar. That in turn meant more excise duty payable to Government. In some States, for example Tamil Nadu, cane cess/cane purchase tax is levied on *ad valorem* basis and not on the basis of weight of cane purchased by factories. Higher prices for cane paid by cooperative factories thus result in payment of larger amounts as can cess/cane purchase tax. It is not possible to calculate, even approximately, the effect of payment of higher prices for cane on the quality and quantity of cane supplied to the cooperative factories, but the probability that higher prices influence supplies favourably cannot be questioned.

ANNEXURE A

Note by Shri Bansi Dhar

ANNEXURE A

NOTE ON TECHNICAL PERFORMANCE AND CONDITION OF PLANT AND MACHINERY IN DIFFERENT SUGAR MILLS

A-1. I have signed the Commission Report (Chapters I to V) subject to my following comments.

A-2. I consider it necessary to give my views on the assessment of the technical preformance and the condition of plant and machinery in different sugar factories in the country. As we have pointed out in our report, various norms suggested to assess the technical efficiency of sugar factories are rigorous. No wonder that due to such rigorous norms adopted, only 8 factories out of 189 in the country have performance equal to the norms suggested by the Commission (Page 62, Table 4.12). These 189 factories include both old and new units. This in itself is sufficient to show that the norms adopted were highly unrealistic and unrelated to practical considerations.

A-3. My contention is further supported by the fact that the methodology adopted in determination of norms leaves much to be desired. As explained in Chapter III of the Report, the norms for various technical efficiency factors have been arrived at by adopting the all-India average figures for a 20 year period—1940-41 to 1959-60. In the first place when the Commission is required to study the performance of the industry during the period 1960-61 to 1969-70 it is hardly relevant to adopt average efficiency figures for the period 1940-41 to 1959-60. It is common knowledge that factors like change in cane variety, government policy of achieving increased production, irregularity in cane supply etc., are important factors which have a bearing on the technical efficiency figures. It was, therefore, essential that in determination of norms for various technical efficiency factors the period 1960-61 to 1969-70 should have been adopted so as to provide for the changed circumstances. Furthermore, if the average figures are to be taken as norms for various efficiency factors, it is clear that average figures for various regions should have been adopted. By adopting all-India average figures, the regions which are below the all-India average due to certain conditions peculiar to those regions are automatically placed at a disadvantage for reasons beyond the control of factories. A large section of factories would thus be classified as technically deficient which may not actually be the case. Similarly, based on all-India average figures, there would be regions which would be at an advantage since their average figures would normally be higher than the all-India average. Therefore, any study based on all-India average figures would not reveal the true picture.

A-4. In Chapter III this lacuna is sought to be rectified to some extent by adopting regional norms in the matter of total losses. But no such consideration has been shown with regard to other efficiency factors which was also essential to make the norms more realistic for the purpose of the required assessment.

A-5. In para 4.35 on page 62, a reference has been made to large scale rehabilitation and modernisation. Before any large scale expenditure is to be incurred, it would be necessary to make sure whether the large scale expenditure referred to in the para would make the unit healthy or financially sick.

A-6. It is from this point of view that I find it necessary to clarify certain issues involved in the assessment of technical performance and condition of plant and machinery in different sugar factories and regions. The norms should be based on practically achievable technical efficiency consistent with the economic and financial viability and should take into account the various regional factors. Availability of machinery in a country like India where resources are scarce, its requirement for new units and for expansion along with the need for maintaining employment are also relevant factors and should be given due consideration.

S/3 DF/74—13.

CHAPTER VI

A RATIONAL AND EFFICIENT ORGANISATION OF SUGAR INDUSTRY

(by Shri V. Bhargava, Chairman and Dr. V. S. Vyas, Shri S. L. Saxena, Shri Bansi Dhar and Shri A. C. Bose, Members)

6.1 One of the important tasks entrusted to us is to suggest a rational and efficient organisation for the sugar industry in the country. While our focus has to be more directly on this industry, and our efforts will be to suggest appropriate organisational changes to solve its problems, it is not possible—nor perhaps it is intended—that we should ignore the wider socio-economic context, or lose sight of the changes in the socio-economic milieu in our country.

The Socio-Economic Context

6.2 To any observer of Indian scene it is clear that there is a growing consciousness among the people at all levels that every form of economic organisation should conform to the social aspirations and should be socially accountable. This applies as much to the public sector as to the private or the cooperative sector. Thus, few would contend that the mere taking over of an enterprise or an industry by the Government, howsoever important the reasons be, is an end in itself. What is expected is, to ensure, among other things, that such change-over makes the organisation more responsive to social priorities. Similarly, when it comes to the private sector there is a growing agreement that the ownership of assets should be more broad-based, and such features of private enterprise should be removed as make it immune to public scrutiny. Likewise, the generally acceptable idea of a cooperative is not merely that of an organisation which enables its members to take advantage of their collective strength, but of providing an instrument for doing so to those who as individuals are weak and handicapped. The idea of the social responsibility of the economic organisation may be an old one but it has now reached a stage in our country where it finds almost universal acceptance.

6.3 Another important development which needs to be underlined is the realisation, based on experience in this as well as in other countries, that various forms or organisations and working arrangements can be evolved to achieve the given social objectives. The very fact of a large scale induction of the cooperative form of organisation in an industry like sugar in our country is a moot example. One similar considerations, the structure of asset holdings as well as management practices in the private sector are being subjected to constant review so as to attune them to the needs of the time. The insistence on converting private limited companies into public limited companies, emphasis on transforming closely-held companies into widely-held companies, restrictions on the concentration of economic power, as well as a variety of ways in which the State is directly intervening and controlling management of economic activities, in the cooperative as well as in the corporate sectors, suggest that the trend in modern thinking is to evolve effective tools to achieve the given objectives.

6.4 In this scheme of things, in appropriate circumstances, nationalisation of units, or the total takeover of the management of an industry, is certainly not ruled out. But nationalisation of an industry can obviously not be considered an end in itself, nor indeed a panacea for all the ills. The emphasis is on the State giving clear directives, in consonance with the declared goals of our policy, to various economic organisations. At our stage of social, economic and political development, a comprehensive regulatory role for State in the economic sphere is of paramount importance. The instruments, however, which the State can wield to perform this role are varied, changing and flexible.

6.5 Fortunately, in our country, by and large, pragmatic and realistic thinking has informed industrial policy. Such thinking is reflected in policy announcements like the industrial Policy Resolution of 1956, in the guidelines on industrial development given in various Five-Year Plans, as well as in various economic decisions of the Government. A recent example of this Government's pragmatic view on these matters is the way in which the problems of another agro-based industry, *viz.* textiles, were tackled. The Government did not hesitate to takeover nearly 50 textile units which it considered were unsatisfactorily managed, and entrusted them to an autonomous corporation specially created for this purpose, while leaving the other 500 and odd units with their present managements.

6.6 Absence of a doctrinnaire approach in our country has its justification in the over-riding consideration that the productive potential of the nation ought to be fully mobilised. The biggest problem

facing the country is that of poverty. Nearly 40 per cent of the people live below the minimum desirable consumption level. If one is sincere about improving their lot, there is no escape from achieving a satisfactory rate of growth in production. This is irrespective of any reasonable assumption one may make about the redistribution of incomes generated in the economy. The Approach Paper of the Fifth Five-Year Plan clearly enunciates that if any dent is to be made on the problem of poverty, such as raising the level of living of the bottom one-third of the people to a somewhat more human existence, a minimum rate of growth of 5.5 per cent per annum in the aggregate production is absolutely necessary. Although a mere preoccupation with growth would not solve the problem of poverty, a rate of growth of this magnitude accompanied with a deliberate policy of income redistribution is a must for ameliorating in any significant measure the conditions of the poorest in the land.

6.7 From this perspective, the increase in production is not something in the nature of an alternative to social justice but an imperative to redeem the pledge given to the poor. If for any reason, the contemplated rate of growth is not achieved during the next five years, the poor in this country would have little hope for improvement in their living conditions in the near future. This rate of growth of aggregate production is linked with certain magnitudes of capital formation and investment in the economy. In the present plan, there is a definite role given to the private sector to make investments of the type and magnitude which are indicated for achieving the desired growth. Before taking any step which may upset the underlying logic of the plan in terms of investment, rate of growth and composition of output and income distribution, one has to be very careful.

6.8 In sum up, with the type of social pressures which are already generated and are being strengthened every day and with the rich experience in regulating and in giving positive directions to economic organisations by the State, it is now possible to evolve a structure for the industry which would meet the basic requirements of economic efficiency compatible with the objective of social accountability.

Overall Financial and Technical Assessment of the Industry

6.9 In the light of the above, we shall first attempt a broad assessment of the sugar industry. Our attempt is to highlight the inadequacies which ought to be corrected with a view to making the industry perform the role required of it. The studies narrated in the preceding chapters have brought out in sharp relief all the major shortcomings of the industry. An inescapable conclusion emerging from these studies is that their incidence is spread over all the three sectors, *viz.*, private, cooperative and public, and also that these are found in units located in all the regions, in Uttar Pradesh and Bihar as much as in Maharashtra and Tamil Nadu, although the incidence in all cases is not uniform. Before we examine the extent and the nature of these inadequacies and suggest appropriate organisational changes for the industry, it will be helpful to outline some of the main characteristics of this industry.

6.10 Sugar Industry is one of the largest industries in the country with a weight of 3.5 per cent in the General Index of Industrial Production, and of nearly 10 per cent in its consumer non-durable goods segment. There are 218 units (in 1969-70) spread throughout the length and breadth of the country. Not only all the units in the industry are in rural areas but a large number are located in those areas which are even today considered, on the basis of norms suggested by the Planning Commission, as "backward areas". Thus, of the 218 units for which information is available, 100 or nearly 46 per cent are located in the backward districts. Among the private sector factories, 56.3 per cent are in the backward districts; the proportion of similarly located units in the cooperative and public sectors is 25.7 per cent and 25.0 per cent respectively.

6.11 The Industry deals with hundreds of thousands of small growers; in some cases the number of suppliers to a unit is as high as 40,000. The average number of growers feeding a sugar factory in the tropical region is about 3,000 while that in the sub-tropical region is about 25,000. The growers bring their supplies in small quantities and, further, cane being highly perishable, it has to be processed with minimum time-lag. The whole system of raw material procurement, transport and crushing has to function in a synchronised way. This is an organisational task of large magnitude. There are, no doubt, several lacunae in the system as it presently operates but the fact should not be ignored that more than two hundred units spread all over the country are procuring cane from lakhs of growers every day during the season, transporting it (*i.e.* that part which is not supplied at the gate) in reasonably good condition and time, and processing it in a scientific manner.

6.12 The organised sector of the industry in this country is also afflicted with the problems arising out of the fact that utilisation of cane for sugar accounts for only 30 per cent of the total cane produced, the rest being claimed by gur and khandsari. For understandable reasons, it has been found difficult to impose control restriction or discipline on the gur and khandsari sector. With controls imposed on only the organised industry, its flexibility get adversely affected; the industry faces difficulty in attracting cane

supplies during periods of shortage and unless fiscal relief is adequate, is being forced to extend the crushing period beyond what it finds economic in a season when sugarcane is in plenty. Sugar is also consumed largely by the urban and more articulate sections of the community. Any shortfall in its production and availability and rise in prices are quick to attract notice and get highlighted.

6.13 But, while pointing to the constraints of the situation, we have not hesitated to assess the performance of the industry on the basis of rather rigorous yardsticks. In doing so we have not been oblivious of the fact that, if similar standards were to be applied in the case of other industries, public or private, a number of similar or more serious inadequates will come to the fore. But this is as it should be. While assessing the performance of an industry one should rather err on the critical side.

6.14 The starting point of any such assessment is the production performance. It is encouraging to note that in all the three plans the industry has largely fulfilled the targets of capacity creation as suggested by the Planning Commission and fully reached its targets of production set for it. The targets of capacity creation for the First, Second and Third Plans were respectively 20.30, 25.40 and 35.60 lakh tonnes. As against these, the industry achieved the capacity of 17.77, 22.03 and 29.31 lakh tonnes for First, Second and Third Plans respectively. As against the production targets of 18.00, 30.00 and 35.00 lakh tonnes for First, Second and Third Plans respectively, the acutal production recorded was 18.90, 30.19 and 35.30 lakh tonnes respectively. This fact deserves to be recognised because, unfortunately, we cannot cite examples of many industries of this size which have realised the targets of capacity or of production to a similar extent.

6.15 Among the agro-based industries, production performance of sugar industry is much better than that of the group as a whole. Thus, during the last decade, 1961 to 1970, while the index number of production of agro-based industry as a group increased from 105.2 to 151.1 (with 1960=100), the increase in sugar production was from 110 to 165.3. While the credit for this, specially in the later years, goes to the large number of cooperative factories which came into being during this period, even in the first decade of planning when the task of expansion of sugar production capacity devolved largely on the private sector, the record was equally encouraging.

6.16 As in the fiield of asset creation, reflected in the installed capacity, so also in respect of financial performance the record is not unsatisfactory. True, there are units making losses as there are profit making units, in all sectors and in all regions. However, the industry as a whole has exhibited financial health and has recorded a net profit of Rs. 105 crores over the period 1961—70. The overall financial strength of the industry is not affected even if activities other than sugar making are excluded. It should be remembered, however, that most of such activities, like distilleries, are supplementary to the main activity and need to be encouraged for fuller utilisation of by-products.

6.17 The financial performance, good or bad, again, transcends the confines of a particular sector. Judged by the standard of profit per unit per annum, the Government owned factories with an average per unit profit of Rs. 9.4 lakhs (mainly contributed by one out of the total of four units) and the public limited company (joint stock) factories with per unit profit of Rs. 9.1 lakhs have shown better results. The profit per unit is low in private limited/partnership/priorietary concerns with average profit of Rs. 2.1 lakhs per unit per annum and in the units in the cooperative sector showing an average per unit profit of Rs. 0.9 lakh per annum. The overall financial health is also reflected in the proportion of loss incurring units to the total in each sector; these are 20 out of 102 in the joint stock sector, 14 out of 36 in private limited/partnership/proprietary firms, 31 out of 65 in the cooperative sector and 2 out of 4 in the public sector.

6.18 The figures of profit when related to capital employed, or to the net worth of the units, present a more or less similar picture.

6.19 Another financial test is the appropriation of profit under various heads, *e.g.* reserves, taxation, dividends, etc. In this respect also, the performance of the industry as a whole is satisfactory. An analysis of the balance sheets of factories revealed that a significantly large proportion of the profits earned are kept in reserve for further expansion. In the case of cooperatives, this component is proportionately even large than in the joint stock sector, although one should bear in mind that this is because of lower profits, lighter incidence of taxation and, limit on dividends which the cooperative units can declare.

6.20 But while the financial performance of the industry as a whole is sound and its performance in this respect is satisfactory, the same cannot be said about its technical and engineering sides. In these respects also, we have made studies of each factory's performance.

6.21 The technical efficiency of the industry has been examined with the help of several criteria, like sugar per cent bagasse, reduced mill extraction, total sugar loss per cent cane, reduced overall extraction, etc. The performance of the industry on these grounds is not flattering. The striking feature is, however, that these weaknesses are more or less uniformly spread, in the old as well as new units, in all sectors of the industry, and in units located in every region of the country. This can be seen from the accompanying statement which is extracted from Chapter III of our report.

TABLE No. 6.1(a)

Statement showing the Technical Performance of Industry

State	Number of factories having					
	Sugar % bagasse more than 3.0			Reduced mill extraction less than 93.0		
	Co-operative	Joint Stock	Public Sector	Co-operative	Joint Stock	Public Sector
1	2	3	4	5	6	7
Andhra Pradesh	7(8)	8(10)	1(1)	6(8)	6(9)	1(1)
Assam	1(1)	..	..	1(1)	..	..
Bihar	1(1)	15(22)	1(1)	..	8(21)	1(1)
Gujarat	5(5)	..	..	2(3)	..	..
Haryana	1(2)	1(1)	..	2(2)	1(1)	..
Karnataka	5(5)	4(4)	1(1)	3(4)	4(4)	1(1)
Kerala	2(2)	1(1)	..	2(2)	1(1)	..
Madhya Pradesh	..	4(4)	..	..	1(3)	..
Maharashtra	21(24)	6(12)	..	6(23)	1(12)	..
Orissa	1(1)	1(1)	..	1(1)	1(1)	..
Pondicherry	..	1(1)	..	..	1(1)	..
Punjab	3(4)	2(2)	..	4(4)	2(2)	..
Rajasthan	..	1(1)	1(1)	..	1(1)	1(1)
Tamil Nadu	5(6)	7(10)	..	6(6)	6(9)	..
U.P. West	1(1)	15(17)	..	1(1)	14(17)	..
Central	1(2)	18(18)	..	1(2)	12(17)	..
East	..	29(32)	..	..	16(31)	..
West Bengal	..	—(1)	..	..	—(1)	..
TOTAL	54(62)	113(137)	4(4)	35(57)	75(131)	4(4)

TABLE No. 6.1(b)@

State	Number of factories having					
	Total sugar losses % cane more than 2.3/2.5/2.7*			Reduced overall extraction less than 84.0		
	Co-operative	Joint Stock	Public Sector	Co-operative	Joint Stock	Public Sector
1	8	9	10	11	12	13
Andhra Pradesh	3(8)	6(10)	1(1)	4(8)	9(9)	1(1)
Assam	—(1)	..	..	—(1)	..	..
Bihar	..	16(21)	1(1)	..	18(21)	1(1)
Gujarat	2(3)	..	..	2(3)	..	..
Haryana	2(2)	1(1)	..	1(2)	—(1)	..
Karnataka	2(5)	3(4)	1(1)	2(4)	4(4)	1(1)
Kerala	1(2)	—(1)	..	2(2)	—(1)	..
Madhya Pradesh	..	4(4)	..	..	2(3)	..
Maharashtra	14(23)	2(12)	..	12(23)	3(12)	..
Orissa	—(1)	1(1)	..	—(1)	1(1)	..
Pondicherry	..	1(1)	..	..	1(1)	..
Punjab	4(4)	1(2)	..	2(4)	—(2)	..
Rajasthan	..	1(1)	1(1)	..	1(1)	—(1)
Tamil Nadu	4(6)	6(10)	..	4(6)	5(9)	..
U.P. West	1(1)	14(17)	..	1(1)	9(17)	..
Central	—(2)	10(17)	..	—(2)	11(17)	..
East	..	23(31)	..	..	27(31)	..
West Bengal	..	—(1)	..	..	—(1)	..
TOTAL	33(58)	89(134)	4(4)	30(57)	91(131)	3(4)

N.B.—Figures in parenthesis are the number of factories reporting in respective sectors.

* For Maharashtra 2.3%
For Central U.P., East U.P. & Bihar . . . 2.7%
For all other regions 2.5%

@See Table 3.16(b); page 49.

6.22 We do not have, therefore, any ground to suggest that on overall basis either one or the other sector or one or the other region is distinctly superior.

6.23 Another important aspect examined by us was the condition of plant and machinery. In this respect we were handicapped because we could make on-the-spot study of only a few factories. The limitation of the conclusions arrived at from a mere desk study are well-known. As we shall be explaining in the subsequent paragraphs, in such type of studies, several extraneous, but important, considerations are likely to be overlooked. These studies, with all their limitations, have once again shown that in this respect also, the incidence of bad maintenance is widespread and prevalent in all the sectors and regions in varying degrees.

6.24 While there is no justification for bad maintenance of plant and machinery in a number of processing units, it ought to be realised that it is partly due to the structure of incentives provided by the government. The greatest emphasis in recent years has been on increase in production. This was rightly so because of the need to satisfy growing demand for sugar. Purely from this standard the Industry, as noted above, has fulfilled the tasks assigned to it. But in the process the technical performance was adversely affected. This underlines the need for a current audit of the technical performance of the industry and for a balanced view on the cost and output. Since the overall financial position of the industry was sound and sizeable funds were allocated for rehabilitation and renovation, the inadequate performance can only be ascribed to the failure to obtain technical guidance and lack of proper supervision and control. Besides, the fact that the short-comings on the technical as well as on the financial side are not restricted to a particular sector or region but are more or less randomly distributed, rules out the easy alternative of concentrating on one sector or one region with the hope of overall improvement. What is indicated is a discriminating approach for meeting the specific requirement of various situations.

Inadequacies of the Sugar Industry and Causes of Sick Mills

6.25 In considering what should be the efficient and rational organisation of the sugar industry, our terms of reference require us to take into account the various studies about the performance of the industry, the inadequacies of the sugar industry and their causes as well as the causes of existence of a large number of sick sugar mills. We may, therefore, indicate at this stage the inadequacies that exist in the industry. The main inadequacy which very largely affects the achievement of production success by the sugar industry is related to the production and supply of cane to the factories due to various causes. There are some factories where there is chronic shortage of cane so that the full capacity is not utilised and costs of production go up. There are wide fluctuations in cane area and cane production, which is almost of the pattern of a cycle of two years of high production and two years of low production. It has been pointed out that there has been lack of proper cane development for improvement of quality of cane, its yield per hectare, irrigation facilities, etc. This deficiency is charged against the factories as well as State Governments which have been realising large amounts of cane cess, or purchase tax on cane supplied to the factories. In some areas, adequate credit facilities have not been made available to the canegrowers for improved seeds and inputs like fertilisers, for pesticides and other needs for increasing their production. It has also been suggested that there is absence of loyalty amongst canegrowers towards the factories so that there is considerable diversion of cane to the production of other sweetening agents at the cost of the production by the factories going down. It has also been said that supplies of cane to the factories were largely affected by the delay in payment of cane price. Another inadequacy is the practices adopted by the factories in marketing of sugar during periods of partial control or decontrol. The performance of some factories has been inadequate as a result of continuing with old and obsolete machinery particularly with poor maintenance which in some cases is attributable to inadequate expenditure on rehabilitation or incompetent technical staff looking after the machinery. The weak financial position of some factories has accentuated this problem. It has also been said that in their financial performance there has been unsatisfactory generation of surpluses for purposes of further expansion and development of the industry. Finally a charge it made that most sugar factories suffer from lack of professional management personnel and have also employed unqualified technical staff. While, in considering the organisation of the industry, inadequacies have to be dealt with, we feel that the same organisation should be able to deal with the problem of sick mills. The sickness of the mills is primarily due to three causes. The first one is the inadequate and unsatisfactory supply of cane coupled with, deteriorating quality of cane. Some mills have gone sick because of financial mismanagement, or even malpractices. The third cause is the poor condition of plant and machinery in the sick mills, due to lack of proper maintenance. These factors together automatically result in inefficient working, lowering production, losses, and ultimate higher cost of production. Any rational and efficient organisation of the sugar industry as a whole must achieve the object of removing the inadequacies of the industry and at the same time, taking care of the sick mills. It may, however, be mentioned that the inadequacies we have indicated above are wide-spread. However, in many instances, the allegations that these inadequacies are attributable to the management, are made without proper appreciation of the difficulties imposed on the industry due to its location, organisation and other specific attributes to which we have drawn attention in the previous section. At times the industry is supposed to perform tasks which are beyond its, or for that matter any other industry's capacity and competence. Again, on occasions, the past performance of the industry is judged on the basis of norms which are only now gaining acceptance. Such approach to the assessment of an industry can, of course, arouse high expectations, but it is doubtful whether this can lead to any workable solutions.

The Private Sector

6.26 The major inadequacies in case of the private sector are two-fold. First, it is contended that there is a lack of rapport between the sugar industry on the one hand and the growers, labourers and the consumers on the other and secondly, the industry has not fulfilled its developmental role.

6.27 To start with the second of the major inadequacies, *viz.*, failure to discharge developmental role, it can be considered in two different aspects. One aspect is the development of cane in the areas from which the factories draw their supplies and taking of other necessary measures for that purposes by providing financial assistance or knowledge of agricultural practices to the cultivators. This criticism against the private sector is based primarily on the situation existing in the sub-tropical region with special reference to the States of Uttar Pradesh and Bihar where a large number of private sector factories are concentrated. In the tropical region, where the private factories have always had direct contact with the cultivators, they have been progressive in taking measures for cane development, in supplying seeds to cultivator and in providing credit facilities. The factories in the other sectors have also followed this practice. In the States of Uttar Pradesh and Bihar, however, supplies of cane are made through canegrower unions so that the growers have no direct dealings with the factories except for the minimal contact at the time when their cane is weighed and taken by the factories. Rules do not permit deduction of advances made from the cane price, which in any case, would be impracticable, because factories consolidate figures of daily cane supplies and make payment of the price to the unions and it is the unions who pay the actual price to the cultivators. It is difficult to envisage that the factories in these circumstances would make advances with the risk of losses and without even knowing the identity of cultivators receiving the money provided by them. It was also suggested that the factory could have given large sum as loans to the unions themselves, which could then meet the needs of the growers. This, however, would result in the uncertainty that the loans may not reach the persons actually supplying cane to the factories but may go to others having approach to the unions so that the benefits may not accrue at all to the growers who actually supply cane to the factories. One more advantage of direct contact accruing to the growers in the tropical region, from which the growers in the sub-tropical region are deprived, is that agricultural know-how can be made available by the factory to the growers by keeping competent staff for the purpose, which becomes impractical where the dealings are through a union. A further complication that arose in Uttar Pradesh is that development councils were constituted by the Government for the purpose of cane development in each factory, but these councils could not achieve any appreciable success. The resources available to the development councils were not sufficient, nor did they have the expertise needed for the purpose. The suggestion that factories should have made funds available to the development councils by loans was hardly workable because the development councils themselves had no control on the growers and in cases where the development councils did make advances to cultivators, the repayments fell very short in years of short production when sugarcane was diverted considerably to gur and khandsari manufacturers. This lack of direct contact was particularly brought out recently by the Pasricha Committee, which was appointed to study the problem of cane cultivation in the sub-tropical regions and one of the important recommendations made by the Committee was that steps should be taken to establish direct contact between the factories and the growers. In Part II of this Report, we have suggested that where canegrower unions exist, tripartite agreements should be executed in respect of supply of cane. That recommendation, if given effect to, can then enable the factories to give loaus to the cultivators because there being direct contact between the factory and the cane supplier, there should then be no objection to deductions from the price. Canegrowers unions can continue to function for the purpose of safeguarding the interests of the growers in the matter of cane price, weighment and other spheres where it can assist the growers in their dealings with the factory.

6.28 The second aspect of development in which factories are expected to play a role is the socio-economic development of the areas round the factories. It is true that, except some factories is Maharashtra and Gujarat and a few factories in other States, most others have not taken up such development work. There are, of course, a few honourable exceptions here and there but by and large the charge is correct. While this is a serious shortcoming, let us not forget the fact that sugar industry or for that matter any other industry, cannot usurp the developmental role of the Government. It is neither possible nor desirable. They, like other economic institutions in the area, are expected to supplement efforts of the Government. For performing the supplementary crucial role, they have to have necessary resources as well as access to the growers. They can, of course, be expected to provide necessary facilities and services for the growers and the labour employed by them by maintaining hospitals and dispensaries and by starting schools and colleges. Even this activity depends a lot on the Government policy in this regard. If the Government gives incentives to induce the factories to perform these tasks, such institutions can serve not only the growers and the labour but can also develop into centres for education and progress of the whole population in the area from which the factories derive their cane. At the same time, Government can make deterrent provisions for those who fail to do so, in which case, much better results can be expected. We are confident that once such schemes are started and the proposed national sugar authority is given power to supervise the working of the sugar factories in all its aspects, such development work will certainly come up in all the rural areas where factories are situated irrespective of the factories being run by cooperatives, by Government itself, or by the private sector.

6.29 In our report on the future development of sugar industry we propose to look into this question

in greater detail and to suggest the nature and the form of the extension efforts which are needed. It may be stated even at this stage as indicated above we do envisage an important role for the sugar processing units in the development of their own areas and particularly in the development of cane cultivation.

6.30 Sometimes it is maintained that the cultivators have totally lost confidence in the private sector management. This, it is reported, is largely due to irregularities in the weighment of cane and assessment of sugar recovery, delays in payment for cane and, inadequate share in the profits earned by the industry. In our visits to the factories, we have come across different views on first of the above mentioned complaints. In some factory areas, the cultivators expressed full faith in the management of the factories and were satisfied to the extent that, even when the cane was weighed in their absence, they were certain that the weighment was correct and that they did receive their legitimate dues. At the same time, we have also come across situations, when the canegrowers expressed serious doubts on the authenticity of the figures supplied by the factories in these regards.

6.31 In the latter case most of the complaints were not due to weighments at the gate of the factory, but mostly against the weighments at the out-station centres where junior employees were in charge. We have been unable to confirm this. However, the organisation of the sugar industry which we are suggesting in respect of supply of cane and payment of cane price to the factories as contained in our first interim report and in respect of marketing of sugar by the proposed new authority, the temptation to resort to such practices, even if they exist, will be eliminated.

6.32 Another complaint which used to be much more widespread in the past, though it is occasionally voiced even now, is about the cane price dues. From the replies received by us from factories and from the information given by the Central Government in the Parliament to questions relating to cane payment, it has become abundantly clear that, except for a few factories which have been habitual defaulters, the performance of the private sector over the last decade has been quite satisfactory. The only exception is the year 1969-70 when due to special circumstances, *i.e.* large stocks of unsold sugar and consequently large funds blocked for unduly long periods, the overdues in connection with cane prices accumulated. In other years, we find that after three months of every cane crushing season, the arrears to be paid were less than 5 per cent of cane prices. In fact, in most of the factories the percentage of arrears was much less, ranging between 1.5 per cent to 3 per cent. The table attached shows the percentage of cane price in arrears at the expiry of 3 months from the closure of each factory calculated on Statewise basis and also indicating the existence of arrears sector-wise. This table shows that the factories run by the Public Limited Companies have not been any greater offender in the matter of cane arrears than other factories in the same region or even in other regions. The worst offenders are the private limited, partnership and proprietary concerns and the blame due to their default attaches to the entire private sector.

TABLE NO. 6.2

Statement showing cane price arrears after the expiry of three months of closure expressed as per cent of total cane price payable

(Per cent)

Sl. No.	Particulars	1960-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70
1	2	3	4	5	6	7	8	9	10	11	12
1.	*Andhra Pradesh*										
	Public Ltd.	7.21	7.74	1.75	0.84	2.17	2.03	1.80	2.03	2.60	8.97
	Co-op.	0.37	0.28	0.49	15.78	0.86	0.56	1.92	0.42	0.63	2.16
	Government owned	5.78	0.12	0.14	0.15	0.10	0.10	0.50	0.03	0.04	Negligible
	Weighted average for the State	6.15	4.63	0.99	3.75	1.42	1.21	1.70	1.40	1.65	5.49
2.	*Assam*										
	Co-op.	Part F not received									
3.	*Bihar*										
	Public Ltd.	11.25	13.72	8.28	2.97	4.53	7.14	8.43	4.66	5.95	5.35
	Co-op.	..	..	..	..	..	..	..	..	..	34.92
	Pvt. Ltd./Part./ Propri.	3.75	11.46	3.15	1.63	1.80	2.77	3.04	1.32	3.14	1.84
	Government owned	Nil	0.50	10.57	9.93	0.19	5.86	61.92	9.45	24.21	34.30
	Weighted average for the State	9.30	13.05	7.17	2.68	3.77	6.04	7.28	3.87	5.59	5.06

Sl. No.	Particulars	1960-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70
1	2	3	4	5	6	7	8	9	10	11	12
4.	*Gujarat*										
	Co-op. . .	..	..	..	9.36	11.60	7.35	No arrear	6.84	6.74	7.9
	Weighted average for the State .	..	..	..	9.36	11.60	7.35	No arrear	6.84	6.74	7.9
5.	*Haryana*										
	Public Ltd. .	0.55	0.50	0.50	0.31	0.22	0.24	0.46	3.42	0.17	0.1
	Co-op. . .	1.27	0.03	0.06	0.16	0.01	0.10	0.20	5.32	0.70	0.4
	Weighted average for the State .	0.83	0.30	0.31	0.24	0.13	0.18	0.36	4.00	0.36	0.2
6.	*Kerala*										
	Public Ltd. .	..	..	0.02	0.02	0.01	0.01	0.05	0.02	Negligible	0.1
	Co-op. . .	..	..	..	..	0.08	0.03	..	0.09	,,	0.0
	Weighted average for the State .	..	..	0.02	0.02	0.04	0.02	0.02	0.05	Negligible	0.0
7.	*Madhya Pradesh*										
	Public Ltd. .	0.18	0.27	0.34	0.42	0.26	0.26	0.76	1.32	0.30	21.0
	Private Ltd./Part./ Propri. . .	..	..	..	..	..	..	..	..	..	
	Weighted average for the State .	0.18	0.27	0.34	0.42	0.26	0.26	0.76	1.32	0.30	21.0
8.	*Maharashtra*										
	Public Ltd. .	0.13	2.12	0.04	0.06	0.13	0.96	0.49	0.27	4.63	4.8
	Co-op. . .	3.41	4.36	4.19	3.41	3.12	4.43	5.13	5.25	4.24	3.8
	Weighted average for the State .	1.94	3.19	2.42	2.25	2.12	3.12	3.53	3.90	4.36	4.1
9.	*Karnataka*										
	Public Ltd. .	0.14	0.24	Negligible	Negligible	0.01	0.09	Negligible	0.25	1.76	0.2
	Private Ltd./Part./ Propri. . .	..	..	..	..	..	..	..	..	..	
	Co-op. . .	..	..	..	..	..	..	..	..	..	
	Govt. owned .	0.95	0.96	1.50	1.95	1.26	1.34	..	3.20	1.48	2.7
	Weighted average for the State .	0.43	0.39	0.39	0.36	0.31	0.32	..	0.34	0.76	0.6
10.	*Orissa*										
	Public Ltd. .	..	..	..	..	..	..	..	..	..	
	Co-op. . .	..	..	..	..	0.04	0.90	0.50	2.02	0.80	21.7
	Weighted average for the State .	..	..	..	..	0.02	0.60	0.30	0.95	0.61	17.0

Sl. No.	Particulars	1960-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70
1	2	3	4	5	6	7	8	9	10	11	12
11.	*Pondicherry*										
	Pvt. Ltd. . .	0.19	0.52	0.55	0.70	0.68	1.40	0.32	0.44	4.00	9.20
	Weighted average for the State .	0.19	0.52	0.55	0.70	0.68	1.40	0.32	0.44	4.00	9.20
12.	*Punjab*										
	Public Ltd. .	0.81	0.55	0.72	1.80	0.82	0.91	0.56	0.56	0.66	0.57
	Co-op. . .	0.38	0.86	0.18	0.21	0.26	0.62	0.98	0.17	5.51	0.20
	Weighted average for the State .	0.64	0.65	0.57	0.96	0.53	0.73	0.97	0.31	4.03	0.32
13.	*Rajasthan*										
	Public Ltd. .	6.31	7.23	3.03	21.41	6.76	4.00	7.76	16.83	5.00	15.87
	Co-op. . .	..	..	..	..	..	..	..	..	..	0.30
	Government onwed	..	..	..	..	..	..	..	..	..	..
	Weighted average for the State .	3.32	3.34	1.60	9.54	4.12	1.88	1.57	7.02	1.74	7.20
14.	*Tamil Nadu*										
	Public Ltd. .	0.24	0.08	0.08	0.17	0.20	0.28	0.87	0.50	2.05	6.03
	Private Ltd./Part./ Propri. . .	..	..	..	..	..	..	..	..	..	..
	Co-op. . . .	4.44	0.23	0.11	11.26	2.22	2.32	0.61	5.30	2.38	2.40
	Weighted average for the State .	1.14	0.12	0.09	2.43	0.82	0.79	0.81	0.84	2.15	4.83
15.	*Uttar Pradesh*										
	Public Ltd. .	2.73	2.35	1.15	0.79	0.81	2.01	2.35	1.40	1.48	4.07
	Private Ltd./Part./ Propri. . .	4.00	6.83	9.44	0.81	0.99	3.50	5.40	2.00	4.28	11.37
	Co-op. . . .	..	..	..	..	..	Negligible	Negligible	0.02	0.01	0.03
	Weighted average for the State .	3.11	3.76	3.70	0.77	0.84	2.37	2.78	1.43	2.26	5.18
16.	*West Bengal*										
	Public Ltd. .	0.24	0.17	0.07	0.13	0.13	0.15	0.18	0.025	0.04	0.40
	Weighted average for the State .	0.24	0.17	0.07	0.13	0.13	0.15	0.18	0.025	0.04	0.40
17.	*All India Abstract*										
	Public Ltd. .	3.40	3.91	1.40	0.86	1.23	2.07	2.21	1.45	2.59	4.87
	Co-op. . .	2.57	2.41	2.70	4.61	2.46	2.84	3.37	4.44	3.27	3.16
	Private Ltd./Part./ Propri. . .	3.75	7.30	8.34	0.89	1.06	3.22	4.61	1.85	3.92	9.58
	Govt. owned .	3.65	0.41	0.70	0.82	0.50	0.67	2.09	0.80	1.43	2.27
	Weighted average for the State .	3.37	4.16	2.74	1.67	1.46	2.39	2.87	2.39	2.94	4.91

6.33 However, delays in payment of cane dues are already corrected to a large extent by the measures taken by the Reserve Bank of India with which the industry has fully cooperated. While in an ideal situation it should be expected that there should be spot payment for the cane supply, in a seasonal industry like sugar the difficulties faced by the management should not be minimised. The industry has to incur all the expenses during a short season of 4 to 5 months. It can recoup these amounts over the period of a year. It is clear, therefore, that in order to facilitate the payment of cane prices without any avoidable delay the role of credit institutions is of crucial importance. If the credit institutions stretch the helping hand the factories should not have any problem in reducing the time-lag in the payment of cane prices which exists even today. It may also be necessary to stream-line the procedure in areas where cane supplies are regulated by growers' unions and delays occur as payment of price to individual suppliers has to be routed through the unions. Provision for the association of the growers' representative with the management of each unit, which is a part of our scheme of organisational changes, would further facilitate this task.

6.34 The other grievance of the cultivators is that the factories were making large profits while they are not receiving adequate price for their cane. There is some truth in this allegation. During some years in the past, the sugar industry succeeded in making large profits and the share of the cultivator in these additional profits was not appreciable. In order to ensure that the cultivators receive their due shares, the Commission has submitted a scheme in Part II of this Report. The scheme is incentive oriented and is aimed at not only sharing the profit but is likely to induce the cultivators to supply cane to sugar factories regularly and in adequate quantities.

6.35 The underlying reasons for the type of grievances as were narrated to us, is the absence of a line of communication between the growers and the processors. Such communication as it exists today is sporadic, informal and paternalistic. What is needed is to institutionalise this arrangement, to make it regular and, to put it on the footing of equality. Keeping this in view we would recommend that a growers' representative should be included on the Board of Management of every processing unit.

6.36 The complaint of the labour is even more bitter against the cooperatives although the joint-stock sector units are also not spared. Here too a statutory provision for the representation of the labour on Board of Management of the sugar factory units can strengthen the channel of communication between the labour and the management. This again, forms an important element of our scheme of organisational change.

6.37 The consumers' interests are best served if there is an adequate supply of sugar available at all times at reasonable prices. The present arrangement has failed to do so. Although the Government's share in the total production has ranged between 60 to 70 per cent it was not found possible to regulate the supplies to the consumers on an even keel. Apart from rethinking and systematising release policy, this further strengthens the need for the creation and operation of a buffer-stock on which Sen Commission had laid great emphasis. To facilitate achievement of these objectives, marketing of sugar has to be controlled by one single public authority and this is what we are proposing. The surpluses generated by this authority can be distributed, according to the scheme outlined in Part II.

The Co-operatives

6.38 Most of the inadequacies are common between the cooperative units and the units in the private sector. There are, however, certain strong points of the cooperative societies organised by the cane growers as reflected in the performance of their societies in Maharashtra and Gujarat. The most important among them being the rapport between the management and the growers. Partly this is due to the fact of high prices which growers' cooperatives are able to pass on to the members, but there is also an important element of psychological satisfaction. This aspect is important in an industry where agricultural raw material constitutes the bulk of the cost of the finished product.

6.39 Similarly, the cooperatives have played remarkable role in cane development and have made significant contribution in the development of the rural areas in two States of Maharashtra and Gujarat. Unfortunately, all this work is largely confined to the cooperatives in these two States only. In several respects the pattern and functioning of the cooperatives in these two States is different than that obtaining in other States, the major difference being the dominant role which the Government plays in regulating the activities of the cooperatives in other States. In these States the Co-operatives have all the disadvantages of an enterprise run by the beaurocracy without any compensating advantages.

6.40 Even in the States where the cooperatives are running successfully a criticism is generally levelled that deliberately or inadvertantly they have become an instrument in creating and sustaining a rural oligarchy. In most of the areas of their operations, the member canegrowers hardly constitute one-third to one-fourth of the total number of cultivators. Further, because of the economic advantages conferred by the cooperatives there is, in certain cases, unwillingness to make them open to a large number of people, particularly to the poorest of the area. The representation of the marginal farmers and those of the scheduled castes and scheduled tribes even in the successful cooperatives is grossly inadequate.

6.41 There is a need, therefore, not only to democratise the structure of the cooperatives in the States where they are virtually functioning as State enterprise, but also there is need to make them genuinely broad based organisation with a heavier representation of the poor. One of the ways to achieve this objective is to restrict the number of shares, and consequently the area under cane, which an individual or a family can register with a cooperative sugar factory. So far not much is done in this direction and to that extent

the cooperatives have become vulnerable to public criticism.

6.42 Due to their exclusive attention on the member cane-growers, the cooperatives have not been able to create a climate of confidence among the labour or the consumers. The criticism of labour against the cooperatives was found to be virulent. It was stated by the labour representatives that even the normal trade union activities were hampered in these units. Though there might be a degree of exaggeration in these criticism, the fact remains that the cooperatives have not been able to establish a rapport with the organised working class movement. As suggested earlier, it is necessary to make provision for a labour representative on the Boards of Management of the cooperative units also as in the case of private sector. As regards the complaint of the consumers, that as far they (consumers) are concerned there is hardly any difference between the private and a cooperative sugar mill, the remedy lies in total public control on the marketing of sugar.

The Public Sector

6.43 Nationalised factories *i.e.* factories in the public sector at present consist of ten sugar factories, the oldest of these is one established at Mandya in the erstwhile Mysore State in the year 1933. It is a public limited company in which the State Government holds controlling interest. A second one was established in the erstwhile State of Hyderabad in the year 1937 and came to be owned by the State Government after integration of the State of Hyderabad after independence. One factory in the State of Rajasthan was acquired by the Government in the year 1953-54 when the owners decided to close it down as it was not running economically. Machinery and plant was also very old. Government, however, decided to take it over in the interests of the cultivators who would have suffered if the factory had stopped operation or had been shifted elsewhere. This factory was thus acquired by Government when the plant and machinery was already in poor condition. The fourth factory in Bihar was purchased by the State Government in the year 1962 when the company owning it went into liquidation. When this factory was purchased, according to the officers of the Bihar Government, the machinery was in good condition, but the condition has deteriorated subsequently, as the State Government could not find funds to maintain it properly. These four factories form a very small part of the sugar industry as a whole. Five other factories now in the public sector are situated in Uttar Pradesh and were taken over only in the year 1971 because of mismanagement and poor financial condition of the factories in order to prevent their closure. In fact, the State Government had issued an ordinance to acquire twelve such factories but seven others could not be taken over as stay-orders were obtained from the High Court and proceedings in that behalf are still pending. The tenth factory is one established very recently in the State of Andhra Pradesh. Factories that have run for some appreciable time in the public sector are thus only four in number. The administration of these factories has been carried on by Government officers appointed by the State Government concerned. Some of these factories also suffer from some inadequacies as factories in other sectors.

The Sick Mill

6.44 The inadequacies discussed above are rather general in nature. Most of these can be cured and their recurrence can be prevented with timely action by an alert supervisory body. There are, however, already some units in private and cooperative sectors which have reached a stage where a major structural change is indicated. A few of these units have been closed or are virtually defunct for a number of years. In such cases, the cultivators have already switched on to other crops and there is no great urgency to revive these dead units. These units can be studied later to find out the condition of plant and machinery and their revival can be considered in case there are possibilities of cane becoming available or, in the alternative, they can be shifted to appropriate areas where they can be run economically.

6.45 There are other units where the change in management with appropriate follow-up action can bring forth salutory results. These are units which are normally described as sick units. In our scheme of things, they deserve special treatment and a beginning has to be made by removing the existing management of these units.

6.46 To identify the sick units is not an easy task. However, two principal criteria which one can suggest to identify sick mills are the gross mismanagement of finances and neglect in the maintenance of plant and machinery. To these we will add, for judging the future performance of individual units, their willingness and capacity to comply with the developmental tasks assigned to them by the proposed National Authority. The units which have failed to observe even the minimum norms to be indicated to judge the performance in respect of financial and technical management deserve to be looked into more carefully and, if the charge of failure is established, they should be acquired by the Central Government to facilitate a change in their management.

6.47 We have obtained detailed information on financial and technical aspects. The data obtained suggest weakness in one or the other respect in case of a number of individual units. For example, a number of factories have incurred losses over the period of ten years to which our study was confined. These financial losses can be considered to be sufficient indicator for starting a probe in the management of the units, although by itself this fact cannot be considered to be the sole criterion for declaring a unit as sick. The losses might have resulted due to reasons beyond the control of individual management. An obvious example is the case of the newly established factories which in the first years have to make provision for depreciation at high scale and have also to pay interest on capital borrowed for establishing the factory. Similarly, there may be units which are not able to show successful financial results because of low production due to deficiencies in cane supplies. Some factories

are located in areas where the scope for cane development is restricted. Again, there are years when due to climatic conditions cane production declines and the factories have to run for short periods. These and other similar causes cannot be attributed to any mismanagement nor the remedy in such cases has any relation to the type of ownership of management.

6.48 Any alteration in the management of ownership of the factories will be justified in cases where losses are not due to reasons beyond the control of the management. We have proposed in our scheme taking over of factories where the owners or the management have either adopted malpractices or have proved to be inefficient in managing their finances.

6.49 The main criterion for judging condition of plant and machinery adopted in our report is time loss due to mechanical break-downs. As a rule of thumb, it is suggested that if such time loss does not exceed 4.5 per cent of the total available time for running the factories, the factory is supposed to be fairly well maintained and the condition of plant and machinery can be said to be satisfactory. Higher time loss is usually an indication of poorer condition of plant and machinery.

6.50 Time loss by itself, however, cannot be the sole basis for assesing the condition of plant and machinery or the state of maintenance. Such loss may be due to accidental damage during the running season necessitating large-scale repairs or replacements. Similarly, in factories in which major expansion takes place or new equipments are installed, stoppages become inevitable due to the time which the labour normally takes to adapt to a new equipment. This has been the universal experience when major changes of the type indicated below occur in a factory : alteration from sulphitation to carbonation, introduction of continuous juice sulphitation system, changes to semi-electrification, installation of high speed centrifugals, replacement of steam driven duplex pumps by electric driven pumps etc. Mechanical break-down can also by higher in case the plant has run at a rate higher than the installed capacity. This aspect is important as our study has shown that during the last 10 years, the policy of the Government has generally been to induce the industry to give higher production. Comparative figures of time loss due to mechanical break-downs can give misleading picture of condition of plant due to the fact that in some regions, there are more frequent stoppages for cleaning and in that period minor mechanical defects and maintenance needs can also be attended to. In the light of the above, we do not think that the time loss beyond a certain norm should be considered anything more than a broad indicator suggesting a careful look at the circumstances in which the factory is running. Similarly, we find that it is not safe to rely on the result of reduced mill extraction for the purpose of judging the condition of the milling plants and their maintenance. Statement 4.1 of Chapter IV shows that both amongst the milling plants installed before and after 1952, the number having overall mill extraction below the norms in almost in the same proportion.

6.51 For arriving at a correct judgement, it is necessary that the plant and machinery should be investigated on the spot and it is only after all the factors mentioned above have been taken into account that a reasonable assessment of the condition of the plant and machinery may be attempted. It is for this reason that we have not considered it advisable to identify individual factories merely on the basis of desk study of the reported figures of time loss or other related data, *e.g.* reduced overall recovery or fuel consumption. In order to single out the factories where conditions have deteriorated to an extent that a change of management is necessary, an on the spot investigation by a team of experts is a must. If the Government approves of our scheme of partial nationalisation *i.e.* nationalisation of the sick mills only, then with the help of the available data which must be supplemented by on-the-spot studies by experienced experts of the units where a *prima facie* case for take over exists, the Commission will be able to identify the sick units. Alternatively, the Government can entrust this task to another Committee appoined exclusively for this purpose which should be assisted by experienced technical hands.

6.52 Our studies have revealed that a very large proportion of factories which may require change of ownership and management, for reasons indicated by us, are those which are owned by private limited companies, partnership or proprietary concerns. In these organisations the owners have more freedom to manipulate their funds and if they find it to their own advantage they utilise funds for purposes which may not further the interest of the sugar units. In the public limited companies, however, the risk of such practices is much reduced owing to the limitations placed by the rules and regulations under the Indian Companies' Act. Similarly in the cooperative sector, such limitations are imposed under the Cooperative Societies' Act which already provides for intervention by the Government in cases of malpractices. Sugar is an agro-based industry where apart from the interest of the owners, interests of large number of growers and workers are also involved and, therefore, the possibility of the mills going sick should be forestalled. In order to minimise such risk we recommend that even the non-sick units operating as proprietary or partnership concerns or as private limited companies must be converted within a stipulated time into public limited companies. In such units do not comply with this requirement within the time allowed, they should be taken over and nationalised in accordance with the scheme we have proposed.

6.53 It will be legitimate to ask the question as to what is the justification for the State taking over the mismanaged and losing mills only while permitting the good ones to continue under the existing ownership and management. It may be argued that if after nationalisation, the deficient mills can be improved by Government management, there is no reason why the existing good mills cannot be run by Government efficiently. This argument loses sight of the main objective of the limited Nationalisation being recommended by us. Taking over the deficient mills is being suggested only in those cases where change of ownership or management is found essential based on the record of their past performances. Taking over of

such factories, whose number is bound to be limited, will not pose a difficult problem for the Government and it may be possible for the Government to find the limited number of good administrators as well as funds to run these factories successfully in the public sector. On the other hand, if the industry as a whole were to be nationalised or even if all the private sector factories, numbering about 140 and scattered all over the country, were to be taken over, the problem before the Government would be of much larger dimensions. The funds needed for such indiscriminate take over can be better utilised for other productive purposes. Mere so, when a large section of the industry is running with a reasonable degree of efficiency and can generate its own resources for maintenance and rehabilitation. As we have stated earlier, if the good factories in the private and the cooperative sector are not nationalised, resources from these two sectors will continue to be available in future for further development of the industry. The stand on the partial nationalisation, therefore, rests on the scale of resources available with the Government and its alternative uses, the regulatory, and supervisory role assigned to the Government, and the responsibility of the Government to ensure that the future of thousands of growers attached to a sick mill is not jeopardised.

The Alternatives of Nationalisation and Co-operativisation

6.54 In the foregoing paragraphs we have highlighted certain major shortcomings in the organisation of the sugar industry. To recapitulate, we find that the rapport between the sugar processors on the one hand and cane-growers, labour and the consumers on the other, is not well established. In case of cooperatives if the rapport with the producer is better, they seem to be at a disadvantage when it comes to their relations with the organised labour movement. The part played by the sugar factories in the area development in general and the development of cane in particular leaves much to be desired. The condition of plant and machinery in several of the units is unsatisfactory. And finally, the financial performance of some of the units needs to be improved.

6.55 The preceding discussions have also highlighted the circumstances which have to be taken into account while suggesting corrections of these maladies. Apart from the specified inadequacies whose incidence may vary from unit to unit, the remedies of the more general of these shortcomings are also indicated in our discussion. Thus, it is important that there should be direct and formal chanels of communication between the processors, growers and the labour. We have suggested the inclusion of growers' and labour's representatives in the case of private and public sector factories and labour's representatives in the case of cooperative factories on the board of management of the sugar mills. We have endorsed the suggestions made in Part II of this Report of the sharing of the surpluses earned by the factories. We have also recommended total take-over of marketing of sugar in order to facilitate the creation of a buffer stock and to permit a more rational release policy. For development of the area in general and for cane development in particular, we have suggested that the Government should give incentives as well as use deterrents to facilitate the achievement of these objectives. Further, we have noted that in areas where a chasm exists between growers and processors due to the intermediary of some other organisations, the functioning of the latter should be reviewed and if found inadequate, the direct contact between the growers and the processors be established. For ensuring proper maintenance of plant and machinery as well as for improving the financial performance, one can suggest that professional management should be given much greater importance than it has received so far as also that there should be a concurrent technical and financial audit by an all-India body to prevent any likely deterioration in the performance of the units.

6.56 It was abundantly clear from our studies that none of these maladies are concentrated in one sector or one particular region. Our suggestions offered to resolve them are such which do not necessitate a change-over of ownership from one sector to another. The sick mills, which we have recommended to be taken over in the public sector are, of course, an exception. In regard to other units, whether the industry is fully nationalised, whether it is fully cooperativised or whether all the three sectors are permitted to co-exist and function, the remedies suggested by us would be equally relevant and, we hope, effective.

6.57 In spite of the logic of the situation warranting that the good units in all the sector are left with their present managements, the plea for the total nationalisation can be made on purely doctrinnaire grounds. And considerations, just because they are doctrinnaire, do not cease to be legitimate. However, we would maintain that the public ownership of the means of production as an ideological postulate is a much wider issue and needs to be debated in forums other than the report of this Commission. Here one can only point to the danger that, without proper social climate and a cadre of political workers, the wholesale nationalisation of industries purely on ideological grounds can lead to State capitalism. In this context, it may be fruitful to refer to the concept of socialist economy as defined by the Socialist Union of the British Labour Party in their publication 'Twentieth Century Socialism' which is expressed in the following words : "The keynote of socialist realism has always been its emphasis on a transformation of the economic system. This must remain. What has to be rejected is the idea of transformation through total public ownership that leads only to totalitarianism. The first part of realism today is to recognise this fact and accept its consequences. A socialist economy is a mixed economy, part private part public, and mixed in all its aspects. It comprises private spending as well as public spending, private ownership as well as public ownership, private enterprise as well as public enterprise."

6.58 The doctrinnaire issues apart, we are immediately concerned with the practical implications of the proposal for total nationalisation or total take-over of the private sector in sugar industry. If the plea for nationalisation is on the basis of existing inadequacies, it will be potently illogical to discriminate between

efficiently running sugar mills in the cooperative and the private sectors. Even as an expediency it is fraught with dangers to which we will come later. Our view in this matter is that at this stage the "healthy" segment of the industry in the different sectors should be coninued with their respective managements.

6.59 The reasons for not recommending general nationalisation, apart from those already mentioned, are the following : In the first place, we cannot ignore the repercussions of this move on other segments of the organised industry in the private sector. It will spur the demand for indiscriminate nationalisation of industries. This fact alone should not deter one in making the suggestion for nationalisation if the maladies are such that the only remedy lies in the State take over or if it is proved that by nationalisation the performance of the existing good units can be further improved. Neither of these suppositions have been convincingly proved. This is not to suggest that the industries run by the public sector are necessarily run in an inefficient way. On a priority ground there is no reason to suggest that the nationalised units cannot be run efficiently. The relevant point is whether the already efficient units in the industry would stand to gain by this type of reshuffle or whether there is likelihood of deterioration in their performance at any rate in the short run.

6.60 The last point is of considerable importance, because the demand for sugar is increasing progressively and supply, even in good years, barely matches the demand. By the end of Fifth Five Year Plan, the industry would be required to produce at least 60 lakh tonnes of sugar, compared to the existing production level of around 40 lakh tonnes. This 50 per cent expansion in capacity within five years time would if the whole industry is nationalised, be the sole responsibility of the State. Today there is a possibility of taking advantage of not only the funds, which, howsoever small their proportion be, firms in the private and cooperative units can mobilise but also of the pool of enterprise and management available with these units. The Government can, with determination, mobilise resources of the required magnitude but should it not utilise them for other more pressing purposes specially when a large part of the industry is functioning in a reasonably satisfactory manner and is amenable to further improvement.

6.61 Apart from the danger of shortfall in meeting the projected targets for the coming years, there is also the risk that even the existing good sugar factories may not continue to function as successfully as they are now doing with the change in management. We have collected and analysed information on the working of the units in the pubic sector and have also obtained the views of knowledgeable persons, including those who have experience of running the public sector enterprises. The handicaps of the public sector brought to our notice impel us to advise the Government to proceed with caution.

6.62 It was reported that the top management staff in public sector enterprises have certain inhibitions. They feel bound by rules and regulations and are rarely prepared to take the risk of departing from them even though an emergent situation in the industry may require quick decision. They have also to face more frequent political interference. Government policies in respect of the public sector undertakings may undergo changes with change of Ministers holding the particular portfolio. Management personnel in the public sector units are often changed without giving the persons concerned a reasonably long tenure. Mainly because of this reason the management personnel do not feel personally involved in the industry. Frequencies of such transfers inhibit the management in taking abiding interest and sometimes the tendency is to "play safe" even when there is need to take initiative. The actual performance of public sector units in the sugar industry or the performance of the cooperatives which are managed by the States is in no way superior to the performance of the better run private sector factories in the same regions. In view of these factors, the total nationalisation in one stroke of such a widely dispersed industry as sugar, with over 200 units spread all over the country, the efficient management of which necessarily involves a great deal of adaptation to the local conditions, is fraught with real risk.

6.63 Sugar in an agro-based industry where the factories have to deal with a large number of cane-growers. At present the Government are only fixing a statutory minimum cane price keeping in view the cost of production of cane and profitability of other competing crops. In a number of years, however, due to competition for sugarcane from manufacturers of other sweetening agents, *viz.*, gur and khandsari, the price actually paid to the growers by factories has been much higher than the minimum price announced by the Government. On some occasions it becomes necessary for the Government to intervene and suggest the actual price to be paid for cane by the factories which would satisfy the cultivators, not involve sugar factories into losses and not lead to an increase in the price of sugar for consumers beyond reasonable limits. If the industry is nationalised there will be a direct confrontation between the Government and the cultivators and the Government may not find it easy to resist the pressure for increasing cane price unduly, particularly where the canegrowers' demand for higher prices is championed by rival political parties. The Government in such circumstances would find it very difficult to keep a proper balance between the demands of the cultivators for high prices of cane and the need for keeping the price of sugar reasonably low for the consumer. The danger, then, is that the outcome with regard to prices may depend more on the political strength of the contending parties than on the forces of demand and supply.

6.64 On nationalisation of the sugar industry, the State Governments by and large have expressed the view that the sugar industry when nationalised should be run in each State by the concerned State Government. Most of the State Governments have not welcomed the idea of taking over of this industry by the Central Government. On the other hand, if the industry is run by the State Governments, administration in each State will be different. Some States have only a small number of factories. It may not be possible for such States to develop management personnel of

required standards. The reaction of the State Governments to the suggestion of having an all-India cadre for management of sugar factories was not favourable.

6.65 Since inadequacies of the sugar industry are shared in more or less equal measure by the cooperatives, the suggestion for leaving out the cooperatives from the purview of the State take-over is totally illogical. Such demand would have some justification, if the sugar cooperatives were organisations of marginal and sub-marginal farmers or if they were showing greater concern for the labour or the consumers compared to the private sector. On both these counts their record is in no way superior.

6.66 Besides, growers' cooperatives by the very logic of their organisation transfer all or a major part of their profits in the form of higher cane prices. In a two sector system, comprising only public and cooperative sectors, the basis for cane prices to be paid by public sector units will tend to be prices paid by growers' cooperatives. Public sector units will find it extremely difficult, if not impossible, to pay to canegrowers prices lower than those offered by cooperatives. The implications of such a development in respect of generation of surpluses, fiscal resources for the national exchequer, price of sugar for the consumer and even intercrop price parities, can be quite serious. In the wider national interest this situation has to be avoided.

6.67 It bears repetition that, just as we are not opposed to the entry of public sector in sugar industry, we would also welcome organisation of more and more growers' cooperatives in the field of sugar processing, provided these are genuine organisations of small farmers and are conscious of their responsibility towards other parties concerned, namely, labour and consumer. Whenever local leadership develops and is able to mobilise popular support for creating the type of institutions indicated above, they should be given full support by the State.

An Integrated Approach to the Organisation of Sugar Authority

6.68 Correction of shortcomings discussed above mostly falls in the realm of effective regulation and control. Several positive steps have already been taken to remove these shortcomings. These measures have met with varying degree of success. Wherever lacunae exist in a legislation or in its effective implementation, these can be removed. Alternative to the inadequacies in implementation of regulatory legislation is not a total take-over. The remedy lies in the State taking stern actions to make the recalcitrant elements comply with the law of the land.

6.69 However, the basic changes which are needed to strengthen the industry go beyond compliance with the regulations. The handicaps with which the industry suffers, and due to which the effectiveness of the regulatory measures is impaired are:

(i) There is no authority to take a total and an integrated view of the economies of the three principal sweetening agents, namely—gur, khandsari and sugar;

(ii) There is no authority to take an integrated view of production and processing of cane and marketing of sugar;

(iii) There is no authority to take timely corrective action to rectify lapses, such as neglect in cane development, improper maintenance of plant and machinery and disorderly marketing of sugar; and

(iv) There is no authority to ensure that gains in productivity are equitably distributed among canegrowers, labour, management and consumers.

6.70 Although there is a forum, namely, Sugar Development Council, which, in principle, can play the role expected from an authority of the type indicated above, the effectiveness of this institution is, however, limited because it is purely a recommendatory body with no operational responsibilities or continuous involvement in day-to-day problems of the industry.

6.71 We recommend creation of an autonomous Statutory national organisation to fulfil the above mentioned objectives. We envisage that the organisation, which may be called National Sugar Authority (NSA) will have substantial involvement in development of cane, will manage on its own or through its subsidiary organisation mills in the public sector including sick mills which are taken over by the State, will control the total supplies of sugar once it is produced, and will regulate its distribution and will keep a constant watch on technical and financial performance of all the units in the sugar industry. It will also ensure proper distribution of sale proceeds from the sugar which it will realise and will eventually extend the scope of its activities to marketing of other sweetening agents, namely, gur and khandsari.

6.72 The details of this organisation will have to be worked out carefully. However, we would like to indicate the lines on which we would expect this authority to be organised and to function.

6.73 The NSA will be a small well-knit body of eleven to fifteen persons nominated by the Government of India. It will include five whole-time persons *viz.*, the Chairman, the Managing Director, a Technical Member, a Financial Member and an Economist. The other members will be nominated on the basis of their knowledge of sugar industry including persons who will represent interests of canegrowers, labour and factories. The NSA will meet at regular intervals. Its meetings will be more frequent in the sugar season when the periodicity may be once in a fortnight or so. Even during the off-season, it should meet at least once a month. All policy decisions will be taken at the meetings of the NSA. The day-to-day administration will be in the hands of an executive of five persons *viz.*, the Chairman, the

Managing Director, the Technical Member, the Financial Member and the Economist Member. The status of the Chairman must be fairly high corresponding to, say, a senior Secretary in the Government of India. The executive of the NSA must have a nucleus of experienced expert staff. In each sugar producing State, there can be a regional body of statutory corporation, either for whole State or co-terminus with sugar zones, members of which may be nominated by the State Government concerned in consultation with NSA. This regional body or corporation will be directly incharge of running the public sector factories in its regions and will also be responsible for other functions to be delegated by the NSA.

6.74 The functions entrusted to the NSA will be:

(i) To assess the demand for sugar for domestic requirement and for exports.

(ii) To arrange for the production of sugar through factories in the corporate, cooperative and public sectors and arrange for its marketing in an orderly manner.

(iii) To build and operate a buffer stock of sugar with the objective of stabilisation of prices.

(iv) To acquire sugar processing units and to run them directly or through regional subsidiary bodies.

(v) To plan production and assist in the development of cane in different regions of the country.

(iv) To ensure technical efficiency of factories by way of regular technical audit, and to maintain Research and Development Divisions at the central and regional offices.

(vii) To arrange for efficient utilisation of by-products directly or through subsidiary organisation.

(viii) To regulate marketing of other sweetening agents.

(ix) To arrange for equitable distribution of sales realisation on a pre-arranged basis; and

(x) To act as spokesman of the sugar industry at international forums.

6.75 Under this arrangement, minimum price of sugarcane will be declared by the Government on the advice of the Agricultural Prices Commission, as at present. NSA will however have the authority to permit higher prices in particular areas than those recommended to overcome difficulties in procurement of cane. A limit to these prices can be suggested on the basis of the opportunity cost of cane in the manufacture of gur and khandsari in areas where they offer stiff competition to the sugar units.

6.76 Sugar manufacture will be undertaken by units in public, cooperative and corporate sectors. National Sugar Authority will keep a constant watch on technical and financial performance of each individual unit. It will give timely advice for improvement where required. If it finds that its advice is ignored or some other undesirable developmeuts are taking place, it can recommend to the Government either to take over management of the defaulting unit under the provisions of the Industries (Development and Regulation) Act or in the alternative acquire the unit under powers, provision for which may be made by appropriate legislation. Production targets will be given for each unit and a structure of incentives will be evolved to permit them to show better results. The manufacturing cost for each unit will be fixed on the basis of regional norms suggested by the Tariff Commission. The National Sugar Authority will be authorised to permit higher cost on a temporary basis to deserving units in exceptional circumstances.

6.77 All sugar produced in the country will be deemed to be the property of NSA. It will distribute the sugar by either utilising the existing marketing channels or fully or partly substituting them by new arrangements. In marketing sugar, it may consider fixing different prices for different sections of consumers. It will also set apart a portion of sales realisation to create a development fund and a price stabilisation fund. It will use the instrument of releases in such manner that it is able to build an adequate buffer stock within a reasonable time. Later on it will use the instrument of buffer stock in softening the fluctuations in sugar prices.

6.78 From sales realisation of the sugar procured from each unit, NSA will distribute the surplus among the growers and the factories on the basis of the formula which we have recommended in Part II of this Report. NSA will issue directions to sugar factories for development of cane in particular as well as for socio-economic development in general in their areas. For this purpose also, it will set specific targets for each unit and failure to observe these targets in the absence of convincing reasons, would make a unit liable to be treated in the same manner as the units deafaulting in their financial or technical performance.

6.79 The chief merit of the NSA is that we will have a body to take a comprehensive and integrated view of all aspects of sugar economy. In it, we will also have an instrument to translate the social goals to the extent that they relate to the functioning of sugar economy in concrete terms.

Justification for the Creation of a National Sugar Authority

6.80 The scheme which we have suggested in the preceding section is in tune with the modern thinking

which gives larger weight to the concrete achievements rather than to self-hypnotising slogans. It is a forward looking scheme. What we have suggested is an organisation which has the strength of public organisation combined with the flexibility of an autonomous corporation. This organisation will give not merely advices or act by fiat, but by involving the organisation with marketing of sugar, "teeth" have been provided to the authority to direct the sugar economy in a desired way. Because of the responsibility in maintaining and operating buffer stocks entrusted to NSA, it is expected that an amount of discipline can be exercised on prices of sugar in the first instance and prices of other sweetening agents subsequently. With relative stability in the prices, a degree of stability can also be imparted to the area under cane. This will hopefully do away with periodical cycles of gluts and scarcities. With the existence of efficient cooperative, corporate and public sector as envisaged in our scheme, an element of healthy competition is ensured. Besides, as the authority will take over marketing and will regulate production of sugar by different factories, principal loopholes in the processing and marketing sides will be plugged.

6.81 Further, because NSA will be constituted, among others by the representatives of the growers, labour and factories, a line of communication among different sections associated with the industry will be opened at the highest level. This, together with our suggestion of associating growers and labour with boards of management of all the units, will contribute to creating a climate of confidence which is very much needed for a rapid and orderly development of the industry.

6.82 We attach a great degree of importance to NSA's role as a constant watch-dog to examine and assess the technical and financial performance of the factories and to take timely corrective actiou. It is for this reason that we have recommended conferment of certain executive powers on NSA. Finally, with the power of take-over or acquisition of inefficient or badly managed mills, doors are kept open for their nationalisation, should the occasion so warrant.

Summary of Recommendations

6.83 On the basis of our studies, the main recommendations we are making are given below:

1. There should be a statutory provision for membership of a representative each of labour and cane growers on the board of management of each sugar factory (Paras 6.35 and 6.36)

2. The units, which have failed to observe even the minimum norms to be indicated to judge the performance in respect of financial and technical management, deserve to be looked into more carefully and if the charge of failure is established due to factors within the control of the management, they should be acquired by the Central Government to facilitate a change in their management. A statutory provision should be made to enable the Government to acquire all such units. Such units could be termed as sick units (Para 6.46).

3. Good units, operating as private limited companies, proprietary or partnership concerns, should be converted within a stipulated time into public limited companies. If such units do not comply with this requirement within the time allowed, they should be taken over and nationalised (Para 6.52).

4. A statutory provision should be made for constitution of a National Sugar Authority (NSA) (Paras 6.69 and 6.71).

5. The National Sugar Authority should be a wellknit body of eleven to fifteen persons nominated by Government of India. It will include five whole-time persons *viz.*, the Chairman, the Managing Director, a Technical Member. a Financial Member and an Economist. The other members will be nominated on the basis of their knowledge of sugar industry including persons who will represent interests of canegrowers, labour and factories. All policy decisions will be taken at the meetings of the NSA. The day-to-day administration will be in the hands of an executive of five persons *viz.*, the Chairman, the Managing Director, the Technical Member, the Financial Member and the Economist Member. The status of the Chairman must be fairly high corresponding to say, a Senior Secretary in the Government of India (Para 6.73).

6. In each sugar producing State, there can be a regional body or statutory corporation, either for whole State or co-terminus with sugar zones, members of which may be nominated by the State Government concerned in consultation with NSA. This regional body or corporation will be directly incharge of running the public sector factories in its region and will also be responsible for other functions to be delegated by the NSA (Para 6.73).

7. The functions of the National Sugar Authority will be:

   (a) To assess the demand for sugar for domestic requirement and for exports.

   (b) To arrange for the production of sugar through factories in the corporate, cooperative and public sectors and arrange for its marketing in an orderly manner.

(c) To build and operate a buffer stock of sugar with the objective of stabilisation of prices.

(d) To acquire sugar processing units and to run them directly or through regional subsidiary bodies.

(e) To plan production and assist in development of cane in different regions of the country.

(f) To ensure technical efficiency of factories by way of regular technical audit, and to maintain Research and Development Divisions at the central and regional offices.

(g) To arrange for efficient utilisation of by-products directly or through subsidiary organisation.

(h) To regulate marketing of other sweetening agents.

(i) To arrange for equitable distribution of sales realisation on a pre-arranged basis; and

(j) To act as spokesman of the Sugar Industry at international forums. (Para 6.74).

8. The National Sugar Authority will have the authority to permit higher prices in particular areas than those recommended to overcome difficulties in the procurement of cane. A limit to these prices can be suggested on the basis of the opportunity cost of cane in the manufacture of gur and Khandsari in areas where they offer stiff competition to the sugar units (Para 6.75)

9. Factories in all the sectors will conform to the guidance and supervision of NSA and NSA can recommend take-over or acquisition of defaulting units (Para 6.76).

(Shri A. C. Bose submitted an additional note—Annexure B).

ANNEXURE B

Additional Note by Shri A. C. Bose

ANNEXURE B

Additional Note by Shri A. C. Bose on Future Organisation of Sugar Industry

As the example of Soviet Russia had shown, half a century ago, the quickest way an underdeveloped country can progress is through planned economic development. The economic miracles of West Germany and Japan in the fifties have no validity for us as they had large industrial bases on which to build, damaged though they might have been in the war. They made their initial start through cannibalisation of damaged plants and rebuilding with very massive U.S. aid while they were fortunately able to avoid any great expenditure on national defence. Even China had the enormous Japanese iron and steel complexes of Manchuria to build upon. The only nation that has pulled itself up by its bootstraps is the U.S.S.R.; now while economic planning has been accepted even by the advanced nations of Western Europe, it is widely realised that planning, nationalisation and socialism are the three necessary successive steps if an underdeveloped country is to progress rapidly.

B-2. Planning in a democracy involves problems different from and even more complicated than in a dictatorship because we have to carry the people with us, so a considerable effort to ensure production and supply of consumer goods has also to be made. Left to themselves, entrepreneurs would seek immediate profits rather than ensure the economic future of the country and its integrated economic development. They might quite conceivably shy away from heavy industries with long gestation periods, or otherwise seek to form combines where monopoly profits could be organised; private profits may therefore conflict with public welfare.

B-3. Apart from this, as Prof. J. E. Mead of the University of London points out, industry is becoming more and more capital intensive *i.e.*, larger capital is required to employ a smaller labour force. The return to capital will accordingly grow along with the rewards for organised labour, but with the reduction of the labour force, unemployment might increase. This development can only be averted by democratisation of capital ownership by, say, heavy taxation or nationalisation, or other methods. We in India are trying a variety of patterns at the same time, *e.g.*, heavy income and corporate taxes, democratisation of control through corporate legislation, nationalisation of heavy industry, cooperativisation of the small scale sector, etc. In an underdeveloped country even more than in richer nations, the national economic welfare is more important than the Gross Net Product and all our economic policies are aimed at securing a fuller life for the common man. This aspect of national policy cannot be ignored.

B-4. On the other hand, we have to consider the practical good which may be the enemy of the ideal best *i.e.*, what is required and is desirable in the present circumstances of the sugar industry. This is an agro-based industry in which we have to coordinate the interests of the grower, the worker, the producer and above all of the consumer, an industry in which an increase of production from 40 lakh tonnes to 60 lakh tonnes is envisaged in the fifth Plan.

B-5. In my own opinion, the demand will be nearer 80 lakh tonnes by 1978-79. The demand for sugar has been rising at an enormous rate as the following table shows:

(in lakh tonnes)

	1961-62	1962-63	1966-67	1969-70	1970-71	1971-72
Opening stock	14.3	12.3	11.9	13.0	20.9	14.0
Production	27.3	21.6	21.6	42.6	37.4	31.0
Off-take						
(*a*) Home	26.0	25.5	26.4	32.6	40.25	40.0
(*b*) Exports	3.3	5.3	1.9	2.1	4.0	..
Closing stock	12.3	3.1	5.2	20.9	14.0	5.0

B-6. The off-take increased from 33.6 lakh tonnes in 1969-70 to over 40 lakh tonnes in 1970-71. In 1971-72 it is being artificially pegged to below 40 lakh tonnes. As a result, the average price of free sugar, which was about Rs. 170 per quintal in 1970, is now ruling at about Rs. 400, *i.e.*, the public is prepared to spend about double the total quantity of money to buy the same quantity of sugar or say Rs. 1000 crores as against Rs. 700 crores (allowing for the levy quota). Obviously, were the quantity of sugar released to be, let us say, about 60 lakh tonnes, it would be absorbed at a price of perhaps Rs. 200 per quintal. Considering the trend of the last 2 years, the demand could rise at a rate of perhaps as high as 25 per cent per year, were it not artificially restricted by shortage of supply, quotas, etc. This reflects the success of the "Garibi hatao" policies of the Government and as a trend, should be welcomed and catered for.

B-7. Be that as it may, we shall obviously need an addition of say 100 to 150 new factories with expansion of another 50 factories and nothing which will

hamper production in the existing units or decelerate growth should be considered. In this context we find that there is no inherent virtue in any particular sector *per se*. There are perhaps as many public sector enterprises which are badly run and facing losses as private sector ones while in the cooperatives, we know there are hundreds of executives who are in trouble for malpractices. The success of an enterprise depends on the quality of the technicians and management rather than on sectoral considerations.

B-8. Before we can form any opinion as to the future organisation of the industry, we have to be sure of our objectives. Of these, the most important is to ensure that there is no set back to production, even initially, which, were there any widespread change in ownership or management patterns, would be inevitable. Thus non-coking coal has been taken over only recently and just a few days ago, there was a news item that 74 trains have had to be cancelled on the Northern Railway due to lack of coal, while prices even of nationalised industries like Hindustan Steel Limited, it is said, have gone up and supplies gone down. The position elsewhere is not known but a widespread dislocation in coal supplies is being complained of for the last 2-3 months from all parts of India.

B-9. Another very important objective would be to ensure that the factories were well maintained and those that are run down, restored to efficiency. It has been estimated that the cost of such restoration would be over Rs. 110 crores which, it is feared, may be beyond the resources of the private sector, particularly if it is to be applied to mills that have not been out of the red for some years.

B-10. The welfare of the millions of canegrowers is obviously equally important. Historically speaking, the sugar industry, particularly in Northern India, has been run by the more speculator type of industrialists who were able to establish mills at small costs in the thirties and aimed at making quick and easy money rather than build up for the future. They have, therefore, been able to establish ill-will rather than goodwill amongst the cane cultivators. Government has attempted to control malpractices against the growers almost since the inception of the industry *viz.*, from the Simla Conference of 1933, but in spite of all the control measures imposed, there is complete lack of confidence amongst growers in the integrity of managements *vis-a-vis* themselves; hence the outcry for nationalisation.

B-11. The mills have not been able, except in Western India, to do very much for the development of cane in their areas. Admittedly for the last 25 or 30 years, the task of cane development has been taken over by the Government but the mills were by no means stopped from taking a hand in this and had they any long-term plans in view, they should have treated a small expenditure on such development as an investment which would have brought them rich returns in the form of improved cane. As a matter of fact, we find that in Bihar the cane areas are declining and mills are suffering from want of cane which is being diverted to gur. The fact that so few of the mill management bother about this is a great indictment of their management methods. Enlightened self-interest was lacking and it seems obvious that they were seeking quick profits rather than long-term development.

B-12. Socio-economic development *e.g.*, in the matter of providing schools or hospitals or even housing for their workers, roads for transportation of cane to the factories, canteens and shelter for the growers who had to wait outside the gates of the mills for hours, etc., is conspicuously lacking. Such amenities are essential in mills which have, say, even up to 40,000 suppliers, so that there should be units for public service rather than merely for making private profits.

B-13. Above all, we must remember that political democracy has no meaning without economic democracy. The mere fact that the labour or the petty cultivator enjoys one vote as does the proprietor of a factory, does not make the former the equal of the latter; a wage slave can never be the equal of his Annadata.

B-14. In view of all this, I think that the private sector in the sugar industry could not remain the ultimate solution. We have visited numerous factories where the growers made serious representations regarding the malpractices that the proprietors adopted in respect of weighment of cane, actual disbursement of price, reporting of low sugar recovery percentage, etc. There did not seem to be much tendency towards improvement. After hearing all the views and evidence, it appears to me that the private sector is not suited to a rural agro-based sugar industry where the welfare of millions of cultivators is involved.

B-15. On the other hand, we have to consider whether nationalisation is automatically the best solution. There are certain advantages. By and large it may be possible to ensure a higher quality of management, if for no other reason, because a larger field is available for selection of managers and supervisors. Secondly, it is possible to ensure, apart from local variations, that a policy which is far-sighted and generally beneficial can be followed. Resources available are also usually greater, again if for no other reason, because the credit of public enterprises is better than that of private enterprises. Nevertheless, the showing of public enterprises, including running industries or businesses nationalised by Government, has not necessarily been so good that one could conclude that nationalisation will automatically ensure either better production, lower prices or growth, not to mention the more indirect benefits such as healthier labour relations or improvement of environment, which in this case would be the sugarcane growers.

B-16. In regard to production, the Annual Report of the Bureau of Public Enterprises, for 1970 shows some interesting facts. Against a total capital investment of Rs. 2,373.00 crores in 68 running enterprises the total turn-over was only Rs. 2,596.00 crores. The situation revealed would have been more adverse, had

it not been for a few concerns like State Trading Corporation, Indian Oil Company and Food Corporation of India, whose turn-over was many times the capital invested. Similarly, the net profit from these 68 enterprises was Rs. 2.12 crores, most of which was contributed by a few concerns operating in exceptional conditions. Industrial relations have been poor in quite a number of nationalised concerns. Generally speaking public enterprises have not had much effect in the environment. For instance, ancillary industries have not come up round the major steel works. Production not only in Hindustan Steel, but in the Heavy Engineering Corporation, Mining and Allied Machinery Corporation. Heavy Electricals Ltd., and others lag far behind schedules. We may also expect a set back if a large number of units are nationalised simultaneously because of the enormous managerial problems which will be posed. It is more than likely that the new management may find itself coping with variety of issues which have arisen by the mere change of ownership.

B-17. But apart from these aspects, one further point which needs to be clearly stated is that nationalisation should not be contemplated for extraneous reasons, that is to say, for any reason other than greater production, improvement in efficiency, healthy growth, keeping the balance between the interest of the producers, the staff. the investors (the tax payers for the nationalised enterprises) and above all the consumer, except under clearly understood conditions. Without a clear understanding of the philosophy underlying nationalisation if it is undertaken for other than economic reasons, *e.g.* to serve political purposes or to propagate a political philosophy or even to lead to regional economic and social welfare, it would undoubtedly lead to a worsening of the situation. The management of enteprises could never get a clear indication as to what is required of it ; this I submit, should be limited to attempts to increase production to optimum level, to plan for expansion, to increase efficiency, so that producer can be given a fair price and the consumer charged the lowest possible price, maintaining at all times a fair and equitable relationship not only with labour, but with all others, to which the enterprise comes into contact, if it is to be run on business lines.

B-18. The lack of genuine accountability is one of the most striking of features of the public sector as was once remarked by Shri P. L. Tandon when he was the Chairman of the STC. Too frequently in the public sector there are many other imperatives other than pure business considerations which a management has to face including, *inter alia,* socio-welfare objectives, political pressures, criticism occasionally ill-informed (from Parliament and the public) etc., while due to the committee form of management, decision making becomes not only slow and cumbersome but also it responsible and diffused. In the private sector, the profit motive is paramount and the profit and, loss accounts and the net worth provide very clear measure of the success or failure of an enterprise on which the management can be praised or blamed, but success or failure are very blured in the public sector. Hence its

tendency to seek monopolistic fields where the equation between demand and supply at the lowest competitive price disappears and efficiency ceases to have any meaning.

B-19. The following extracts from the Report of the Committee on Public Undertakings, on the working of MAMC (Report 1969-70) and Food Corporation of India (F.C.I.—Report 1971-72) are relevant :

Re. M. A. M. C.

"The rated capacity for this Project was related to the development of the coal capacities in the Fourth and Fifth Five Year Plans. The coal raising targets have unfortunately proved to be wrong and that is one of the primary reasons why this project has come to this sad plight. The Committee were told that one of the objectives for putting up MAMC was to manufature mining equipment particularly for opening up new mines which was to take place under NCDC. Since the targets of coal production were drastically revised, NCDC did not go in so extensively for opening up new mines as a result the products manufactured by MAMC could not find a market.

"One of the reasons for the poor output of the Plant and consequent losses was stated to be the lack of demand for the type equipment the plant has been designed to manufacture and the lack of right type of orders to suit the installed machines.

"The Committee express their deep concern over the huge losses suffered by the Corporation as a result of gradually scaling down the built up capacity and non-attainment of that capacity of production. The existing rate was scaled down because of lack of demand of the coal mining equipment for which the plant was mainly set up and also because the specification of the requirement according to the demands of the customers differed appreciably from those laid down in the Detailed Project Report.

"The Committee note with great regret that the Ministry decided to go ahead with this project only on the basis of the feasibility and the Detailed Project Reports made by the foreign experts without having them examined by the Team of Indian experts.

"It has come to evidence that the mechanisation to the extent envisaged in the Soviet Team assessment would never come about the replacement of the labour in the mining industry by highly mechanising the mines may not also be conducive from the employment angle. Therefore, it appears that the whole assessment of the annual requirement of the main mining machinery either at 30,000 tonnes or 45,000 tonnes has proved to be grossly erroneous.

"The Committee further deprecate that the Ministry were not even woken up in the year 1968 to do something drastic about this project after the findings of the working Group were known.

"The Committee have further noted that most of the existing equipment in use in the coal mines is of the Western design and that they had not much experience of the use of the Sovict design equipments. Therefore, they were reluctant to use new type of machinery that was planned to be produced in this project.

"As some of the machinery to be produced by this project can never be used for replacement purposes the company is negotiating with the Western countries to produce equipment and spares required by the collieries in India".

Re. F. C. I.

"The Committee view with concern the fact that there had been deep rise in the incidental expenses of the Food Corporation of India. During 1967-68 when the work was being handled by the Food Department directly, incidental expenses amounted to Rs. 51.49 per tonne. With the transfer of work relating to procurement, storage and distribution of foodgrains to the Corporation ; those expenses rose to Rs. 77.10 per ronne during 1969-70 inclusive of buffer stock carrying charges these expenses were provisionally allowed at Rs. 91.50 per tonne. The Committee would like to focus attention of the Corporation as well as Government on some of the important components of incidental expenses in respect of which the rise has been phenomenal. For example, 'transit and storage loss' has increased by 350 per cent, 'establishment charges', by 170 per cent and 'Godown Charges' by 37 per cent as compared to the charges incurred when the Food Department handled directly the foodgrains.

"The Committee recognise that there has been increase in the 'scope, size and area' of operation of the Corporation and that some increase in such charges could not be ruled out but they find it hard to accept that the present charges of Rs. 91.50 per tonne (Rs. 9.15 per quintal) are the barest minimum and there is no scope for reduction".

B-20. One of the shortfalls of the public sector is the difficulty of providing proper motivation. Even in the large bureaucratised private sector units one can expect greater devotion to duty. At least partly because the rewards of success are greater and the penalties for failure severer than in the public sector. Even the incentive in a publicly owned unit that one is working for the public rather than for a private employer has ceased to have much appeal. A large rigidly controlled Private Sector unit is really a part of the National Sector rather than of any one group and an executive in the former does tend to feel himself as much a public servant as any Government official so the financial stick and carrot remain the only sanctions.

B-21. In this background the results of a survey of opinion amongst 1197 managers of Public Sector units (published in the Lok Udyog of November, '72) are interesting. It was found that to the questions, "Are Public Sector enterprises efficient ?", "Do they possess vitality or dynamism ?", "Do they tend to establish State capitalism ?" "Do they hinder the growth of our economy ?", "Are they generally efficient ?". A vast majority ranging from 61 to 76 per cent gave negative answers. This poll was conducted, it was mentioned by Dr. Laxi Narayan on behalf of the Research Programmes Committee of the Planning Commission. While obviously the grass always seems greener on the other side, from this it seems that even those who run the Public Sector have little faith in it and something must be done to revitalise both the managements and the units.

and change will probably prove beneficial, we should try a change of management or even of sector in the case of sick mills in whatever sector they might be at present. Efforts to create a corps of professional managers in the public sector *e.g.* in the Industrial Management Pool have not so far been conspicuously successful. But while no doubt there is political interference in such enterprises, these probably constitute no greater a handicap than the nepotism (or worse) from the top in the private sector and there is no reason to imagine that it will not be possible to form such a cadre.

B-23. Since sugar is agro-based, Nationalisation might have a slight edge as development of cane is basically a Government problem and it might be easier for a public sector management to get cooperation from State authorities than the private or even the cooperative sector.

B-24. In this background, I would like to say that the cooperative sector merely encourages rural capitalists as only the richer farmers have sufficient surplus funds to invest. Since they get a higher price their surplus funds tend to multiply while as cooperative movement has been largely a failure in North and East India, encouragement to cooperatives has led to regional imbalances. They can survive as hot house flowers like, Aurai near Banaras which is really nationalised unit ; even that might be a useful first step. It is antinational as taxation is avoided. There should be a maximum price for cane to reduce the incidence of tax avoidance as suggested by the Chief Minister of Rajasthan.

B-25. The cooperative sector has been running on purely capitalistic lines as far as labour is concerned in the sense that the cooperative sector behaves exactly like an employer and the workers are treated purely as employees. The relations between the two are perhaps less strained than one might have expected in an ordinary capitalist organisation, but that is possible only because sugar is only a seasonal industry so the scope for unionisation and then for inter-union rivalry is small. Also many canegrowers or/and their relatives are employed in the mills. This has, however, somewhat dangerous undertones, as a close union between growers and producers might lead to a confrontation between the united producers and the fragmented consumers, with the latter getting very much the thin end of the stick.

B-26. Moreover the Cooperative movement is tending to breed a new class of rural capitalists. Thus according to a pamphlet on Role of Cooperatives published by the Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd., the holdings amongst sugar co-operators in Maharashtra is as below :

		Av. size of holdings (acres)	Area under cane (acres)
Below 1 acre . . .	53,000	½	27,000
From one acre but below 2 acres	24,000	1.5	36,000
From two acres but below 3 acres	11,999	2.5	27,000
From 3 acres but below 4 acres	3,500	3.5	22,000
From 4 acres but below 5 acres	3.500	4.5	14,000
Above 5 acres . . .	4,000	..	..
TOTAL .			1,26,000

The total cane crushed by the cooperative mills amounted to 6.8 million tonnes. The average yield per acre was 27.5 tonens, but assuming a somewhat higher figure for the cooperative mills areas of, any, 32 tonnes per acre, the total area supplying cane to such mills would be, say, 210,000 acres. Since the holdings of the 96,000 odd canegrowers with cane areas of 0.5 acre is 1,26,000 acres, the remaining area of say 80,000 acres is held by 4,000 members or about 20 acres per head. The poorest 77,000 or 77 per cent would be holding say 63,000 acres or 30 per cent of the area, while the top 4 per cent held 35 per cent of the total area. Since cane is a highly profitable crop, obviously a new class of the rural elite is being fostered.

B-27. Basically cooperation is meant to help the small men and not create a new class of rural tycoons. Therefore, cooperative mills should be limited to, say, a maximum size of 1,000 tonnes and no one who owns more than, say X acres of irrigated and 2 X acres of unirrigated land (with relatives) should be allowed to join.

B-28. We have then to consider how to deal with the existing cooperatives which obviously cannot be reduced in size. I suggest the first step should be to fix a maximum holding of, say, 5 hectares of land supplying cane for an individual, to be a Director. Immediately, thereafter all cultivators who own, say, more than 5 hectares irrigated or 10 hectares unirrigated land, should be debarred from joining such societies. Any society which continues to have members with larger holdings should be debarred from Income Tax concessions permissible to cooperatives. All cane prices paid in excess of the ceiling suggested above should be treated as disbursement of profits by the society and subjected to Income Corporate Tax.

B-29. I would suggest, therefore, that the policy of encouraging cooperatives should be confined to Western and Southern India where it has been so successful, but for the North and East, some other method has to be found though perhaps one could try the Aurai type of organisation *i.e.*, build up a unit based more or less completely on Government funds and Government management and only gradually turn it over to cooperatives if and when they can be successfully formed.

B-30. For the sick mills, I think there is no alternative except nationalisation. These are too important for the economy of each region to be allowed to run down. The Indian Sugar Mills Association (ISMA) scheme to form a corporation to run these, is not likely to prove very effective as the industry cannot generate the funds required to rehabilitate them in any measurable period of time. The cost of the take-over should not be very great; since many of them have aggregate losses, one could well take the line that by acquiring them, the Government is saving the owners from a recurrent drain on their finances, so deserve to be compensated rather than to pay, and the Government should at best take them over at scrap value. Of course, large scale expenditure will then be required to pull up them and what is more important than money is that the machine building capacity to modernise and rehabilitate some 60 to 80 mills might be lacking. This is a problem that has to be faced regardless of sector and where the allotment of priorities to be entrusted to a central authority, more rational decisions are likely to be taken than by individual entrepreneurs acting individually.

B-31. I would like to mention that the problems of managing a sick mill can be distinguished from those of controlling a healthy one. The head of an unit of a former type should be expected to feel business considerations his most important objective, but in a healthy one for a variety of reasons, both the management and the Government might not be very particular about this. From perhaps the highest motives, extraneous consideration may have to be given greater importance, so that the possibility, therefore, of their going sick may be at least as great as that of the sick ones recovering.

B-32. Sugar, it must be remembered, is the only industry that could be utilised for large scale economic development of rural areas. Jute and cotton are not comparable because the raw materials are collected in the countryside and brought to the towns for processing. Unlike that, cane cannot be transported to very long distances. It has to be used at places where it is cultivated. That is why sugar is so wide-spread an industry and mills keep on spreading in different areas, whether suitable or not, where there are no other resources like minerals etc., *e.g.*, the entire Indo-Gangetic plains from, say, Amritsar to Shillong, including Rajasthan and Madhya Pradesh. Ways and means of fostering have, therefore, to be found and the only practical method seems to establish new factories in the public sector. Not that the public sector is

ideal. There is perhaps as much corruption, particularly at the lower levels, as in the worst private units, but its inefficiency is a myth that has been sedulously cultivated. On the other hand, it is probably the only form of organisation in which the social welfare, including the interests of consumer, the grower, the producer, etc., can be all looked after to a greater or lesser degree and with some hope of resolving their conflicts.

B-33. Fortunately our economic policy has been always pragmatic. Shortly after our country attained independence in August, 1947, Industrial Policy Resolution was issued by the Government in 1948 stating its policy for industrialisation of the country. This resolution was modified in 1956 and from time to time changes have taken place. The latest industrial policy of the Government was announced in February, 1973. All along a mixed economy has been the basis of the industrial policy of the Government though there has been increasing emphasis on the public sector. Recently there has been a perceptible change in the policy with regard to the intention of the Government to take over or nationalise basic industries and restricting the entry of the monopoly houses to the core sector only and that preferably in the joint sector. So far as sugar industry is concerned, it is consumer industry and apparently according to the latest industrial policy decision of the Government it could continue in the private sector though new capacity is generally permitted by the Government in the cooperative sector.

B-34. If brief, therefore, I would suggest :—

(a) Immediate take-over by the State of the sick mills, including those that may be considered sick on socio-economic welfare, apart from the usual technical and financial consideration ;

(b) The healthy private sector mills may be allowed to continue functioning but an indefinite lease of life should not be guaranteed: in the interests of continued efficiency and increased production and investment some assurance of a tenure of long enough to enable recoupment of future investment through Depreciation Allowances and subject to good behaviour may be given ;

(c) A National Sugar Authority for the marketing of sugar and control over the sugar mills should be created. This body should conduct periodical technical and performance audit, including social welfare and environmental development activities, of the sugar mills in all the sectors to ensure maintenance of standards ; it should be the certifying authority for "good behaviour" in terms of (b) above ;

(d) The public sector should in the meantime evolve a sufficiently sophisticated philosophy for conduct of productive units to determine whether the mills are to be run as socio-economic welfare service or as profit earning concerns, or the weightage to be given to either ;

(e) The public sector should also develop trained managerial and technical cadres at the Centre or the State level, as required ;

(f) If any unit falls below the standards which should be clearly enunciated by the NSA, it should be required to be taken over and a summary procedure for this purpose, by special statute, if necessary, may be laid down ; should the NSA consider it desirable a short period of grace for rectification of minor defects may be permitted ;

(g) If after the expiry of the initial period, in (c) above Government wishes to take over the mills, they may; otherwise further tenure for a fixed number of years should be granted to enable them to work freely ;

(h) The cooperative sector should be reorganised closer to the cooperative ideals as I have suggested earlier, if it is to be retained; and

(i) New Mills should be set up in the public sector in the Northern and Eastern Regions and perhaps gradually made over to cooperatives ; as in Aurai.

CHAPTER VII

RATIONAL AND EFFICIENT ORGANISATION OF SUGAR INDUSTRY

(Recommendations of Sarvashri J. C. Dikshit, B. N. Khosla, P. S. Rajagopal Naidu, Fazlur Rahman and R. H. Chishti).

Objectives and Approach

7.1 Among the major agro-based industries, the sugar industry has this unusual feature that there is a close and regular contact between the producers of the raw material and of the finished product. The working of a sugar factory depends on a continuous and quick flow of sugarcane from the field to the factory. More than 50 lakh farmers supply sugarcane to hundreds of sugar factories dispersed all over the country. Every day during the crushing season thousands of canegrowers harvest their cane crop and take it to the factories and their out-station purchasing centres. They have to wait there for several hours for the weighment and unloading of cane, collecting the price of cane, etc. Where weighments take place at night, as they still do in many factories, some canegrowers have to spend their night at the factory. During the period of their stay in the factory premises, the canegrowers require various facilities such as drinking water, shelter for themselves and their animals, parking yards for their carts, etc.

7.2 The points of contact between the farmers and the factories exist not only within the factory premises but also outside the factory, in villages and in fields, in connection with cane cultivation, cane survey, cane bonding, cane supply and many other matters. These contacts establish a continuous relationship between canegrowers and factories. This relationship is not regulated or conditioned entirely by law, rules and regulations but rather and perhaps even more so by a series of actions and reactions of either party. The success of the industry and the welfare of the canegrowers depend, in a large measure, on the nature and quality of this relationship.

7.3 It is clear from the above that the sugar industry is not like any other agro-based industry such as the jute, the textile and the vegetable oil industries. Almost all of the sugar factories are located in rural areas, many of them in less developed areas. The sugar factory is the only organised industry on a large scale in some areas. The canegrowers supplying cane to a sugar factory depend on the factory for the purchase of their cane in part or in whole and for many other facilities. Their way of life is considerably influenced by the manner of the working of the factory. In this way, the sugar factory becomes a focal point of the social life of the rural community in the midst of which it is situated. It also becomes a centre of economic growth and development and generates industrial activity of various kinds. It acts as a catalytic agent for social changes and socio-economic progress. In the hands of a forward looking and progressive management, a factory functions as an instrument for the welfare of the people with whom it comes into contact and for the uplift of the weaker sections of the community: in the hands of a short-sighted management, it becomes an instrument of exploitation and oppression. No other agro-based industry stands so much in need of the support and cooperation of the producers of the raw material it requires as does the sugar industry and perhaps no other industry can render better socio-economic services to the people living in the area of its operation. The sugar industry is in many ways a plantation and rural industry ideally suited for associating canegrowers and workers in its working.

7.4 Sugar is an essential food-stuff and forms a necessary part of the diet of large sections of the population. It is increasingly in demand by more and more people with changes in dietetic habits and with improved standards of living. The consumers are directly affected by the way the sugar industry functions. If production falls and the marketing of sugar is affected by speculative activities of factories and traders and prices rise or there is maldistribution of available supplies, the consumers suffer great hardship. They are, therefore, vitally interested in the efficient working of the sugar industry, both in production and in marketing of sugar.

7.5 Against this background, it will be appreciated that a sugar factory has greater responsibilities and obligations than other industrial units. In judging its performance, the standards and criteria will, therefore, have to be not only more stringent than but also different in some respects, from those which may be applicable to other agro-based industries.

7.6 Before proceeding to consider the performance of the sugar industry, we would like to indicate our approach to the problem of finding a rational and efficient organisation for the working of the industry. In Part II of this Report, the Commission has outlined its approach in the following words :—

> "We feel that solutions to the various problems must be found which are in harmony with the socio-economic objectives and targets which the nation has set before itself. Of these, the dominant objective is to improve the lot of the common man and the vulnerable and weaker sections of the community. In the context of the sugar industry, this objective means that the interests of the

canegrowers supplying cane to sugar factories and the labour employed by the factories should be protected and that conditions should be created for a closer cooperation among and better integration of the factory-owners, canegrowers and workers. And this cooperation and integration should lead to a more efficient sugar industry capable of meeting, at a fair price, the sugar requirements of an increasing population with rising standards of living."

In this Part also, our approach is the same. It will influence and inform our assessment of the sugar industry and our proposals for its future working. In this context, and in view of the special nature of the sugar industry, the objectives which the industry must work for and achieve are as follows :—

(a) to realize fully and timely the targets of sugar production set for it from time to time keeping in view the increasing demand for sugar for internal consumption and for export ;

(b) to manufacture sugar at economic cost ;

(c) to make sugar available without interruption and at reasonable prices ;

(d) to promote cultivation of good quality cane through extension services and dissemination among farmers of scientific knowledge and technique for improvement of cane cultivation, and generally to assist farmers in other ways to achieve this purpose ;

(e) to serve as a focal point for economic growth and development of its area of operation ;

(f) to improve the lot of the weaker sections of the community ;

(g) to safeguard the interests of the consumer, grower and worker employed in the factory and in the field ;

(h) to enable canegrowers and workers to have a voice in management ;

(i) to bring about the maximum involvement in the working of the factory of all people concerned, particularly the small grower and worker and to create in them a sense of belonging ;

(j) to function in a manner which will bring about greater harmony between the factory, canegrowers, workers and the consumers.

7.7 In the following pages we propose to consider the important aspects of the performance of the sugar industry. In Chapters II, III and IV, the appraisal of the performance of the industry has been largely confined to and has been based on the data for the 10 years 1960-61 to 1969-70 where the assessment demanded a comparative but concise study for a uniform period as between individual units of the industry and a degree of precision required for technical appraisal. But there are certain other aspects of the sugar industry, in the study of which information and data relating to periods both before 1960-61 and after 1969-70 have also been utilized where available for an overall assessment.

Factory-Farmer Relationship

7.8 The sugar industry was granted protection in 1932 primarily in the interest of the farmers. It was expected that the sugar industry would look after their welfare and protect their interest but within a short time of the protection of the industry, the canegrowers found that their interests were being ignored completely and that they needed protection against the industry itself. Allegations and complaints by the canegrowers that they were not having a fair deal from the factories increased in volume and intensity. These could not be ignored even by the then Central Government which was not too responsive to public opinion, particularly when it was found that the complaints were not without substance. The climate of distrust and hostility towards factories prevailed among the canegrowers particularly and the agriculturists generally.

7.9 It was against this background that the Central and the State Governments decided to enact legislation to protect the interests of canegrowers supplying cane to sugar factories and also to secure to them a reasonable share of the benefits accruing to the industry from the protection granted to it. The Central Sugarcane Act, 1934 promulgated by the Central Government authorised the provincial Governments to declare any area to be a controlled area and to fix a minimum price or prices for the purchase of sugarcane in the controlled area. It also empowered the provincial Governments to prohibit the purchase of sugarcane by factories from any person other than the actual grower of sugarcane, and also to frame rules, *inter alia,* for the regulation of the purchase and sale of sugarcane, the payment of cane price, organisation of growers of sugarcane into societies for the sale of sugarcane to factories, etc. In exercise of these powers, the State Governments of Uttar Pradesh and Bihar fixed the minimum prices for cane purchased by vacuum pan sugar factories and framed rules relevant to the purchase and supply of cane, payment of cane price and other matters. They also established a machinery for the enforcement of the various regulations with a view to protecting the interests of the canegrowers.

7.10 After more than 5 years of the grant of protection, the Indian Tariff Board, 1938 had to say the following in regard to the working of sugar factories in so far as their relationship with the canegrowers was concerned :—

"Complaints of the conduct of factories and their agents are, we find, widespread and the general truth of the complaint is admitted by all the official witnesses we examined. It is alleged that there are some factories who underweigh cane or underpay for cane. Other factories shut their eyes to the doings of their agents or at least take insufficient measures to control them. Not many factories realize their responsibilities towards the canegrower or have so organised their cane supply as to reduce to a minimum the opportunities for malpractices by their agents and subordinates. We realise that in complaints of this kind, there is generally an element of exaggeration. We also realize that with the best intention it is impossible

for a factory to keep a constant watch over all its agents and subordinates in the busy season when the cane crushing is going on night and day but making all allowances we feel bound to say that the prevalence of malpractices, a matter of common knowledge, is a serious problem. The detection of offences, we are informed, is by no means an easy matter. The number of inspecting officers is limited and we are informed, their movements are closely watched."*

7.11 These observations of the Indian Tariff Board are a sad comment on the state of relationship between the canegrowers and the sugar factories during the five to six years following the protection to the industry.

7.12 With the development of sugar industry and more and more canegrowers coming into contact with sugar factories, the Central and State Governments felt it necessary to regulate the functioning of the industry more strictly in order to protect the interests not only of the canegrower but also of the worker and the consumer. Over the years, the legislation has grown in volume and coverage. It controls almost all the important activities of the sugar industry, such as the minimum price for cane it must pay; the time within which it must pay the cane price; the agencies from which and the manner in which it can purchase sugarcane; the arrangements it should make and the facilities it should provide in connection with the weighment of cane; the prices at which, the manner in which and the parties to which it shall sell and supply sugar; etc. The industry itself now claims or complains that it is a highly controlled and regulated industry. If the sugar industry had displayed a greater sense of self-discipline and self regulation, many of the controls which became inescapable would have been avoided. It is only its own behaviour and performance which necessitated Government's stepping in from time to time in the national and public interest. This view is supported by evidence given before the Commission by eminent people known to be representatives of canegrowers, by Members of Parliament and State Legislatures, by Chief Ministers and other Ministers of the major sugar producing States, by representatives of canegrowers and labour organisations, etc. In the replies to the relevant questions of the general questionnaire of the Commission, some State Governments have stated that the canegrowers in their States had been exploited by the industry and treated unfairly. Thus, over the last forty years since protection was granted to it, the sugar industry, instead of gaining the cooperation and goodwill of at least the canegrowers with whom it had every day dealings, has earned the distrust, even hostility, of large sections of the canegrowers.

7.13 This hostility is older, stronger and wider spread in the North for historical reasons; it is subdued, localized and limited in the South. The sugar industry was established on a large scale and was concentrated in the North for the first two decades after protection. In 1952-53 there were 102 sugar factories in the North and 32 factories in the South. Most of the factories in the South have come up only since 1952 and mostly in the cooperative sector. The cooperative sector in its basic features and approach is vastly different from the private sector. Both on account of its comparatively young age and its approach, it is not vulnerable to the criticism which applies to the private sector in respect of factory-farmer relationship.

Delay in Cane Price Payment

7.14 The record of the industry in the matter of cane price payment has been disappointing. There are two aspects of this problem. One relates to the price paid for cane and the other to the time of payment of that price. In so far as the first point is concerned, the Central Government has since 1962-63 been fixing a statutory minimum price payable by individual factories according to a given formula linking the price of sugarcane to its recovery. But in years of shortage of cane, the factories have to pay prices higher than the minimum to attract cane in areas where the gur and khandsari industries operate and offer high prices for sugarcane. For the last few years, the factories have been allowed to sell a part of their sugar production in the free or open market at the best price they may be able to obtain. This has been done with a view to enabling them to pay higher prices to canegrowers. The factories in the North have had to pay high prices when gur and khandsari industries offered keen competition. The factories pay prices higher than the minimum out of the actual or anticipated extra sales realisations from free quota of sugar. But factories in the South which also enjoy benefits of the free quota to the same extent as the factories in the North, either do not pay prices higher than the minimum price or pay only a little higher price. As a result of this the factories in the South generally earn a higher profit than comparable factories in the North. The unwillingness of the factories in the South to share their extra realisations with canegrowers is, therefore, considered by the cane-growers to be more objectionable than the refusal of the factories in the North to do so.

7.15 The second part of the problem is the delay in the payment of cane price to canegrowers. Normally the supplier of a commodity expects to be paid at once, unless payment is postponed or delayed by agreement. But a small farmer is not in a position to wait long for payment of the price of his cane as he was very little economic staying power. Canegrowers as a rule want and need the price of their cane immediately on delivery of the cane. In the early years of the industry and for a long time after protection was granted to the industry, the delay in payment to cane price was by far the worst feature of the sugar industry. The delay in payment of cane price caused great hardship to the canegrowers. The State Governments concerned had, therefore, to intervene to compel the factories to make early payments. In some States, it was made a legal obligation, under State Legislation, for a factory to pay cane price on delivery. In other States, which did not have their own legislation on the subject, the Central Sugarcane Act was in force. It provided for payment of cane price within a fortnight of the delivery of cane. But in spite of the efforts and pressures of the State Governments and canegrowers, the accumulation of arrears of cane prices became a regular feature of the greater part of the sugar

* Report of the Indian Tariff Board on Sugar Industry 1938, Pages 40-41.

industry. Large amounts of the cane price due to canegrowers remained unpaid at the end of each crushing season and even thereafter. In 1969-70 the arrears of cane price amounted to more than Rs. 38 crores. That was an unusual year and the sugar industry had genuine difficulty in obtaining sufficient funds in clearing cane arrears. But that could not be said about earlier years.

7.16 In view of the extreme hardships to which the canegrowers were subjected year after year due to non-payment of their cane price for a long period, the Reserve Bank of India and the Central and State Governments took steps to ensure that such a situation did not recur. A major step was taken by the Reserve Bank of India in November, 1971 by issuing instructions to all scheduled commercial banks in the following terms :

> "Of late, there have been persistent complaints of delay/default by sugar mills in paying the dues on account of cane supplied to them, despite liberal credit facilities made available by banks against the stocks of sugar, which should have normally been utilised, in the first instance, for payment to the canegrowers. Such non payment of dues has also resulted in sugar mills obtaining double lines of credit (one from the canegrowers and another from banks against stocks of sugar), giving some scope for diversion of funds so obtained for purposes other than the genuine working capital needs. This tendency on the part of sugar mills, you will agree needs to be curbed, in the interests of both the canegrowers as also the banks, by a stricter supervision by banks over the end use of the credit made available by them to the sugar mills."

7.17 Banks were asked not to release to the factories the entire amount payable to them against the sugar stocks pledged by the factories but to withhold a substantial part of it for payment of cane price to canegrowers. According to the instructions issued by the Reserve Bank of India, banks now maintain two accounts, one exclusively dealing with the amount meant for payment of cane price and the other dealing with the general financial requirements of the factory. The Uttar Pradesh State Government went a step further and passed an Act making provision for ensuring payment of cane price to canegrowers, more or less along the lines indicated by the Reserve Bank of India. These measures have proved fairly effective in as much as the old accumulated arrears of cane price have been liquidated to a large extent in most of the factories. The tendency of arrears of cane price to accumulate has also been checked. But substantial amounts of cane price still remain unpaid after a fortnight of the delivery of cane, particularly at out-station cane purchasing centres.

7.18 The following tables show that substantial amounts of cane price remain unpaid even after a fortnight of delivery of cane. These figures of arrears do not include arrears of the previous years. The tables also show that this position obtains in most of the States in varying degrees.

Cane price arrears in selected States during 1971-72

(Rupees in lakhs)

State	Total price due for cane purchased during 1971-72 upto 15-4-1972	Cane price paid upto 15-4-1972	Balance cane price due as on 15-4-1972
1	2	3	4
Uttar Pradesh . .	8423.24	8257.18	166.06
Bihar . . .	1491.28	1369.88	121.40
Haryana . . .	711.95	606.32	105.63
Andhra Pradesh .	2289.68	2075.31	214.37
Gujarat . . .	419.06	373.37	45.69
Maharashtra . .	6135.05	5409.24	725.81
Karnataka . .	1707.95	1560.62	147.33
Tamil Nadu . .	1780.41	1414.78	365.63
Pondicherry . .	134.50	89.69	44.81
All India . . .	23862.04	21900.58	1961.46

SOURCE : Reply to Rajya Sabha Question No. 326 answered on 17-5-1972.

7.19 It will be seen that the price of cane due upto 15-4-1972 was Rs. 238.62 crores, out of which Rs. 219.01 crores has been paid, leaving a balance of Rs. 19.61 crores to be paid on that date. Normally, the crushing season starts in October/November. The total price of 238.62 crores can be taken as that of cane purchased for $5\frac{1}{2}$ to $6\frac{1}{2}$ months. The price of cane purchased per fortnight works out to Rs. 18.3 to Rs. 21.7 crores, or on an average Rs. 20 crores. The balance of cane price Rs. 19.61 crores as on 15-4-1972 represents the cane price of a fortnight. However, in the fortnight ending 15-4-1972, the price of cane purchased was Rs. 12 crores only. Thus more than Rs. 7 crores remained unpaid for more than a fortnight. The position of arrears obtaining on 28-2-1973 is indicated below :

Cane price arreas in selected States during 1972-73 *season*

(Rupees in lakhs)

State	Total price due for cane purchased during 1972-73 upto 28-2-1973	Cane price paid upto 28-2-1973	Balance cane price due as on 28-2-1973
1	2	3	4
Uttar Pradesh . .	11361.98	10423.66	938.32
Bihar . . .	2355.66	1855.61	500.05
Punjab . . .	433.53	361.31	72.22
Haryana . . .	851.06	698.35	152.71
Madhya Pradesh .	271.82	182.87	88.95
Andhra Pradesh .	1819.09	1415.31	403.78
Gujarat . . .	960.16	749.08	211.08
Maharashtra . .	7774.78	6573.91	1200.87
Karnataka . .	2050.36	1552.98	497.38
Tamil Nadu . .	1464.51	1140.07	324.44
All India . . .	29878.74	25419.66	4459.08

SOURCE : Reply to Lok Sabha Question No. 5662, answered on 2-4-1973.

7.20 It will be seen that out of a total price of Rs. 298.79 crores, Rs. 254.20 crores had been paid leaving a balance of Rs. 44.59 crores payable on 28-2-1973. Making an allowance of about Rs. 28.50 crores on account of the cane purchased during the last fortnight of February, 1973, the estimated cane price that should have been paid but was outstanding comes to about Rs. 16 crores.

7.21 Thus while the accumulation of large arrears over long periods has been checked, the objective of immediate payment of cane price or of payment within a reasonable time remains unrealised. It may be added here that the action taken by the Reserve Bank of India and the Government of Uttar Pradesh to ensure regular payment of cane price to canegrowers and to minimise the accumulation of arrears of cane price for long period is an extreme step. It is obvious, however, that the authorities were satisfied that nothing less than the action taken would be effective.

Non-Sharing of Extra Sales Realizations

7.22 The demand of canegrowers for a share in the extra sales realizations from sugar had its origin in the feeling among canegrowers that while factories were making large profits, they were not paying a fair price to canegrowers. With the development of sugar industry in various parts of the country and with increasing numbers of canegrowers supplying cane to factories, the discontent grew in volume and intensity. In 1952-53, the South Indian Sugar factories earned large profits on account of the removal of control over the price of sugar and the freight advantage enjoyed by them over the North Indian sugar mills. This led to insistent demand from the canegrowers for sharing the extra sales realizations. On the intervention of the Central Government, a formula, known as the SISMA formula was evolved by the South Indian Sugar Mills Association for passing on to the canegrowers a portion of the benefits of higher prices realized by the factories. This encouraged the canegrowers of other areas to claim the same benefits. A modified formula was later accepted by the Government of India for adoption on a compulsory basis with effect from 1958-59 season on an all-India basis. But the scheme of sharing had to be given up a few years later because of the suspicion and distrust shown by the canegrowers in the sale accounts of factories and the resultant bickerings between factories and canegrowers. The canegrowers have, however, continued to pursue their demand for a sharing of extra sales realizations from sugar. This demand has become much more widely spread and more insistent since the introduction of the system of free sale sugar quotas. We have discussed this matter at some length in Part II of this Report and have recommended the revival of the system of sharing of extra sales realisations between canegrowers and factories. We were greatly exercised over the problem of the lack of confidence of the canegrowers in the accounts of the private sector factories. As we are proposing the nationalisation of the private sector of the industry and the nationalisation of the marketing of sugar irrespective of the sector which produces it, this problem will be resolved. There is no doubt that a canegrower will have confidence in the accounts maintained by the public sector factories. As regards the cooperative factories, there is no question of distrust in their accounts as they pass on to their members the maximum they can of the surplus income acruing to them from their working. But this problem of distrust will continue to exist and mar the relations between canegrowers and the private sugar factories if the private sector of the sugar industry continues and factories have to share their extra sales realisations with the canegrowers. As regards the small public sector, it may be mentioned that a factory in the public sector took the initiative a couple of years ago, to evolve and enforce a scheme, in consultation with its canegrowers, for sharing its extra sales realizations with them.

Canegrowers' Distrust of Sugar Recovery Data

7.23 Since 1962, the minimum price for sugarcane payable by a factory has been linked, under a given formula, to the average recovery percentage of the factory for a given period (known as the optimum period) of the previous season. So the minimum price goes up or goes down with the rise or fall of the average recovery percentage. In subsequent years, the recovery percentages in many sugar factories individually and the sugar industry as a whole showed a fall in some years. However, the recoveries improved in the season 1971-72. The fall in recovery was noticeable in all the States and regions and in all the sectors. But the canegrowers, already suspicious of the factories saw in this one more avenue for manipulation of figures by factories, to the disadvantage of canegrowers. At a few factories which we visited as also in the evidence given before us by some witnesses, allegations were made that the factories manipulated recovery figures and showed recoveries lower than they were and that they exploited the farmers by depriving them of the correct price for their cane. It is well-nigh impossible to verify the allegations for once the cane has been crushed, samples of juice taken and tested and entries of recovery made in the records, no verification is possible.

7.24 We visited the laboratories of a few factories and examined the equipment used and the procedures followed for determining the recovery percentages. We found that the condition of the equipment and the upkeep of the laboratories were far from satisfactory. There was evidence of carelessness in carrying out tests and recording recoveries. Our Technical Teams which visited 41 factories also found that in the majority of cases, the functioning of the laboratories was below par. As the price of sugarcane is linked to recovery percentages, the importance of the correctness of the statistics relating to recoveries cannot be over-emphasized. Considering the manner in which this important responsibility is discharged by some of the factories, there is reason for canegrowers to doubt the correctness of the reported data.

Inadequate Cane Development

7.25 It is not unreasonable to expect an agro-based industry to be anxious about the quality and quantity of its raw material. In the sugar industry particularly, the need for ensuring the cultivation and production

of the raw material in the vicinity of the manufacturing factory is very necessary, as on account of the perishable nature of sugarcane, the factory has to depend on the sugarcane produced within a reasonable distance of its location. Thus the need for concentration of effort to get cane supplies must be on the areas nearest to the factory and, therefore, from the farmers who cultivate cane within the neighbourhood of the factory. It is necessary, therefore, that the factory should make effort to develop cane cultivation in the areas nearest to it.

7.26 We find that a large majority of sugar factories have taken little interest in cane development. When making this observation, we are not unaware of the fact that the factories in Maharashtra did pioneering work in cane development in their areas. They established their own farms for producing cane for their factories. The State Government helped the factories a great deal by providing flow irrigation facilities with a view to encouraging the development of sugar industry in the State. The factories also encouraged cane cultivation by individual farmers and launched several schemes of lift irrigation at considerable cost. They gave financial assistance to the farmers for irrigation projects. But from the replies of the factories to the Questionnaire issued by the Commission it appears that during the period 1960-61 to 1969-70, the contribution of the private sugar factories of Maharashtra to cane development was meagre. It appears that since the take-over of their farms by the Government, the factories have been taking much less interest in cane development than before. One or two factories have, however, been able to maintain their hold on a part of their old farm areas. These, they have been cultivating with improved techniques and improved varieties. The factories in the southern States also have on an average spent very small amounts on cane development. The expenditure shown on cane development includes the cost of staff which in most cases is utilised for organisation of cane supplies. Few factories have qualified staff for extension services. Thus very few factories of Maharashtra and southern States have done much for cane development. The position in regard to the factories in the North is much worse.

7.27 As regards grant of credit facilities to cane-growers, the factories in Maharashtra and the South have generally been very helpful to their cane-growers. Some factories have taken large loans from banks and provided credit facilities to their cane-growers on a fairly liberal scale. Some factories have guaranteed or under-written loans taken by cane-growers themselves from banks. The factories in the North have, however, generally been entirely indifferent to the need for providing credit facilities to the cane-growers. Nearly three-fourths of the private factories are located in the North and their performance in this regard reflects the performance of the private sugar industry. A reasonably foresighted and prudent factory owner will in self-interest, if not for altruistic considerations, assist the farmers to develop cane cultivation in his factory areas. The poverty of the farmers has always stood in the way of their investing in agriculture any thing but the minimum essential for raising a crop. But most of the private factories have been indifferent to their responsibility for providing means for cane cultivation to cane-growers of their areas.

7.28 From their replies to the General Questionnaire and from the discussions with the managements of a number of factories in the North, we understand that the factories have not given advances to cane-growers for the reasons—

(i) that there is no direct contact between the factories and cane-growers due to the existence of cane-growers' unions ;

(ii) that they cannot recover loans advanced by them to cane-growers through deduction from cane price due to cane-growers ;

(iii) that the State Governments collected large amounts from cane cess and cane purchase tax and it is their responsibility to develop cane in factory areas ;

(iv) that the factories do not have any effective voice in the cane development councils wherever they have been set up ; etc.

7.29 These explanations are not acceptable, for there is no evidence that the factories have made any serious efforts to overcome the "obstacles" pointed out by them. There is evidently no serious recognition of their responsibility in this direction. They demand that they should be allowed to by-pass the cane-growers' societies where they exist, *i.e.*, they should be enabled to enter into direct contact with individual farmers in the matter of supplies. In other words, the unions, though existing in name, should become defunct. In short, the price for giving loans to farmers is the disintegration of the cane-growers' societies, for that is what is bound to result by allowing sugar factories to establish direct contact with the farmers over the head of the cane unions. No satisfactory answer is given to the question why factories which want to give advances to farmers for cane development cannot do so by giving loans to their cane-growers' unions. The latter will then distribute the loans to farmers and will also be responsible to repay the loans to factories. If the factories had offered to make substantial loans to unions for cane development, there is no doubt that procedures could be evolved for giving an equal voice to the factories as regards the basis on which loans should be given or withheld. Other details could then be worked out in the form of an agreement with the cane-growers' unions. There is no evidence, however, that any factory came forward to give loans to unions even on the condition that it must have a say in the matter of their distribution either as regards the criteria to be applied or the selection of individual farmers for grant of loans.

7.30 It is true that the State Governments have been collecting large amounts as cane cess or cane purchase tax and that most of the States have been spending only a part of the amounts realized on cane development and road development and irrigation in the areas of sugar factories. There is no doubt that if

State Governments had spent on cane development the whole or a substantial part of the amounts collected as cane cess or cane purchase tax, the position of cane development in the factory area would have been far better than it is. At the same time, it is difficult to appreciate the point of view of the factories that cane development in their areas is the responsibility of the State Government only and that they have no responsibility in this connection. Another explanation for doing nothing for cane development is the paucity of funds with factories. This is perhaps the weakest argument for the failure of the factories to discharge their responsibility in the matter of cane development. It should not be difficult for a factory to arrange for grant of loans to individual cane-growers or their societies from banks by standing guarantee for the loans. Where canegrowers' unions do not exist, the factory itself can take loan from commercial banks and grant the loans to cane-growers. Some factories in the South do so on a large scale.

7.31 The futility of the argument advanced by the various factories individually or by the private sector of the industry as a whole for neglecting this part of their responsibility will be clear from a study of what they did in the matter of loans or subsidies for cane development when there were no cane-growers' unions, no restrictions on recovery of loans, no primary credit societies, etc. In this connection, a reference may be made to the replies given by the sugar factories to the General Questionnaire issued by the Tariff Board, 1938. At that time, most of the factories were of the capacity of 400 tonnes to 500 tonnes with an odd mill here and there of 800 tonnes to 1000 tonnes capacity. The industry had been under protection for more than 5 years, supplies of cane were assured and the cost of a 500 tonnes factory was a little more than Rs. 14 lakhs, the depreciation was small and profits substantial. At that time, the Government agricultural and credit departments and research institutions did a good job, for in the short period of a decade or so, the *desi* varieties of cane were replaced by improved Coimbatore or Pusa varieties on a large scale. More than 80 per cent of the cane area was covered by improved varieties of sugarcane in the place of *desi* varieties. The Coimbatore improved and high yielding varieties were introduced rapidly by cane development departments and agricultural departments and the farmers accepted them readily. But the factories did little for cane development and for grant of credit facilities to farmers. Most of the then factories replied to the relevant question of the Questionnaire of the Indian Tariff Board, 1938 that they did not give any credit facilities to farmers or that they granted some assistance to some farmers as a special case. The same condition continued in the forties and fifties and even in areas where there were no cane unions and the relations between farmers and factories were direct. Unfortunately, however, the direct relations led to great dissatisfaction and distrust in the industry among the farmers.

Marketing of Sugar

7.32 In setting out the objectives of the sugar industry (*vide* para 7.6 of this Chapter) we had given the first place to the production of sugar. That is obviously the primary purpose of a sugar factory and the sugar industry. Among the other important objectives is the proper marketing of sugar as the consumer comes into direct contact with the sugar industry through the marketing of sugar. Sugar being an essential foodstuff it should be available to the consumer at reasonable price, in adequate quantity and regularly without interruption. If the consumer is unable to obtain his requirements of sugar uninterruptedly and at a reasonable price, it will mean that the industry has failed to achieve an important objective. In making this observation, we are conscious of the fact that the sugar industry has its limitations and it is not always possible for it to produce enough quantities of sugar to meet the full requirements of consumers at all times. The production of sugar obviously depends on the availability of sugarcane supplies. We have mentioned elsewhere that shortages of sugarcane recur in a biennial or triennial cycle and that in those years, the sugar industry finds itself unable to reach its targets of production. There have also been some years in the past when supply of cane was abundant and the sugar industry produced enough sugar to meet the demand of the country at that time and also to spare some quantity for export.

7.33 The need for proper marketing of sugar assumes great importance in years of short production. Unless the arrangements for marketing of sugar are efficient at all levels—factory, wholesale, retail, etc.—the consumer is subjected to hardship and has to pay high prices on account of speculative trading by unscruplous factories, wholesalers, retailers, etc. and the price of sugar rises abnormally.

7.34 The consumer naturally judges the performance of the sugar industry by the availability or non-availability of sugar at a reasonable price and in adequate quantity. Judged by this yardstick, the performance of the sugar industry cannot be considered satisfactory. Those who are familiar with the history of marketing of sugar are aware of the fact that on several occasions when the industry has been free to market sugar, it has created artificial scarcity and raised prices of sugar unduly high. It will not be out of place here to refer to the working of the Indian Sugar Syndicate during the thirties and forties. The Indian Tariff Board in its 1950 Report commented on the working of the syndicate as follows :—

> "It will thus be seen that the main purpose of the Syndicate is to prevent internal competition among the member faetories by requiring them to market their sugar in regulated quantities and thereby prevent a fall in price.... The Syndicate has also not been able to control its members in respect of proper grading and packing of sugar as required by its Articles of Association. We have not received any evidence to show that the Syndicate has ever taken any effective steps to prevent its members from charging high premiums for sugar in conditions of scarcity. On the contrary, the Syndicate whenever free from control, as in 1938-39 and 1948-49, abused its monopolistic power so as to help its members make large gains at the expense of the consumers."*

*Report of the Indian Tariff Board 1950, page 99.

7.35 It is not necessary to delve further into the working of the Indian Sugar Syndicate. The above quotation brings out clearly that the sugar industry lacked discipline and played an unsavoury role during the thirties and forties in the marketing of sugar. It was against this background that the Central Government had to introduce increasingly strict control on the marketing of sugar by the sugar industry. For many years now, the Central Government has been controlling the marketing of sugar by factories. But there have been periods of de-control or partial de-control also during which the industry has been free too sell sugar in the open market istead of having to sell it to Government nominees. This was allowed primarily with the object of enabling sugar factories to pay higher prices for sugarcane in years of short production when competition from gur and khandsari industries is keen and factories have to pay much higher prices than the minimum statutory price to attract cane supplies. The scheme has served this object to a reasonable extent, but the industry has come in for a very sharp criticism, both from the consumer and the canegrower on the ground of alleged speculative activities by the sugar industry. It is true that in the recent past, controls have been withdrawn only in years or periods of surplus production of sugar, which eliminates chances of speculation creation of artificial scarcity. And yet the sugar industry has, on many occasions, so managed the marketing of sugar that sooner or later sugar was in short supply in the market and the prices shot up. A couple of years ago, the control on the price and movement of sugar was removed, only to be re-imposed within a few months on account of the rising prices of sugar and mounting complaints of the consumers. The sale of sugar by factories whether to government nominees or in the open market is, however, regulated by release of specified quantities of sugar on a periodical basis and the imposition of various restrictions within which the released quotas of sugar have to be sold.

7.36 The marketing of sugar by the industry, particularly marketing of free quota of sugar, has been responsible for a great deal of discontent among canegrowers and consumers. While the former demand a share in the extra sales realizations, the latter complain of the very high prices which they have to pay for 'free sugar'. Not only the factories but also the wholesalers contribute to the malaise in the marketing and distribution of sugar. It is alleged and complained by many that the sugar factories make huge concealed profits out of the sale of their sugar and that their balance sheets do not correctly represent the profits made by them from such under-hand sale. It is immaterial whether these allegations and beliefs are justified or not but the prevailing acute dis-satisfaction and discontent among the consumers cannot be ignored and a way must be found to remedy a situation which has been prevailing intermittently for a long time.

7.37 As indicated earlier, there are wide fluctuations and instability in the production of sugar and apart from the manipulations by the sugar industry and the wholesale trade, the very fact of short production in some years results in scarcity of sugar and in high prices. This situation could have been met to a large extent if there were a buffer stock of sugar which could have been utilized in maintaining adequate supplies of sugar and stabilizing sugar prices in years of short production and in regulating supplies and prices in years of large production of sugar. The need for establishing a buffer stock of sugar has been recognised and the Government of India has already accepted in principle the proposal for creating a buffer stock of sugar. As, however, the production of sugar during the last two years has been on the low side, a beginning could not be made towards building up the buffer stock. As soon as conditions become favourable for the creation of a buffer stock, steps should be taken to build it. The creation of buffer stock is not the only remedy for the grave malpractices that take place in the marketing of sugar at the factory and the wholesale levels. The public is literally fed up with the 'vagaries' of the sugar industry in the matter of marketing of sugar. Their demand is for a take-over of the entire sugar trade by the Government and the justification for such a demand is obvious. We do not anticipate any difficulty in Government taking over the marketing of the entire sugar production of the industry and handling it upto the wholesale level. But we are not so sure either of the desirability or of the practicability of government dealing with marketing of sugar at the retail level. The retail sale of sugar is arranged, organised and controlled by the State Government, and the organisation of sale of sugar at retail level differs from State to State and from time to time depending upon the exigencies of the situation. We, therefore, do not consider it advisable for the Central Government to take over the retail sale of sugar. But we are satisfied that the public interest demands that the marketing of sugar at the factory and the wholesale levels should be completely in the hands of Government.

7.38 Already 60 per cent to 70 per cent of sugar production is being controlled by the Central Government in all respects and the Food Corporation of India and the cooperative organisation and agencies have been utilized for marketing of sugar at wholesale level. The nationalization of marketing of sugar, irrespective of the sector which produces it, will mean that the Government will come into possession of sugar immediately after its production and it will be the responsibility of the Government to handle the sugar from then onward. There need be no difficulty in organising marketing of sugar by Government, particularly as some experience has already been gained by Government in the marketing of sugar through the Food Corporation of India and the cooperative organisations.

Technical Performance and Condidition of Plant and Machinery

7.39 The technical performance of the factories and the condition of their plant and machinery have been discussed in Chapters III and IV. These studies bring out very clearly that the private sugar industry has persistently neglected the necessary repairs and replacements of its machinery and equipment at the

proper time. In so far as the last few years are concerned, it could perhaps be understood that the factories have been reluctant to invest funds in improvement of their plant and machinery on account of the uncertainty of their future. But their conduct before this period is difficult to appreciate. It will be seen that on the basis of the criteria laid down by the Commission for judging the technical efficiency of the factories—for example, reduced mill extraction, total fuel consumption, capacity utilisation, reduced overall extraction, etc.—a large majority of the factories suffer from various deficiencies. Out of 204 factories reported and 189 considered, more than 140 suffer from many major technical deficiencies (See Table 4.12 in Chapter IV). In judging the performance, the technical norms given in our report are on the generous side. The technical efficiency is an index of not only good maintenance of plant and machinery but also of efficient processing. Efficient processing is possible without sacrificing the economic rate of crushing if the processors keep pace with the technological advancement and realise the disadvantages of obsolescence. The analysis of the technical performance of various sugar factories on the basis of the norms shows that a large number of sugar factories have not been working upto the mark. It is obvious that the total impact of these deficiencies on the performance of sugar industry is grave, the deficiencies having contributed in no small measure to loss in sugar production which is a national loss.

7.40 As regards the condition of plant and machinery, it may be stated that the Commission obtained very detailed information about the specifications and condition of the plant, machinery and equipment of the various sugar factories. The Technical Questionnaire issued by the Commission was a comprehensive one. An analysis of the information and data furnished by the factories enabled the technical officers of the Commission to assess the condition of plant and machinery of individual factories correctly. The technical teams of the Commission also visited 41 sugar factories with a view to, *inter alia,* varifying the data supplied by the factories about the specifications and the condition of their plant and machinery and also assessing on the spot the condition of the plant and machinery. On a comparison of the assessments made on the basis of the data furnished by the factories in their replies to the Technical Questionnaire with the position as found by physical inspection on the spot it appeared that the assessment based on the data furnished by the factories were correct. The Commission had, from the very beginning, taken the view that it would neither be feasible nor necessary for the Commission to arrange for on-the-spot studies, whether financial, technical or engineering, of all the sugar factories. It was, therefore, decided that technical teams should visit one-fourth to one-third of the factories for on-the-spot studies; or more, if the position of staff and time permitted. The factories to be visited were selected according to the criteria laid down by the Commission.

7.41 It may also be stated here that it was on the basis of the data furnished by the factories and analysed and compiled by the technical experts in the Commission and such additional data and information as the Commission collected from the Directorate of Sugar and Vanaspati, the National Sugar Institute, Kanpur and other sources and on the information collected and impression gathered by the Commission on its visits to sugar factories that the Commission carried out an exercise of classifying sugar factories into sick and non-sick factories. As a result of this exercise, a tentative list of sick and non-sick factories was made. A number of factories were, however, considered "doubtful" and it was decided to discuss their cases later. This exercise was not pursued further on the ground that the Commission had not been asked to identify sick mills but only to give reasons for the existence of sick mills and to suggest a solution to the problem of sick mills. But it was necessary for dealing with terms 1, 2, 3 and 5 to find out the extent to which sickness of different kinds existed in the sugar industry as a whole. This could be found only by considering the technical performance, the condition of the plant and machinery, financial performance and other aspects of individual factories. These studies have been made and the results thereof have been indicated in the relevant chapters.

7.42. A careful study of Chapters III and IV and the statements and tables referred to therein will bring out the fact that the private sector has a large number of very old factories with their plant and machinery in bad condition. It will also show that there has not been any enlightened approach by the private sector units towards maintenance, including preventive maintenance, rehabilitation and modernisation of the factories. It is also clear that, by and large, an attempt has been made by many factories to keep their old plant and machinery running without regard to efficiency of performance. In view of this, the expenditure required for rehabilitation will be considerable. The Gundurao Committe in 1965 had estimated the cost that would be required for rehabilitation and modernisation of factories at Rs. 90 crores. Since then the condition of plant and machinery of some factories may have improved as a result of repairs or replacements; on the other hand, that of others may have deteriorated due to the fact that many of the plants were old and ageing. As admitted by the industry itself, many a factory has been chary of investing funds on the improvement of its machinery and equipment due to the threat of nationalisation. This has accelerated the deterioration in the plant and machinery of those factories which have not attended to the necessary repairs, replacements, etc.

7.43 We do not propose to suggest in this report any plan of rehabilitation. We consider it, however, necessary that some indication should be given by us, in the light of our studies, of the actual state of affairs regarding the condition of plant and machinery and the size of the problem of rehabilitation and modernisation. It may be pointed out that the future requirements for plant and machinery will be very large in view of the fact that plant and machinery will be needed not only for the new units already licensed and to be licensed but also for replacement and rehabilitation of some of the existing units.

7.44 A reference to Chapter III and IV dealing with the technical performance of the sugar industry and the condition of plant and machinery shows that while 21 factories have spent, over the ten year period (1960-61 to 1969-70) substantial amounts (Rs. 1 crore or more) on repairs, additions and alterations and expansion, about 70 old factories have each spent only Rs. 25 lakhs and less during the 10 year period. Considering that these factories were old factories and considering that their technical performance was deficient in several ways, the amounts spent by them on additions and alterations were inadequate for bringing them and keeping them upto a reasonable standard of efficiency. A prudent management would prefer to borrow funds for the purposes of carrying out essential repairs and replacements to allowing its factory to suffer over a long period from deficiencies that contribute to higher cost of manufacture of sugar and to lesser production of sugar. The several tables and statements included in Chapters III and IV showing the performance of the sugar industry under various technical heads may be referred to for obtaining an idea of the physical dimensions of the needed improvements. Without going into details it may be remarked that more than one-third of the sugar factories in the private sector (other than cooperatives) need large scale repairs and replacements. This condition of the plant and machinery of the sugar factories has not come to notice for the first time. The problem has existed for a long time and the need for rehabilitation of a large number of factories has been felt for years. The sugar industry has been asking the Government for various facilities, financial and other, for enabling the factories needing rehabilitation to rehabilitate themselves. However, it has now come up with a plan for the rehabilitation of the sick mills. But the timing of the scheme is inopportune. Its submission at this time, more or less under the threat of nationalisation, makes the scheme suspect. On merit too it is too nebulous a scheme to be taken seriously at this stage. We do not attach much significance to it.

7.45. As mentioned earlier, the various factories have been spending varying amounts on repairs, alterations and additions over the years. The problem of rehabilitation in some of these factories and other factories which have deteriorated over the last decade or so, exists. As indicated above, the indifference or inability of the managements concerned to the rehabilitation of their factories is responsible for the present state of affairs. But the indifferent or weak financial position of some of the factories is also a contributory factor.

7.46. A problem of this dimension can be tackled only by the Government which will no doubt fully utilize any capacity that can be spared by the various public sector undertakings and also the industry specially set up for the manufacture of machinery for the sugar industry. On a long term view of the matter, it is certain that the sugar industry will have to go in for large scale modernisation and rehabilitation to achieve the various targets. As it is, the bulk of the financial requirements of the sugar industry are being met by the financial institutions. The responsibility for meeting the financial resources needed in the future for plant and machinery will also largely be with the Government.

Inadequacies and Causes for Existence of Sick Mills

7.47 As will be seen from the foregoing observations, the sugar industry suffers from a number of serious inadequacies. We have already referred to some of the more important of them—unsatisfactory farmer-factory relationship; instability in sugar production; inadequate cane development; lack of appreciation on the part of sugar factories of their responsibility for cane development in their areas; delay in payment of cane prices and accumulation of arrears of cane price; inadequate agricultural credit facilities; non-sharing of extra sales realisations by factories with canegrowers; unsatisfactory marketing of sugar; bad condition and poor maintenance of plant and machinery, and inefficient technical performance. The other important inadequacies are discussed below.

7.48 There are wide fluctuations in the area and production of cane from year to year. These are primarily due to the varying prices paid for cane by the sugar factories and the gur and khandsari manufacturers. High prices in years of shortage of cane encourage farmers to bring more area under cane; low prices in years of high production produce the contrary result. There are other factors too which contribute in varying degrees to the rise and fall in cane acreage and consequently in cane production, such as climate and weather at the sowing time and during the period of the growth of the crop; anticipated cane prices; comparative return from competing crops; past experience of canegrowers in regard to disposal of their cane; duration of the crushing season preceding the sowing time; etc. The high and the low production years alternate in a biennial or triennial cycle.

7.49 Another major problem of the sugar industry is the uncertainty about the supplies of cane. In some years, the sugar factories get so much cane that they cannot crush it and in other years they do not get sufficient cane even for a normal season. Most of the factors which affect cane production also affect cane supplies. Additional factors are promptness or delay in payment of cane price; degree of competition and range of prices offered by gur and khandsari industries; degree of efficiency and fairness of the organisation of cane supplies by the factory or the canegrowers' society, as the case may be; nature of contract or agreement and the willingness of the canegrowers to fulfil the contracts and the ability of the factory to enforce the contracts; facilities and amenities for canegrowers at factory gate and its outstation cane purchasing centres; condition of roads and availability of means of transport; relations between canegrowers and factory; the reputation of the factory; etc.

7.50 Apart from the wide fluctuations in the availability and supply of sugarcane which affect all the sugar factories, some factories suffer from chronic shortage of cane. This may be due to unsuitable loca-

tion of the factory where the potential for cane cultivation is limited or where the return to farmers from other competing crops is greater. The shortage may also be due to lack of cane development or due to dissatisfaction among canegrowers due to irregularities and malpractices in weighment of cane, delay in payment of cane prices, etc. It seems to us that the position of cane supplies to sugar factories even in years of shortage of cane would be better in spite of the competition offered by the gur and khandsari industries if the canegrowers had a feeling of loyalty towards the factories. This feeling is usually lacking among the canegrowers except in the case of a section of cooperative factories and a very few private factories. A sense of loyalty and belonging among the canegrowers has neither been created nor fostered by the private factories. There is, however, evidence of a sense of belonging among members of cooperative sugar factories which have worked successfully and have been able to render various services to their members. If factories share the extra realisations with their canegrowers, pay cane price promptly, take keen interest and participate in cane development activities and help the canegrowers in other ways, they will no doubt gain the cooperation of canegrowers, resulting in improvement in cane supplies.

7.51 The prices of sugar are fixed on the basis of zonal averages. If the cost of production of a factory in a zone is higher than the sugar price fixed for the zone, its financial viability is affected. Such factories are generally well below the average in respect of various items that go into the cost of manufacture of sugar. The zonal average system for fixing prices of sugar works against such factories and in favour of factories with lesser cost of production. As a result of this, the high cost units suffer and the low cost units collect more profits. The factories in the high cost group attribute their losses, failures and shortcomings to the fixation of sugar prices on the basis of zonal averages. But this is simplifying the matter too far. One has still to look for the reasons for the cost of production of a factory being higher than the zonal average. Most of such factories have common inadequacies, *viz.*, short duration of crushing season, shortage of cane and/or low sugar recovery. But the matter does not rest there. The reasons for shortage of cane and low recovery have to be investigated to find out whether the factories concerned have taken all reasonable measures to remove these inadequacies. During our visits to a few such factories, we found little evidence of any positive action having been taken by the factories.

7.52 The performance of the sugar industry from the point of view of generation of investible surpluses cannot be considered to be satisfactory. Only in a few cases investible surplus has been generated, but its distribution is not in consonance with the desired social goals except to a certain extent in the case of cooperative factories. The latter also passed on almost all their surpluses to canegrowers without much regard for the legitimate claims of consumers and workers.

7.53 We may now take up the very important subject of the management of sugar factories in the private sector. An important inadequacy of the sugar industry is the type of management which manages its various units. There are 235 sugar factories in the country, of which 84 are cooperative sugar factories, 10 State-owned concerns and the remaining 141 joint stock sector factories, including 32 private limited, partnership and proprietory concerns. The managements of the cooperative sugar factories are generally responsive to the needs and demands of the canegrowers irrespective of whether they are managed by elected or nominated Boards of Directors. There is also an identity of interest between the managements of the factories and the suppliers of sugarcane. As regards the few public sector factories, 5 factories have been taken over by the State Government of U.P. since 1971 only. The efforts of the managements and the available funds have since been directed towards regenerating the old plant and machinery and clearing the accumulated cane price dues of canegrowers.

7.54 The managements of many of the private factories cannot be considered efficient. Besides, they lack vision and they are not far-sighted. Some of them pursue the profit motive in complete disregard of their obligations to the canegrowers, workers and consumers. The managements of the private limited, partnership and proprietory concerns evince the worst features of bad management. In some of these factories, the directors advanced large loans 'unto themselves' at rates lower than the rates at which the factories had borrowed money from the banks. In a case the directors had appropriated a large amount—about Rs. 40 lakhs—and it was found that they possessed no assets and no property from which the funds could be recovered. For all intents and purposes, the amounts were lost to the factories. It is true that in one or two cases, the private limited factories or partnership or proprietory concerns have done well, the owners being forward looking and progressive. But one swallow does not make the summer. As a group within the joint stock sector the presence of these concerns lowers the character of the entire private sector.

7.55. In many cases, the management lacks professional training and experience. This is a feature common to sugar factories in all the sectors. As the concept of professional management is a recent one, the factories cannot be blamed for lack of professional management, but even allowing for this, it appears that the managements of many factories are unable to realize the importance of professional and trained managers.

7.56 Sugar factories were asked to report the qualifications prescribed by them for their key posts and also to state whether the persons holding these posts were qualified or not. From their replies, it appears that most of the holders of technical key posts are qualified, such as Chief Engineer, Sugar Technologist, but in a few cases these posts are held by unqualified persons. In the subordinate posts, there is, however, a fair sprinkling of unqualified staff. In such cases, the factories have explained that the persons holding the posts are experienced men and that they are better than raw qualified hands. This may be true of a few persons, but it must be realised that experienced qualified persons are generally more competent than persons who are only experienced but not qualified. In

any case, the qualified but raw hands of today will become the experienced and qualified men of tomorrow and it is desirable that the technical posts are held by qualified people. This inadequacy is common to sugar factories in all the sectors.

7.57 Many units of the sugar industry suffer from surplus labour force. Even where as a result of modernisation and rationalisation, it should have been possible to reduce the strength of workers, it was not practicable to do so.

7.58 As mentioned elsewhere, the requirements of sugar in the country have been increasing at a faster pace than production of sugar. This is partly due to the shortage of cane in some years and areas. But it is also due to the fact that many areas, where sugarcane is produced, have not been tapped yet and the cane there has not been utilised for sugar production. A large number of sugar factories which have been licensed have not come up. Most of the licences are held by the cooperative sugar factories, but some of them by the private sector also. Both the cooperative sector and the private sector have been unable to carry out the programme of installation of additional capacity as was required and expected. The reasons for the delay in the execution and implementation of the programme for the establishment of new factories or expansion of old factories, are the delay in the supply of plant and machinery by the manufacturers of sugar machinery, the inability of sugar machinery manufacturers to meet all the requirements of plant and machinery for sanctioned installed capacity due to their limited manufacturiug capacity, the utilisation by the manufacturers of sugar machinery of even their existing capacity for manufacturing machinery and equipment required by other industries ; inadequate allocation of iron and steel ; the non-availability of certain critical equipment and machinery in the country and the delay in raising the funds.

7.59 Most of the inadequacies mentioned and discussed above contribute to the sickness of the mills. In dealing with the question of sick mills, the first question which exercised the mind of the Commission was what yardsticks and criteria should be applied to individual factories for the purposes of deciding whether a mill was sick or healthy. The expression 'sick mill' has not been defined anywhere in the many reports on the sugar industry which have appeared so far. A reference in this connection was made to the Ministry of Agriculture to find out whether the Government had any definition of 'sick mill'. The reply* of the Ministry was as follows :

> "The phrase sick mills used in the terms of reference of the Sugar Industry Enquiry Commission is not a definitive phrase. The word 'sick' has been used as used in common parlance for a mill which is not running successfully for any reason such as uneconomic capacity, old and outmoded machinery, lack of cane in the area, lack of proper management, etc."

*Vide Ministry of Food, Agriculture, Community Development and Cooperation (Department of Food) U.O. No. 12-2/69-Sugar dated 14-1-1971.

7.60 The Commission felt that it was neither necessary nor feasible to define the expression 'sick mill' in precise terms and that in deciding whether a mill was sick or not, all the relevant aspects of the working of a mill should be taken into consideration. In other words, the decision should be based on a total assessment of the working of a factory. The important aspects which were taken into consideration in the exercises carried out to classify the sugar factories into sick mills and other mills are as follows—the profit or loss of the factory in the aggregate for the 10 year period 1960-61 to 1969-70 after providing for depreciation but before taxation and development rebate ; cane price arrears ; arrears of labour dues ; persistent diversion of profits to spheres not connected with the sugar industry ; inadequate utilisation of mills' installed capacity ; chronic shortage of sugarcane with reference to its installed capacity ; technical performance ; and the condition of plant and machinery.

7.61 As a result of the study made by the Commission, of the working of individual sugar factories on the above lines, it was found that a large number of sugar factories were sick. Most of the sick mills fell in the private sector of the sugar industry. The plant and machinery of almost all the cooperative sugar factories are new and though in a few cases their maintenance was not up to the mark, the plant and machinery were still in good working condition. From the studies, it became clear that nearly two thirds of the private sugar industry was sick on one count or more and more than one-third on almost all counts. No doubt was left about the existence of a large number of sick sugar mills in the sugar industry. The reasons for the existence of this large number of sick mills are as follows :—

(i) Chronic shortage of cane ;

(ii) Poor quality of cane resulting in low sugar recovery ;

(iii) Lack of interest of factory in cane development ;

(iv) Bad condition of plant and machinery ;

(v) Poor maintenance of equipment ;

(vi) Indifference of managements of factories to improve the condition of plant and machinery ;

(vii) Lack of finances for rehabilitation and modernisation ;

(viii) Absence of professional management ;

(ix) Non-employment of qualified technical personnel to maintain and operate machinery ;

(x) Diversion of funds from sugar industry to other activities ;

(xi) Inadequate utilisation of capacity ;

(xii) Unsuitable location of factories ;

(xiii) Technical deficiencies in performance ;

(xiv) Surplus labour ;

(xv) Inefficient management ;

(xvi) Poor farmer-factory relations ;

(xvii) Absence of sense of involvement among cane-growers and workers ; and

(xviii) Fixation of sugar price on a zonal average basis.

The above factors contributing to the sickness of sugar mills have been discussed at appropriate places in the report. An attempt is sometimes made to group these factors into those for which the managements of factories could be held responsible and factors beyond their control and power. This is done so as to make out a case that the sickness of mills is not due to the fault or default of managements, that they could not be blamed for such shortcomings as were not in their power to remove and that therefore there was no justification for changing the existing owners of the private sugar industry on the basis of such causes. Even if such a classification of the above factors could be made, it would appear that most of the above causes of sickness are such as could have been remedied by the management and their existence can be traced back to the inefficiency and lack of foresight of the managements. For instance, even in regard to chronic shortage of cane, the managements cannot be absolved of responsibility, for the existence of continuous shortage of cane is clear evidence that the management did not make any serious effort to improve cane cultivation in their areas. We are aware of several cases in which sugar factories located in areas without much cane acreage were able to increase cane area and production to a very large scale by their efforts and by granting facilities to the farmers of the area. As regards poor quality of cane, the elimatic conditions and the varieties of cane determine it, the serious efforts made by some factories in their arears have resulted in improvement in quality of cane. The organisation of cane supplies on a maturity basis has also helped in improving recoveries. As regards finances, it has already been pointed out that factories could not get enough funds for their rehabilitation. To expeet that funds should be found from the public exchequer or collected directly from the consumer by way of an increase in the sugar price by including rehabilitation allowance is to ask that the Government and the consumers should bear the burden of rehabilitation of the mills without the latter doing anything for themselves. The expression "Inadequate utilisation of capacity" is used here in a technical sense. Many factors besides shortage of canc are responsible for inadequate utilisation of capacity. In technical terms inadequate utilisation of capacity is definitely a deficiency for which the factory is responsible. As regards unsuitable location, it may be remarked that after all who but the owners of factories could be blamed if they established a factory in an unsuitable location. There is no case of an entrepreneur being compelled to set up a sugar factory in any particular place. It is true that some factories have not been allowed to shift to other places. At the same time there is no doubt that if a factory invested even one-fourth of the amount needed for shifting it to another place, on cane development in its present area, the cane cultivation would improve tremendously and the area would no longer remain unsuitable. Having said this, we still feel that it is not necessary or feasible to separate the causes of sickness into those due to mis-management and due to other causes, for they are so interdependent that the same factor is both the cause and the result of another inadequacy or sickness as will be clear from the discussion of the inadequacies in the performance of the sugar industry.

Demand for Nationalisation

7.62 It is against this background that the demand for nationalisation has been made. In considering the rationale of this demand one must never lose sight of the fact that the sugar industry is not like any other agro-based industry. It is something more and something else besides. In view of this it is not only the technical efficiency or the financial viability of the industry that is important but also its attitude and behaviour towards the canegrowers not only as producers and suppliers of the raw material, but also as human beings whose way of life is influenced and conditioned in no small measure by the way the industry funcions. It is evident that the private sugar industry has failed in both these respects. Instead of gaining the goodwill and trust of the canegrowers over the 40 years or more that it has been in existence, it has antagonised large sections of canegrowers as a class. The consumers too have not been happy with its functioning during periods when the industry has had a free hand in the disposal and marketing of sugar. Workers as a class also believe that they have little chance of improving their position in the existing set up of the private sugar industry.

7.63 The demand for nationalisation of sugar industry is a definite proof of the dissatisfaction of the canegrowers, workers and large sections of consumers with the working of the industry since protection was granted to it in 1932. This does not, however, mean that the canegrowers, workers and others want nationalisation of the private sugar industry as a means of punishing the industry. Such a motive if it existed would be an unworthy one. True, that there has been general dissatisfaction with the performance of the sugar industry, past and present, but the motive for demanding nationalisation is not one of revenge or punishment but of finding a way and an organisation which will be responsive to the needs and urges of the people whose daily lives and economic future are linked with it. It is obvious that nationalisation of the sugar industry or any industry is not and cannot be an end in itself. There is no point in nationalising an industry for the sake of nationalisation or mere acquisition of property by the State. Everyone who wants nationalisation of the industry recognises this. The demand for nationalisation is motivated by the belief that it is a means to achieve the objectives which have been set up earlier for the sugar industry. The sugar industry is a focal point of socio-economic growth of the rural communities of its area. The private sugar industry has not kept these objectives in view and it is too much to expect it to do so with its culture and motivations.

7.64 There will be no need or justification for nationalisation of the private sugar industry if one reconciled oneself to the idea that the industry like most other industries should be considered to have done well if it made profits and maintained certain standards of efficiency, without bothering too much about the canegrowers, the workers and the consumers. But the criteria for judging the performance of the sugar industry will have to be different from and stricter than in the case of other agrobased industries. What is needed is a complete change of approach and attitude and that can be best brought about by a change in the organisation of the industry so as to make the State responsible for carrying out its own policies and to place in the hands of the State an instrument for rendering public service, in the widest and best sense of the word, to the rural community in the areas of sugar factories.

7.65 A view has been expressed that all the objectives set out above can be achieved as quickly and as effectively by the private sugar industry, in any case by the good section of private industry, as by the public sector. Those who hold this view question the propriety of the "faith" that is being put into the public sector for achieving the outlined objectives. They maintain that the performance of the public sector so far does not justify the optimism felt and expressed by us and they fear that this "misplaced" trust in the public sector is more likely than not to bring the sugar industry to grief. On the other hand, they have demonstrated their belief in the capacity of the good factories of the private sector to deliver the goods, by recommending that the entire sugar industry or at least the good factories of the private industry should continue with the existing owners. In their view, the private factories will try to maintain a reasonable standard of efficiency because of the fear that they will be taken over (nationalised) should they be found deviating from the correct path.

7.66 In our view, the course of action suggested is fraught with mischief, and the reasons are not far to seek. First, non-nationalisation at this time does not mean non-nationalisation for ever. Once a substantial part of the private sugar industry has been nationalised, it might be found desirable, even necessary, to acquire the rest of the private sugar factories for overall economic and administrative reasons and with a view to balancing the cost of running the sick mills. Also, a factory which is good today might become bad tomorrow or might be considered bad on the application of newly evolved criteria. To demand or to expect that the criteria as evolved by the Commission at this time should hold good for ever is unreasonable. Situations not foreseen now might develop which may justify nationalisation of the remaining factories. The present trend of thinking and approach to economic and social problems should not be ignored in making such suggestions. It is also unlikely that factories not nationalised at this time will feel "safe" or sure of themselves under a scheme having an inbuilt deterrent in it. In the circumstances, all that such a scheme amounts to is giving one more chance to the private sugar industry or some units of the industry to survive as private industry. But even if it survives for the time being the private industry will very shortly find itself in an atmosphere alien to its nature.

7.67 The stigma that attaches to the private industry cannot be easily removed ; the canegrower, the worker and the consumer will still suspect and doubt the credentials of the private industry. Secondly, it might expose owners of private mills to threats of acquisition. Whether or not the threats are carried out is another matter. If even in one case the threat of take-over is executed, the resistance of the private units to such threats will be weakened, which will completely demoralise the private sugar units jointly and severally. There is scope for much mischief in such a situation. If such an arrangement is proposed it will be another instance of ad hocism so much decried by the Sen Commission and many others including the private sugar industry.

7.68 The non-nationalised sector will also not be able to push forward the production targets. The cost of units is going up and if units of 2000—2500 tonnes or more are set up, the cost will be around Rs. 5 crores. Individual entrepreneurs will find it difficult to raise such large funds. They will have to fall back on the public financing institutions and, though in theory there may be no discrimination as between them and a cooperative or a public sector factory, in practice they might find themselves at the tail end of a queue. By way of illustration it may be mentioned that some time ago it was laid down in the licences granted to private and cooperative sugar factories that the licensee shall not seek financial help from the public institutions such as the Industrial Finance Corporation, but later the condition was relaxed in the case of cooperative factories but not in the case of private factories. With uncertainty attaching itself to the private sugar industry we think that the private sector, after the take-over of even the sick mills only, will begin to suffer from greater disadvantages than at present and it is more likely than not to develop an inferiority complex which will be detrimental to its working and will prove harmful to the national sugar economy. In any case, its contribution to future development of sugar industry will be small, considering the present policy of encouraging the cooperative sector in the matter of licences and the large programme for installation of additional capacity for sugar production. The argument that by the continuance of the private sector the programme of setting up a large number of new factories will be facilitated or accelerated or fulfilled, thus loses its force.

7.69 Further in future a fair number of factories will be set up in undeveloped areas with the definite objective of bettering the economic condition of the backward and weaker sections of the community. In such cases, the profit motive will necessarily have to go to the background. In fact Government may decide to establish factories in under-developed areas with the full realisation that the venture will very probably incur losses, at any rate for some considerable time. In such cases, the private sector will not come forward to set up a factory. Only the State can render such a service. But that makes it all the more necessary that the State should own good and profit making mills also. If the State is saddled with sick mills only, it will not only have to bear a large expenditure on their rehabilitation but will also have to bear the odium, for some time, of the sick mills not working efficiently

and all this without the compensating corresponding advantage of earning profits from good mills and credit for running them well. The sins of the private industry should not be visited on the public sector without some definite compensation.

7.70 Another argument why the so-called good mills of the private sector should also be taken over by Goverment is that if Government is financially strong enough and managerially competent enough to rehabilitate sick mills and raise them into healthy units, why should there be any hesitation and reservation about its competency and ability to run the good mills profitably, at least as well as the private sector, if not better. It is sought to meet this argument by maintaining that the take-over of the sick mills by Government will not be in the hope or expectation that Government will be able to improve them or run them efficiently but with a view to protecting the interests of the canegrowers and workers of the areas in which the sick mills are situated. In other words, as the owners of the mills are considered wholly incompetent and unable to run the mills, the Government should run the mills in the interest of canegrowers and workers even if the mills are uneconomic and losing concerns. In their opinion, this will be Government investment in the welfare of the weaker sections of the community, *viz.*, workers and farmers. The weakness of this line of approach is obvious. Even if this argument is taken at its face value, it only strengthens the case for take-over of the entire private sugar industry by the Government, for so long as it is expected that the sick mills will improve and will become a paying concern, the loss to the State will be only temporary. But if they are to continue to be sick and be run merely out of compassion for the workers and canegrowers, it is all the more necessary that Government should take over the other mills also, if for nothing else, than to find money for rendering the service expected of it to the workers and canegrowers of sick mills.

7.71 At the end of the year 1969-70, the public sector had four sugar factories only. Of them one not worked for several years and another had not started working regularly till the end of 1969-70. Three of these factories had been established in princely States before independence and enjoyed various concessions such as freedom from income tax, excise duty, etc. Later, on the merger of the princely States, these factories were subjected to the same taxes, rules and regulations as applied to other factories in the country. They took time to adjust themselves to the new obligations and regulations. Of them two have been working efficiently. Each of the factories is located in a different State. This group of State-owned factories was too small to be treated as "the public sector" but we designated it so, for convenience of reference. It will be wrong to judge the performance of the public sector, actual or potential, on the basis of this very small group of four factories. As mentioned above, they were not the 'normal' type of factories and at least two of them suffered from special disabilities. But if the performance of the public sector is to be judged on this basis then it is only fair that the total performance of the group as well as of the five factories later taken over by Government should be the basis of it. Taking all the four public sector factories together, the net profit per factory works out to more than the average of the private sector—Rs. 9.41 lakhs per factory per year as against Rs. 7.26 lakhs per factory per year in the private sector. Mention has been made elsewhere of the fact that one of the public sector factories took the initiative, of its own free will, to offer to canegrowers a share in the extra sales realisation from sugar and evolved and executed a scheme for this purpose in consultation and agreement with its canegrowers. Since 1971, five more private sugar factories have been taken over in the public sector. They are being run by the Uttar Pradesh Sugar Corporation. At the time of take-over these factories were in an extremely bad shape suffering from serious inadequacies in the matter of cane supplies, condition of plant and machinery, technical performance, etc. In the short period since when the factories have been with the Corporation, considerable improvements have been made both in their plant and machinery and their relations with canegrowers. This background has to be kept in view when comparing this small public sector with sugar factories in other sectors in regard to condition of plant and machinery, technical performance, etc.

7.72 It has been pointed out, in fact assumed, by some persons that the efficiency of the sugar industry as a whole and of every unit, even a good unit, will fall immediately following the take-over by the State. Such doubts about the competence of the State in relation to good mills are not compatible with the faith in the competence of the State in setting right and improving the sick mills. The reason given for this view is that Government would not be able to manage such a large number of mills on account of shortage of suitable managerial talent. They draw attention to the fact that the Chairmanship and some directorships of several public undertaking have been lying vacant for a long time and that Government has not been able to find bodies for the jobs. It is argued that if that is the case for units already in the public sector what will happen when some 150 sugar factories dispersed all over the country have to be provided with managing directors, general managers, managers, etc. It is said that officers of the executive services have not been found to be the most suitable for appointment to these posts. They apprehend that the manning of such posts will be difficult and therefore sugar production will fall for the first two to three years in any case.

7.73 We feel, however, that such apprehensions have little justification. The sugar industry is an old industry and most of its technical posts are held by technically qualified personnel. The Indian sugar technology is of a high order and will be available to the public sector. The sugar industry is not like the industries in regard to which the public sector had to acquire new knowledge and technology and to train officers and men in the new technology. On the other hand, the services of all or most of the existing technological and technical officers and men would become available to the public sector. As far as management of factories is concerned, it should be possible to select suitable officers from various services—administrative, executive, cooperative, agricultural, technical, scientific,

etc.—and to give them special intensive training for a period of six to eight weeks. These specially trained officers would be able to hold the fort for a year or two. Within this period fully trained cadres can be organised. The technical and technological staff—engineers, chemists and technicians—will continue to be more or less as hitherto and good mills will be able to give a satisfactory performance even in the very first year. By the second year matters will be completely in hand.

7.74 It should be realized that we are planning not for a year or two but for the future—near as well as remote. We have good reason to think that the nationalised sugar industry will have a good start from the very beginning and within a few years it will reach a level of production and efficiency which the private sugar industry has not reached so far and is not capable of doing so in the foreseeable future, if it is allowed to continue. The main reasons, for this optimism are as follow :—

(i) The performance of the public sector as a whole and of sick units in it is showing a trend towards improvement. This is so even in fields in which the public sectors enterprise has broken new ground, acquired new technology and trained new staff in the required technology ;

(ii) Industrial management cadres are being organised slowly but steadily. If Government decides to take-over the entire private sugar industry it would immediately take steps to create a new cadre or cadres or strengthen the existing management cadres and train officers and personnel for taking over the management of sugar factories ;

(iii) Already Government is alive to the need for revising existing rules and evolving new procedures to facilitate business management and to remove red tape and bottlenecks ;

(iv) Standards of efficiency will be set for the public sector of the sugar industry and adequate inspections and checking will be done and technical guidance given by well-organised directorates of inspections and such technical teams and institutions as might be set up ;

(v) Public confidence and the good will of the canegrowers and workers will be available to the public sector factories as against the continued distrust of and dis-satisfaction with the private factories. It should be possible to make use of this fund of good will ;

(vi) In the matter of cane development the public sector factories can be required to maintain farms for propagation of seed and multiplication of new varieties. It will be easier for Government to acquire land for public sector factories than for private factories. This will facilitate cane development ;

(vii) Irrigation and road development in public sector factory areas will be faster ;

(viii) With a large sector of the sugar industry being in the hands of Government, it would be easier to deploy managerial as well as technical staff in the best interest of the various factories in the public sector ;

(ix) The utilisation of by-products will be on a more scientific and coordinated basis in a public sector possessing a large number of units ;

(x) As the public sector accepts the principle of workers' participation in management, it can be readily implemented in the sugar factories in the public sector ; and

(xi) The need for merging of uneconomic units located near one another has been felt for a long time. But as the uneconomic units belonged to different owners, it was not possible to give effect to any proposal for merger. This problem will be solved easily if all such factories belonged to the public sector.

Cooperative Sector

7.75 In summing up the achievements and failures of the cooperative factories we should not lose sight of the fact that most of them have been in existence for only 10 to 15 years, and that they have been established at a time when the cost of a factory had gone up very considerably. To meet their financial requirements, they had to have recourse to large borrowings. They have to meet high depreciation charges and large amounts of interest. These are serious handicaps for an organisation which belongs to a large number of farmers of small means and insufficient knowledge and experience of running a business organisation, like the sugar factory. It is against this background that the preformance of the cooperative sector of the sugar industry should be judged. It is to the credit of the cooperative factories that in areas where they are functioning as democratic organisations they have not only equalled but sometimes surpassed private factories established much earlier than them and having more experienced management, in achieving production targets and in general performance. It is true that in several States, the cooperatives are controlled by State Governments and are not functioning entirely along democratic lines, but it must be appreciated that large public funds are involved in their working and that it is desirable that the State Governments should be able to safeguard the public funds. Almost all the State Governments have stated that the control of Government on the cooperative factories will be removed as soon as public funds have been repaid by the cooperative factories. The record of the cooperative factories in redeeming Government shares and in repaying the loans of the public financial institutions has been very satisfactory. Not only have the cooperative factories repaid loans in time but in the process they have helped in capital formation from the incomes and savings of their members as well as from non-members. The collections made so far amount to more than Rs. 70

crores which is no mean achievement. That many a cooperative factory is now completely financed by canegrowers is itself a proof of the vitality of the co-operative movement in the field of processing of sugarcane.

7.76 The contribution of cooperative factories to economic development in their areas is remarkable. The cooperative factories have given the maximum assistance they can to their members for economic development. It is true that a large number of cooperative factories outside Maharashtra and Gujarat are not yet free from financial troubles and are not yet in a position to spend much on economic development. But the fact remains that within limits imposed by their financial condition and stage of stability and development, most of the cooperatives have done extremely well.

7.77 The various shortcomings in the cooperative sector which have been mentioned in Chapter V are of a remedial nature and there is reason to believe that as the sugar cooperatives gain experience and utilise professional managerial skills, the shortcomings will be removed.

7.78 The cooperative sector has certain features which mark it out as a very suitable agency for processing of sugarcane. Cooperative factories are in every sense of the word 'people's organisations'. In them the interests of the producer and canegrower and the processor of cane are identical. A cooperative has certain advantages which neither the private sector nor the public sector has.

7.79 The coopertaive sector in the sugar industry has a bright future. It will gather more strength if the workers are also associated in the management of their factory. The participation of workers in the management of cooperative factories has already been accepted in principle. In view of the willingness of the co-operatives to involve workers in the management of the factories, it should be possible to work out suitable procedures towards this end.

7.80 One of our colleagues, Shri Naidu, is of the opinion that the cooperative form of organisation is the best form of organisation for the sugar industry. It is the only organisation in which the maximum benefit of an industry processing a raw material accrues to the producers of the raw material. The cooperative organisation alone succeeds in completely identifying the interests of the producer and the processor of the raw material and the manufacturer of the finished product. The canegrowers' cooperative factory, being in effect a people's cooperative, is in the best position to render services not only to the canegrowers but also to the entire rural community within its area of operation. The ultimate objective of eliminating the private sector should be to bring the entire sugar industry in the cooperative fold. In due course of time, as the cooperative movement gathers strength and momentum, and as it is recognised more and more as an instrument of socio-economic development or rural communities, the cooperative sector will dominate the sugar industry. Shri Naidu, therefore, supports the proposal for the nationalisation of the entire private sector of the sugar industry for the additional reason, which he considers of primary importance, that it is a step in the direction of conversion of all sugar factories into cooperative factories. In his opinion the strengthening of the cooperative movement in the processing of sugarcane will considerably benefit the workers also as most of them are residents of the areas of sugar factories and are the kith and kin of the canegrowers—members of the cooperative factories.

Recommendations

7.81 For reasons, severally and jointly given above, nationalisation of the sugar factories other than the cooperative factories, operating in the private sector is the only alternative for securing to the sugar industry an efficient and rational organisation. It will improve the working and performance of the sugar industry in general and solve the problem of sick sugar mills in particular. The nationalization of the marketing of sugar upto wholesale level and creation and operation of a sugar buffer stock are essential and integral parts of this scheme. For rationalising and making the organisation of the sugar industry efficient, provision should be made for adequate representation to labour and canegrowers in the nationalized sector as well as in the cooperative sector of the sugar industry at all levels—factory, state and national.

7.82 Having considered the relevant aspects of the industry, reviewed its past and present condition and performance, assessed the actual and potential capability of the industry to realize fully and timely the sugar production and other economic targets in the future, keeping in view the socio-economic objectives which the industry must work towards and achieve, and recognising the urgeney of fulfilling these aims and objectives, we recommend as follows :—

(i) The entire private sector of the sugar industry, other than the cooperative sugar factories, should be nationalized ;

(ii) The marketing of sugar up to the level of wholesale trade should be completely nationalized ;

(iii) Provision should be made for adequate representation of labour and canegrowers in the nationalized sector and in the cooperative sugar factories at all levels ;

(iv) For formulating and executing policies in regard to the entire sugar industry (public sector and cooperative sector) and for the administration of the public sector of the sugar industry, the following statutory bodies and organisations should be set up :—

(a) A National Sugar Commission ; and

(b) State Sugar Corporations.

The National Sugar Commission should have the power to fix the prices of sugar and sugarcane in consultation with such organisations and experts as it may deem fit or may be required. It should lay down the policies for the marketing of sugar and the regulation of the working of sugar industry in its various aspects. It should build up and operate a sugar buffer stock. It should carry out technical, financial and other inspections and audits of the different sugar factories in the country. It should develop professional management. It should plan and implement the plans for the growth of the industry to meet the current and future requirements particularly as regards finance, sugarcane development, plant and machinery, better utilization of by-products and quicker realization of the socio-economic obligations of the sugar industry. For these purposes, the National Sugar Commission may utilize existing agencies or may create new agencies with the approval of the government. The National Sugar Commission should be a well-knit body and have on it representatives of canegrowers, workers and cooperative factories. The details of the constitution and functions of the National Sugar Commission can be worked out later.

7.83 Every State Government may set up one or more Corporations to run the sugar factories in the public sector. The Management Boards of the State Corporations will have on them representatives of workers and canegrowers. The Sugar Commission will have the power of giving directions to the State Sugar Corporations for the efficient working of the factories and for the marketing of sugar through the Food Corporation of India and co-operative societies.

(v) At every sugar factory, there should be a Managing Committee on which canegrowers and workers should be represented.

7.84 To give effect to our recommendations, the Government of India will no doubt work out a suitable strategy and design of organisation taking into account the situation obtaining in different areas of the country.

ANNEXURE C

Note by Shri J. C. Dikshit

ANNEXURE C

Note by Shri J. C. Dikshit on the Term of

Reference No. 5.

To me, the purpose of nationalisation is to take both a macro-economic and micro-economic view at one and the same time. Looked from a micro-economic view, the achievement of the unity of functions of cane cultivation and processing of sugar emerges as an ideal capable of giving to the sugar industry an organisation which is both rational and efficient. In an attempt to find ways and means of achieving that ideal, I have been running from pillar to post to seek the needed light, for the last three decades.

C-2. On 14th August, 1946 I got the needed light, so did the working classes of India, when Dr. Sampuranand moved a resolution in the Legislative Assembly of Uttar Pradesh calling for the socialisation of means of production in the State of U.P. It was then possible for a State Legislature to take a decision on such matters because the country was then governed by the Government of India Act, 1935. Following the adoption of that resolution in the U.P. Legislative Assembly, the sugar workers of U.P. and Bihar met at Khadda after about three months on the 27th November, 1946 under the chairmanship of late Shri Harihar Nath Shastri. The physical presence of Dr. Sampurnanand gave that conference a distinction of its own. Workers assembled at Khadda, welded into one to create what came to be known as the U.P. and Bihar Sugar Factory Workers' Federation. They gave to it a Constitution which was the handiwork of late Shri Harihar Nath Shastri. Among the many objects that the Constitution of the U.P. and Bihar Sugar Factory Workers' Federation set for itself, the object of 'nationalisation of sugar industry as soon as possible' secured a pride of place. The Federation referred to above changed its name to the Indian National Sugar Mill Workers' Federation at its Mohiuddinpur Conference which was held during the year 1949-50. In December, 1947, after its resolution that it would work under the banner of the I.N.T.U.C., it came to be recognised as its sugar wing. I have been wedded to it almost since its inception. Nationalisation of sugar industry, therefore, has been corner-stone of my trade union philosophy ever since I entered the trade union movement of the sugar industry. Devoted to the trade union philosophy indicated above, I had to extricate the 'object of nationalisation' of the Indian National Sugar Mill Workers' Federation from the morass into which it had been thrown by its 'wordly-wise leaders' and by its own materialist out-look, in October, 1969. On November 3, 1969, the issue of nationalisation came to the fore when the General Council of the Indian National Sugar Mill Workers' Federation considered the question afresh and adopted unanimously my resolution rededicating itself to the achievement of its decades old object of nationalisation of sugar industry. It made a great impact on the socio-economic thought of this country. It was not long before when on 10th of December, 1969 Rajya Sabha was found discussing a 'calling attention motion' on the subject. I was one of the co-authors of that motion. The debate that took place on the subject in Rajya Sabha found its echo in Lok Sabha five days later. The Government bowing to the pressure of the two Houses of Parliament announced in the Lok Sabha on December 15, their desire to appoint a high-powered committee to examine the question of nationalisation of the sugar industry in all its aspects. A month and a half passed by but no step was taken by the Government to implement its assurance given to Lok Sabha. Deeply disappointed by the sloven pace of the Government, such affiliates of the I.N.T.U.C., which I was in a position to lead, gave a notice on 8th February, 1970 to go on strike from 22nd of February of that year to secure, among others the nationalisation of sugar industry. Nobody at first took us seriously. We had thus no option left but to go on strike. After the strike had lasted for a day, the Government of U.P. realised the intensity of workers' feelings on the subject. It rose to the occasion and acted quickly. Next day it announced the appointment of a High Powered Committee to consider the question of the 'take over' of the sugar industry of U.P., under the chairmanship of the then Home Minister of U.P. Shri Virendra Verma.

C-3. In April, 1970, late Shri D. Sanjivayya, the Labour Minister of the Government of India, convened a meeting of the Industrial Committee of the sugar industry to consider the recommendations of the Second Central Wage Board for the Sugar Industry. Getting an unique opportunity of convassing my views I raised there three questions. First was in regard to the need of implementing the recommendations of the Second Central Wage Board for Sugar Industry ; second was in regard to the payment of retaining allowance to unskilled workmen which that Wage Board had rejected and the third was regarding workers' demand for the nationalisation of sugar industry. The Government of India notified its decision on the recommendations of the Second Central Wage Board for Sugar Industry and retaining allownace in the form of a resolution on 9th of August, 1970. The announcement of its decision in regard to the appointment of this Commission which was to consider, among other things, the demand of nationalisation of the sugar industry, came later on 28th September, 1970.

C-4. The foregoing account brings into focus the way my faith in regard to the nationalisation of sugar industry has grown over the years.

C-5. The reasons that have led people to demand the nationalisation of the sugar industry are numerous. It is difficult to deal with them exhaustively. They broadly fall under three heads. Looked from the macro-economic angle the first is the national objective which an industry operating in this country, must be made to serve. The Indian Constitution, the quinquennial plans, the industrial policy resolution and the economic philosophy of Shrimati Indira Gandhi, are our sources for deducing what national objective could be in regard to the nationalisation of a particular industry. If we rely on them individually, we may be lost in the wilderness. For arriving at the correct conclusion, it is necessary that we take a composite view of them all. The Constitution of India aims at securing justice, social, economic and political. Here we are concerned only with the first two and not 'political justice' which owes its birth to the political philosophy of Austin Godwin, Sheely's father-in-law. The term 'economic justice' has descended down to us from a German economist, namely, Cierke. It implies that it is the responsibility of the Government to see that no person shall be denied right to work and those who work shall get their due remuneration. The concept of social justice has its genesis in the Greek term 'Dekaisune'—a term Plato used for the first time as the kernel of his economic philosophy. 'Dekaisune' was translated into English by Professor Barker of Oxford University as 'social justice'. In the Catholic Christian world the thought of social justice had been dominating the minds of men since times immemorial. Finding its root in Australia, as far back as 1898 after the publication of a famous work by Vesper on the subject, it spread throughout the world from there through the writings of Mr. Justice Higgins. It found a congenial climate in the working classes of U.S.A. Through George Compers, the President of the American Federation of Labour, this concept got enshrined into the Constitution of the League of Nations and into the Constitution of the International Labour Organisation in 1919. In 1946 the concept of social justice came to be accepted at the hands of our Constituent Assembly as the corner stone of our constitutional philosophy. Besides what has been stated in regard to the concept of social justice in the Constitution of League of Nations or I.L.O., no where we find its definition. Our Supreme Court has so far taken a negative attitude and has spared no pains in spelling out issues that lie outside the bounds of social justice. It never cared to define what it means, without entering into polemics that has come to surround this term in India, let us say it broadly means 'from each according to his capacity, to each according to needs'.

C-6. Articles 16(a) and 16(b), 38, 39, 41, 42, 43 and 46 of the Constitution taken together throw adequate light on the subject. Article 16(a) and Article 16(b) ensure that there shall be an equality of opportunity for all citizens in India in matters relating to employment or appointment to any office under the state, and no citizen shall, on grounds only of religion, race, caste, sex, descent, place of birth, residence or any of them be ineligible for, or discriminated against in respect of any employment or office under the State. The State shall,, says Article 38, strive to secure a social order in which justice, social, economic and political shall inform all the institutions of national life. The Constitution also entrusts, the state with the duty of securing right to work within the limits of its economic capacity and development, for the people of this country. The State is also required by our constitution to make provision for securing just and human condition of work as indicated in Articles 41 and 43. Article 43 declares that state shall endeavour to secure, by suitable legislation or economic organisation or in any other way, to all workers, agricultural, industrial or otherwise, work, a living wage, condition of work ensuring a decent standard of life and other enjoyment of leisure and social and cultural opportunities and, in particular, the State shall endeavour to promote cottage industries on an individual or cooperative basis in rural areas. Further, the state shall promote economic interest of the weaker sections of the people, and shall protect them from all forms of exploitation, as enjoined by article 46. For achieving the objectives stated above, the state shall see as stated in Article 39(b) and 39(c) that the ownership and control of the material resources of the community are so distributed as best to subserve the common good and that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment as stated in Articles, 39B and 39C of the Constitution.

C-7. In short, the constitutional philosophy of India emphasises above all the need for establishing a social order where justice, social, economic and political informs all the institutions of national life, where there is no discrimination in matters of employment, where weaker sections of the community are protected from exploitation, where workers of all kinds enjoy decent standards of living and where wealth does not concentrate in a particular sector of the society. In our view, sectors both private and cooperative, more or less have failed to achieve these objectives. On the contrary they have been impending the march of the nation in the scheduled directions. What should then be done to hinder the hindrances that block, out way is the question for us to answer at the moment?

C-8. A social order where justice, social, economic and political permeates every national institution cannot be established, if industries including that of sugar do not behave as what the Prime Minister Shrimati Indira Gandhi would say 'an engine of social change'. According to her, regarding 'maximisation of profits as the sole criterion', what to say of judging whether an industry is acting as an engine of social change, is not even a good ground for regarding it as successful and efficient one. Sugar industry has landed itself in the present predicament because of its erroneous view indicated above. The policy of the Government of India regarding nationalisation is embodied in the industrial policy resolutions which demarcate the areas reserved for public and private sectors respectively.

C-9. The sugar industry is obviously one which has not been reserved for the public sector but it will

be too much to say that the authors of the Industrial Policies Resolutions intended to leave the sugar industry open to private sector to tread the path as it may like. They, in fact, wanted to apply to the sugar industry the principle of cooperation as soon as possible, wherever possible and to the extent possible. To be precise they wanted the sugar industry to be looked after by such a private sector which has developed along cooperative lines. To me a society merely because it is registered under the cooperative law of the country is not the one to typify private sector developed along the cooperative lines. Here I wish to underline the words 'developed along' to distinguish them from 'registered as'. Therefore, towards that end a society registered under the Cooperative Societies Act, and operating a sugar factory represents only a primary step taken in that direction and not the end that the nation has in view. Both the constitutional philosophy of the country and the political philosophy of the Congress to which I belong believes that in a planned economy, the sugar industry has to function as an engine of social change to secure to the country, a social order based on justice social, economic and political.

C-10. Two decades ago when the Industrial Development and Regulation Act of 1951 was enacted the nation was only in search of an instrument which could effectively control and regulate the industry. The architects of our economic policy were only concerned with trimming the private sector to conform to the design of planned economic growth. Private sector in that context was only expected to follow the guided path. To achieve that purpose, the Act referred to above, gave authority to the Government to intervene and to take over the management of factories of the private sector wherein it was found that:—

(i) there has been or is likely to be a substantial fall in the volume of production in respect of articles relatable to that industry to which they belong, or articles manufactured or produced therein, for which there is no justification;

(ii) there has been or is likely to be a marked deterioration in the quality of any article or class of articles relatable to the industry to which they belong or articles manufactured or produced therein, which could have been or can be avoided;

(iii) there has been or is likely to be a rise in the price of any article or class of articles relatable to that industry to which they belong or articles manufactured or produced therein for which there is no justification;

(iv) there is need of conserving any resources of national importance which is utilised by them;

(v) they are being managed in a manner highly detrimental to the industry;

(vi) there is need for regulating the production of articles produced in them or articles relatable to their manufacturing;

(vii) there is need for stimulating development;

(viii) there is need to prevent them from resorting to any act or practice which might reduce their production, capacity or economic value;

(ix) there is need for controlling the prices or regulating the distribution of articles manufactured in them or articles relatable to their manufacture; and

(x) take over is regarded by the Government in public interest.

C-11. Realising that only taking over the management of such factories as were found defaulting on counts mentioned above was not sufficient to bring about the change that Indiraji intended to bring about in the country, Parliament gave added powers to the Government including the power to acquire a sick mill at least in the case of one industry namely textiles. It is well-known that obtaining of the right of acquisition in the place of 'take-over' by the Government from Parliament represents consummation of its authority over the private sector. The term 'sick under taking' was also for the first time defined by Parliament in the law it enacted for dealing with the sick Textile mills. 'Sickness' as defined therein is not prepared to reckon failures on the counts of profitability, quality of entrepreneurship and management, in regard to the improvement in size, process and technology and in contributing to the desired economic and social goals of the country, as indices of sickness. This is anachronism that needs immediate attention of the Parliament.

C-12. No attempt has so far been made at least in this country, so far as I am aware, to define what the term 'Nationalisation' means. Let us, therefore, see how different National Centres of Trade Unions look at it. The memorandum submitted by the INTUC alone earlier and jointly by both INTUC and HMS speaking on the subject said 'the term Nationalisation' has not been so far decisively defined by any authority in the country or outside. To the Supreme Court, the term nationalisation is a synonym for acquisition. Therefore, all that nationalisation would broadly imply is acquisition, but this juristic concept is at variance with the socio-economic concept which makes a distinction between nationalisation and state capitalism. Acquisition has a tendency to fall in the later category. From the socio-economic view, therefore, nationalisation is not merely a form of acquisition but is also a form of management. It is, in fact, the form of management that lends colour of nationalisation to acquisition. The management would be the best form of national management, which gives representation to both the canegrowers and labour. Therefore, to us nationalisation is a contrivance intended mainly to provide a kind of morphological mould to the management of an acquired unit or units or wherein industry, canegrowers and labour act in cooperation. We do not believe that by substituting bureaucracy alone in place of technocracy or management despotism, true nationalisation can be accomplished."

C-13. The Centre of Indian Trade Unions (CITU) in their memorandum to the Commission on the subject have stated that they were against 'the bureaucratisation of public sector of nationalised undertakings.' According to them these bureaucrats tamper with the resources of public undertakings for personal gains. They follow a policy of hostility towards the workers who are the real producers of commodities. There is no wonder, they believe, for reasons stated above, public sector undertakings are losing heavily while the contractors in league with the officials are minting money. 'Having expressed their dislike for the existing manner of running public sector or nationalised undertaking, they suggested that such a scheme of management of nationalised undertaking be evolved that gives workers full powers to effectively control the management.'

C-14. According to the United Trade Union Congress, 'Nationalisation' is an instrument to introduce proper centralised planning and control for the industry as a whole, including cane production and to effectively safeguard the interests of all concerned *viz.,* the consumers, workers and cane producers, and to harmonise their interests. The AITUC took on interest in the proceedings of the Commission. But Dr. Z. A. Ahmad of the C.P.I., a political party to which A.I.T.U.C. has for long been wedded, has in his testimony before the Commission said, 'Inefficient factories should be first nationalised with the ultimate objective of converting them into cooperatives.' He said that efficient factories should not be disturbed.

C-15. In short according to the national centres of Trade Unions in India, Nationalisation is a process which enables different elements of the industry to work in harmony with each other in a manner that converts the entire inustry into an engine of social change that transforms the existing order of society into a social order where justice, social and economic and political informs all the national institutions. This objective has not been achieved because of the manner in which some of the undertakings of different sectors of the sugar industry have been functioning.

C-16. To the working class 'public interest' is paramount. 'Acquisition' is only a tool in realising the 'public interest'. Concept of public interest, for Parliament may vary from time to time, situation to situation and industry to industry. But for workers, it is not so. Trade Union philosophy in this country has evolved a concept which is immune from the ravages of vissicitudes of different kinds.

C-17. So far we have considered 'public interest' in general. Thinking of public interest in particular for the sugar industry, let us remember that it is a seasonal industry. It is absolutely dependent on sugarcane. It is, not mere euphemism to observe that sugar is grown in fields and not in factories. It would not again be wrong to assert that most of the sugarcane is grown by agricultural labour and not by those who are called sugarcane growers only by virtue of holding feudiciary title on the land where sugarcane is cultivated. Therefore, in any plan of nationalisation of the sugar industry, the importance of its agricultural sector increases. In so doing, we cannot escape the responsibility from discovering means and methods that achieve a working unity between canegrowers and agricultural labour in the agricultural sector. On the industrial side working unity between the management of a factory and their labour is essential. At the end unity of function has to be achieved between both agricultural and industrial sectors of the industry as well.

C-18. I find that the existence of private sector in the industry defeats all objects. It has the vice of dividing those whom we want to unite. The mechanics of cooperation has also not succeeded in bringing about harmony between agricultural and industrial sectors, but it has some how succeeded in establishing a social equilibrium between them. Therefore, its continuance could be tolerated for some time, but not its expansion without requisite reforms.

C-19. The weakness of the cooperative sector are myriad. One of them is its noted antipathy for labour. In no cooperative factory of the country, labour has any representation. Cooperative sector operates behind two curtains. First is the sugarcane curtain behind which they have been engaged in frustrating the percolation of the spirit of cooperation down to the field of sugarcane cultivation. The other is the curtain of cooperative law behind which economic oligarchies are being built, that militate against Articles 43 and 46 of our Constitution leading to and perpetuation of injustices and exploitation of weaker sections of society namely agricultural labour employed in cane cultivation, and industrial labour employed in the sugar factories of the cooperative sector.

C-20. The achievement of unities, between industrial and agricultural sectors would enable the industry to become a catalyst of growth in agricultural sector by evolving a rational organisation of services engineering, technical and financial, of inputs essential for the cultivation of improved varieties of sugarcane, and the needed infra-structure. They will provide sugar undertaking, with a priming force that could illumine entrepreuurial spirit in the countryside and make planned utilisation of its bye-products possible. Creation and conservation of the needed resources for the nation, in such a situation, would no more remain a dream. The Indian Trade Union philosophy, therefore, takes an organic view of nationalisation, where ideal strategy, design of organisation and mosaic can be separated from each other.

C-21. While objectives of nationalisation, as enunciated in this note in foregoing paragraphs, are paramount, organisation is a means for achieving those objectives. The strategy acts on the one hand as a bond between the objectives and organisation, and on the other provides dynamism to organisation. Therefore, after having dealt with objectives of nationalisation, I shall discuss strategic aspect of our exercise.

C-22. Two different strategies have been so far suggested. They are nationalisation of private sector alone and the nationalisation of marketing of sugar

along with the nationalisation of sick sugar mills. I will deal with the last one first.

C-23. Some in the Commission think that they have only to discover such a rational and efficient organisation for sugar industry that enables it to improve its working and performance in the different parts of the country and solve the problem of sick sugar mills. They draw their suport from the language of the fifth Term of reference. They think that a package deal of nationalisation of marketing of sugar and nationalisation of sick sugar mills will provide a rational and efficient organisation which could meet the problems of sick sugar mills and which could improve the working and performance of the sugar industry in different parts of the country. Taking a juristic view of the phenomenon of nationalisation, they regard it as punishment. That being the case, every sick mill chosen for acquisition would have to be given benefits of natural justice.

C-24. They argue that if healthy units are given to public sector, they will become sick. If that be true then what would happen to sick units if they are handed over to the Government. Will they not die? They do not also explain why public exchequer be punished for the sins of the private sector. In such a view of the matter their argument looks like an apology for protecting the so called healthy units of the sugar industry. In taking the nationalisation of marketing into consideration they seem to think the sugar factories are lifeless automations. They would, as the authors seem to think, *ipso facto* follow a guided line. Little do they realise that sugar factories are bound to create problem for them by refusing to process sugar on a price fixed by the Government on one pretext or the other and thereby agitate the canegrowers against the Government. Here one must pause to consider that the sugarcane is a perishable commodity and for that reason it cannot be stored. Their scheme has no inbuilt scheme so as to compel factories to adopt to a guided cause. What insurance is there in their scheme that sugar factories sincerely carry their repairs during the off season? What is the guarantee that they would not dispose of their stores, inventories and machines? Then again is the question of what price is to be paid to them for processing? Then why the marketing of sugar alone is to be nationalised, leaving its by-products untouched? These problems and the like would have the effect of creating an anarchy in the country, and dissatisfaction against the Government amongst the growers. The scheme may of course provide a shield to private sector for protecting itself from the consequences of nationalisation but does not provide an organisation which could improve the working and performance of the industry and solve the problems of sick mills. They are also not prepared to accept the definition of sickness given by the Parliament in the Sick Textile Mills Act. Then again in regard composition of the organisation of management of sugar factories, they have antiquated and obsolete ideas. They have not suggested how labour could be given effective control in the management at three different levels namely plant, State and the national level. In short, their suggestion does not solve even the problems they claim their scheme would solve. Why are they afraid of the proposal of Shri Bose regarding governmental and social audit ?

C-25. I have already said that the question of evolving a strategy that enables one to reach the objectives workers have in mind is of utmost importance to the workers. Looked from that point of view the ideas of the school of thought, referred to above, are of no relevance to the question at issue. This school seems to think that nationalisation of powers of the Government is an alternative to the nationalisation of the private sector of the sugar industry.

C-26. Nationalisation being a responsibility which we are placing on the shoulders of the Government, it will be only fair if we leave it to them to work out their own strategy of combining, planning and phasing immediate and ultimate steps that nationalisation of the sugar industry might involve and the design of organisation that may be necessary for making the sugar industry a fit instrument of achieving the object that are dear to the hearts of trade unionists.

C-27. For reasons indicated above and for ensuring the ideals of trade union movement in regard to nationalisation, recommendations made by my colleagues namely Messrs Chishti, Khosla, Rahman and Naidu are, according to labour, steps that cannot be bypassed. I, therefore, subscribe to the recommendations they have made. I have signed the report with a hope that the recommendations made by us will usher in an era of social change which brings an end to the exploitation of weaker sections of the community and paves the way for building of a socialist society where workers are regarded as yogis, where work is regarded as worship and where work-places are regarded as temples of socialism.

ANNEXURE D

Note by Shri P. S. Rajagopal Naidu

Annexure 'D'

Explanatory note of Shri S. P. Rajgopal Naidu on

Term No. 5.

According to term No. 5 of the terms of Reference of the Commission, the Commission is to make suggestions for a rational and efficient organisation of the sugar industry in different parts of the country, in order to improve its working and performance and to suggest measures for solving the problems of sick mills, in the context of the demand for Nationalisation of sugar industry. Obviously the suggestions which the Commission might make on term No. 5 will have to be based in the light of the finding on the following four studies stipulated in Terms Nos. 1 to 4 :—

(1) Study of the working of the sugar industry in India in all its aspects, with particular reference to its performance during the last ten years and the condition of the plant and machinery in different sugar mills.

(2) Identifying the inadequacies in the performance of the sugar industry and the causes thereof.

(3) Study in detail of the causes for the existence of a large number of sick sugar mills.

(4) Study of the progress and the working of sugar mills in the cooperative sector.

D-2. Cooperation has, from the very beginning of planning in India, been recognised as an effective instrument of economic development a long democratic lines, particularly of rural communities. The building of a cooperative sector as an integral part of economic planning has been advocated in all the Five-Year Plans. They have emphasised the need for organising cooperatives not only in the traditional field of agricultural credit and marketing but also in the field of processing of agricultural commodities. The Industrial Policy Resolution of 30th April, 1956 spelt out in detail the role of the public setcor, the private sector (other than cooperative) and the cooperative sector should play in securing a continuous increase in production and its equitable distribution. In order to realise these objectives, the Industrial Policy Resolution laid down *inter alia* that it was essential to build up a large and growing cooperative sector and that "the principle of cooperation should be applied wherever possible and a steadily increasing proportion of the activities of the private sector developed along cooperative lines." The Policy Resolution further laid down that "the State will continue to foster institutions to provide financial aid to these industries and special assistance will be giveu to enterprises organised on cooperative lines for industrial and agricultural purposes."

D-3. While laying down the Industrial Development Programme for the Sugar Industry, for 1956 to 1961, the Planning Commission had stipulated that "in regard to licensing of additional capacity, it has been decided that expansion to existing factories should generally be allowed provided enough sugarcane is available in the factory area and that in case of new factories, preference should be given to *growers cooperatives,* particularly those which are sponsored by the State Governments in accordance with their development programmes." Further, the Industrial Licensing Policy dated the 18th February, 1970 also reiterates that preference will be given in licensing the applicants from the cooperative sector for processing sugarcane, jute and other agricultural commodities. Even in the latest decision on the future Industrial Policy announced on the 2nd February, 1973, the Government of India has laid down that "the policy of encouragement of cooperative sector will receive special emphasis in industries which process agricultural raw materials such as sugarcane, jute, cotton or produce agricultural commodities such as fertilizers."

D-4. Even in the context of socialist society that is proposed to be developed, it is necessary to define the role and the position of cooperative sector in that set up. From the experience gathered so far, only the cooperative structure has eminently suited for the proper development and growth of agro-industrial sector of our economy. The Indian view of socialist pattern of society includes the retention of property rights at the base level, namely the proprietoryship of land. If land is not collectivised or brought under State ownership, then the produce of the land will have to be processed and marketed through the cooperative system. It is my view that the cooperative structure of the sugar industry has established the fact that individual farmers respond to the appeal of his cooperative more readily. So from the point of view of achieving higher production and also introducing the egalitarian features of the socialist society, the cooperative media is the best in the present circumstances. If this is accepted then the agro-industrial sector where crops like sugarcane cotton ,oil-seeds, and fruits which are commercial crops, their manufacture processing and marketing should be reserved for the cooperative sector. I, therefore, feel that with suitable modifications, the cooperative model should be given a fair trial for the development of agricultural economy in the country.

D.5. According to the opinion of some of my colleagues in the Commission, the cooperative sugar factories should not merely the organisations of the growers but they should also have representatives of the workers as well as the consumers to balance the interests

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of canegrowers, workers in the factories and the consumers at large. But the emphasis laid down by the Planning Commission on the words "growers cooperatives" should not be lost sight of by the protogonists of these multiple types of cooperative organisations which, by the very nature or organisation will lead to conflict of interests. Only those workers like me, who are deeply involved in working in cooperative movement, can understand such problems, but not others. I would also like to add in this connection that the interests of the consumers are very effectively and zealously safeguarded by the Central Government through fixation of levy/control prices for sugar. The workers' interests are protected by Wage Board awards, etc. Moreover, while the cost of cane constitutes nearly 60 per cent of the sugar price, salaries and wages form a small percentage of the total cost. Sugar price can be reduced if the interests of growers constituting the largest cost element are taken care of. With higher duration by crushing more cane and better recovery, the cost would get reduced.

D-6. As applied to the sugar industry, nationalisation would mean taking over the ownership of the factories for the good of the nation. The sole consideration should be that after nationalisation, the gains are distributed as widely as possible for achieving social justice. Obviously, this objective can be attained if the private ownership of sugar factories is brought to an end and the nationalised units are managed as growers' cooperative societies to bring about distribution of greatest good to the largest number through the members themselves.

D-7. Cooperativisation is the only solution in the developing concept of new social and economic order in which the maximum benefit of an industry, which is involved in the processing of a raw material, accrues to the producers of the raw material. It is desirable that apart from the reasonable return on the capital invested in a sugar factory, maximum benefit of any additional or higher return should accrue to the producers. Further, sugar factories can act as dynamic centres for development generally for the areas they serve, which development are not confined to improvements in cane yields and sowing better quality cane, but also for the development of communication, transport, irrigation and services like medical and educational facilities and establishment of industries based on bye-products. This would be possible only through cooperativisation. Mal-practices, which have crept in the private sector such as exploitation of the growers by making delayed payments of cane price, non-sharing of extra profits, diversification of reserves to other industries including modernisation of sugar mills, high managerial expenses etc., would not exist in a cooperative sector. Under these circumstances, even the nationalised frame work could hardly be considered as a substitute for the one in which canegrowers are masters of factories and have direct interest in cane cultivation as well as in the processing plants. To ensure that democracy filters down to the lowest layer of population and the social gains are as widely dispersed as possible, the right way is to re-organise sugar mills into cooperative canegrowers processing societies.

D-8. If the concept of giving benefits to the vulnerable section of the society namely canegrowers is accepted, I am of the view that the grower members of cooperative sugar factories in their own interests would take measures to improve the technical efficiency and modernisation of their factories. If, however, the concept of nationalisation means ownership of the State it is likely that the gravity of the problem might increase after some time. Instead of the owners of the private sector factories, the growers will then have to face the same problems with the Government management. After all, Government would be as eager as the private management to record profits to justify nationalisation and avoiding public criticism in Parliament and outside. Their capacity to pay a higher cane price will, therefore, be lower than cooperative factories which will pass on the profits also as additional cane price. The sad history of fluctuating sugar production in India can be traced to the level of cane prices received by growers. A system which ensures imparting higher price is, in my considered view, the most suitable system under Indian conditions when only 33 per cent of cane is crushed by sugar mills. I therefore, feel that Government for ever cannot be the proper agency to manage an agro-based industry more so the sugar. The most suitable form or organisation for an agro-based industry is the growers' cooperative. It also stands to reason that the primary producers namely canegrowers, should have the right to own the industry processing their produce. They alone can effectively solve the present ills of the industry including those of sick mills. I am of the view, that the entire private sector of the sugar industry should be cooperativised. Nationalisation should not be resorted to for running the mills for ever as public sector units, but the nationalisation should only be a means with the end as cooperativisation.

D-9. It can be that the present owners of the joint stock sector factories might realise the efficacy of the growers' participation in the management of the factory and enrol immediately as many growers as possible as share-holders of the factory to enable the growers share-holders to have the factory ultimately converted into a cooperative. This process should, however, be speedy and if there is really a will, there can be a way for it. If there is no such will on the part of the management of the joint sector factories the only way out can be for the Government to take over with the sole object of handing them over to cooperatives. I am told that there is a mill in the country with growers owning 49 per cent of the share why can this factory not be cooperativised by giving the growers another 2 per cent share. It is to be noted that in the Third Five Year Plan it is stated that "given the necessary conditions, there is vast scope for the development of cooperative processing not only in relation to new units, but also progressively by way of re-organisation on cooperative lines of units which are at present privately owned. This latter aspect is aimed at wider considerations. In both cases it is the aim of the public policy to reorient the organisation of processing industry from a private to a cooperative basis." So what I am now advocating is nothing new

but is completely in acordance with what the planners had laid down as a policy even during the Third Five Years Plan period.

D-10. A section of the Members of the Commission are of the opinion that there are some sick mills in the cooperative sector also and that such 'sick mills' also should be nationalised. Firstly, practically all the cooperative mills in operation in the country are of the recent origin and have not got the benefit of working for more than 10/15 years during which period alone it can be reasonably expected all measures for development of cane cultivation etc. had been taken. Secondly, excepting a few cases, the large majority of cooperative sugar mills have modern plants and their sickness, if any, is due only to inadequate development of sugarcane cultivation in their areas of operation. One reason for this is that delays in the implementation of irrigation projects, which factor was taken into consideration when the concerned cooperative was planned and set up. Such factories could really be called 'sick children' and not sick units. The new cooperative sugar factories are mostly located in backward and under-developed areas in the country where the cooperative movement is not strong, infrastructure weak and the peasantry poor. No private factory could or had dared in the past to set up factory in these areas.

D-11. Further, it may be mentioned that the State Governments have a process of their own within the frame work of the State Cooperative Societies Acts to deal with the 'sick' uneconomic or badly managed cooperative factories. The State Governments have power to supersede the Boards of Management and appoint Administrative Officers to run the mills if they are badly managed. The Administrative Officer so appointed will run the factory, bring the factory in good shape and then hand over the factory to a new set up of management, duly elected. Recently, the Central Government had initiated a process of examining the uneconomic working of cooperative sugar factories by apponting a High Level Committee to study each such case. Three such Committees have ben appointed to examine the working of (1) Mannam (Kerala), (2) Keshoraipatan (Rajasthan) and (3) Banmankhi (Bihar). Copies of such reports have been submitted to the Commission by the representative of the National Federation of Cooperative Sugar Factories. It is gratifying to note that as a result of implementation of the recommendations of the High Level Committee, the Mannam and Keshoraipatan cooperative sugar factories have shown remarkable improvements in their working. The process of development of sugarcane cultivation in the area of Banmankhi has also been initiated and it is hoped that very soon all the above three factories will become viable and successful units. Therefore, when remedial measures are available within the frame work of the Cooperative Societies Act and had already been taken in some cases, to take over sick for mismanaged cooperative sugar mills does not arise.

D-12. Some of the members of the Commission had based their criticism against the cooperative sugar factories mainly on four counts : (1) that this sector is dominated by rich land-holders who command and control the membership of the cooperatives; (2) that huge profits made by these sugar cooperatives are not used for social objectives, particularly as the sugar cooperatives are not paying corporate taxes; (3) that the relationship between the labour and the management is not cordial in the cooperative sugar mills and (4) that cooperatives are close preserves of certain vested interests. It is their opinion that only certain elite of the growers find a place as share-holders in cooperative sugar factories and that small cane growers are not admitted as share-holders. These charges have been made by the members with particular reference to the working of Maharashtra Cooperative Sugar Factories.

(1) As regards the allegation of domination of rich landlords to the disadvantage of smaller and weaker farmers, there appears to be no evidence to that effect. On the other hand, even according to the report of the Estimates Committee (1972-73) of 4th Maharashtra Legislative Assembly, March 1973, these factories are organisations essentially of small farmers. "This would be clear from the fact that nearly 86 per cent of the total share-holders were small holders owning land upto 5 acres". The said Committee further observed that these cooperative sugar factories in Maharashtra had a democratic management. The information relating to 22 such cooperatives disclosed that the majority of the Boards of Management of these factories consisted of small farmers. In 7 out of 22 factories, the percentage of Directors holding less than five acres of sugarcane was between 75 and 100. In 13 out of 22 factories this percentage was between 50 and 75. Thus in 20 out of 22 factories the percentage of Directors with less than 5 acres of sugarcane was more than 50.

While dealing with the enrolment of backward class of share-holders, it stated that due representation has also been given to cultivators belonging to backward classes which range from 3 to 21 per cent. Some of the factories in Maharashtra had gone to the extent of evolving a scheme under which a backward class producer member is admitted on payment of entrance fee of Rs. 5 only the share amount being collected in very small instalments from out of the cane price.

(2) If the cooperative sugar factories pass on the excess profits to their grower-members by way of cane price, it is in consonance with their objective. The cooperatives do not violate any law in paying more than the minimum price for cane as fixed by the Government under the Sugarcane Control Order. The Government of India fixes only the minimum price for the cane. It is left to the individual factories to pay any such price as they could. If the cooperatives pay an excess price for the cane, they are accused of passing on the profits to the grower members depriving the exchequer of its legitimate dues. But if today joint sector factories are paying anything between Rs. 120 to Rs. 150 per tonne of cane to the growers in U.P.

more or less on a par with that of Maharashtra factories what are the reasons that can be attributed for such action ? The private sector resorts to such excess payment of cane price, purely when exigencies require them to do so to allure growers to bring their cane to the factory instead of converting it into gur. Does it not amount to depriving the exchequer of its legitimate share ? In this connection, I would like to refer to the views expressed by the Department of Cooperation and the Ministry of Finance in their evidence before the Estimates Committee of the Lok Sabha (1971-72) on the specific question posed to them that the Government was getting more revenue from the private sector, and practically nothing from the cooperative sector. Joint Secretary Cooperation stated "The cooperative sector has benefited the growers through higher price, and indirectly they have regenerated the rural economy. The Joint Stock Sector can also pay higher prices at the cost of their own profits which, obviously they are averse to do". The opinion of the Ministry of Finance was "This is a point which we have not considered in the Finance Ministry. But the position as I see it, is that both the share-holders of the Joint Stock Companies and member owners of the cooperative sugar factories are acting within the confines of their laws. However, the share-holders of the cooperative Mills belong to the weaker sections of the community, by and large, and they deserve State support."

(3) As regards the social responsibility of the cooperative sugar factories, it should be admitted that a large number of sugar factories have been utilizing their influence and money towards the welfare of the country side they serve. The cooperative sugar factories particularly in Maharashtra have contributed immensely to the well-being of the individual farmer members by development of their land, by providing excellent educational facilities to the children and many other undertakings. The cooperative movement in Maharashtra had contributed Rs. 6 crores to the Relief Fund, a major sum of which has come from the cooperative sugar factories.

(4) It is wrong on the part of some of the members, particularly the representative of labour in the Commission to feel that the relationship between employees and factory management is not cordial. It may be, that such cordiality does not exist between the leaders of the Labour Unions and the factory management. But the relations between the workers in the factory and the factory management had always been, by and large, very cordial. It would be interesting to know that no strikes or lock-outs have taken place in any of the 33 working cooperative sugar factories in Maharashtra for the past 20 years. More or less the same is the state of affairs in the other cooperative sugar factories in the country. The salaries and wages to the labour are paid in accordance with the recommendations of the Second Wage Board for Sugar Industry. In addition, the employees are paid 20 per cent bonus and in some factories, bonus more than 20 per cent (in some cases upto 32 per cent) has been paid. Other facilities such as housing and health have also been provided by the cooperative sugar factories. Taking into account the existence of cooperative sector of the sugar industry, only during the last 10/[illegible] years, the facilities such as housing and health offered by the cooperative sugar factories compare very well with that of the joint stock sector sugar factories which are in existence for the past half a century and above. I wish to point at this stage that the cooperatives are not blind to the aspirations of the labour for the participation of the management. The National Federation of Cooperative Sugar Factories had considered the matter seriously and had sent a circular to all its member-factories in the country to associate labour in the management of the sugar industry. It is reported that States like Maharashtra have already taken steps making a law to provide for labour participation in the Boards of Management of the cooperative sugar factories, though strictly speaking, no section of the public other than the growers can find place in the share-holding and management of a growers cooperative sugar factory.

(5) To those, who criticise that cooperatives are close preserve of certain vested interests, the figures furnished by the National Federation of Cooperative Sugar Factories to the Commission belie such theory. It will be seen from the figures furnished that during the course of one decade, the membership in cooperative sugar factories had gone up by 200 to 300 per cent and that the increase in membership had kept pace with the increase in the capacity of the factories. In factories that are newly set up, care is always taken from the beginning for bringing about proper diffusion of membership. As a matter of policy membership is always open *i.e.* any producer of sugarcane or perspective grower of cane within the prescribed areas of the factory has always the possibility of becoming a member. Further, the Cooperative Societies Act of the States always provide a right of appeal if their membership is unlawfully or illegally rejected. The only reason for such factories, legitimately sometimes, to refuse admission is on account of their having already excess of sugarcane from the existing members. Even here it is seen that when the capacity is increased, preference is always given to the enlistment of new members amongst growers owning small acreage. It has also to be noted that there is always a ceiling fixed for any member regarding the number of shares that he could own in cooperative sugar factory and as such the possibility of large landholders always trying to keep the factory as a close preserve does not arise at all.

D-13. One cannot understand the size and the growth of the cooperative sugar industry unless one studies the progress and the working of the sugar industry. The table below gives the sector-wise position of sugar factories in operation and sugar production since 1950-51. It will be seen that in 1950-51 *i.e.* before the planned development, out of 138 factories only 2 factories were in the cooperative sector and their production was negligible. Even at the end of the First Five Year Plan period, the cooperative sector did not grow, there being only 3 cooperatives in operation out of a total of 143. The contribution of the 3 cooperative sugar factories, however, was 1.38 per cent of the total sugar production in the country. By the end of the Second Plan per[illegible]

(1956—61) the number of cooperative factories in operation rose to 30 out of a total of 174 and their contribution to sugar production also went upto 14.73 per cent of the total production. At the end of the Third Plan (1965-66), the number of cooperative sugar factories in operation further rose to 53 out of a total of 200. The cooperative sector's contribution increased to 26.57 per cent of the total production. In 1971-72 season, 79 cooperative sugar factories were in operation out of a total of 221 ; cooperative sector's contribution rose to 41.5 per cent. In 1972-73, another seven cooperative factories have gone into operation raising the total number of working cooperatives to 86. There are at present 47 cooperative factories under various stages of establishment. These are expected to go into production during the next 4 to 5 years. Then the cooperative sector would be operating 133 mills and contributing more than 50 per cent of the total sugar requirements of the country. In the Fifth Plan, there is a proposal to license another 60 cooperative sugar factories. When these factories also go into production, the cooperative sector will become the dominant producer in the country.

Season	No. of factories working			Sugar Production			Percentage production of coop. factories to total production
	Coops.	Others	Total	Coops.	Others	Total	
				(Lakh tonnes)			
1950-51	2	136	138	0.03	11.21	11.34	0.26
1951-52	2	137	139	0.05	15.15	15.20	0.33
1952-53	2	132	134	0.06	13.12	13.18	0.46
1953-54	2	132	134	0.10	10.20	10.30	0.98
1954-55	2	134	136	0.14	16.08	16.22	0.87
1955-56	3	140	143	0.26	18.64	18.90	1.38
1956-57	8	139	147	0.58	20.16	20.74	2.80
1957-58	14	144	158	1.50	18.59	20.09	7.47
1958-59	21	143	164	1.79	17.72	19.51	9.17
1959-60	25	143	168	2.92	21.90	24.82	11.76
1960-61	30	144	174	4.45	25.76	30.21	14.73
1961-62	34	146	180	4.75	22.54	27.29	17.41
1962-63	41	145	186	5.73	16.66	21.39	22.11
1963-64	48	146	194	6.01	19.72	25.73	23.36
1964-65	50	148	198	7.95	24.37	32.32	24.60
1965-66	53	147	200	9.41	26.00	35.41	26.57
1966-67	55	145	200	6.62	14.89	21.51	30.78
1967-68	58	142	200	6.89	15.59	22.48	30.65
1968-69	63	142	205	12.07	23.52	35.59	33.91
1969-70	70	145	215	13.82	28.80	42.62	32.43
1970-71	73	143	216	12.63	24.77	37.40	33.77
1971-92*	79	142	221	12.92	18.18	31.10	41.54

*Provisional

D-14. The unique feature of the cooperative sector of the sugar industry is to collect every year from their members non-refundable deposits from the cane price. Upto 1970-71, the non-refundable deposits collected from the growers totalled about Rs. 32 crores. Thus the cooperative sector was able to mobilise a total collection of 70 crores of rupees of which a sum of Rs. 38 crores forms share capital contribution by the grower members.

D-15. When I suggest cooperativisation is the ultimate goal for the sugar industry. I am not without any support for my philosophy. That extension of cooperative philosophy to sugar factories is a praginatic approach which has been abundantly established, and there are countries which have adopted a definite policy to bring sugar production within the cooperative fold. A capitalist country like U.S.A. may be cited as one example. It may be recalled that in the early part of the century a number of factories in U.S.A. were built and operated by cooperative farmer groups which soon went out of operation and/or were purchased by the companies in which beet growers were not the exclusive members. A new era has now set in the cooperative movement in U.S.A. Negotiations have been under way for some time for the purchase of the factories of the Great Western Sugar Co. by groups of sugar-beet growers and it seems likely that these deals will be completed. Also announcement has been made of plans to build a factory in the Red River Valley South Dakota by a grower group. It all these transpire, as seems probable, 25 of the 58 operating beet sugar factories in North America will be run by farmer cooperative groups. To those who criticise the cooperatives that they are not paying corporate taxes to the exchequer and that they pay back the profits to the grower-members, I would like to point out the situation in a capitalist country like U.S.A. Here, atleast in India the cooperatives have to pay income tax/corporate taxes though the rate is slightly lower

than that of the income-tax/corporate tax that is payable by joint stock companies but in U.S.A. there is absolutely no income-tax payable by cooperatives.

D-16. Then I suggest that the future for the sugar industry has to remain only in the cooperative sector. I do not mean that the cooperative set up should be of the type that exists in some States in India where they are hardly cooperative in character and spirit. They are controlled and run by the State Governments under their direct control which extends over day-to-day administration and the so called cooperatives are a little more than departmentally run institutions. Evidence recorded by the Commission from the heads of some State Governments showed clearly that they have no intention to make these cooperative factories run democratically and that the State Governments would like to keep their unfettered control over these cooperatives. I feel that such of those States which do not desire to "loosen" their control over their cooperative sugar factories, they can, as well, run them as public sector factories. Why call them cooperatives and blame them if they are running badly on account of poor and inefficient managemnt on the part of departmental officers when the Board of Directors remain only 'puppet'. It is to be demonstrably seen that if today cooperative sugar factories are doing wonderfully well in States like Maharashtra, Gujarat and to a certain extent in Karnataka and the factories are not doing that well or are ill in States like, Tamil Nadu, Andhra Pradesh, Kerala, Punjab, Uttar Pradesh and Bihar, etc. where Government control exists on cooperative sugar factories to its full extent of nominating Board of Directors, nominating the Chairman of factories, directly appointing Managing Directors/General Managers even without the approval of the Board of Directors, vefoing the resolutions of the Board of Directors and even of the General bodies, it is only on account of full democratisation in the running of cooperative sugar factories in those three States of Maharashtra, Gujarat and Karnataka. The remaining States in India should learn a lesson by studying the working of cooperative sugar factories in those three States.

D-17. In this connection I wish to quote from the speech of our late revered Prime Minister Pandit Jawahar Lal Nehru when he addressed the annual conference of the State Ministers of Cooperation at New Delhi in October, 1961 :—

> "Cooperation is not Government control. If it is Government control, good or bad, it is not cooperation, whatever else it may be. Let us be quite clear about it. If you examine the state of affairs in India today you will find this demonstrated. Where people—non-governmental people—have taken the lead, have developed themselves, the movement has flourished and grown. Where it has been a kind of nursing by Government, it does require nursing all the time and in respect of growth, it has not grown".

D-18. I feel that there is great need for professional management in cooperative sector sugar factories. It is desirable that a proper relationship should be developed between the non-official elected leaders and the professional management. The statutes and the bye-laws of cooperative sugar factories should clearly demarcate the functions and duties between the elected non-official leaders and their chief executives. The present practice of the non-official chairman of the Board of Directors guiding the day-to-day working of the factory in some States should cease and it should be left to the professional management to perform such functions. It should be the endeavour of the non-official elected Board to lay down policies and allow the professional management to carry out such policies laid down.

CONCLUSION

D-19. In my view the ultimate goal is that sugar industry shall be in the cooperative sector and the nationalisation of the private sector should be resorted to with the sole object of achieving that goal. As has already been stated in the foregoing paragraphs, sugar industry being an agro-based industry, there should be close association and relationship between the producers of the raw material, namely sugarcane grower and that of the processor. This is all the more necessary when the sugarcane is a perishable commodity. According to the successive Industrial Policy Resolutions narrated above, preference is given to cooperatives in setting up new units. It will be in consonance with the above Policy Resolutions if the existing joint stock sector sugar factories are also converted into cooperatives in a manner as to achieve such objective at the earliest possible opportunity. The cooperative sugar factories have done a wonderful job in the last two decades in bridging the gap between the production and requirements of sugar. In helping the small farmers to achieve economic viability their role has been outstanding as will be evidenced from the prosperity in areas where there was only parched earth before the advent of the cooperative factory. The requirement of sugar is expected to increase to 60 lakh tonnes by the end of the Fifth Plan, as against the current year's expected production of about 37 to 38 lakh tonnes. To bridge the gap, the most equitable method, whereby both consumers and the small farmers are enabled to get a fair deal, is the expansion of production in the cooperative sector. That has been achieved by this sector is remarkable, but what is capable of being achieved is a completely egalitarian and enlightened society in the rural areas. With the help of cooperative sugar factories backward areas and small farmers will obtain the benefits of industrialisation as it is a conscious policy of the cooperative sugar industry to foster growth in those areas. In fact, sugar cooperatives act as catalyst in ushering in rural industrialisation and social justice. The growth of this sector should be continuous and should receive encouragement from the State, the general public at large and the enlightened intellectuals of our country.

D-20. I am appending this note on Item No. 5 giving full justification in support of my ultimate objective, as many of my colleagues are prepared to go only 'thus far and no further'. Otherwise, I am in full agreement with the joint report of my colleagues in the Commission, *viz.*, S/Shri Khosla, Chishti, Fazlur Rehman and Dixit.

ANNEXURE E

Matters relating to identification of sick mills and management of Nationalised Units

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Matters relating to identification of sick mills and management of Nationalised Units

Copy of D.O. letter No. J.S.(S) Dy. 2373/73 dated the 20th July, 1973, from Shri S. V. Sampath, Joint Secretary (Sugar), Ministry of Agriculture (Department of Food), Government of India, New Delhi to Shri R. H. Chishti, Member-Secretary, Sugar Industry Enquiry Commission, New Delhi.

The interim Report on Rational and Efficient Organisation of the Sugar Industry submitted to the Government by the Sugar Industry Enquiry Commission on the 15th May, 1973, is presently under study. A preliminary examination of the Report shows that there are several points on which clarifications/additional information from the Commission will be necessary to enable the Government to take meaningful decisions on the recommendations of the Commission. These points are set out below :

(i) One group of members of the Commission has recommended nationalisation of only sick units irrespective of the sector to which they belong. In para 6.45 of the Report it has been stated that two principal criteria which can be suggested to identify sickness are the gross mismanagement of finances and neglect in the maintenance of plant and machinery. The willingness and capacity of individual factories to comply with development tasks has also been suggested as an additional criterion. It has also been stated that the Commission have obtained detailed information on financial and technical aspects. It is, therefore, considered that it should not be difficult for the Commission to furnish to the Government, without further effort and delay, a list of mills which it would classify as sick. In fact, in paragraph 7.41 of the Report, it is clearly stated that on the basis of the data and information collected by the Commission from various sources and by personal visits to individual factories, the Commission carried out an exercise of classifying sugar factories into 'sick' and 'non-sick' units and as a result of the exercise a tentative list of 'sick' and 'non-sick' factories was made.

(ii) Different sets of recommendations have been made in the Report for partial nationalisation of the sugar industry. The Commission has not given any idea about the financial outlays involved for the Government (including the amount required for payment of compensation to owners of sugar factories) under each of these sets of recommendations.

(iii) Precise information in regard to the extent of modernisation and rehabilitation required for old and outmoded units and an estimate of expenditure connected with it.

(iv) Details of the organisation that would be required for the management of the nationalised units and the availability of managerial and technical personnel required of it, and in case of insufficiency the steps that should be taken to bridge the gap with a time-frame for it.

2. I am to request that the additional information required above may kindly be furnished as early as possible. If there are any more points on which additional information/clarification will be required, I will write to you further.

Copy of D.O. letter No. SIEC-8-161/73/4440 dated the 23rd October, 1973 from Shri R. H. Chishti, Member-Secretary, Sugar Industry Enquiry Commission, New Delhi to Shri S. V. Sampath, Joint Secretary (Sugar), Ministry of Agriculture (Department of Food), Government of India, New Delhi.

I am desired to refer to your D.O. letter No. JS(S)/Dy. 2373/73 dated 20th July, 1973 asking for a list of sick mills and information and estimates regarding certain matters, and to say as follows : —

1.1 A list of mills identified provisionally as sick mills in accordance with the criteria laid down in Chapter VI of the Second Interim Report (May 1973) has been prepared by the signatories to Chapter VI of the Interim Report and is submitted herewith (Enclosure 1). An explanatory note accompanies the list.

1.2 In so far as the recommendations made in Chapter VII are concerned, it is not necessary, for giving effect to them, to identify individual sick mills of the private sector. (In this context 'private sector' excludes cooperative sugar factories). However, as a reference was made in your letter under reply to an inconclusive exercise carried out by the Commission to identify the sick mills, as mentioned in Chapter VII, the signatories to Chapter VII examined and considered the performance records of individual factories in the private sector, in accordance with the criteria laid down in the Chapter. This exercise has confirmed the fact that the private sector as a whole

has suffered, over a long period, from one or more serious deficiencies, including failure to fulfil even the minimum socio-economic obligations. Leaving aside half a dozen factories in the private sector which are 'dead' rather than sick, having remained closed continuously for several years, the private sector has been found overwhelmingly to be sick. It will be unprofitable to prepare a list of sick mills in such a situation.

1.3 Here it may be stated, for the sake of clarity, that the list of sick mills referred to in para 1.1 (vide Enclosure 1) has been prepared exclusively by the signatories to Chapter VI. The signatories to Chapter VII do not associate themselves with it in any way. Similarly the signatories to Chapter VI were not associated with the exercise carried out by the signatories to Chapter VII and do not subscribe to the views expressed in para 1.2 above.

2. As regards compensation, the Supreme Court has interpreted that compensation must be the market value of the property acquired. But the Commission has not considered it advisable to ascertain the market value because the Constitution no longer requires payment of compensation. Under the 25th amendment to the Constitution Government will be required to pay an amount to the owner of every acquired factory and the principles on which such amount is to be determined are in the discretion of the Government. As such the Commission is not in a position to work out the amount payable to the factories acquired. In the circumstances the Commission is forwarding to the Government some statistical information only which may be found useful and relevant in estimating the amount to be paid. The statement (Enclosure 2) shows—(i) the original cost and written down value of the assets of the various sugar factories concerned as at the end of the year 1969-70 and (ii) their profits and losses in the aggregate over the 10-years period from 1960-61 to 1969-70, as compiled from their balance sheets. Information about the subsequent years not being complete has not been included in these figures. Part I of the statement gives information abont the 24 *prima facie* sick mills mentioned in Enclosure I and Part II about all the mills in the private sector. It may be pointed out that some factories may have revalued their assets during the period 1960-61 to 1969-70 and in earlier years.

3.1 As for rehabilitation and modernisation of old and outmoded mills/sick mills, the approach of the Commission is that the rehabilitation requirements of a factory should be worked out only to the extent to which it is necessary in the near future to enable the factory to run efficiently at the level of its existing installed capacity. The rehabilitation requirements have been estimated accordingly. An estimate has also been made of the requirements and cost of modernization of the mills recommended for take-over. Here too modernization has been limited to the extent necessary for improving the working efficiency of the factory at the level of its existing installed capacity. However, in some cases, in calculating the amount necessary for modernization, the advisable expansion of the capacity of the factory has also been taken into account so that items of large value do not have to be replaced again at the time of expansion. Account has also been taken of cases where the additions recommended as modernisation will result in increasing utilization of capacity which is otherwise inbuilt in the existing plant and machinery. A statement (Enclosure 3) giving totals of cost of rehabilitation and modernisation is enclosed. Part I of the statement gives information about the mills mentioned in Enclosure I as well as other mills mentioned in the explanatory note as being already in the public sector or under Government control. Part II gives the same information about all the mills in the private sector.

3.2 No estimate has been made of the requirements and cost of expansion.

3.3 The estimates of rehabilitation and modernisation are restricted to immediate requirements to improve the efficiency of the factories at the level of their existing respective capacities, except to the limited extent indicated above. If, however, rehabilitation and modernisation are carried out with a view to expansion by raising installed capacity also to a level considered advisable or optimum in different cases, the cost will increase.

4. As regards the organisation required for the management of the nationalised units, it may be stated that the central organisation—the National Sugar Authority in Chapter VI or the National Sugar Commission in Chapter VII—is meant to control, supervise and guide not only the nationalised units but also the entire sugar industry. Further, certain recommendations of the Commission (in both the Chapters VI and VII) cover the entire sugar industry in any case—*e.g.*, marketing of sugar, buffer stock etc. In particular, the National Sugar Authority will have to keep an eye on the performance of the non-nationalised sugar factories also, to ensure that they maintain certain standards of efficiency and that, if any one of them does not, the Authority initiates action for its take-over. The National Sugar Commission on its part will have the responsibility for fixing sugar and sugarcane prices. Thus the scope of control and supervision of the N.S.A./N.S.C. will in any case extend beyond the nationalised units. In so far as the actual management and running of individual factories is concerned, it will be the direct responsibility of State Corporations. The details of the organisation required at various levels and a rough estimate of the cost involved have been given in the enclosed Note (Enclosure 4).

5. A scheme for meeting the requirements of the managerial and technical personnel required and indicating the steps necessary to be taken to secure their services is also enclosed (Enclosure 5). Part A of the scheme deals with the requirements of the units to be nationalised under Chapter VII; Part B with the requirements of units to be nationalised under Chapter VI.

LIST OF PRIMA FACIE SICK MILLS

Uttar Pradesh

1. The Amritsar Sugar Mills Co. Ltd., Rohana-kalan.
2. The Pannijee Sugar and General Mills Co., Panninagar, Bulandshahr.
3. Kisan Cooperative Sugar Factory Ltd., Sarsawa.
4. S. B. Sugar Mills Ltd., Bijnore.
5. Kundan Sugar Mills, Amroha.
6. Rosa Sugar Works of Carew and Co. Ltd., Rosa.
7. The Ishwari Khetan Sugar Mills Ltd., Lakshmi-ganj.
8. The Mehcshwari Khetan Sugar Mills (P) Ltd., Ramkola.
9. Diamond Sugar Mills Ltd., Pipraich.
10. The Madho Mahesh Sugar Mills (P) Ltd., Munderwa.
11. R. B. Lachmandas Sugar and General Mills (P) Ltd., Jarwal Road.
12. The Burhwal Sugar Mills Co. Ltd., Burhwal.

Bihar

13. Ryam Sugar Co. Ltd., Ryam.
14. Samastipur Central Sugar Co. Ltd., Samastipur.
15. New Savan Sugar Mills, Siwan.
16. Sasa Musa Sugar Works (P) Ltd., Sasa Musa.
17. South Bihar Sugar Mills Ltd., Bihta.

Madhya Pradesh

18. Seth Govindram Sugar Mills, Mehidpur Road.

Maharashtra

19. Gangapur Sahakari Sakhar Karkhana Ltd., Gangapur.
20. Sangamner Bhag Sahakari Sakhar Karkhana Ltd., Sangamner.

Gujarat

21. The Sahakari Khand Udyog Mandal Ltd., Gandevi.

Andhra Pradesh

22. Anakepalle Cooperative Agricultural and Industrial Society Ltd., Anakapalle.
23. The Thandava Cooperative Agricultural and Industrial Society Ltd., Payakaropeta.

Karnataka

24. The Salarjung Sugar Mills Ltd., Munirabad.

LIST OF PUBLIC SECTOR SUGAR FACTORIES

1. U.P. State Sugar Corporation Ltd., Unit Mohiuddinpur.
2. U.P. State Sugar Corporation Ltd., Unit Sakhoti Tanda.
3. U.P. State Sugar Corporation Ltd., Unit Khadda.
4. U.P. State Sugar Corporation Ltd., Unit Barabanki.
5. U.P. State Sugar Corporation Ltd., Unit Bhatni.
6. Guraru Chini Mills, Guraru (Bihar).
7. The Ganganagar Sugar Mills Ltd., Sriganga-nagar (Rajasthan).
8. The Nizam Sugar Factory Ltd., Zaheerabad (Andhra Pradesh).

LIST OF PUBLIC LIMITED COMPANIES UNDER GOVERNMENT CONTROL

9. The Nizam Sugar Factory Ltd., Shakkarnagar (Andhra Pradesh).
10. Mysore Sugar Co. Ltd., Mandya (Karnataka).
11. Cawnpore Sugar Works Ltd., Gauribazar (U.P.).
12. Cawnpore Sugar Works Ltd., Padrauna (U.P.).
13. Cawnpore Sugar Works Ltd., Kathkuiyan (U.P.).
14. Champaran Sugar Co. Ltd., Chanpatia (Bihar).
15. Champaran Sugar Co. Ltd., Barachakia (Bihar).
16. Cawnpore Sugar Works Ltd., Marhowrah (Bihar).

Explanatory Note to Enclosure I

The list of sick mills has been prepared by the five Members of the Commission, whose recommendations are contained in Chapter VI of the Second Interim Report to give effect to the recommendations made in that Chapter. The list thus comprises names of only those mills which suffer from sickness for causes which would justify change of management and nationalisation of the mills and does not include mills sick for other reasons beyond the control of the management, because in their case, nationalisation will not provide any cure for sickness. Some instances of such factories have already been mentioned in the Chapter, such as factories, which have been newly established and have suffered losses due to heavy provision for depreciation and interest charges and factories which suffer from low production due to deficiency in cane supplies or which are located in areas where the scope for cane development is limited. As already mentioned in Chapter VI of our Report, the fact that some factories were in arrears in payment of cane price is no consideration for holding the factory as sick for nationalisation because with the present scheme of the Reserve Bank of India and the local Law in U.P., the arrears of cane price are not likely to occur in future. Similarly, the problem of arrears of cess/purchase tax has been solved by linking payment of cess/purchase tax with despatch of sugar just like excise duty and the past arrears which existed particularly in U.P. State are being cleared in instalments under the directions of the judicial authorities and consequently, these arrears do not require any remedy by nationalisation. The list thus contains names of only those factories which, *prima facie,* suffer from causes of sickness, for which nationalisation has been recommended as the remedy.

The following further points about the list require to be noted :—

(1) There are six factories situated at Guraul, Warisaliganj, Dalmianagar, Tanuku (Sivakami), Mailpatti and Ahmedpur, which have been closed or which are virtually defunct for a number of years. These factories can be treated as dead units rather than as sick units and there is no great urgency for their revival as the cultivators in their areas has already switched on to other crops. These units can be studied later to find out the condition of plant and machinery and the utilization of the machinery can be considered by reviving them or shifting them to appropriate areas where they can be run economically.

(2) The list excludes factories which are already owned by the Government and which, in the Report, have been described as public sector factories. Five such factories situated at Mohiuddinpur, Sakhoti Tanda, Barabanki, Khadda, and Bhatni, are being run by a State Corporation in Uttar Pradesh having been acquired in the year 1971. There is one factory belonging to Rajasthan Government in Sriganganagar and one belonging to Bihar Government in Guraru. Lastly, there is a factory owned by the Government, recently established at Zaheerabad in the State of Andhra Pradesh. Since these factories already belong to the Government, no question of nationalising them now arises and consequently, even the sick units amongst these, have not been included in the list.

(3) There are eight factories owned by public limited companies, which are being run already like public sector factories. Two such factories are situated at Mandya in Karnataka State and Shakkarnagar in Andhra Pradesh. The Government already holds controlling shares in both these public limited companies so that the entire management is already directly responsible to the Government. The other six factories, three situated in Uttar Pradesh at Gauribazar, Padrauna and Kathkuiyan and three in Bihar situated at Barachakia, Chanpatia and Marhowrah, are owned by the Cawnpore Sugar Company Limited and Champaran Sugar Company Limited. In both these limited companies, majority shares are held by the Government or government Institutions. A number of shares are held by the British India Corporation, in which itself the majority shares are again held either by the Government or Public Institutions. The Public Institutions holding shares are Life Insurance Corporation, Unit Trust of India, Nationalised Banks and/or General Insurance. Between the Government and these Institutions, the shares held are more than 50 per cent with the result that the entire Board of Directors is already elected after a selection of the personnel is made by the Government and votes at the general meeting are cast in their favour in accordance with the directions of the Government. The management of these factories is thus already under the control of the Government and they are functioning like nationalised units. Steps for curing sickness among them can be taken by giving directions to the existing Board of Directors. Nationalisation is unnecessary in their cases.

(4) While preparing the list, seven factories situated at Bijnor, Amroha, Burhwal, Jarwal Road, Lakshmiganj, Rampur and Ramkola (Maheshwari Khaitan) have been taken into consideration, even though the Uttar Pradesh Government passed a Law for their acquisition, because the operation of the Law was stayed under the orders of the High Court and the Uttar Pradesh Government has not yet succeeded in obtaining possession of these factories.

(5) This list of sick factories has been prepared in accordance with para 6.50 of Chapter VI so that it contains names of only those factories where *prima facie* case exists for taking over their management. However, before a final decision can be taken, it may be necessary to make spot studies of the condition of plant and machinery in some cases. Further, the list has been prepared on the basis of information collected by the Commission which was full and complete only up to the year 1969-70. Since then about three years have passed and some of the factories have made improvements. Enquiries were addressed to the factories in respect of the subsequent years also but replies have not been received from all the factories. The replies received from some of the factories have of course been taken into account. This subsequent information will have to be considered when the list is finalised.

(6) Since a limited number of factories are to be nationalised on the ground of sickness, two requirements have to be kept in view in order to ensure that the Law relating to nationalisation does not violate the provisions of Article 14 of the Constitution. The first requirement is that the classification for distinguishing factories which have to be nationalised, has a reasonable nexus with the object of nationalisation. This has already been clarified in the Report inasmuch as nationalisation has been recommended only in respect of those sick factories which require change of ownership and management in order to cure the sickness and work as successful units. The second aspect on which courts require satisfaction is that, within the reasonable classification, the factories have not been classified arbitrarily and against principles of natural justice. To meet this objection, it will be necessary to give an opportunity of a personal hearing to the mills proposed to be nationalised whereafter a decision can be taken whether these factories do or do not come within the classification of sickness laid down in Chapter VI. When such an opportunity is given, it will not only satisfy the requirements of the Constitution but will also be fair and just. In cases where the sickness on the present material appears to be marginal, it may even be possible to come to a finding whether the causes have since been removed or can be removed within a reasonable time without nationalisation. Spot studies of the plant and machinery can also be made thereafter in cases where considered necessary.

(7) The work of giving personal hearing and finalising the list can be easily carried out by the five Members of the Commission, who have drawn up this list, with the aid of the material already available in the Commission in a reasonably short time. It is expected that a period of 6 to 8 weeks including the time required for giving notices to the mills may be sufficient.

(8) If the list of Sick Mills is finalised without any deletions in the Prima Facie Sick List, then the number of factories in the Public Sector and under Government control will be 40.

Enclosure 2

STATEMENT SHOWING THE PROFITS OR LOSSES IN THE AGGREGATE OVER THE 10-YEAR PERIOD 1960-61 TO 1969-70 AND THE ORIGINAL COST AND WRITTEN DOWN VALUE OF ASSETS OF PRIMA FACIE SICK MILLS (UNDER CHAPTER VI) AND OF ALL THE SUGAR FACTORIES IN THE PRIVATE SECTOR (UNDER CHAPTER VII).

NOTE :

The following statement in Part I as well as in Part II includes certain sugar factories which form part of complex activities carried on by the same proprietor or company. In such cases the aggregate profit or loss shown in the statement has been obtained separately for sugar activity alone. In the case of fixed assets the Commission was able to obtain separate values of the machinery relating to the sugar factory plant but not of other assets. To work out the value of the total assets of sugar activity the procedure adopted has been to take the figure of the value of plant and machinery of sugar activity and add to it on a *pro rata* basis the value of other fixed assets. The sugar factories which form part of complex units are indicated by the mark @ against the name of the factory. The data given relates to the figures at the end of the year 1969-70. Since then some factories may have added some plant and machinery. They must have also charged off depreciation on their assets in subsequent years. In case of take over, it will be necessary to assess the value of each unit on the date of such takeover.

PART I

Prima facie sick mills

(Rs. in Lakhs)

Sl. No.	Location of the factory	Aggregate Profit/Loss over 10-year period (1960-61 to 1969-70)	Fixed Assets as at the end of 1969-70	
			At Original Cost	Written down value
1	2	3	4	5
Uttar Pradesh :				
1.	Rohanakalan .	(—)11.60	121.44	29.84
2.	Bulandshahr .	(+)11.05	58.71	19.59
3.	Sarswa . .	(—)58.14	117.58	46.71
4.	Bijnor . . .	(—)75.43	22.65	8.75
5.	Amroha . .	(—)50.48	16.98	6.68
6.	Rosa @ . .	(—)37.62	131.55	45.11
7.	Lakshmiganj .	(—)31.19	53.84	25.78
8.	Ramkola M.K. .	(—)50.56	43.05	10.22
9.	Pipraich . .	9.45	71.44	64.44
10.	Munderwa .	9.90	15.25	12.14
11.	Jarwal Road .	(—)30.36	44.99	8.23
12.	Burhwal . .	(—)64.67	59.50	22.00
Bihar :				
13.	Ryam . .	10.82	57.23	13.29
14.	Samstipur .	(—)34.30	72.94	22.91
15.	New Savan @ .	(—)17.82	1.74	0.42
16.	Sasamusa .	35.05	62.13	29.95
17.	Bihta . .	(—)91.29	58.67	47.20
Madhya Pradesh :				
18.	Mehidpur Road	3.48	27.58	11.69
Maharashtra :				
19.	Gangapur .	(—)29.07	6.39	4.69
20.	Sangamner .	(—)16.08	108.78	92.19
Gujarat :				
21.	Gandevi . .	(—)3.92	117.31	78.38
Andhra Pradesh :				
22.	Anakapalle@ .	(—)23.41	63.87	33.75
23.	Payakaraopeta .	(—)18.50	36.90	23.78
Karnataka :				
24.	Munirabad . .	48.50	125.63	80.13
TOTAL		(—)538.29	1496.15	737.93

Enclosure 2

PART II

Private Sector Factories

(Rs. in Lakhs)

Sl. No.	Location of the factory	Aggregate Profit/Loss over 10-year period (1960-61 to 1969-70)	Fixed Assets at the end of 1969-70	
			Original Cost	Written down value
1	2	3	4	5
	Punjab :			
1.	Phagwara	49.45	51.21	15.09
2.	Dhuri	(—)30.08	98.15	36.26
	Haryana :			
3.	Yamunanagar @	261.30	348.91	110.25
	Rajasthan :			
4.	Bhupalsagar @	21.68	53.20	14.36
	Uttar Pradesh :			
5.	Modinagar @	25.64	104.37	27.23
6.	Meerut @	53.27	130.26	33.06
7.	Daurala @	137.75	108.00	22.25
8.	Mawana @	44.11	349.24	122.56
9.	Simbhaoli	60.36	138.87	39.80
10.	Khatauli	128.97	161.04	43.12
11.	Mansurpur @	33.13	163.72	37.81
12.	Rohanakalan@	(—)11.60	121.44	29.84
13.	Shamli @	147.74	304.74	93.86
14.	Bulandshahr	(—)11.05	58.71	19.59
15.	Doiwala	31.75	N.A.	20.12
16.	Deoband @	233.02	250.56	86.01
17.	Saharanpur @	18.55	52.25	10.84
18.	Lhaksar	189.75	180.79	89.03
19.	Iqbalpur	41.98	162.44	58.60
20.	Bijnor	(—)75.43	22.65	8.75
21.	Seohara @	348.02	297.46	160.27
22.	Dhampur @	188.32	168.61	70.85
23.	Raja-ka-sahaspur	61.27	109.09	26.56
24.	Amroha	(—)50.48	16.98	6.68
25.	Rampur	(—)112.13	216.07	108.91
26.	Bareilly	(—)5.64	52.52	10.81
27.	Baheri @	66.22	122.28	39.08
28.	Rosa @	(—)37.62	131.53	45.11
29.	Pillibhit @	19.69	107.53	29.73
30.	Kashipur @	98.08	143.49	51.25
31.	Neoli @	53.24	80.66	28.99
32.	Hargaon @	424.46	212.25	103.36
33.	Maholi @	50.27	118.89	35.67
34.	Biswan @	27.98	54.07	27.91
35.	Golagokarannath	782.72	382.60	105.06
36.	Aira	148.99	112.95	74.83
37.	Hardoi	86.85	153.65	53.10
38.	Seorahi	41.73	100.77	31.55
39.	Baitalpur	25.71	49.26	13.23
40.	Gauribazar @	25.73	50.47	13.41
41.	Deoria	9.68	47.43	12.18
42.	Captainganj	41.75	138.23	104.32
43.	Chhitauni	(—)15.53	42.99	10.51
44.	Lakshmiganj	(—)31.19	53.84	25.78
45.	Ramkola@	147.98	152.00	58.72
46.	Ramkola M.K.	(—)50.56	43.05	10.22
47.	Padrauna @	(—)52.92	104.05	40.58
48.	Kathkuiyan @	(—)26.18	72.16	24.72
49.	Mairwa	15.19	81.57	37.09
50.	Sardarnagar	38.41	168.28	54.40
51.	Pipraich	9.45	71.44	64.44
52.	Ghughli	42.20	59.12	20.63
53.	Siswabazar	4.93	62.39	23.90
54.	Anandnagar @	59.41	114.96	75.29
55.	Munderwa	9.90	15.25	12.14
56.	Basti @	58.48	212.06	144.69
57.	Waeterganj @		90.31	58.06
58.	Khalilabad	17.00	54.42	31.47
59.	Babhnan	43.13	36.97	11.12
60.	Nawabganj	20.32	77.44	29.32
61.	Balrampur	31.15	87.16	38.18
62.	Tulsipur	44.01	112.73	68.62
63.	Jarwal Road	(—)30.36	44.99	8.23
64.	Burhwal	(—)64.67	59.50	22.00
65.	Shahganj	32.03	40.14	6.55
66.	Motinagar	52.54	121.50	59.93
67.	Paliakalan**	N.A.	N.A.	N.A.
	Bihar :			
68.	Lohat	67.90	58.71	15.68
69.	Sakri		40.25	12.81
70.	Hassanpur Road	171.67	79.33	37.73
71.	Ryam	10.82	57.23	13.29
72.	Samastipur	(—)34.30	72.94	22.91
73.	Righa	73.11	85.76	25.09
74.	Motipur	64.65	65.13	24.45
75.	Motihari	(—)9.11	263.38	205.59
76.	Majhaulia @	169.07	141.43	56.67
77.	Chanpatia @	77.49	79.36	24.75
78.	Lauriya @	2.98	272.30	129.00
79.	Bagaha (Naraipur)	66.74	59.75	23.97
80.	Narkatiaganj @	N.A.	81.46	39.80
81.	Harinagar	166.47	90.80	43.71
82.	Sagauli	15.67	N.A.	22.19
83.	Barachakia @	(—)45.52	81.70	25.49
84.	Siwan (New Savan) @	(—)17.82	1.74	0.42
85.	Pachrukhi @	N.A.	64.46	8.87
86.	Hathua (Mirganj) @	——Included in Lauriya——		
87.	Sidhwalia	70.56	57.61	34.16
88.	Marhowrah @	(—)14.94	98.09	22.91
89.	Sasa Musa	35.05	62.13	29.95

1	2	3	4	5
90.	Harkhua (Gopalganj) .	29.27	79.60	33.66
91.	Siwan (S.K.G.) @	——Included in Lauriya——		
92.	Bihta . .	(—)91.29	58.67	47.20
	Madhya Pradesh :			
93.	Dabra (Gwalior)	(—)16.34	78.08	24.97
94.	Jaora . .	14.61	48.85	16.93
95.	Dalauda . .	(—)1.34	47.03	12.41
96.	Sehore . .	13.07	85.44	27.58
97.	Mehidpur Road	3.48	27.58	11.69
	Maharashtra :			
98.	Malinagar .	98.86	127.16	48.72
99.	Shreepur @ .	123.10	143.22	68.25
100.	Ravalgaon@ .	147.22	123.36	37.28
101.	Sakarwadi@ }	417.64	103.45	36.20
102.	Lakshmiwadi@ }		193.40	67.65
103.	Changdeonagar	305.24	87.37	11.55
104.	Tilaknagar@ .	N.A.	256.72	116.01
105.	Belapur (Harigaon) .	547.90	300.47	109.92
106.	Kolhapur@ .	293.15	393.70	162.50
107.	Walchandnagar@	218.92	202.39	109.02
108.	Phaltan (Sakharwadi) .	234.78	225.51	96.18
	Karnataka :			
109.	Hospet@ . .	115.43	124.01	50.30
110.	Munirabad .	48.50	125.63	80.13
111.	Ugar Khurd@ .	212.65	375.92	185.18
112.	Shimoga . .	92.82	135.49	56.93
113.	Sameerwadi (Mudhol)** .	N.A.	N.A.	N.A.
	Andhra Pradesh :			
114.	Pithapuram .	0.38	115.31	34.30
115.	Chelluru@ .	99.27	251.30	161.40
116.	Samalkot . .	137.25	145.50	51.39
117.	Tanuku (Andhra)@ .	292.48	309.42	175.76
118.	Chagallu . .	92.11	298.82	218.9
119.	Bobbili@ . .	6.96	99.51	43.5
120.	Seethanagaram@	31.09	43.05	16.9
121.	Vuyyuru . .	654.85	360.25	183.3
122.	Challapalli .	75.55	237.19	153.7
	Tamilnadu :			
123.	Pugalur . .	131.00	159.88	78.6
124.	Pettaivaitalai .	71.74	127.94	50.0
125.	Lalgudi . .	25.62	239.94	155.3
126.	Nellikuppam@ .	198.85	191.50	71.9
127.	Pennadam (Aruna) . .	59.42	234.38	157.5
128.	Mundiyampakkam@ . .	30.82	219.30	160.7
129.	Pandiarajapuram	40.04	37.68	11.8
130.	Vedapathimangalam@ . .	73.44	135.00	63.0
131.	Appakudal (Sakthi) . .	18.95	312.82	234.8
	Pandicherry:			
132.	Sacrur (New Horizon) .	(—)5.42	231.22	102.45
	Orissa :			
133.	Rayagada .	29.83	N.A.	11.95
	West Bengal :			
134.	Plassey . .	99.37	110.74	27.89
	Kerala :			
135.	Tiruvalla@ .	30.54	71.07	14.07
TOTAL		9872.15	16796.17	7417.15

NOTE : **2 new factories in the private sector (Sl. Nos. 67 & 113) have been set up after 1969-70. Data relating to the cost of their fixed assets are not available. Assuming a cost of about Rs. 3 crores per factory, covering all assets, the original cost of these units will be Rs. 6 crores. The written down values were not assessed.

@ represents complex factories.

Enclosure 3

REQUIREMENTS OF REHABILITATION AND MODERNISATION OF PRIMA FACIE SICK MILLS AND OF FACTORIES IN THE PRIVATE SECTOR

PART I

Prima facie sick mills

(Rs. in Lakhs)

Sl. No.	Location of Factory	Amount Required		
		Rehabilitation	Modernisation	Total (3+4)
1	2	3	4	5
	Uttar Pradesh :			
1.	Rohana Kalan	34.00	16.00	50.00
2.	Bulandshahr	18.00	56.00	74.00
3.	Sarsawa	19.00	50.00	69.00
4.	Bijnor	29.00	47.00	76.00
5.	Amroha	85.00	97.00	182.00
6.	Rosa	45.00	18.00	63.00
7.	Lakshmiganj	43.00	40.00	83.00
8.	Ramkola (MK)	40.00	58.00	98.00
9.	Pipraich	16.00	62.00	78.00
10.	Munderwa	18.50	60.00	78.50
11.	Jarwal Road	162.00	24.00	186.00
12.	Burhwal	47.00	73.00	120.00
	Bihar :			
13.	Ryam	23.50	71.00	94.50
14.	Samastipur	15.00	58.00	73.00
15.	New Siwan	21.00	69.00	90.00
16.	Sasamusa	19.00	73.00	92.00
17.	Bihta	27.00	78.00	105.00
	Madhya Pradesh :			
18.	Mehidpur Road	17.00	..	17.00
	Maharashtra :			
19.	Gangapur	..	..	..
20.	Sangamner	10.50	20.00	30.50
	Gujarat :			
21.	Gandevi	12.00	24.00	36.00
	Andhra Pradesh :			
22.	Anakapalle	11.00	38.00	49.00
23.	Payakaropeta Scrap or	7.00	..	7.00
	Karnataka :			
24.	Munirabad	57.00	32.00	89.00
	TOTAL	776.50	1064.00	1840.50

Public Sector Sugar Factories

1.	Mohiuddinpur	21.00	71.00	92.00
2.	Sakhoti Tanda	68.00	72.00	140.00
3.	Khadda	36.50	60.00	96.50
4.	Barabanki	94.50	79.00	173.50
5.	Bhatni	25.00	78.00	103.00
6.	Guraru	41.00	65.00	106.00
7.	Sriganganagar	4.00	60.00	64.00
8.	Zaheerabad	..	..	..
	TOTAL	290.00	485.00	775.00

PUBLIC LIMITED COMPANIES

Under Government Control

9.	Shakkarnagar	..	36.00	36.00
10.	Mandya	20.00	..	20.00
11.	Gauribazar	65.00	63.00	128.00
12.	Padrauna	51.50	79.00	130.50
13.	Kathkuiyan	9.00	48.00	57.00
14.	Chanpatia	9.00	50.00	59.00
15.	Barachakia	15.00	117.00	133.00
16.	Marhowrah	55.00	68.00	123.00
	TOTAL	225.50	461.00	686.50

NOTE : A further provision of 20 per cent over the above estimated cost of the plant and machinery will be required for transportation, dismantling old equipment, erection of new units and the like.

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PART II

Factories in the Private Sector

Sl. No.	Location of factory	Rehabilitation	Modernisation	Total (3+4)
1	2	3	4	5
	Punjab			
1.	Phagwara	..	58.00	58.00
2.	Dhuri	7.00	45.00	52.00
	Haryana			
3.	Yamunanagar	..	..	..
	Rajasthan			
4.	Bhupalsagar	24.50	62.00	86.50
	Uttar Pradesh			
5.	Modinagar	6.00	61.00	67.00
6.	Daurala	..	14.00	14.00
7.	Meerut	..	20.00	20.00
8.	Mawana	..	..	..
9.	Simbhaoli	23.00	34.00	57.00
10.	Khatauli	..	12.00	12.00
11.	Mansurpur	27.00	2.00	29.00
12.	Rohanakalan	34.00	16.00	50.00
13.	Shamli	23.00	35.00	58.00
14.	Bulandshahr	18.00	56.00	74.00
15.	Doiwala	67.00	71.00	138.00
16.	Deoband	18.50	16.00	34.50
17.	Saharanpur	10.50	81.00	91.50
18.	Lhaksar	2.50	20.00	22.50
19.	Iqbalpur	1.00	8.00	9.00
20.	Bijnor	29.00	47.00	76.00
21.	Seohara	28.50	14.00	42.50
22.	Dhampur	28.00	25.00	53.00
23.	Raja-ka-Sahaspur	12.50	47.00	59.50
24.	Amroha	85.00	97.00	182.00
25.	Rampur	10.00	32.00	42.00
26.	Bareilly	14.00	43.00	57.00
27.	Baheri	19.00	52.00	71.00
28.	Rosa	45.00	18.00	63.00
29.	Pilibhit	3.50	94.00	97.50
30.	Kashipur	18.00	28.00	46.00
31.	Neoli	7.50	12.00	19.50
32.	Hargaon	18.50	26.00	44.50
33.	Maholi	21.00	80.00	101.00
34.	Biswan	20.00	63.00	83.00
35.	Golagokaran-nath	..	..	..
36.	Aira	40.50	75.00	115.50
37.	Hardoi	46.50	26.00	72.50
38.	Seorahi	8.00	80.00	88.00
39.	Baitalpur	4.00	58.00	62.00
40.	Gauribazar	65.00	63.00	128.00
41.	Deoria	6.00	58.00	64.00
42.	Captainganj	21.50	8.00	29.50
43.	Chitauni	26.00	60.00	86.00
44.	Lakshmiganj	43.00	40.00	83.00
45.	Ramkola	43.00	37.00	80.00
46.	Ramkola (MK)	40.00	58.00	98.00
47.	Padrauna	51.50	79.00	130.50
48.	Kathkuiyan	9.00	48.00	57.00
49.	Mairwa	10.00	56.00	66.00
50.	Sardarnagar	24.00	30.00	54.00
51.	Pipraich	16.00	62.00	78.00
52.	Ghugli	20.00	38.00	58.00
53.	Siswabazar	11.00	42.00	53.00
54.	Anandnagar	1.00	59.00	60.00
55.	Munderwa	18.50	60.00	78.50
56.	Basti	..	12.00	12.00
57.	Walterganj	8.50	66.00	74.50
58.	Khalilabad	16.00	..	16.00
59.	Babhnan	N.A.	N.A.	N.A.
60.	Nawabganj	20.00	57.00	77.00
61.	Balrampur	..	30.00	30.00
62.	Tulsipur	..	28.00	28.00
63.	Jarwal Road	162.00	24.00	186.00
64.	Burhwal	47.00	73.00	120.00
65.	Shahganj	34.50	72.00	106.50
66.	Motinagar	4.00	22.00	26.00
67.	Palia Kalan	..	..	..
	Bihar			
68.	Lohat	N.A.	N.A.	N.A.
69.	Sakri	N.A.	N.A.	N.A.
70.	Hasanpur Road	13.50	38.00	51.50
71.	Ryam	23.50	71.00	94.50
72.	Samastipur	15.00	58.00	73.00
73.	Righa	2.00	64.00	66.00
74.	Motipur	4.00	48.00	52.00
75.	Motihari	N.A.	N.A.	N.A.
76.	Majhaulia	..	47.00	47.00
77.	Chanpatia	9.00	50.00	59.00
78.	Lauriya	13.50	22.00	35.50
79.	Bagaha	9.00	57.00	66.00
80.	Narkatiaganj	7.00	78.00	85.00
81.	Harinagar	4.00	36.00	40.00
82.	Sagauli	2.00	65.00	67.00
83.	Barachakia	16.00	117.00	133.00
84.	New Siwan	21.00	69.00	90.00
85.	Pachrukhi	22.00	70.00	92.00
86.	Hathua (Mirganj)	18.00	88.00	106.00
87.	Sidhwalia	16.00	34.00	50.00
88.	Marhowrah	55.00	68.00	123.00
89.	Sasa Musa	19.00	73.00	92.00
90.	Harkhua (Gopalganj)	17.00	84.00	101.00
91.	Siwan (SKG)	26.50	45.00	71.50
92.	Bihta	27.00	78.00	105.00
	Madhya Pradesh			
93.	Dabra	5.00	8.00	13.00
94.	Jaora	2.00	24.00	26.00

1	2	3	4	5
95.	Dalauda	7.50	..	7.50
96.	Sehore	7.00	28.00	35.00
97.	Mehidpur Road Scrap or	17.00	..	17.00
	Maharashtra			
98.	Malinagar	3.50	4.00	7.50
99.	Shreepur	..	4.00	4.00
100.	Ravalgaon	6.50	..	6.50
101.	Sakarwadi	30.00	..	30.00
102.	Lakshmiwadi	2.00	57.00	59.00
103.	Changdeonagar	1.00	..	1.00
104.	Tilaknagar	..	..	..
105.	Belapur (Harigaon)	..	..	..
106.	Kolhapur	..	..	..
107.	Walchandnagar	5.00	30.00	35.00
108.	Phaltan (Sakharwadi)	13.00	..	13.00
	Karnataka			
109.	Hospet	..	..	..
110.	Munirabad	57.00	32.00	89.00
111.	Ugar Khurd	..	..	..
112.	Shimoga	61.00	10.00	71.00
113.	Sameerwadi (Mudhol)	..	..	..
	Andhra Pradesh			
114.	Pithapuram	24.00	38.00	62.00
115.	Chelluru	..	..	..
116.	Samalkot	13.00	6.00	19.00
117.	Tanuku (Andhra)	..	45.00	45.00
118.	Chagallu	..	..	..
119.	Bobbili	16.00	40.00	56.00
120.	Seethanagaram	25.00	..	25.00
121.	Vuyyuru	..	..	..
122.	Challapalli	..	..	..
	Tamil Nadu			
123.	Pugalur	..	26.50	26.50
124.	Pettaivaithalai	..	..	..
125.	Lalgudi	..	..	..
126.	Nellikuppam	..	50.00	50.00
127.	Mundiyampakkam	..	..	..
128.	Pennadam	..	..	..
129.	Pandiarajapuram	7.00	..	7.00
130.	Vadapathimangalam	..	..	..
131.	Appakudal	..	..	..
	Pondicherry			
132.	Sacrur	..	..	..
	Orissa			
133.	Rayagada	8.00	..	8.00
	West Bengal			
134.	Plassey	5.00	41.00	46.00
	Kerala			
135.	Tiruvalla	..	..	..
	Total	2073.50	4513.50	6587.00

NOTE : A further provision of 20 per cent over the above estimated cost of plant and machinery will be required for transportation, dismantling old equipment, erection of new units and the like.

Enclosure 4

ORGANISATION REQUIRED FOR THE MANAGEMENT OF THE NATIONALISED UNITS

In Chapters VI and VII of the Second Interim Report (May, 1973), a fairly clear outline has been given of the organisation required at the Central and the State levels for management of nationalised units. Both recommend the setting up of a central organisation—National Sugar Authority (N.S.A.) in Chapter VI and National Sugar Commission (N.S.C.) in Chapter VII—and a State Corporation or regional organisation at the State or regional level.

2. The scope, functions, powers and objectives of the central organisation, as outlined in Chapter VI and VII, are practically the same except in regard to two matters. First, while the N.S.A. will have the power to recommend the acquisition of mills whose performance is below the standard laid down by the N.S.A., the N.S.C. does not have that power. Secondly, while the N.S.C. will have the power to fix the prices of sugar and sugarcane, the N.S.A. will have only a limited power to permit payment of a higher cane price than the minimum notified by Government.

3. The main functions of the central organisation, as envisaged in Chapter VI/Chapter VII, are supervision and guidance of the nationalised units ; planning of sugar production ; technical and financial audit of sugar factories ; coordination and encouragement of sugarcane research and development ; securing participation and involvement of canegrowers and workers in factory management ; harmonisation of the interests of factories, canegrowers, workers and consumers, etc. These functions have been visualised as integral parts of the future management of sugar mills.

4. Although Government has asked for information only on the limited point of organisation for the management of the nationalized units, the implications of the recommendations made in Chapter VI/Chapter VII are far-reaching. These recommendatious form an integrated scheme and should be treated as such. The integrated scheme is intended to achieve certain socio-economic objectives in addition to improving the efficiency of the sugar industry. But the Interim Report envisages that all these and some other functions, such as marketing of sugar, operation of a sugar buffer stock, etc., will be carried out by the central organisation not only in respect of the nationalised units but also of non-nationalised units, irrespective of the sector to which they might belong. The primary objective is to take a comprehensive and composite view of the entire sugar industry. In this the nationalised units will of course claim priority but the central organisation must discharge similar responsibilities in respect of other units also.

5. Keeping in view the important responsibilities that the central organisation will discharge, it is essential that it should be a high powered body. Further, the central organisation and its chief executives should have a sense of identification with the objectives which the Commission has indicated in the Interim Report and a feeling of involvement in the tasks entrusted to them so that the objectives aimed at are realised not only in letter but also in spirit. The personnel required to manage, guide and inspect the nationalised sector of the sugar industry should be competent in their respective fields of specialisation and should be conscious of their responsibilities. A mere administrative change without providing for the right approach to the matters and problems to be handled will not serve any useful purpose.

6. The organisation which the Commission has recommended is essentially a two-tier system with the State Sugar Corporation entrusted with the actual management of the required units and the central organisation acting as an apex organisation at the central level. The Central organisation, as recommended here, can function either as National Sugar Authority or as National Sugar Commission with one or two modifications. It has also been proposed that management at the factory level should be democratised with active involvement of the growers and the factory workers. The details of the organisation at various levels are given below.

Central Organisation (NSA/NSC)

7. The organisation at the central level will be a statutory body established by an act of Parliament. The basic structure of the central organisation will be as follows :

(1) It will consist of a whole time Chairman, four whole time members and ten part time members.

(2) The Chairman and whole time members should have among themselves special knowledge, experience and expertise in administration ; finance and economic affairs ; agriculture ; sugar technology and engineering ; and marketing. They should also have adequate practical experience in their particular fields as head of an organisation or institution or department. This is necessary as, apart from participation in policy making, they will have to implement and execute the policies and administer the various programmes and schemes relating to the functions and work of the organisation.

(3) The part time members may consist of the following :—

(i) Director, National Sugar Institute, Kanpur-*ex-officio* ;

(ii) Two representatives of State Corporations and Governments of States where there is no State Corporation ;

(iii) A representative of the public sector ;

(iv) A representative of the private sector (if private sector exists) ;

(v) A representative of the cooperative sector ;

(vi) A person who, in the opinion of the Central Government, is capable of representing the interests of the canegrowers ;

(vii) A person who, in the opinion of the Central Government, is capable of representing the interests of the workers ; and

(viii) Two other persons having knowledge and experience of the sugar industry.

(4) The term of the Chairman and the whole time members may be five years at a time ; the term of the part time members may be three years, except in the case of *ex-officio* member.

(5) There shall be an Executive Board consisting of the Chairman and the whole time members. Each whole time member will be placed in charge of work and functions of the central organisation for which he may be best qualified or may be found suitable. The Chairman besides being in overall charge of administration and coordination of the work of the organisation, will be in charge of nationalisation and acquisition of sugar mills in the future (if the organisation functions as N.S.A.) ; fixation of prices of sugar and sugarcane (if the organisation functions as N.S.C.) ; and such other work as he may like to deal with.

(6) The central organisation will have the power to set up standing committee and *ad hoc* committees to deal with such matters and responsibilities as may be entrusted to them by it. Each standing committee *ad hoc* committee may consist of some members of the Organisation and others, including experts.

(7) One of the standing committees may consits of the Chairman and some or all the members of the central organisation and the Chairmen of State Corporations and the representatives of Goverments of States which do not have a State Corporation. The representative of a State Government will be the officer appointed for controlling and supervising the management of the sugar factory/factories of the State.

(8) The Central organisation will have the power to nominate one director on the Board of Directors of every State Corporation.

(9) All central assistance to State Corporations for rehabilitation of sugar factories and for other purposes will be channelled through the central organisation.

(10) The central organisation will have power to issue directions to State Corporations on matters of general policy.

(11) The role of the central organisation *vis-a-vis* Central Government will essentially be advisory except in so far as fixation of sugar and sugarcane prices is concerned when functioning as N.S.C. However, as the principal authority responsible for the regulation and development of sugar and allied industries, it will have important executive functions also.

(12) The central organisation will be the spokesman of the sugar industry as a whole at the national and international forums.

(13) The central organisation will have two wings—(a) secretariat, and (b) functional divisions/directorates dealing with specific fields of activities of the Central Organisition.

8. An organisational chart showing tentative distribution of work among Chairman and whole time members of the organisation and allocation of subjects to different divisions is given at the end of this note.

State Corporation

9. (1) A State Corporation may be a statutory body created by State legislation or may be a Government company within the meaning of Section 617 of the Companies Act, 1956. It will work as an autonomous legal entity subject to the overall supervision of the State Government and the general directions of the Central Organisation (N.S.A./N.S.C.) on policy matters.

(2) It will have a whole time Chairman-*cum*-Managing Director and a number of whole time and part time officials and non-officials as its directors. One director will be a person capable of representing the interests of workers and one director capable of representing the interests of canegrowers. One of its directors will be a nominee of the central organisation. Subject to the above conditions, the constitution, powers and functions of a State Corporation may be drawn up

more or less on the lines of the Uttar Pradesh State Sugar Corporation. The State Corporation will have the requisite financial, technical and other staff.

(3) A State Corporation may manage 5 to 10 factories and there may be more than one Corporation in a State. Where there is no State Corporation, the State Government will appoint a suitable officer for controlling and supervising the management of the factory or factories in the State. This officer will represent the State Government on the standing committee mentioned at para 7(7).

(4) The State Corporation will, *inter alia,* plan and carry out the rehabilitation of the sick mills in its charge and secure funds for the purpose from the State Government and other agencies.

(5) There shall be a nominee of the Central Organisation on the Board of Directors of every State Corporation.

(6) The State Corporation shall carry out the directions of the central organisation in matters of general policy.

Factory Board or Committee of Management

10. (1) There shall be a Board or Committee of Management at each nationalised unit.

(2) It may consist of the General Manager of the factory and 4 or 6 other members of whom one shall be a representative of the factory canegrowers and one of factory labour.

(3) The Board/Committee will work under the general supervision and guidance of the State Corporation or the officer concerned and will look after the day-to-day management of the factory and take decisions on matters within its scope as may be laid down by the State Corporation.

Cost of the Organisation

11. The annual cost of the central organisation will be Rs. 20 lakhs to Rs. 25 lakhs. The cost will be borne entirely by the Central Government. A State Corporation will cost Rs. 6 lakhs to Rs. 8 lakhs annually. The cost will be borne by the State Government and the factories concerned. The expenditure incurred on the central organisation and the State Corporations will be more than met by the larger revenue to the Central and State Governments on account of increased efficiency of the sugar industry and higher sugar production. The sugar marketing transactions carried out by the central organisation may contribute to some extent towards the expenditure on the central organisation, if any part of sugar is sold at prices higher than levy prices. A Factory Board/Committee of Management will cost about Rs. 10,000 to Rs. 15,000 per year. Its cost will be met from the earnings of the factory.

General

12. The Sugar Development Council set up under Section 6 of the Industries (Development and Regulation) Act, 1951 should function in close association with, preferably as a wing of the central organisation. This can be brought about by a few changes in the constitution of the Development Council. The Chairman of the Central Organisation may be nominated as chairman of the Sugar Development Council and some members of the Central Organisation also may be nominated on the Council.

13. The Sugarcane Development Council set up by a Government resolution may be converted into a Standing Committee set up by the central organisation under its own powers with the same functions and constitution.

Enclosure 4

I. CENTRAL ORGANISATION

(National Sugar Authority/National Sugar Commission)

1. Chairman

2. Member (Finance)
3. Member (Techinical)
4. Member (Agriculture)
5. Member (Marketing)
6 7 8 9 10.....15 (Parttime Members)

6. Director, N.S.I.—ex-officio
7. Representative of State Corpns. & State Govts.
8. Representative of State Corpns. & State Govts.
9. Representative of public sector;
10. Representative of privte sector;
11. Representative of cooperative sector;
12. Representative of workers;
13. Representative of canegrowers;
14. Persons having special knowledge and experience of sugar industry.

II. EXECUTIVE BOARD

1. Chairman

2. Member (Finance)
3. Member (Technical)
4. Member (Agriculture)
5. Member (Marketing)

III. SECRETARIAT AND FUNCTIONAL DIVISIONS

Secretariat

(a) Administration
(b) Coordination
(c) Policy
(d) Acquisition of mills.
(e) Socio-economic role of factories

Functional Divisions

1. *Financial*	2. *Technical*	3. *Agro-economic*	4. *Marketing*
(a) Finance and accounts of mills.	(a) Technical inspection and audit.	(a) Sugarcane development and research.	(a) Marketing of sugar and other sweetening agents.
(b) Costing & Audit.	(b) Utilization of by-products.	(b) Agricultural statistics.	(b) Buffer stock of sugar.
(c) Sugarcane prices.	(c) Research and training.	(c) Gur & Khandsari.	(c) Exports.
(d) Sugar prices.	(d) Plant and Machinery	(d) Planning of sugarcane and sugar production.	(d) Sugar sales and realization.
(e) Statistics.	(e) Rehabilitation and modernisation and expansion.	(e) Cane supplies & cooperative societies.	(e) Operation of various funds out of sugar realizations.
			(f) Regulation of the sugar industry.

NOTES: 1. Chairman will be the Administrative Member.

2. The Chairman and Members of the Commission will cost about Rs. 4 lakhs per year.
3. Each Division will have a Director, or Chief Engineer, or Chief Technologist, or Chief Accounts Officer, as the case may be and necessary technical and clerical staff. Each Division will cost about Rs. 2.5 to Rs. 3 lakhs per year.
4. The Secretariat will have a Secretary, a Joint Secretary, Deputy Secretaries, S.O' s, Assistants, U.D.C's, L.D.C's etc., and will cost about Rs. 4 lakhs per year.
5. The total estimated annual budget of the Central Organisation, including rent of buildings, office expenditure, T.A. & D.A., etc. will be about Rs. 20 lakhs to Rs. 25 lakhs per year.

Enclosure

SCHEME FOR MEETING THE REQUIREMENTS OF MANAGERIAL STAFF OF SUGAR FACTORIES IN THE NATIONALISED SECTOR OF THE SUGAR INDUSTRY

Part A—*under Chapter VII*

1. Chapter VII recommends the nationalisation of the entire private sector other than the cooperative sugar factories. The number of existing private factories is 141 including 2 private factories which have come up since 1969-70. Of them six factories have remained closed for several years and the question of their re-opening and the staff required for their working is not urgent. The staff will, therefore, be required for 135 factories only to begin with. In this note, the requirements of staff are being considered separately under two heads—(i) Managerial Staff and (ii) Technical Staff.

(i) *Managerial Staff*

2. There will be one or more State Corporation in the main sugar producing States for running nationalised units. Chairman-*cum*-Managing Directors will be required for the State Corporations. Even in States where a Corporation may not be set up on account of number of nationalised units being small or for any other reason, officers corresponding to the status of Chairman-*cum*-Managing Director will be required to control and supervise the nationalised unit or units. In addition, General Manager/Manager for each factory will be required. The requirements of officers for various supervisory and managerial posts for the State Corporation and sugar factories will be approximately as follows :

Chairman-cum-Managing Director . . .	16
General Manager/Manager	135
Assistant Manager/Administrative Officer . .	135

3. The problem of requirements of the managerial staff may be discussed in its two phases :

(i) immediately on nationalisation and for the first 12 months or so on a temporary basis ;

(ii) after 12 months on a permanent basis.

As regards the *first phase*, Chairman-*Cum*-Managing Directors may be drawn from qualified and competent Government Officers having some experience of sugar industry. In addition Government may look for suitable persons having experience of industrial management in the sugar or allied industries outside Government services also and select them for appointment as Chairman-*cum*-Managing Director. As regards the requirements of General Managers/Managers/Assistant Managers/Administrative Officer, it is expected that about one-fourth to one-third of the requirements will be met from the existing officers of the sugar factories which may be taken over. Immediately after a decision has been taken to nationalise sugar mills Government should invite applications for the managerial posts from the General Managers/Managers of the factories concerned (by a general circular/notification). To begin with, their terms of service may be approximately the same as at present (in the private sector) or they may be offered alternative specific terms and scales of pay if already worked out. Selections may be made from the applicants for temporary appointments, but they should be assured in advance that they will be considered for regular appointment in the public sector if they fulfil the qualifications and conditions which may be prescribed for recruitment and appointment to the services in the public sector on a regular and permanent basis. Their performance during the 'transitional period' will be taken into consideration at the time of recruitment to the regular posts.

4. As regards the remaining requirements of staff in the first phase, the number of officers required will be comparatively small in the States except Uttar Pradesh and Bihar, and there should be no difficulty in those States in finding and deputing suitable officers from the various States services—administrative, executive, agricultural, cooperative, technological, engineering, labour etc.—to run the nationalised sugar factories. In the case of Uttar Pradesh and Bihar, the numbers required will be large, but the cadres of the various services of these States are also large and as such these States should be able to select and depute the requisite number of officers to function as General Manager/Manager, as the case may be. If necessary, some officers could be drawn from the central technical and other services who have had previous experience of running sugar factories. They should be offered reasonable terms and a tenure of say 2 years at least.

5. It is probable that Government will take a decision on the recommendations of the Commission in regard to nationalisation within the next few months. It is necessary, therefore, to initiate contingency planning without delay. Action for selection of officers for appointment to the various managerial posts should be started immediately, just in case. If selections have been made and lists of selected officers ready, the State Governments concerned can proceed further, immediately after a decision to nationalise the private sector of the industry has been taken. The training of the selected officers could begin without any loss of time.

The selected officers should be given an intensive training for 12 weeks or more (depending on the time available) before they are placed in charge of sugar factories. Their practical training may include training at the National Sugar Institute, Kanpur for one month, and at the Indian Institute of Sugarcane Research, Lucknow for a fortnight. For another month and a half the officers should be placed for training under competent and experienced Managing Directors/General Managers of selected factories. There will, however, be some officers who have had previous experience of running sugar factories as receivers/authorised controllers and they could be appointed straightaway as General Managers/Managers, etc. But it would be useful if they too could be given a few weeks training.

6. As regards the *second phase*—long term arrangement—the following action should be taken, again without delay and without waiting for the decision of Government on nationalisation of any part of the sugar industry. Government should start on the work of creating a pool of officers who are trained and qualified for working as Chairman-*cum*-Managing Director/General Manager/Manager, etc. or sugar factories as their regular and permanent career. Government's efforts and expenditure in this direction will not go waste as the need for professional management in the sugar industry is great and the sugar industry will no doubt welcome and make use of the trained officers, irrespective of whether or not any part of the industry is nationalised. For the nationalised units such a body of trained officers is a must.

7. The practice of deputing officers from the administrative and executive services to the posts of Managing Director and General Manager etc., should be stopped as soon as possible. If it is at all necessary to fill these posts by officers from administrative and executive cadres, the officers should be given intensive training in theory and practice of management of sugar factories including the training suggested in para 6 above before they are put in charge of the factories and they should continue there for a reasonable period, say, four to five years. Short term deputations of untrained officers are responsible for a great deal of mismanagement of the factories concerned.

8. Every State which has or expects to have in the near future 5 sugar factories should create a sugar industry management cadre. Alternatively, the industrial management cadre, if any, of the State should be adequately strengthened by increasing the number of posts in the cadre to the extent required for manning posts in the State Corporation(s) and sugar factories in the State. In fixing the strength of the new cadres or strengthening the existing cadres, usual allowances and provisions may be made for leave, deputation, etc. The scales of pay and conditions of service of officers in these cadres should be laid down. As far as possible the classification of posts and the scales of pay should be the same in all the States.

9. A meeting of the representatives of State Governments should be called at an early date to discuss and decide the above matters. If necessary a small Committee should be set up to work out the strength of cadres, conditions of service, qulifications, etc. In drawing up the rules of service, the modern trend of giving opportunity to the juniormost member of the staff including technical staff of an organisation, to rise by promotion on ground of competencc from one rung to another right up to the highest post in the organisation, should be kept in view.

10. As soon as decisions have been taken about the creation of new management cadres or strengthening of existing industrial cadres, the scales of pay, the qualifications required for the posts and other conditions of service, the State Public Service Commissions should be requested to recruit the requisite number of candidates for the various posts urgently. If the State Public Service Commissions are unable to take up this work urgently, or if it is felt that this work can be done more quickly and more effectively by an *ad hoc* body, an *ad hoc* Selection Board may be set up early by the Central Government in consultation with the State Governments. The Board should make selections separately for different States, maintaining a uniform standard of selection.

11. It is desirable that there should be a central cadre also, however small, not only to work at the centre but also sometimes in the States, particularly those States which do not have a cadre of their own. However, if the Central Government decides not to have a separate cadre of its own, it can draw upon the various State cadres for its own requirements by securing State officers on deputation.

12. Another small Committee of experts should also be set up straightaway to prepare a syllabus for the training—theoretical and practical—of the selected candidates.

13. All the action outlined above excepting the recruitment of candidates should be completed within the next few months—say, by the end of March/April, 1974.

14. We hope that by that time Government will have taken a decision in the matter of nationalisation. Depending upon the number of nationalised units, candidates for the posts of Chairman-*cum*-Managing Director/General Manager, etc., should be recruited through State Public Service Commission Selection Board. The selected candidates should be appointed on probation for a period of two years and should be given intensive training, both theoretical and practical, for one year. The officers should then be put in charge of sugar factories on posts for which they have been recruited and are qualified and their performance should be considered in deciding upon their confirmation.

15. If this programme is followed and implemented, an adequate number of suitable officers will become available for manning posts of Chairman-*cum*-Managing Director/General Manager/Manager, etc. in the public sector factories, fairly in advance of the crushing season 1974-75. By the next following season (1975-76) the long term arrangements outlined above will have come into effect and the public sector will have

fully qualified and trained officers to take charge and run the factories. However, the entire programme will have to be accelerated if Government decisions are expected earlier than indicated in this note.

(ii) *Technical Staff*

16. As regards the technical staff—chemists, engineers, technologists, etc.—there is reason to believe that most of the staff at present employed in the private factories would like to continue to work in the factories which may be taken over by Government. As soon as Government takes a decision on nationalisation, technical staff employed by the factories concerned may be offered employment in the public sector on 'existing terms' or on 'alternative terms', on a temporary basis, pending their recruitment on regular basis to permanent posts. Any shortfall in meeting the requirements of the staff may be made good by fresh recruitment from the trainees of the National Sugar Institute and the open market. It is expected, however, that the need for such outside recruitment will be limited.

17. In this case also, advance contingency planning is called for. The same Committee as in the case of the managerial staff or, if so considered desirable, another Committee should work out details of pay and scales of pay for different levels of technical personnel which could be offered to the technical staff straightaway on taking over of factories, if possible. Otherwise they too should be engaged by the public sector on their existing terms to begin with, and later selected for and appointed to regular posts on such terms and conditions as may be decided for permanent and regular appointment. The technical and other qualifications should also be laid down and kept ready for utilisation at the appropriate time without loss of time.

Part B—*Under Chapter VI*

18. Chapter VI recommends taking over of sick mills only. A tentative list of sick mills has been prepared in accordance with the criteria laid down in that Chapter. It contains names of 24 mills which are at present in the private and cooperative sectors. Another 16 factories mentioned in the explanatory note to Enclosure 1 are in the public sector or function as public sector factories controlled by Government.

19. The requirements of officers for the various managerial posts for the State Corporations and the 40 factories will be approximately as follows :

Chairman-cum-Managing Director . . .	7-10
General Manager/Manager	40
Assistant Manager/Administrative Officer . .	40

In view of the small number of officers required for managerial posts, it will be easier to meet the requirements. This remark also applied to technical posts such as chemists, engineers, etc. The principles and procedures outlined in Part A for meeting the requirements of managerial and technical staff will apply *mutatis mutandis* to the requirements for the smaller number of units in Enclosure 1 and its explanatory note.

PART II

SUGARCANE PRICE POLICY

AND

STABILISATION OF CANE SUPPLIES OF SUGAR FACTORIES

PART II
SUGARCANE PRICE POLICY AND STABILISATION OF CANE SUPPLIES TO SUGAR FACTORIES

INTRODUCTION*

In this part of the Report the subjects of sugarcane pricing policy and stabilisation of supply of sugarcane to sugar factories have been considered, which comprise items of our terms of Reference 6 and 7. The other important aspects covered by these terms are—fluctuations in sugarcane production ; improvement in yield and quality of cane ; supply of agricultural credit to canegrowers ; relations between canegrowers and factory-owners and improvement in the relevant laws and practices ; arrangements for prompt payment of cane price ; supply of cane to gur and khandsari industries ; and rational development of sugar, gur and khandsari industries. These have been taken up later in Part III. In this part, they have been touched upon only to the extent necessary for a proper understanding of the matters under consideration.

*The original introduction to the First Interim Report which now forms Part II, has been given at Appendix G.

CHAPTER I

SUGARCANE PRICE POLICY

1.1 We do not propose to go into the history of sugarcane prices in detail, but shall only mention some of the important landmarks in the history and of the main principles and methods followed from time to time in the fixation of the minimum prices for cane.

1.2 The need for a minimum price for sugarcane supplied to factories began to be felt within a short period of the grant of protection to the sugar industry in 1932. At a Conference called by the Government of India in 1933, representatives of canegrowers asked for a minimum price. The Government accepted this demand and in 1934, passed the Sugarcane Act, 1934, which conferred powers on the then provincial Governments to fix minimum prices for cane. In exercise of those powers, the Government of U. P. and Bihar fixed for the first time in India, the minimum prices for cane in 1934. In 1937-38 they enacted their own legislation and fixed the minimum prices under the State Acts. Some other States also fixed minimum prices, under the Sugarcane Act, 1934, or their own Acts. Minimum prices for cane continued to be fixed by State Governments upto 1950-51, except during the period 1942-47 when they were fixed by the Central Government in consultation with the State Governments. In fixing the minimum prices, the various State Governments followed different principles and methods from time to time. There was neither uniformity in the prices fixed nor in the methods adopted in fixing them.

1.3 The main principles and methods adopted by the Central and State Governments in fixing the minimum cane prices from time to time were as follows :

(i) linking cane price to prevailing sugar price ;

(ii) fixing minimum price, unrelated to sugar price, for the whole or part of a season ;

(iii) fixing 'consolidated prices' related to percentages of sugar recovery ; and

(iv) linking cane price to extra realisation from the sales of sugar. (This method came to be known as the price-linking formula).

There were some variations in principles and methods followed, but, by and large, the principles and methods outlined above held the field until 1962-63 when a formula relating the minimum cane price to the quality of cane was introduced.

1.4 Not much need be said about the first method, namely, fixation of cane price in relation to sugar price except that the idea of basing cane price on, or deriving cane price from, sugar price existed in a rudimentary form from the very beginning. The methods of fixing different flat minimum prices, unrelated to sugar price, for different parts of the same season or a single flat minimum price for the entire season were adopted for most of the years in most parts of the country. The price linking formula involved payment of a floor price (as 'immediate price') and a 'deferred price', depending upon the share of cane-growers in extra realisations, if any. There was one common feature among all the prices fixed according to the various methods indicated above. Whatever the method used, the price of cane was fixed in relation to weight only and had little or no relationship to its quality. The only exception was the 'consolidated prices' fixed by the State Governments of Maharashtra and Gujarat, which were related to the percentages of sugar recovery.

1.5 The Tariff Board in its report of 1950 expressed dissatisfaction with what it considered to be the *ad hoc* manner of fixing the minimum prices for cane. It suggested that in fixing the minimum prices such factors as cost of cane cultivation and fair return to canegrower should be taken into consideration. It is probable that these and other relevant factors were actually taken into consideration by the various State Governments and the Central Government in fixing the minimum cane prices. Only they were not clearly spelt out or given a formal shape and legal sanction. This was, however, done following the recommendation of the Tariff Board and a provision was made in the Sugarcane (Control) Order, 1955 [Since replaced by the Sugarcane (Control) Order, 1966] requiring the Central Government to fix the minimum price for cane having regard to the following :

(a) cost of production of sugarcane ;

(b) the return to the grower from alternative crops and the general trend of prices of agricultural commodities ;

(c) the availability of sugar to the consumer at a fair price ;

(d) the price at which sugar produced from sugarcane is sold by producers of sugar ; and

(e) the recovery of sugar from sugarcane.

1.6 Of the factors mentioned above recovery of sugar from sugarcane has a special significance. For a long time demands had been made both by the industry and the canegrowers that the price of cane should be related to its quality. This proposition found favour with all those interested in the efficient working of the sugar industry. Every one recognised the need for establishing a link between cane price and its quality, but the difficulty lay in translating the proposition into workable scheme.

1.7 Several committees set up by the Government of India studied this problem and tried to evolve a method for relating the price of cane to its quality, but could not produce a practical scheme. A delegation was also sent to Australia and Indonesia to study, *inter alia,* this problem. In July, 1956, the Development Council for Sugar Industry recommended to Government that a scheme should be started, on an experimental basis, for linking the price of sugarcane to its quality. Accordingly, a scheme was undertaken under the technical guidance and administrative control of the National Sugar Institute, Kanpur, to find out a suitable method for testing the quality of sugarcane supplied by canegrowers. The Institute carried out experiments in ten factories during the seasons 1956-57 to 1961-62 and reported that the scheme was workable under certain conditions.

1.8 The scheme requires that sufficient cane should become available for a crush of four minute duration, which is the minimum time needed for taking a sample of the juice for test. This cannot be done in the case of individual canegrowers, and, therefore, it is necessary to organise them into groups. For this purpose, the cane belonging to different groups should be so unloaded into the carrier that there is no mixiug of the cane of different groups. This means that all canegrowers constituting a group should bring their cane to the factory at practically the same time, have it weighed separtely and unloaded into the carrier simultaneously. This requires an extremely efficient organisation at field level and in the factory, which could perhaps be achieved with a small number of canegrowers. But where the number of canegrowers supplying small quantities of cane every day runs into thousands, the problem becomes almost intractable. It was perhaps for these practical considerations that the Government of India did not see its way to adopting the scheme for implementation, even though the Tariff Commission in its 1961 Report, and later, the Sen Commission in its 1965 Report, recommended its adoption.

1.9 While it is abundantly clear that, in the conditions existing at present, the scheme cannot be enforced on an all-India basis or even on a regional basis, it might be found workable in a few selected factories where favourable conditions may exist. Such factories should be identified and, if necessary, special schemes suitable for them prepared, keeping in view the main objectives of the scheme. The scheme or variations of it may be tried in the few selected factories, in consultation and agreement with the canegrowers and with the full backing, moral and legal, of the Central Government and the State Government concerned, so that it may be possible for these factories to pay cane prices to canegrowers on quality basis. It should be our ultimate aim, in spite of the obvious difficulties, to pay to every individual canegrower a price which corresponds to the quality of his cane.

1.10 As the adoption of the system of payment of cane price on quality basis for individual canegrowers would take time in view of the large number of canegrowers, their social habits, difficulties of obtaining requisite staff and lack of facilities for chemical tests, the Tariff Commission (1961) recommended an interim arrangement in the form or collective incentive for improvement in quality of cane to all canegrowers attached to a factory by linking the price of sugarcane to the average recovery of the preceding season. The Government of India accepted this recommendation and has since 1962-63 been fixing each year a statutory minimum cane price linked to a basic sugar recovery, with a premium for every 0.1 per cent increase in sugar recovery over the basic level. The price for cane payable by individual sugar factories is being worked out on the basis of the average sugar recovery of the factory during a fixed period (optimum period) of the preceding season. This may be referred to as the quality formula.

1.11 The main elements in the above mentioned quality formula are the following :

(i) a minimum cane price :

(ii) a basic level of sugar recovery ;

(iii) a premium for every 0.1 per cent increase in sugar recovery over the basic level ; and

(iv) the average sugar recovery of the factory during a fixed period (optimum period).

The Central Government fixes each year the first three constituents of the formula. These have been changing from time to time as will appear from Table No. 1.1.

TABLE No. 1.1

Price of Cane, Basic Recovery and Premium Fixed by Government from 1962-63 to 1971-72

Year	All India average sugar recovery in the preceding season	Price of cane		Basic recovery per cent cane	Premium fixed by Govt. for every 0.1 per cent rise in recovery (Paise per quintal)
		Per Qtl. (Rs.)	Per Md. (Rs.)		
1	2	3	4	5	6
1962-63*	9.76 (1961-62)	*4.34	1.62	9.8	4.00
1963-64	10.28 (1962-63)	4.69	1.75	9.0	4.00
1964-65	10.01 (1963-64)	5.36	2.00	10.4	4.00
1965-66	9.66 (1964-65)	5.36	2.00	10.4	4.00
1966-67	9.70 (1965-66) upto 26th Dec.	5.36	2.00	10.4	4.00
	from 27th Dec.	5.68	2.12	9.4	4.00
1967-68	9.94 (1966-67)	7.37	2.75	9.4	5.36
1968-69	9.92 (1967-68)	7.37	2.75	9.4	5.36
1969-70	9.44 (1968-69)	7.37	2.75	9.4	5.36
1970-71	9.33 (1969-70)	7.37	2.75	9.4	6.60
1971-72	9.78 (1970-71)	7.37	2.75	9.4	6.60

*The minimum price fixed for this year was also subject to deductions at a rate of 4 paise per quintal for every 0.1 per cent fall in recovery below the basic recovery upto 9.0 per cent.

SOURCE : Directorate of Sugar & Vanaspati, New Delhi.

The above mentioned factors are discussed in the following paragraphs.

(i) Minimum Cane Price

1.12 A minimum statutory cane price is being fixed by the Government of India under the provisions of the Sugarcane (Control) Order, 1966, after giving due consideration to the recommendations of the Agricultural Prices Commission, and the views of the State Governments, industry, canegrowers and other interests concerned. The minimum cane price is being fixed with the object of ensuring the payment of a guaranteed price for cane by the factory to the growers. While fixing the minimum cane price, the Government of India takes into consideration, *inter alia*, the cost of production of sugarcane, return to the grower from alternative crops and the general trend of prices of agricultural commodities. But unfortunately, the available data on cost of cultivation of sugarcane and returns from other alternative crops are inadequate and out of date. In 1954, the Indian Central Sugarcane Committee sponsored comprehensive surveys to determine cost of cultivation of cane in the areas of sugar factories in important sugarcane growing States. The surveys were carried out in Andhra Pradesh, Bihar, erstwhile Punjab and Uttar Pradesh during 1955-58, in erstwhile Bombay State during 1956-59 and in Karnataka State during 1960-63. The estimates of the costs, based on these surveys are kept up-to-date by the Directorate of Sugarcane Development (Ministry of Agriculture), by working out index numbers of cost of cultivation of sugarcane under a scheme initiated in 1964 by the Central Sugarcane Committee. The Directorate of Economics and Statistics (Ministry of Agriculture) has also been sponsoring Farm Management Studies in certain selected regions of the country Studies 1954-55. During the last decade, surveys have been conducted in the three regions where sugarcane is a major crop : in Karnal, Rohtak and Jind areas of Haryana during 1961-64 and in Muzaffarnagar and Deoria districts of Uttar Pradesh during 1966-69. At the instance of the Directorate, a farm management study was undertaken by the Government of Karnataka in Mandya District during 1962-65. Information on cost of cultivation of various crops was also collected by the Agricultural Universities, Research

Stations and Agriculture Departments in the States. The Agricultural Prices Commission also made an attempt to develop estimates of gross income from the different crops including sugarcane. Estimates of net income or cost of production could, however, not be made. Thus up-to-date and reliable data on cost of cultivation of sugarcane and return from alternative crops are not yet available. A "Comprehensive Scheme for Cost of Cultivation of Principal Crops" sponsored by the Directorate of Economics & Statistics (Ministry of Agriculture) has been in operation since 1970-71, but the Commission was informed by the Economic & Statistical Adviser of that Ministry that the data ou cost of production of sugarcane collected under this scheme are not yet available.

1.13 The representatives of various interests, who have given oral or written evidence before the Commission have stated that the minimum cane price of Rs. 7.37 per quintal, which has been continuing since 1967-68 is unremunerative and contributed to the fall in sugarcane production in 1970-71 and 1971-72. They have pointed out that during the last 5 years, the cost of all inputs required for cane cultivation has gone up—fertilizers have become more costly ; water rates have gone up, the cost of bullocks and tractors has increased ; electricity rates are higher ; labour wages have risen ; other implements used in sugarcane agriculture cost much more and the growers have to pay higher prices for all other necessities of life. With the development of high yielding varieties of wheat, paddy, etc., the relative profitability of these crops *vis-a-vis* sngarcane has also changed. Farmers get a better return from other crops than from sugarcane and are, therefore, not inclined to grow sugarcane to the extent as before. They feel that the Government has probably not given due weight to the above aspects when fixing the sugarcane price. They have, therefore, suggested that Government should make a realistic assessment of the cost of production of sugarcane based on present-day cost of inputs and also maintain parity in the income accruing from different competitive crops.

1.14 The Commission had the benefit of a discussion on this matter with the Chairman of the Agricultural Prices Commission. He explained that the factors mentioned in the Sugarcane (Control) Order, 1966, in regard to the fixation of minimum cane price were taken into account in working out the minimum cane price to be recommended to the Government. There was, however, no mechanical formula for arriving at the minimum cane price. This required an overall assessment of various factors, including the overall price situation, future requirement of sugar, the cost of production of cane, the prices of other commodities, etc. He added that the cane price fixed statutorily was only the minimum support price and the actual prices received by the growers depended upon demand and supply. The minimum price protected the growers in years of excess cane production. In other years canegrowers often received higher cane prices.

1.15 The Fourth Five Year Plan (1969-74) envisaged the sugar requirements of the country at 4.7 million tonnes at a per capita consumption of sugar of 7 Kg. But the rate of consumption of sugar has increased at a faster pace than estimated in the Plan. The per capita consumption has already exceeded the Plan target. The draft Development Programme for the sugar industry prepared by the Department of Food for the Fifth Five Year Plan (1974—79) envisages a per capita consumption of sugar at 9.4 Kg and gur and khandsari at 15 Kg by the end of the Plan. A production target has been fixed at 6.5 million tonnes for sugar (6.0 million tonnes for internal consumption and 0.5 million tonnes for exports and buffer stock) and 9.6 million tonnes for gur and khandsari. The total cane requirement for the sweetennig agents as well as for seed and chewing purposes by the end of the Fifth Five Year Plan has been estimated at 183 million tonnes.

1.16 The per capita consumption of sugar and gur in the earlier years 1960-61 to 1970-71 is given in Table No. 1.2.

TABLE NO. 1.2

Per Capita Consumption of Sugar, Gur and Khandsari from 1960-61 *to* 1970-71

Sugar Season	Population in millions	Production (million tonnes)		Per capita consumption (Kgs. per annum)		
		Sugar	Gur & Khandsari	Sugar	Gur & Khandsari	Total
1	2	3	4	5	6	7
1960-61	439	3.02	6.69	4.8	15.2	20.0
1961-62	449	2.73	6.43	5.8	14.3	20.1
1962-63	458	2.14	6.07	5.5	13.3	18.8
1963-64	468	2.57	6.67	5.0	14.2	19.2
1964-65	479	3.23	7.21	5.1	15.0	20.1
1965-66	489	3.54	6.91	5.7	14.1	19.8
1966-67	500	2.15	6.12	5.2	12.3	17.5
1967-68	511	2.25	6.31	4.3	12.3	16.6
1968-69	523	3.56	7.35	5.0	14.0	19.0
1969-70	534	4.26	7.40	6.1	13.0	20.0
1970-71	546	3.74	7.64	7.4	14.0	21.4

SOURCE : Directorate of Sugar & Vanaspati, New Delhi.

The per capita consumption of sugar which was 4.8 Kg in 1960-61 increased to 7.4 Kg in 1970-71. It is expected to increase to 9.4 Kg in 1979. With this rate of increase in sugar consumption, the per capita consumption by the end of the Sixth Five Year Plan (1979-1984) may be 11.5 Kg and by 1985-86, it may be about 12 Kg. It is estimated that the per capita consumption of gur is not likely to increase significantly in the future. During the last 10 years it has remained more or less static, around 15 Kg. The increased demand for sweetening agents will be more and more for sugar than for gur, for with the improving standard of living and changes in habits, more and more people will be taking to sugar in preference to gur. There will be a shift from gur to sugar among the people who have been taking gur so far. It is also expected that the ratio of production of sugar to gur will change materially with increase in production capacity of the industry.

1.17 Our estimates are comparatively modest and somewhat different from those of the Perspective Division of the Plannig Commission*. While the per capita consumption of sugar and gur by 1985-86 has been estimated by us at 12 Kg and 15 Kg respectively, it has been estimated at 10.5 Kg for sugar and 22.8 Kg for gur by the Perspective Division. Thus the total consumption of the sweetening agents will be at the rate of 27 Kg per capita in one case and 33.3 Kg in the other. The population by 1985-86 has been estimated at 740 millions by the Perspective Division. On these assumptions, the sugarcane requirements for the total sweetening agents by the end of the Fifth Five Year Plan and in 1985-86 may be as given in Table No. 1.3.

*Perspective for Agriculture 1968-69 to 1985-86—Perspective Division of the Planning Commission.

TABLE NO. 1.3

Requirements of Sugar, Gur and Sugarcane by 1979 *and* 1985-86

(in million tonnes)

Year	According to the Perspeetive Division of the Planning Commission				According to estimates made by the Commission			
	Requirement of sugar	Requirement of gur	Total sweetening agents	Total requirement of sugarcane for sweetening agents, seed, chewing, etc.	Requirement of sugar	Requirement of gur	Total sweetening agents	Total requirement of sugarcane for sweetening agents, seed, chewing, etc.
1	2	3	4	5	6	7	8	9
1979*	6.7†	13.0	19.7	220.0	6.5@	9.6	16.1	183.0
1985-86	9.2‡	16.9	26.1	292.0	9.5@@	11.1	20.6	236.0

*The Planning Commission Estimates relate to 1980-81.
†includes 1.2 million tonnes for stocks, exports & other uses.
‡includes 1.4 million tonnes for stocks, exports & other uses.
@includes 0.5 million tonnes for stocks, exports & other uses.
@@Includes 0.6 million tonnes for stocks, exports & other uses.

1.18 During the last 10 years the maximum all-India average yield of sugarcane—49 tonnes per hectare—was obtained in 1969-70. On the basis of this yield and a requirement of 236 million tonnes of sugarcane, the total area needed for sugarcane will be about 48 lakh hectares by 1985-86, as against the highest area brought under cane so far—28.36 lakh hectares in 1965-66. Even if the all-India average yield of cane goes up by about 25 per cent by 1985-86 as a result of intensive cultivation, use of better seeds, adequate fertilizers and more irrigation, the sugarcane production from the maximum acreage of 28.36 lakh hectares brought under cane in the past will amount to nearly 176 million tonnes only as against the requirement of 236 million tonnes by 1985-86. On the basis of the requirements of sweetening agents as estimated by the Perspective Division of the Planning Commission the cane requirement would be greater, nearly, 292 million tonnes.

1.19 The area under cane during the period 1960-61 to 1969-70 has ranged between 1.3 per cent and 1.8 per cent of the gross cultivated area. There is very limited room for an increase in the net cultivated area in the country. As sugarcane requires well irrigated or well rainfed area, there is not much

chance of sugarcane being grown in area newly brought under cultivation. The increase in sugarcane area, therefore, will have to come out of the existing cultivated area though at the expense of the area at present under other crops. The cereals at present occupy something like 75 per cent of the cultivated area in the country. A reduction in the cereals area from 75 per cent to say 74 per cent of even 73 per cent could be made up by a small increase in yield, which is considered quite possible. For the next few years, however, our efforts should be directed to get the most we can from the existing area. Extension of area need take place only when we have reached a level of yield per hectare which leaves only a marginal room for further increase and when there is no escape from extension in cane area.

1.20 It is clear from the above that for meeting our increasing requirements in the years to come, there is need not only to intensify cane development work to increase the sugarcane yield, but also to bring more area under sugarcane. Having regard to all these factors it is essential to fix a remunerative price for sugarcane, which has edge over the parity prices for other crops, so that growers may be willing not only to increase the yield per hectare, but also in due course of time, to increase the area under sugarcane.

1.21 Some factories, mostly in the cooperative sector, are paying ex-field the statutory minimum gate cane price. The desirability and practicability of fixing statutory minimum cane price ex-field on an all-India basis will be dealt with by the Commission in its main report.

1.22 The Commission does not like to suggest any specific minimum cane price for the next crushing season or for any particular season or seasons. That is a matter for the decision of the Central Government in consultation with the Agricultural Prices Commission, the industry, the canegrowers and others concerned.

1.23 Sugarcane occupies land for a longer period than any other crop, its period of growth extending from 10 months to 18 months. During this period, two or more other crops can be grown, which gives the farmer a quicker return for his investment. Sugarcane also needs larger investment in the inputs. It is, therefore, recommended that the statutory minimum cane price be so fixed that the return from cane has an edge over the return from other alternative crops, in which technological breakthrough has already been achieved, and should be varied from year to year in future in proportion to the changes in the return from other competitive crops.

1.24 The Commission recommends that the statutory minimum cane price should be so fixed that it fully covers the cost of cultivation in all the major cane growing regions. The Commission further recommends that for purposes of fixing cane prices, the data on cost of cane cultivation and return from sugarcane and other alternative crops should be collected and kept up-to-date.

(ii) Basic Level of Sugar Recovery

1.25 Basic recovery plays a very significant role in fixing cane prices according to the quality formula. Table 1.1 on page 169 shows the basic recovery fixed for the various years. It has been 9.8, 9.0 and 10.4 per cent and for the last five years it has remained at 9.4 per cent. There has been a general demand for lowering the basic recovery particularly from areas where the average recovery is lower than the basic recovery.

1.26 The Indian Sugar Mills Association, the National Federation of Cooperative Sugar Factories and other regional associations of the industry as well as the representatives of canegrowers have been asking for a lower basic recovery. Several State Governments have also suggested lowering of the basic recovery. The Indian Sugar Mills Association in its written memorandum has proposed a basic recovery of 8.5 per cent for the States of Tamil Nadu, Andhra Pradesh, Karnataka, Kerala and Pondicherry and 9.0 per cent for the rest of the country. The Federation, in its replies to the Commission's General Questionnaire, has recommended a basic recovery of 8.4 per cent, but for 1972-73, it has asked for a basic recovery of 8.0 per cent.

1.27 It is stated that the present basic recovery of 9.4 per cent, which is higher than the average recovery in many States/regions of the country, is not a correct basis for fixing the minimum cane price. The statement No. 1.1 gives the average recoveries of various States from 1962-63 since when the formula of linking minimum price of sugarcane with basic recovery has been followed. There is a wide variation in the recoveries of different States. The variations are not of a temporary nature, but of a permanent character. These figures indicate that the difference between the recoveries in, say, Tamil Nadu on the one hand and Maharashtra on the other, is of a basic and permanent nature. Whatever might be the reasons for this difference—climate, varieties of cane, agricultural practices, etc.—the difference has existed every year since 1962-63, in fact for that matter, always. And though this difference might be reduced, it is unlikely to be eliminated in the next 10 to 15 years or in the foreseeable future. Thus, according to the sponsors of a lower basic recovery, the adoption of the all-India average or an arbitrary high basic recovery, is not at all fair to the canegrowers and the industry in areas of low sugar recovery. It has been suggested that for the purposes of the formula, the lowest or nearly the lowest average recovery in the country should be taken. The lowest annual average recoveries during the last ten years have ranged between 7.02 per cent and 8.47 per cent.

1.28 Another reason given is that some factories have to pay the minimum price linked to a recovery of 9.4 per cent even for cane having a lower recovery, say, 8 per cent or 8.5 per cent or 9.0 per cent. This means a higher cost of sugarcane for production of a quintal of sugar than is paid by other factories having a recovery higher than 9.4 per cent. Thus sugar factories with an average sugar recovery

of lower than the basic recovery are at a considerable disadvantage as compared to factories with a higher recovery. Table No. 1.4 shows the prices for cane required for one quintal of sugar at different levels of recovery.

TABLE No. 1.4

Price of Cane per Quintal of Sugar at Different Levels of Recovery

Per cent of sugar recovery	Quintals of cane required for production of one quintal of sugar	Minimum price payable for cane per quintal (Rs.)	Price of cane for producing one quintal of sugar (Rs.)
1	2	3	4
8.0	12.50	7.37	92.13
8.5	11.76	7.37	86.67
9.0	11.11	7.37	81.88
9.5	10.53	7.44	78.34
10.0	10.00	7.77	77.70
10.5	9.52	8.10	77.11
11.0	9.09	8.43	76.63
11.5	8.70	8.76	76.21
12.0	8.33	9.09	75.72
12.5	8.00	9.42	75.36

It will be seen from the above that while factories with an average recovery of, say, 11.0 per cent have to pay a minimum statutory price of Rs. 76.63 for 9.09 quintals of sugarcane required for production of one quintal of sugar, the factories with an average recovery of, say, 8.5 per cent have to pay Rs. 86.67 for 11.76 quintals of cane required for one quintal of sugar.

1.29 It has been pointed out that the purpose of the scheme—to encourage canegrowers to produce cane with higher sugar content—will be defeated if a large percentage of the canegrowers in the country are left without any incentive for improving the quality of cane. For instance, if the basic recovery is 9.4 per cent and the average recovery of the cane of an area is 8 per cent, the canegrowers of that area have no incentive to improve the quality as, first, they get the same sugarcane price as those canegrowers whose recovery is 9.4 per cent, and secondly, they know fully well that it is extremely difficult to raise the recovery from 8 per cent to above 9.4 per cent. Any increase in recovery upto 9.4 per cent gives them no advantage in price and, therefore, no incentive. In such cases, the cane is actually paid for on weight basis. It is necessary, therefore, that canegrowers in all areas should be given the incentive, the opportunity and the satisfaction of raising the quality of the cane and getting a higher price than the minimum price linked to basic recovery.

1.30 The Sen Commission (1965) also considered this matter and recommended that the specified level of sugar recovery might be lowered sufficiently so as to approximate the lowest regional level of recovery recorded in the country. It was of the opinion that the adoption of this recommendation would narrow down the difference in the cane cost per quintal of sugar. The Agricultural Prices Commission in its Report for the season 1968-69 also recommended that the basic recovery, to which the minimum cane price should be linked, should be progressively lowered by 0.2 per cent every year until it reached 8.4 per cent by 1972-73. In its Reports for the seasons 1969-70 and 1970-71, the Agricultural Prices Commission again recommended lowering of basic recovery. In the Report for the 1972-73 season, it has recommended the lowering of basic recovery to at least 9.0 per cent. These recommendations were made with the object of encouraging the growers to adopt better agricultural practices and to improve the quality of sugarcane. The Agricultural Prices Commission has also observed that the quantity of cane crushed in factories, where the sugar recovery was below the present basic recovery of 9.4 per cent, is substantial.

1.31 Table No. 1.5 gives the all-India percentages of sugarcane crushed at and above different levels of recovery.

TABLE No. 1.5

All India Percentages of Sugarcane Crushed at and above Different Levels of Recovery from 1960-61 *to* 1970-71

Year	9.4 per cent	9.0 per cent	8.5 per cent	8.4 per cent	8.3 per cent	8.2 per cent	8.1 percent	8.0 per cent
1	2	3	4	5	6	7	8	9
1960-61	65.3	87.0	98.1	98.6	98.6	98.6	98.6	98.6
1961-62	55.0	81.8	96.0	96.9	97.3	97.3	98.9	99.5
1962-63	75.2	92.7	99.6	99.6	99.6	99.6	99.6	99.8
1963-64	72.0	80.6	93.0	96.4	98.5	98.9	98.9	98.9
1964-65	60.0	77.8	88.8	90.9	93.3	95.6	96.7	97.8
1965-66	61.4	80.5	92.2	95.0	96.3	98.8	98.8	98.8
1966-67	71.4	80.3	93.2	93.4	95.1	95.6	96.5	97.1
1967-68	62.8	86.6	93.3	97.3	97.6	98.4	98.6	98.6
1968-69	49.2	64.3	79.3	81.1	83.3	86.0	87.1	87.6
1969-70	41.1	62.3	85.4	85.7	89.4	90.9	92.4	94.8
1970-71	56.4	75.1	95.1	96.0	96.3	98.0	98.0	98.0

SOURCE : Compiled from the data supplied by the Directorate of Sugar and Vanaspati, New Delhi.

It will be seen from the above that if the basic recovery is kept at 9.4 per cent or even 9.0 per cent, a substantial part of the cane crushed will still be paid on weight basis instead of quality basis.

1.32 One would have wished to pay for cane on quality basis to individual growers, but as this has not been found feasible (*see* para 1.8), the next best method is to pay on a collective basis. By linking minimum price to a high basic recovery (9.4 per cent) even this limited objective is not being served. Moreover, as explained above, the present procedure of linking the minimum price to a higher level of basic recovery places many sugar factories having average sugar recoveries below the basic level at a permanent disadvantage for no fault of theirs.

1.33 The basic recovery of 9.4 per cent leaves out a very high percentage of cane crushed by sugar factories in the country from the benefit of a price higher than the minimum price. In six out of the 11 years (1960-61 to 1970-71), as much as 40 per cent of the cane crushed by factories had a recovery of less than 9.4 per cent; only in one year it was less than 25 per cent (*vide* Table No. 1.5). Again, in seven years out of 11, about 20 per cent of cane crushed had a recovery of less than 9 per cent. These are very high percentages of cane to be denied the benefit of payment of price on quality basis. This leaves no incentive for canegrowers to improve the quality of their cane. On the other hand, they concentrate their attention on increasing yields at the expense of the quality of cane. There is, therefore, a very strong case for reducing the basic recovery to a lower level. It will be found that at a basic recovery of 8.5 per cent, more than 90 per cent of the cane crushed in the country would be covered by the formula in most of the years. This expectation is based on the fact that out of the last eleven years, in four years more than 95 per cent and in four years 92 to 95 per cent of cane was crushed by factories having a recovery of 8.5 per cent or above. Only in 3 years, about 80 per cent of cane was crushed at or above 8.5 per cent recovery. In the circumstances, the most appropriate level, at which basic recovery should be fixed, appears to be 8.5 per cent. Any further lowering of the recovery is not justifiable as only a very small percentage of cane is left out by fixing the basic recovery at 8.5 per cent. This level of recovery is low enough to be reached by canegrowers in all parts of India if gemine efforts are made to improve the quality of cane. The data given in Statement No. 1.1 shows that even in those regions where the average recovery has been the lowest in the country, recoveries of 8.5 per cent and above have been reached in several years in the past.

1.34 For the reasons given above, the Commission recommends that the basic level of recovery should be fixed at 8.5 per cent. The Commission also recommends that in areas in which average sugar recovery is below 8.5 per cent, special efforts should be made by the Government, the factories and canegrowers to improve the quality.

1.35 The Commission is not inclined to accept the suggestion of the Indian Sugar Mills Association for separate basic recoveries for the North and some of the southern States. The suggestion is obviously based on the facts of the average recovery in the southern States being generally lower than in other parts of the country. But then the basic recoveries in Punjab, Haryana and Rajasthan are nearly of the same order. There is, therefore, no reason to exclude them as the ISMA has suggested. Apart from this, the acceptance of the principle of having more than one basic recovery on a sub-India basis will open the doors to demands from other States/regions for a basic recovery specially suitable for their areas.

(iii) Premium for Increase in Sugar Recovery

1.36 Of the factors constituting the formula mentioned earlier, the rate at which premium is paid for increase in recovery has special significance. In some ways it can be said to be the main factor intended and expected to encourage the cane growers to improve the quality of their cane. Government of India has been fixing the premium for every 0.1 per cent increase in recovery over the basic recovery from time to time during the last 10 years. The rate of premium has been changed from time to time as will appear from Table No. 1.1. However, the premium has not been fixed in the same proportion as the minimum cane price bears to the corresponding basic recovery. Table No. 1.6 brings out the difference between the premia fixed by Government from time to time and as calculated on proportionality basis.

TABLE No. 1.6

Premia Fixed by Government and on Proportionality Basis from 1962-63 to 1972-73

Season	Minimum cane price Rs. per qtl.	Basic recovery per cent cane	Premium as fixed by Govt. (paise)	Premium as calculated on proportionality basis (paise)
1	2	3	4	5
1962-63 . .	4.34	9.8	4.00	4.44
1963-64 . .	4.69	9.0	4.00	5.21
1964-65 . .	5.36	10.4	4.00	5.15
1965-66 . .	5.36	10.4	4.00	5.15
1966-67				
Upto 26th Dec.	5.36	10.4	4.00	5.15
From 7th Dec. .	5.68	9.4	4.00	6.04
1967-68 . .	7.37	9.4	5.36	7.84
1968-69 . .	7.37	9.4	5.36	7.84
1969-70 . .	7.37	9.4	5.36	7.84
1970-71 .	7.37	9.4	6.60	7.84
1971-72 . .	7.37	9.4	6.60	7.84
1972-73* . .	8.60	9.0	7.50	8.89

*Recommended by the Agricultural Prices Commission in its Report for 1972-73 season.

1.37 Within a short period of the introduction of the quality formula, representations began to be made by and on behalf of canegrowers that the premium for increase in recovery should be calculated on proportionality basis. Briefly their contention is that increase in recovery is the direct result of improvement in the quality of cane which is due to the investment and efforts made by canegrowers. On the other hand, it has been maintained by a section of the industry that the improvement in the quality of cane and recovery is largely due to its efforts and efficiency.

1.38 The question became so controversial and assumed such importance that Government found it necessary to refer the matter to a Committee for a detailed study. The Committee (known as Talwar Committee) examined the matter in its various aspects and concluded that the demand of canegrowers for determining premium on the basis of proportionality was fair and reasonable. The Committee, therefore, recommended to Government the acceptance of the principle. But the Government of India did not accept the recommendation.

1.39 The main considerations which weighed with the Government of India in not accepting the Committee's recommendations are that though the sugarcane grower plays an important role in the improvement of sugar content in sugarcane, the factory also takes various measures for obtaining the maximum recovery from the sugar content in cane and that the sugar content is largely dependent upon natural and environmental factors. Government felt that while the farmer contributed a great deal to the improvement in the quality of cane, there was a limit up to which the sugar content in particular regions could be improved. Government also felt that the system should not operate in such a way that the farmers in different areas got widely different cane prices for the best cane they could grow.

1.40 In its reply to the General Questionnaire of the Commission, the National Federation of Cooperative Sugar Factories has stated that the present rate of premium—6.6 paise for 0.1 per cent recovery—is low and that a disproportionate part of the benefit of cane quality is being passed on to sugar factories. It has suggested that the premium should be the same as is the minimum price for every 0.1 per cent of basic recovery. In its reply to the General Questionnaire, the Indian Sugar Mills Association has strongly contested this demand on several grounds and insisted on the industry sharing the advantage accruing from higher recovery.

1.41 We discussed this highly controversial problem with the representatives of both the Federation and the ISMA. The main points made by the Federation in support of the principle of proportionality are as follows :

(i) Sugar is produced in the field and not in the factory. As such, improvement in the quality of cane is the direct result of the efforts of canegrowers. They should, therefore, receive in full the benefit of the improvement in quality of cane.

(ii) Premium is primarily intended to encourage canegrowers to improve the quality of their cane. If the premium to which the canegrowers are entitled is reduced to any extent, the reduction will act as a disincentive to grow quality cane.

(iii) The claim of factories for a share in the benefit on the ground of their contribution to improvement in quality of cane is unreasonable as they hardly make any significant contribution, if at all.

(iv) Even after allowing the full benefit of increased in recovery to canegrowers, a substantial advantage remains with factories on account of production of more sugar from a given quantity of cane and lower conversion charges.

(v) In the present system of averaging of cane prices in a zone for the purposes of calculation of levy sugar prices, factories with recoveries lower than the average recovery of the zone suffer losses. These losses will be reduced by adopting the principle of proportionality in the fixation of premium.

1.42 The Indian Sugar Mills Association advanced the following arguments in support of its contentions :—

(i) Recovery depends on the sugar content and the total sugar losses in a factory. The higher the sugar per cent cane and the lower the sugar losses, the higher will be the sugar recovery. Sugar factories play a very important role in improving the quality of cane. Factories give agricultural credit, develop irrigation facilities, supply good seed, provide plant protection measures, etc. In fact, they play a much more important role in increasing sugar content in cane than the canegrower. After the cane reaches the factory, extraction depends entirely upon the efficiency of factories. Costly modern equipment and improved technology are employed to increase recovery. The premium allowed to factories on account of increase to recovery due to highly costly machinery and modern techniques, does not cover even the interest on the investment. If factories are not left with any reasonable return, they would not have any incentive for developing cane and the technology of sugar extraction. If incentive is given to factories, the farmer in turn will be benefited.

(ii) Better quality of cane is not due to any special efforts by canegrowers. They are interested more in the yield per acre than in the quality, because the return by increasing yield, is far greater than by improvement in cane quality.

(iii) Ever since the system of payment of cane price on recovery basis has been instituted, the major portion of the benefit due to better quality of cane has been passed on to the canegrowers. At present, it is as much as 84 per cent. Even this has not resulted in any improvement in the quality of cane as evidenced by the fact that recoveries have not shown an increase in any State. It is unlikely that passing the remaining 16 per cent of the benefit to canegrowers will influence them to improve the quality of their cane.

(iv) By allowing the premium on proportionality basis, the cane prices and consequently sugar prices would go up, which will be against the interests of the consumer.

(v) In no other industry the cost of raw material per unit of finished product is the same. It varies from factory to factory depending upon the efficiency of the factory. Profits accruing from the efficiency are never passed on to the supplier of raw material. In the case of sugar industry already 84 per cent of the benefit is passed on to the canegrowers. There is, therefore, no justification whatsoever for any further diversion of the benefit to the canegrowers.

(vi) If the object of asking for the application of the principle of proportionality is only to obtain higher cane price, it should be asked for directly.

1.43 It is admitted that the efficiency of the factory does contribute to better recovery of sugar from cane of the same quality and that better efficiency is achieved by extra investment. The claim of the factories to contribution to the improvement of quality of cane in the field need not be disputed. Even so we find that a significant financial gain due to higher recovery remains with the factories after payment of premium on proportionality basis, as will appear from the following illustration. A and B are two sugar factories working under similar conditions and with equal efficiency, the only difference between the two cases being the quality of cane crushed. Factory A gets an average recovery of 10 per cent and factory B a recovery of 10.1 per cent. If each factory has crushed one lakh tonnes of cane, the sugar production will be 10,000 tonnes in factory A and 10,100 tonnes in factory B. The value of extra 100 tonnes of sugar recovered by factory B will be Rs. 1.5 lakhs on an average selling price of Rs. 150 per quintal. Factory B, however, will pay an extra cane price of Rs. 66,000 on the basis of the present premium of 6.6 paise per quintal and Rs. 78,400 on the basis of a premium of 7.84 paise per quintal on proportionality basis. Even by paying Rs. 78,400, the factory will be left with Rs. 71,600. Out of this, the factory will have to incur an expenditure on purchase of gunny bags, storage, insurance, interest, etc. Allowing for such expenditure, the factory will still retain 35 per cent to 40 per cent of the return on account of additional recovery after paying for cane on proportionality basis. We consider that this gives a reasonable incentive to factories to improve the quality of cane and the recovery of sugar from cane.

1.44 As regards the question of wide disparity in the different prices of cane in different areas, it is found that the maximum difference on account of proportionality will be about 26 paise only per quintal of cane. This will become clear from the following. For factories with recoveries of 9.4 per cent and below, the statutory minimum price is Rs. 7.37 per quintal. In their case, the application of the principle of proportionality will not make any difference. In the case of factories having recoveries of more than 9.4 per cent, an additional payment of 1.24 paise per quintal will have to be made, on proportionality basis, for every 0.1 per cent increase in recovery. Assuming that a factory has the high recovery of 11.5 per cent, the additional price payable for 2.1 per cent increase over basic recovery works out to 26 paise per quintal. This is not a large amount to create a wide disparity between prices obtaining in different areas. Some degree of disparity in prices payable to canegrowers by different factories and in different areas is inherent in the formula. An addition of 26 paise only per quintal in the case of a small number of factories will not matter. Most of the factories in most of the areas of the country will have to pay an additional amount much less than 26 paise per quintal. There need, therefore, be no apprehension that the application of the principle of proportionality in fixing the premium for increase over the basic recovery will create dissatisfaction among the canegrowers in any part of the country.

1.45 In the present system of averaging, the cane cost per quintal included in levy price of sugar for a zone is the weighted average of cane cost of all factories in the zone. The procedure results in loss to factories whose individual cane cost per quintal of sugar is higher than the zonal average. On the other hand, it leads to gain to factories with lower cane cost per quintal of sugar than the zonal average. Thus some sugar factories in a zone get an advantage over other factories on account of the averaging system. It has been claimed by the Federation and a section of the Joint Stock sector of the industry that the fixation of minimum cane price, after allowing premium on proportionality basis, will equalise the cost of cane required for production of one quintal of sugar in all factories. This statement is not correct. A reference to Statement No. 1.2 will show that the cane price per quintal of sugar even on proportionality basis, is not the same for all the factories. This is on account of the fact that the sugarcane price paid by individual factories is based on the average sugar recovery during the optimum period of the preceding season while the quantity of sugarcane required for one quintal of sugar in a season is worked out on the basis of the actual average recovery of the current season.

1.46 The fixation of the premium on proportionality basis (at 7.84 paise) as against the present premium (at 6.6 paise per quintal) will reduce the

cane cost per quintal of sugar in factories having recoveries below the average of the zone and will increase the cane cost in factories with recoveries above the average of the zone. This means that the disadvantage of averaging of the zone is reduced by payment of premium on proportionality basis and not altogether eliminated.

1.47 It may also be mentioned here that a section of the industry represented by ISMA does not support the official view of ISMA. At our discussions with the representatives of ISMA, both the official view and the dissenting view were presented. Thus not only the cooperative sector of the sugar industry but also a section of the Joint Stock sector is in favour of proportionality. That by itself is no decisive argument for proportionality. But there are strong reasons why a section of the industry finds the existing—non-proportionality—basis for calculation of premia as irksome and against its interest. The reasons have been discussed in paras 1.45 and 1.46.

1.48 After giving the fullest consideration to this important issue, we have come to the conclusion that it will be in the interest of canegrowers and the industry to allow premium on proportionality basis. We are aware that this will mean a marginal increase in the price of cane and a consequential increase in the price of sugar. This aspect can, however, be kept in view while fixing the basic minimum price for cane. We recommend the adoption of the principle of proportionality in fixing the sugarcane price for individual sugar factories as, in the long run, the acceptance of this principle will prove to be beneficial to the industry as a whole, and will provide a further incentive to cane growers to improve the quality of cane.

1.49 We understand that in calculating the statutory minimum cane price for individual sugar factories on the basis of average sugar recovery of the optimum period of the preceding season, the figure for sugar recovery is rounded upto the first place of decimals. In this rounding where the recovery figure has more than one place of decimals, the figure in the first place of decimal is increased by one. For example, if the recovery is 9.11 or 9.19, it is rounded to 9.2 in both the cases. The Commission considers this system of rounding as inequitable. Assuming that the basic recovery is 9 per cent and the rate of premium is 10 paise for every 0.1 per cent increase in recovery over the basic recovery, the premium works out to 20 paise in both the cases, although on the basis of actual recovery it should be 11 paise in one case and 19 paise in the other. Thus in the first case the advantage in favour of the grower is 9 paise and, in the other case, it is one paisa only. The inequity will be reduced if the recovery is calculated upto three places of decimals and rounded upto two decimal places. For this purpose the figure at the second decimal place may be increased by one if the figure in the third decimal place is other than zero. For example 9.211 or 9.219 may be converted into 9.22. We recommend accordingly.

1.50. The principle of proportionality for the payment of premium has relevance in the fixation of the statutory minimum cane price payable by individual factories. The Government of India has under its consideration the recommendations of the Agricultural Prices Commission which has suggested a minimum price of Rs. 8 per quintal linked to a recovery of 9 per cent, in its Report for the season 1972-73. We recommend that the minimum price for cane should be linked to a recovery of 8.5 per cent and the premium for every 0.1 per cent increase should be fixed according to the principle of proportionality.

(iv) Optimum Period

1.51. The expression 'optimum period' has not been defined formally, but in the context in which it is used and the purposes for which it is used, it means the period during which the cane is at its best or near best in quality and the average recovery of this period represents almost the best performance of sugarcane in the matter of sugar recovery. The minimum price payable by a factory during the season is calculated on the basis of the average recovery of the optimum period of the working of a factory in the preceding season. Government of India has fixed the optimum periods of factories in different States/regions as given in Table No. 1.7 :

TABLE NO. 1.7

Optimum Period in Various States/Regions

1. Maharashtra	November to March
2. Karnataka	November to March except Mandya and Pandavapura factories for which the period is August to February.
3. Kerala	October to January
4. Uttar Pradesh	December to March
5. Bihar	
6. West Bengal	
7. Assam	
8. Punjab	
9. Haryana	
10. Orissa	
11. Madhya Pradesh	
12. Rajasthan	
13. Gujarat	
14. Tamil Nadu	
15. Pondicherry	
16. Andhra Pradesh except Nizam Sugar Factory	
Nizam Sugar Factory in Andhra Pradesh.	

SOURCE : Directorate of Sugar & Vanaspati, New Delhi.

1.52. Objection has been raised against the use of recovery of the optimum period for fixing the minimum cane price for individual factories and it has been suggested that the average recovery of the entire season of a factory should be taken for the purpose. The reasons for using the average recovery of the optimum period *vis-a-vis* the average recovery of the entire season concerned, as given by Department

of Food (Ministry of Agriculture), are that the entire season of a factory varies from year to year, that the average recovery of varying periods would not be comparable and that the average recovery ot the entire season will include recovery of the sugarcane which has deteriorated. As such the average of the entire season will not be a fair basis for judging the quality of cane. Also, for a proper comparison of the average quality of cane supplied to a factory, it is essential that it should be judged during the period when it gives the best or nearly the best results. It is only then that one can know whether or not there has been collective improvement in the quality of cane grown in the factory areas.

1.53 It has also been suggested that the average sugar recovery should be of the season concerned and not of the previous season. It has been explained by the Department of Food that the minimum price for sugarcane for a season has to be fixed before the commencement of the season and that the recovery of sugar for the season is not available at that time. If the price is to be fixed on the basis of the recovery of the season concerned, the Government will have to fix a provisional cane price first and a final price after the end of the season. This will involve considerable administrative and clerical work. It will also create uncertainty in the minds of canegrowers about the final price payable for their cane. This is likely to affect cane supplies to the factories. The balance of advantage, therefore, lies in using the previous season's recovery for determining the price of cane.

1.54 We agree that the period the average recovery of which is used for the purposes of determining the minimum cane price payable by individual factories, should be a fixed and identical period from year to year. Though this condition is fulfilled by the optimum period, it is also essential that the average recovery of the period should represent the average quality of cane and this condition is not satisfied by the optimum period inasmuch as the average recovery of this period represents nearly the best quality of cane. It is claimed that the average recovery of the entire crushing season will better represent the quality of cane. But as the duration of the entire crushing season varies from year to year, it is unsuitable for adoption as a basis for fixing the minimum cane price. Apart from this, the average recovery of the entire crushing season will in many cases be reduced by the crushing of immature cane at the beginning of the season and deteriorated cane towards the end of the season. As such the average recovery of the entire crushing season also will not represent the average quality of the cane. In our view, there is room and reason for a compromise formula, which will meet both the conditions mentioned above and will also protect the interests of canegrowers, industry and the consumers. Such a period need not be co-extensive with the entide season or limited to the optimum period. This period may be referred to as "normal crushing period".

1.55 The knowledge and experience of the agro-climatic conditions and the cane cultivation practices obtaining in a region or in a factory area over a number of years should make it possible to determine approximately the time at which cane grown in the region/area will become mature enough for processing, as also the approximate time when the quality of cane would begin to deteriorate and the recovery would start going down. The normal crushing period of a factory should lie between these two points of time. Once it has so been fixed, it will continue to be the same till agronomic conditions and pattern of cane cultivation change.

1.56 The normal crushing period will be mid-way the optimum period and the entire season. It will also be a fixed and pre-determined period. For example in the case of West Uttar Pradesh, the normal crushing period on the basis of these factors may be taken as 15th November to 30th April. In this region generally, factories are reluctant to start crushing before the 15th November on account of poor sugar recovery before this period due to the unripe nature of cane. Moreover, on account of late rains in September and October, village roads are not quite suitable for cane transport and the growers are also busy with the planting of rabi crops. On account of these factors, both the growers and the factories prefer to commence the crushing operations nearabout the 15th November. Similarly, due to rapid fall of sugar recovery after April, factories are reluctant to continue crushing operations after the 30th April. The labour and the growers also want to crushing operations to be over by 30th April as after April they have to attend to the harvesting of rabi crops and moreover, due to the hot weather, the harvesting and transport of cane is difficult and the working in sugar factories becomes uncomfortable. There is also an excessive driage of sugarcane in the hot weather after April.

1.57 All the growers supplying cane to a factory cannot expect that their cane will be crushed during the optimum period. Normally a factory will be working for a period longer than optimum period, if cane is available for crushing. Except in years of low production, factories are expected to commence crushing when the cane in their areas is sufficiently mature to give satisfactory results and to stop crushing when the quality of the cane starts deteriorating. And the cultivator should also, in arranging his cropping system, keep this aspect in view. He must, therefore, expect that his cane will be crushed during the normal period and not in the optimum period, and consequently the price that he can expect for the cane must be related to the recovery from the canc during this normal period and not the optimum period. Factories do sometimes, on their own, work prior to the normal period and are required to work after the expiry of the normal period due to excessive availability of cane. After expiry of the normal period, the growers should not expect even the minimum price. For fixation of the minimum price for the season, the period outside the normal should, therefore, be ignored.

1.58 The cane crushed within the normal crushing period of a factory will include all cane from the time it has reached sufficient maturity till the time upto which it maintains a reasonable recovery and a definite fall in recovery has not started. Fixation of

sugarcane price of a factory on the basis of the average of the recovery of the normal crushing period would, in many ways, be a more reasonable and fairer arrangement than fixing the cane price on the basis of the best quality of sugarcane during the limited optimum period.

1.59 The Commission, therefore, recommends that the average sugar recovery during the normal crushing period instead of the average sugar recovery during the optimum period of the preceding season should be taken into consideration for the purpose of fixing the statutory minimum cane price of individual sugar factories. The Government of India may fix and announce the normal crushing periods for different factories in place of the optimum periods after consulting experts, growers and processors and after keeping in view that this does not seriously upset the sugarcane economy of any region.

(v) Time of Announcement of Sugarcane Price

1.60 In the replies received to the General Questionnaire as well as at the meetings of the Commission with canegrowers in various parts of the country, a demand has been made that the minimum statutory price of sugarcane should be announced by the Central Government well ahead of the sowing season. The canegrowers want to know what they will get for the cane which they might plant. They would like to be in a position to decide as to whether they should plant cane or sow any other alternative crop. The following table giving the dates of announcement of statutory minimum prices by the Central Government since 1962-63 shows that over the last 10 years, the minimum prices have been announced only a month or so before the start of the crushing season concerned, except in two cases when they were announced 4-5 months ahead of the season.

TABLE NO. 1.8

Dates of announcement of Sugarcane Price from 1962-63 to 1971-72

Season	Date of announcement of sugarcane price
1	2
1962-63	3-7-1962
1962-63	1-11-1962
1963-64	17-5-1963
1963-64	31-10-1963
1963-64	12-12-1963
1964-65	30-12-1964
1965-66	4-11-1965
1966-67	1-11-1966
1966-67	27-12-1966
1967-68	25-9-1967
1968-69	4-10-1968
1969-70	30-9-1969
1970-71	12-11-1970
1971-72	23-10-1971

1.61 Since 1966-67, the Government have been consulting the Agricultural Prices Commission in regard to fixation of the minimum prices for sugarcane. The reports of the Agricultural Prices Commission for the various seasons were submitted to Government in January every year for the season to commence from next October of the year.

1.62 The following table shows the sowing seasons for sugarcane in different parts of the country—both for Adsali and Eksali crops :

TABLE NO. 1.9

Sowing Seasons for Sugarcane in different parts of the country

State	Sowing Seasons		
	Adsali	Eksali	
1	2	3	
Andhra Pradesh	June-Aug.	Dec.-April	
Assam	—	Jan.-Feb.	
Bihar	—	Feb.-March	Oct.-Nov.
Gujarat	—	Jan.-Feb.	Oct.-Nov.
Haryana	—	Feb.-March	
Karnataka	July-Oct.	Jan.-March	July-Nov.
Kerala*	—	Sept.-Feb.	
Madhya Pradesh	—	Oct.-March	
Maharashtra	July-Aug.	Oct.-Jan.	
Orissa	Aug-Sept.	Feb.-April	
Punjab	—	Feb.-March	
Rajasthan	—	Jan.-April	
Tamil Nadu	—	Dec.-May	July-Sept.@
Uttar Pradesh	—	Oct.-Nov.	Feb.-March
West Bengal	—	Oct.-March	Oct. Nov.

*Planting continued for 6 months.

@Special season.

1.63 Eksali crop forms the bulk of the cane crop in the country. The Adsali crop forms only 2.5 per cent of the total area under cane in the country and is mostly grown in Maharashtra and some parts of Andhra Pradesh.

1.64 If the minimum price has to be announced in advance of the sowing season for Adsali crop also, then it will have to be announced in June/July every year. If, however, Adsali crop sowing is not taken into consideration, then cane price could be announced a few months later, in late August or early September every year. That will take care of most of the area under cane in the country.

1.65 The Commission considers the request of the growers for announcing the statutory minimum sugarcane price well ahead of the planting season reasonable and recommends that the Central Government should announce the statutory minimum price for sugarcane for a crushing season before the sowing of the cane that will be crushed in that season—latest by early September each year. According to this recommendation, the price of cane to be sown from September, 1972 onwards, which will be crushed in the sugar season 1973-74, will have to be announced in early September, 1972.

STATEMENT NO. 1.1

Statewise average Recovery of sugar per cent cane since 1960-61 (*1st October to 30th September*)

State	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
1	2	3	4	5	6	7	8	9	10	11
West U.P. . .	9.47	9.25	9.55	9.35	9.04	9.43	9.46	9.49	8.91	8.93
East U.P. . .	9.65	9.49	9.90	9.94	9.64	9.53	9.78	9.62	9.42	9.14
U.P. . . .	9.53	9.32	9.64	9.51	9.24	9.46	9.58	9.52	9.06	8.98
North Bihar . .	9.25	9.10	9.75	10.03	9.45	9.34	9.80	9.46	9.63	9.17
South Bihar . .	9.01	9.36	9.34	9.69	9.40	9.09	8.08	9.20	8.49	8.41
Bihar . . .	9.22	9.12	9.71	10.02	9.44	9.32	9.72	9.45	9.58	9.14
Assam . . .	7.89	8.60	9.69	9.17	9.07	9.10	9.30	9.38	9.06	8.58
Punjab . . .	8.78	8.27	8.84	8.39	8.30	8.54	8.32	8.17	7.02	8.72
Haryana . .	9.01	8.21	9.03	8.81	8.59	8.61	9.02	8.62	8.02	8.76
W. Bengal . .	9.66	10.18	9.44	9.54	9.39	9.98	9.71	9.52	9.64	9.47
Orissa . . .	9.12	8.69	8.81	8.26	8.39	8.61	8.44	8.90	9.67	8.79
M.P. . . .	9.25	9.41	9.62	9.46	9.00	9.15	9.18	8.12	8.91	9.17
Rajasthan . .	9.19	9.30	9.46	8.30	8.94	8.90	8.09	9.02	8.61	8.52
Maharashtra .	11.64	11.98	12.20	12.07	11.70	11.36	11.49	11.45	11.04	10.76
Gujarat . .	10.75	10.91	10.45	10.89	10.16	10.26	10.40	10.48	9.25	9.61
Andhra Pradesh .	9.46	9.90	10.32	9.75	9.26	9.36	8.76	9.30	9.14	9.07
Karnataka . .	10.14	10.52	11.17	10.83	10.17	10.24	11.04	11.06	10.11	9.68
Tamil Nadu . .	9.01	9.37	9.42	8.75	8.91	8.47	8.89	8.83	7.93	7.87
Kerala . . .	8.76	8.76	8.47	8.44	8.63	8.68	7.60	8.53	7.92	8.82
Pondicherry .	7.23	8.95	8.66	7.75	7.81	8.00	7.55	8.35	7.70	7.92
All India . .	9.74	9.76	10.28	10.01	9.66	9.70	9.94	9.92	9.44	9.32

SOURCE : Directorate of Sugar & Vanaspati, New Delhi.

STATEMENT No. 1.2

Statement showing sugarcane price calculations on non-proportionate & proportionate basis (Season 1970-71 *Zone—West U.P., Cane Price Basis Rs.* 7.37 *per quintal linked to recovery* 9.4% *with premium of* 6.6 *paise for* 0.1 *increase in recovery)*

Sl. No.	Name of Factory	Recovery of sugar per cent cane		Cane Price per quintal		No. of qtls. of cane required for one qtl. of sugar	Cane Price per quintal of sugar		Cane price included in levy price of sugar (Rs. qtls. of sugar)		Profit (+) or loss(—) to the factory over cane price	
		Optimum (1969-70 valid for 1970-71)	Average (1970-71)	Non-proportionate	Proportionate		Non-proportionate	Proportionate	Non-proportionate	Proportionate	Non-proportionate col.(9) col. (7)	Proportionate col.(10) col. (8)
				Rs.	Rs.		Rs.	Rs..	Rs.	Rs.	Rs.	Rs.
1		2	3	4	5	6	7	8	9	10	11	12
1.	Mawana	10.3	10.2	7.96	8.08	9.8	78.01	79.18	82.69	83.33	( )4.68	( )4.15
2.	Modinagar	10.6	10.1	8.16	8.31	9.9	80.78	82.27	82.69	83.33	( )1.91	( )1.06
3.	Meerut	10.2	10.0	7.90	8.00	10.0	79.00	80.00	82.69	83.33	( )3.69	( )3.33
4.	Daurala	10.4	9.9	8.03	8.15	10.1	81.10	82.32	82.69	83.33	( )1.59	( )1.01
5.	Simbhaoli	10.1	9.8	7.83	7.92	10.2	79.87	80.78	82.69	83.33	( )2.82	( )2.55
6.	Mohiuddinpur	10.6	9.7	8.16	8.31	10.3	84.05	85.59	82.69	83.33	(—)1.36	(—)2.26
7.	Sakhotitan Ja	9.6	9.7	7.50	7.53	10.3	77.25	77.56	82.69	83.33	( )5.44	( )5.77
8.	Khatauli	10.0	9.7	7.77	7.84	10.3	80.03	80.75	82.69	83.33	( )2.66	( )2.58
9.	Baghpat	10.0	9.6	10.77	7.84	10.4	80.81	81.54	82.69	83.33	( )1.88	( )1.79
10.	Lhaksar	9.7	9.5	7.57	7.61	10.5	79.49	79.91	82.69	83.33	( )3.20	( )3.42
11.	Bulandshahr	9.5	9.5	7.44	7.45	10.5	78.12	78.23	82.69	83.33	( )4.57	( )5.10
12.	Mansurpur	9.6	9.1	7.50	7.53	11.0	82.50	82.83	82.69	83.33	( )0.19	( )0.50
13.	Saharanpur	9.6	9.0	7.50	7.53	11.1	83.25	83.58	82.69	83.33	(—)0.56	(—)0.25
14.	Iqbalpur	9.7	8.8	7.57	7.61	11.4	86.30	86.75	82.69	83.33	(—)3.61	(—)3.42
15.	Rohana Kalan	..	8.7	7.37	7.37	11.5	84.76	84.76	82.69	83.33	(—)2.07	(—)1.43
16.	Shamli	..	8.6	7.37	7.37	11.6	84.49	85.49	82.69	83.33	(—)2.80	(—)2.16
17.	Sarsawa	9.5	8.6	7.44	7.45	11.6	86.30	86.42	82.69	83.33	(—)3.61	(—)3.09
18.	Deoband	9.8	8.6	7.63	7.68	11.6	88.51	89.09	82.69	83.33	(—)5.82	(—)5.76
19.	Doiwala	..	7.9	7.37	7.37	12.7	93.60	93.60	82.69	83.33	(—)10.91	(—)10.27
	Weighted Average		9.3	7.69	7.75							

SOURCE : Based on information supplied by the Directorate of Sugar & Vanaspati, New Delhi.

CHAPTER II

STABILISATION OF CANE SUPPLIES TO SUGAR FACTORIES

2.1 One of the major problems of the Indian sugar industry is uncertainty about the availability and supply of cane. There are wide fluctuations from year to year in the supply of cane to the industry as a whole and to individual factories. It is not as if variation in availability of cane is the special feature of the Indian sugar industry alone. Fluctuations in cane availability afflict the sugar industry of some other sugar producing countries also. But the reasons for such fluctuations are more complicated in the case of the Indian sugar industry than in the case of others. While in other countries cane supplies are directly affected by cane production, in India they are also affected by factors other than production. The sugar industry in India has to commence with gur and khandsari industries ; elsewhere it has no rival to contend with.

2.2 Statement No. 2.1 shows the fluctuations in cane supplies to sugar factories from year to year over the last six years. It will be seen that in some years factories get more cane than they can possibly crush in a normal season or even in an unduly prolonged season ; in some other years there is acute shortage of cane and they do not get sufficient cane for even a season of 50 days. For instance, in 1966-67, the quantity of cane available to all the sugar factories in the country was only 68 per cent of their estimated requirements while in 1969-70 it was 124 per cent. The fluctuations in supplies were acute in some States such as Uttar Pradesh where the cane supplied to factories was 57 per cent only in 1966-67 of the requirements and was 140 per cent in 1969-70. Some factories in that State worked for less than 50 days in 1966-67 and over 250 days in 1969-70. This shows that in years of short production, factories do not get adequate quantities of cane for a normal crush. This is particularly so in States and regions where gur and khandsari industries are well established and offer keen competition to the sugar factories for available cane.

2.3 The reason for these fluctuations does not lie only in the variations in cane production from year to year. In fact, there are very few factories in the country which even in a lean year, do not have within their area of operation sufficient cane to enable them to run for a normal period. The present cane requirements of the industry for a normal season amount to little more than 380 lakh tonnes. Even in unduly prolonged season of 1969-70, the factories could not crush more than 457 lakh tonnes. This is only 34.6 per cent of the maximum production of cane achieved so far and only 49 per cent of the lowest production of sugarcane during the last 10 years. Thus, in absolute terms, there is no shortage of cane for the sugar industry in India.

2.4 The main factors which affect supply of cane to sugar factories are area and production of cane ; minimum prices for cane fixed by Government ; prices actually offered and paid by sugar factories and gur and khandsari industries ; system and organisation of cane supplies ; execution of agreements between factories and canegrowers or canegrowers' societies for supply of cane and enforcement and fulfilment of such agreements ; arrangements for payment of cane price ; agricultural credit facilities available to canegrowers ; condition of roads and means of transport ; and relations between canegrowers and factory. Each of these factories affects cane supplies directly or indirectly. It is not as if each factor works in isolation or independently of other factors. In fact the various factors overlap, criss-cros and act and react on one another. Besides, each of them is both a cause and an effect, sometimes one, sometimes the other, and has sub-factors which influence and determine its direction and effectiveness. From this confusion a clear picture seldom emerges and it becomes difficult to locate a factor and determine precisely the extent to which it affects or is affected by a given situation.

2.5 There is no gain saying the fact that the volume of production of cane has a direct effect on supplies of cane to the sugar industry. When production is low, the sugar industry generally shares in the reduction of supplies ; when there is increase in production, it absorbs more of cane production. But supplies to the sugar industry are disproportionate to the increase or decrease in cane production as will appear from Table No. 2.1. This is due to the competitive claims on sugarcane of the gur and khandsari industries whose demand is comparatively inelastic and has to be met. The pull of these industries on the available quantities of sugarcane in years of shortage is very strong. It can be resisted only if the sugar industry is able to compete with them in the payment of cane price. Sugar factories do pay prices higher than the minimum price, but for reasons which are known there is a limit to which the sugar industry can pay to the canegrowers, with the result that large quantities of cane are diverted from the sugar industry to the gur and khandsari industries, in spite of the existence of formal and written agreements between canegrowers/cangrowers' societies and factories for supply of that cane to factories.

2.6 Prompt payment of price for cane is also a vital factor affecting cane suplies. Most canegrowers require payment for their cane immediately. In years of short production, delay in payment of cane price leads to further diversion of cane to gur and khandsari manufacturers. In the recent past, large arrears of cane price accumulated. This compelled the Central Government and the State Governments to find ways and means not only to reduce the arrears but also to ensure that such

a situation does not repeat itself. Certain measures to this end have been taken by the Reserve Bank of India and the Uttar Pradesh Government has also enacted legislation to this end. The question of prompt payment of cane price is closely connected with the problem of availability of funds with factories for making prompt payments. The Commission has dealt with this problem in detail in Part III of the Report.

TABLE No. 2.1

Percentages (and indices with 1960-61 as base year) of Utilisation of Sugarcane for different purposes from 1960-61 to 1970-71

Year	Production of Cane (Lakh tonnes)	Utilisation Percentages		
		Sugar	Seed	Gur & khandsari
	2	3	4	5
1960-61	1105 (100.0)	28.2 (100.0)	12.3 (100.0)	59.5 (100.0)
1961-62	1040 (94.1)	26.9 (89.8)	12.3 (93.6)	60.8 (96.1)
1962-63	919 (83.2)	22.6 (66.7)	12.1 (81.9)	65.3 (91.2)
1963-64	1042 (94.3)	24.7 (82.8)	12.0 (92.0)	63.3 (100.2)
1964-65	1196* (108.2)	27.9 (107.4)	12.2 (106.7)	59.9 (108.9)
1965-66	1196* (108.2)	30.6 (117.8)	12.2 (107.2)	57.2 (103.9)
1966-67	928* (84.0)	23.3 (69.4)	11.9 (81.5)	64.8 (91.4)
1967-68	955* (86.4)	23.5 (72.1)	11.8 (82.5)	64.7 (94.0)
1968-69	1247* (112.9)	30.2 (121.1)	11.8 (108.2)	58.0 (109.8)
1969-70	1350* (122.2)	33.8 (146.9)	12.1 (119.6)	54.1 (111.0)
1970-71	1288** (116.6)	29.7 (122.8)	12.0 (113.3)	58.3 (114.2)

NOTE : The index figures are shown in brackets. They represent the increase or decrease over 1960-61 in quantities of cane utilised for different purposes.

*Partially Revised Estimate.

**Final Estimate.

SOURCE : Compiled from the data published by the Directorate of Economics and Statistics, New Delhi.

2.7 The following table gives the prices actually paid by sugar factories in different States. A study of statement No. 2.1 and Table No. 2.2 will show that in years of low production high prices for sugarcane are generally paid by the sugar industry and that this leads to increase in cane area and production in the following year to two.

TABLE No. 2.2

Range of price actually paid in different States for sugarcane purchased by the sugar factories

(Ruppees per quintal)

State	1967-68	1968-69	1969-70	1970-71	1971-72
1	2	3	4	5	6
Uttar Pradesh	12.06 to 17.00	7.37 to 10.67	7.37 to 7.91	7.37 to 8.16	7.37 to 13.00
Bihar	10.72 to 12.73	9.00 to 10.00	7.37 to 8.01	7.37 to 8.10	7.37 to 10.00
Punjab	12.00	7.37 to 10.00	7.37	7.37	8.95 to 11.00
Haryana	12.00 to 15.37	7.37 to 10.00	7.37	7.37	8.50 to 10.00
Assam	8.36	9.00	N.R.	7.37	8.50
West Bengal	9.67 to 16.00	10.00	7.85	7.57	8.50
Orissa (ex-field)	8.50 to 14.00	8.00	7.37 to 7.91	7.37 to 7.91	7.37 to 8.50
Madhya Pradesh	10.00 to 14.00	9.00 to 10.00	7.37 to 7.75	7.37	8.50
Rajasthan	12.00 to 15.00	7.37 to 10.00	7.37 to 7.48	7.37	8.32 to 12.00
Maharashtra	14.50 to 20.92	8.00 to 12.86	7.37 to 9.50	7.00 to 10.53*	*6.00 to 13.50*
Gujarat	7.37 to 11.00	8.10 to 11.30	7.48 to 9.30	*8.00 to 10.00*	*7.50 to 10.00*
Andhra Pradesh	10.00 to 11.00	7.37 to 10.00	7.37 to 8.25	7.37 to 8.10	7.50 to 9.00
Tamil Nadu	8.50 to 10.00	7.37 to 10.00	7.37 to 8.48	7.37 to 8.37	*7.37 to 9.50*
Karnataka (ex-field)	11.10 to 15.00	8.07 to 15.50	7.37 to 10.00	7.37 to 11.55	*7.00 to 11.50*
Kerala	7.37 to 9.50	7.37 to 10.00	7.37 to 7.42	7.37 to 7.50	8.00
Pondicherry	9.00	8.00	7.37	7.37	8.00

*Provisional advance payments made at this rate mostly by Cooperatives.

N. R.=Not Reported.

SOURCE : Directorate of sugar and Vanaspati,, New Delhi.

2.8 The system of execution of agreements between factories and canegrowers|canegrowers' societies exist in almiost all factories. There are some differences in various parts of the country in regard to the time for execution of agreements and in the terms of the agreements. Agreements for supply of cane are generally entered into after sowing of cane ; sometimes they are also executed before the planting of cane. In North India factories have to enter into agreements with canegrowers' societies where they exist. This is particularly so in Uttar Pradesh where the entire cane supply is through the canegrowers' societies. The latter have separate agreements with their grower-members or require their members under their bye-laws to supply cane to sugar factories through them. In the case of cooperative factories, the grower shareholders are required under their bye-laws to grow and supply a certain quantity of sugarcane for every share.

2.9 A survey of the area under cane in the zone of factories is made, jointly or severally, by a Government agency or the factories or the canegrowers' societies concerned. On the basis of the survey, records are prepared showing the names of canegrowers, the survey numbers of the plots, the area under cane, the varieties of cane sown, the estimated yields of cane, etc. In some areas, the time of planting of cane is also recorded. Thereafter, the factories and the canegrowers enter into agreements for the supply of cane. The various States Acts regulating cane purchases and supplies provide for offers of cane by individual canegrowers/canegrowers; society; acceptance of the offers by the factory and execution of agreements betweeu canegrowers and factories within given periods. The relevant Acts and Rules prescribe the forms of agreement between a factory and—a canegrower|canegrowers' society. The agreement forms provide, *inter alia*, for payment of penalty or compensation by the defaulting party. The form of agreement between a canegrower and a factory prescribed under the Uttar Pradesh Sugarcane Supply and Purchase Order, 1954, is given at Annexure F. This form has been adopted by other States also with or without modifications. According to the terms of the agreement, a canegrower is required to supply at least 85 per cent of the contracted quantity of cane. If the cane-grower defaults wilfully he is liable to a penalty on the deficit. Similar conditions apply to a canegrowers' society. The factory also has its obligation under the agreement. If there is wilful failure on the part of a factory to take delivery of the cane of canegrower or canegrowers' society, it is liable to pay by actual price of the quantity of cane which it fails to purchase. In the event of a factory failing to purchase cane otherwise than wilfully, it is liable to pay compensation at a prescribed rate for the quantity of cane not purchased. The rates of penalty range between 33 paise and 66 paise per quintal. Disputes between the parties to the agreement are required to be referred to arbitration. In some States it is also provided that a cane-grower who defaults wilfully, will forfeit his right to sell cane to the factory concerned if the competent authority is satisfied that his failure to supply cane is wilful.

2.10 In most parts of the country, factorics and canegrowers eater into agreements for supply of cane on a yearly basis. In some places, the agreements are executed for a longer period. In years of excess production, most canegrowers are anxious to enter into agreements with factories and generally offer larger quantities of cane than they supplied in previous years. On the other hand, in years of short production, many a canegrower is reluctant to execute agreement for supply of cane, offers comparatively small quality of cane and supplies still less. Thus agreements do not hold good during years of shortage of cane. This phenomenon is much more marked in North India than in the South.

2.11 The failure of the canegrowers or societies to fulfil their contracts is not always due to the non-availability of cane but mainly due to intentional diversion of their cane to gur and khandsari with a view to securing higher prices or disposing of their cane earlier. The greater the difference between the prices offered and paid by the gur and khandsari manufacturers and the prices offered and paid by the sugar factories, the greater is the corroding effect on the 'loyalty' of the canegrowers to the factory or the society concerned. The result is that in lean years the sugar factories get much less cane than they should on a purely arithmetical basis, out of the year's cane production. In some areas, the growers do not appear to attach much importance to the agreements entered into by them. This attitude is the result of two factors. First, the panelty which a canegrower is required to pay for default in supplies is wholly inadequate to deter him from breaking his agreement. As mentioned earlier,—varies from 33 paise to 66 paise per quintal. This is less than 10 per cent of the minimum sugarcane price of Rs. 7.37. When the canegrower can get between Rs. 10 and Rs. 15 per quintal of cane from gur and khandsari manufacturers, the above penalty even if enforced and realised, is wholly ineffective. Secondly, sugar factories generally do not enforce the penalty clauses as the number of defaulting cane-growers is large and they do not want to alienate such large number of canegrowers. Besides, they feel that they would not get support from Government or from local leaders for any action that they may take against the defaulting cane-growers to the cane-growers societies to realise the penalty or compensation due to them. Cane-growers' societies also seldom, if ever, realise penalties from their defaulting members.

2.12 The need for steady and adequate supply of cane to the sugar industry from year to year cannot be over-emphasized. An assured and adequate supply of cane is essential for the working of the sugar industry on an efficient and economic level. The sharp increases and decreases in cane supplies from year to year are the bane of the Indian sugar industry. It is imperative that some kind of stability in the matter of supply of raw material to the industry should be brought about. In fact, it was with the object of ensuring steady and adequate supplies of sugarcane to factories that provisions were made in the various States' Acts and Rules, for agreements between canegrowers and factories.

2.13 The Commission has given due consideration to this matter and has come to the conclusion that the

erratic supply of cane to factories cane be greatly stabilised if canegrowers could be held to their agreements for supply of cane in years of shortage and if the bonding of cane could be restricted to the requirements of sugar factories in years of excess production of cane. Some incentives should be provided to persuade canegrowers to enter into agreement and to fulfil their contracts, and some disincentives to discourage canegrowers from committing breaches of contracts. We believe that economic incentives will produce better results than coercive measures. Where canegrowers' societies/unions operate it will be desirable to have three-party contract involving the factories, the society and the growers concerned. Keeping these considerations in view, we recommend the following scheme which will provide the necessary incentives and disincentives to the canegrowers and contribute to the stabilisation of cane supplies.

2.14 The primary objective of the scheme is to provide incentives to canegrowers to enter into agreements with factories for supply of cane and to fulfil their contracts. The scheme envisages various incentives including provision of credit facilities and supply of inputs by factories and canegrowers' societies. However, the most important incentive is payment of an additional price to those canegrowers who enter into agreement for supply of cane and fulfil them. It is proposed to find money for payment of the additional price out of extra sales realisations of sugar factories. In years of de-control or partial control ordinarily factories obtain prices for their sugar over and above the prices to which they are entitled according to the Tariff Commission schedules. The scheme envisages sharing these extra sales realisations between factory and cane-growers.

Sugarcane Supplies Stabilisation Scheme

2.15 The details of the scheme are as follows :

(1) A statutory minimum price for sugarcane related to a basic reeovery of 8.5 per cent with a premium for every 0.1 per eent increase in recovery on proportionality basis* will be fixed by the Government of India.

(2) The minimum priee payable by individual factories will be fixed on the basis of the recovery of the faetory for the normal crushing period of the previous season.**

(3) The statutory minimum price as fixed above shall be paid to all the canegrowers subject to elauses (18) and (19) of this Scheme.

(4) The factories shall share their extra sales realisations from sugar with the canegrowers who execute agreements for supply of cane and fulfil their contracts.

(5) The extra sales realisations shall be calculated according to the following formula :—

$$S=R-L$$

Where S stands for the amount shareable ;

R stands for the sales realisations ex-factory excluding excise duty paid or payable to the factory by the purchaser ; and

L stands for sugar price as calculated on the basis of the statutory minimum cane price and according to the Tariff Commission schedules in force at the time (In periods of control and partial control, L stands for the final levy price of sugar fixed by Government).

(6) The sales realisations will be in respect of the sugar produced during the season.

(7) The sales realisations will comprise —

(i) the actual amount realised upto and inclusive of September 30 ; and

(ii) the estimated value of the unsold stocks held at the end of September 30.

In case (ii) the value of the stocks will be calculated at the average rate of the sales made during the last fortnight of September.

(8) The excess or shortfall in realisations from the actual sale of the unsold stock of the season after September 30 shall be carried forward to and adjusted in the extra sales realisations of the following season.

(9) The extra realisation shall be divided equally between the factory and the eanegrowers.

(10) From the growers' share shall be deducted the amount, if any, paid as price for sugarcane, over and above the statutory minimum cane price fixed for the factory and the balance will be paid to the canegrowers as additional price.

(11) Any amount of penalty realised by a sugar faetory from canegrowers, canegrowers' society/union for not fulfilling the contract shall be added to the canegrowers' share of extra sales realisation.

(12) A Sugar Sales Committee consisting of not more than five members shall be set up at each factory, with representatives of the factory, canegrowers and workmen. The

*Shri Bansi Dhar did not agree with the recommendation for fixing the premium on proportionality basis (Annexure G).

**Shri P. S. Rajagopal Naidu did. not agree with this recommendation (Annexure H).

Committee shall have a right to inspect the sugar sales accounts of the factory. It will also indicate the prices below which sales shall not be made without its prior concurrence. The Committee shall meet as frequently as may be necessary.

(13) Soon after sugarcane sowings or, preferably, before sugarcane sowings, every factory shall enter into agreements with the canegrowers directly or through cane-growers' society of its area for supply of cane upto its full requirements for a normal crushing period.

(14) Supply of cane to the extent of 85 per cent of the contracted quantity by the grower will be taken as fulfilment of the contract. The factory shall be bound to accept upto 10 per cent over the quantity of cane contracted which will be deemed to be a part of the contract.

(15) Bonded sugarcane shall, as far as possible, be taken by a factory during its normal crushing period and shall be given preference over unbonded cane for crushing.

(16) Canegrowers who enter into agreements for supply of cane and fulfil their contracts in a season shall be given preference for bonding of their cane, for the following season(s).

(17) In the matter of granting agricultural credit, in kind or cash of both to cane-growers, sugar factories and cane-growers' societies/unions shall give preference to those canegrowers (i) who entered into bonds and fulfilled their contracts, and (ii) who enter into agreements for supply of cane in the next following season but no such preference shall be given to canegrowers who executed agreements and did not fulfil them.

(18) Unbonded cane if it has to be purchased by a factory after its normal crushing period shall be liable to a discount in the minimum statutory cane price for every decrease of 0.1 per cent in recovery below the average recovery of the last week of the normal crushing period. The discount shall be at the same rate at which premium is paid for every 0.1 per cent increase in recovery.

(19 For the purposes of clause (18), the price payable for unbonded cane supplied in a week shall be calculated on the basis of the average recovery of the week before the immediately preceding week.

[Note : Clauses (18) and (19) for calculation of the price of cane supplied in a week will apply only when the average recovery of the week before the immediately preceding week, is below the average recovery of the factory used for fixing the statutory minimum cane price.]

(20) Every canegrower shall be supplied by the factory, the canegrowers' society/union, as the case may be, with a pass book containing, *inter alia,* his name and address, area under sugarcane, survey no. of plots under sugarcane, variety of sugarcane grown, whether plant or ratoon, estimated production, quantity of cane bonded for supply to factory, datewise and progressive amount due and paid, amount of agricultural credit (loan) given, additional price due and paid etc.

(21) Clause (9) of the Scheme shall not apply to factories which pay a price to canegrowers for the cane supplied in such a manner that the price paid is not less than the total amount payable under the Scheme.

2.16 The main features of the Scheme outlined in para 2.15 are explained and discussed in the following paragraphs.

Statutory Minimum Prices

2.17 Statutory minimum prices for individual factories are fixed by the Government of India in accordance with the quality formula. We have incorporated the formula in the Scheme to ensure that the incentive to canegrowers for producing cane of better quality is retained. In discussing this formula earlier (in Part II), we have made certain recommendations which, in our opinion, will improve the effectiveness and usefulness of the formula. The Scheme provides for a basic recovery of 8.5 per cent and the payment of premium on proportionality basis. It also provides for the fixation of the minimum prices payable by individual factories on the basis of the average of the recovery of the previous normal crushing period of the factory. The reasons for using the average recovery of the normal crushing period in preference to the average recovery of the optimum period for this purpose have already been stated.

Normal Crushing Period

2.18 The normal crushing period has a special place and significance in the Scheme as it is intended to serve more than one purpose. One of the purposes for which it is used under the Scheme has been mentioned above. This period is also to be used for the purposes of estimating the requirements of cane upto which a sugar factory is required to enter into agreements with canegrowers or canegrowers' society for supply of cane. Further, unbonded cane supplied after the end of the normal crushing period is to be paid for at a reduced price vide clauses (18) and (19).

Discount in Minimum Prices

2.19 The Scheme visualizes that both bonded cane and unbonded cane will be paid the same prices before and during the normal crushing period, and that after this period unbonded cane will be paid for at a price calculated in accordance with clauses (18) and (19). This provision has been made to discourage

those canegrowers who do no enter into agreements with factories for supply of their cane and keep their options open, either to sell their cane to the sugar factory or to gur and khandsari manufacturers. They do so in the hope that their cane will be purchased by the factory at the same prices at which the bonded cane will be purchased. This is unfair both to the factory and the canegrowers who bind themselves to sell their cane to the factory. The object of clause (18) is to create a disincentive to such cane-growers as do not enter into agreements. It is necessary for the purposes of stabilisation of cane supplies that cane-growers who execute agreements and commit themselves to supply sugarcane to factories from the very beginning of the season, should be treated differently from those canegrowers who do not bind themselves to supply sugarcane to sugar factories and keep their options open. Normally, a factory should not be expected to crush cane which had not been offered at the prescribed time for supply to it and in respect of which agreements have not been executed. But if unbonded cane has to be crushed after the normal crushing period it should be paid for in accordance with clauses (18) and (19).

Realisations from Sugar

2.20 The provision of clause (6) about the sale realisations being in respect of the sugar produced during the season is intended to ensure, as far as possible, that canegrowers who supplied the cane from which the sugar was produced should benefit from the prices obtained for the sugar. The manner in which the sales realisations should be calculated, presented a problem. It is necessary that the additional price which may be payable to canegrowers out of extra realisation should be announced in October so that it may influence sowings of cane and execution of agreements for supply of cane. Keeping this in view, it is necessary to calculate early in October the value of the sugar produced during the season. About 70 per cent of sugar produced in a season is ordinarily sold out by the end of September. For such stocks, the figures of actual realisations would be available by the end of September.

2.21 As regards the unsold stocks, the value thereof could be estimated in more than one way—on the basis of the market prices prevailing at the end of September, on the basis of the average of the sales of sugar upto the end of September, on the basis of the average of the sales made during the last fortnight of September, etc. The Scheme provides for an evaluation of the unsold stock on the last basis mentioned. The problem, however, remained of accounting for the difference between the estimated price and the actual subsequent realisations from the stocks which remain unsold on 30th September. This difficulty has been overcome by the provision for the difference being carried forward to the next year for adjustment in the sugar sales realisations.

Extra Realisations from Molasses

2.22 The Scheme provides for sharing of extra realisations from sugar only. The Commission considered the desirability of including extra realisations from sale of molasses for the purposes of sharing, as it was reported that some factories realised high prices for molasses which they were allowed to sell in the free market and to export in some years. But it was found that this concession had been withdrawn. However, some factories still sell a part of their molasses in the free market either because it cannot be allotted to or utilized by a distillery or because it has become sub-standard. But the quantity involved in such transactions is not significant, as such transactions are not a regular feature. In the circumstances, it is felt that it is not necessary or worthwhile to include in the Scheme any extra realisations from molasses.

Extra Realisations

2.23 The formula for calculating extra realisations incorporated in the scheme is a very simple one. The sugar price, as calculated on the basis of the statutory minimum caue price and according to the Tariff Commission schedules in force at the time, has to be deducted from the sales realisations as calculated in accordance with Clause (5). In this context the cane price means the weighted average of ex-gate cane price.

2.24 It will be seen that in the formula given in Clause (5) of the Scheme for computing the extra sales realisation the excise duty has been excluded. The question arose as to whether allowance should be made for rebates in excise duty granted by Government as an incentive to factories for early start or for late crushing or for extra production or for any other reason. For fixation of levy prices according to Tariff Commission formula these incentives are not taken into account. They are for a specific purpose and are meant to cover extra cost of manufacture not included in the schedules. For this reason the excise duty in the formula will mean the excise duty at the full prescribed rate paid or payable to the factory by the purchaser.

Penalties

2.25 A reference has already been made to the existence of provision for payment of penalty and compensation in the various form of agreement between a factory and a canegrower or canegrowers' society. It has also been stated that the rates of penalty and compensation are very low compared to the existing sugarcane prices and, therefore, do not deter canegrowers from diverting the contracted cane to gur and khandsari manufacturers. Also there is considerable laxity in the matter of enforcing the penalty and compensation clauses, with the result that their existence in the agreements had little effect on cane-growers committing breaches of their contracts for supply of cane All the same, some realisations of penalty and compensation are being made by factories and canegrowers' societies. The amounts so realised are being used by factories and canegrowers' societies for various purposes including cane development in their areas. This Scheme requires that the amounts realised as penalty or compensation from the defaulting canegrowers should be utilised for encouraging canegrowers to fulfil their agreements. A provision has,

therefore, been made that the amounts of penalty and compensation realized by factories and cane-growers' societies will be merged with extra realisations from sugar falling to the share of cane-growers of a factory, for the purposes of payment of an additional price to those cane-growers who enter into agreements for supply of cane to factories directly or through cane-growers' societies and fulfil their contracts. While the enforcement of the penalty and compensation clauses will discourage cane-growers from breaking their agreements the distribution of the amounts realised as penalty and compensation among cane-growers who fulfilled their contracts will act as an incentive to cane-growers to execute agreements and fulfil them.

2.26 In the existing forms of agreement, disputes relating to realisation of penalty and compensation have to be referred to arbitration or where such a provision does not exist, recourse has to be had to civil litigation. Both the arbitration proceedings and civil litigation take time. It is proposed that with a view to enforcing penalty and compensation clauses against defaulting factories, defaulting cane-growers and defaulting cane-growers societies, the procedure should be as follows. The factory or the society or the cane-growers concerned, as the case may be, may file, before a revenue officer of a rank not below that of an Assistant Collector of First Class, an application claiming the penalty or compensation from the defaulting party. The officer will issue a notice to the other party or parties and after giving a hearing to the applicant and the opposite party, pass an order allowing or disallowing the claim. The amount payable under the order will be realisable as arrears of land revenue. This system will simplify matters and facilitate their quicker disposal. The amounts realised from cane-growers and cane-growers' societies by the factory will not go to the factory, but will be passed on to the eligible cane-growers in accordance with this Scheme. On the other hand, the amounts realised by an individual cane-grower or a cane-growers' society from a defaulting factory will be paid to the cane-grower or the society concerned and will not be available for distribution to other cane-growers. Suitable forms of agreement will have to be devised incorporating these principles and procedures.

Sharing of Extra Realisations

2.27 The main feature of the Scheme is the provision of monetary incentives to cane-growers for supply of cane to factories. Such an incentive is by far the most effective way of persuading cane-growers to adhere to their contracts for supply of cane. But the problem was of finding money for providing this incentive. A suggestion was made that the factories should be required to pay an additional incentive price out of the fixed quantum of return of Rs. 10.50 per quintal of sugar allowed to them in the levy price. If an incentive of even 50 paise per quintal of cane were to be paid by the factories, it will amount to Rs. 4 to Rs. 6 per quintal of sugar. Obviously this is an impossible proposition. The possibility of adding 50 paise per quintal of cane or 5 per cent of the minimum price of cane to the levy price for sugar was also considered, but that too was found to be undesirable inasmuch as it would raise the levy price of sugar by Rs. 4 to Rs. 6 per quintal. During our discussions with cane-growers and others, representations were made that cane-growers should be given an appropriate share in the sugar prices realised by sugar factories, particularly in years of decontrol and partial decontrol. Written representations were also received.

2.28 The demand of cane-growers for a share in the extra realisations from sugar had its origin in the feeling among cane-growers that while factories were making large profits, they were not paying a fair price to cane-growers. With the development of the sugar industry in various parts of the country and with larger and larger numbers of cane-growers suppling cane to factories the discontent grew in volume and intensity. In 1952-53 the South Indian Sugar factories earned large profits on account of the removal of control over the price of sugar and the freight advantage enjoyed by them over the North Indian factories. This led to insistent demands from the cane-growers for sharing the extra realisations and the then Union Minister for Food and Agriculture suggested to the Government of Madras and the South Indian Sugar Mills Association that the sugar factories concerned should share with the growers the higher price of sugar realized by them. The principle of sharing was accepted by the industry, and the South Indian Mills Association evolved a formula (known as the SISMA formula) in consultation with the cane-growers of its area for passing over to the growers a portion of the benefit of higher prices realised by the factories.

2.29 The acceptance of the principle of sharing and the steps taken by Government and the industry in the South to translate it into practice encouraged cane-growers of other areas to claim the same benefits. Government of India decided to extend the application of the principle of sharing to other areas also.

2.30 As it was found that the SISMA formula could not be applied to other sugar producing regions, a new formula was devised by the Ministry of Food and Agriculture for application to the whole country in 1954. While the principles underlying the new formula were generally accepted, there were complaints from the cane-growers' organisations that the percentage share of the sugar price allowed to them was low. On the other hand, the sugar industry represented that the allowance made for depreciation and replacement in working out the cost of manufacture of sugar (for purposes of the formula) was inadequate and did not take into account fully the current cost of machinery and spare parts. Thereupon the Government of India appointed a Committee in 1955 to examine the formula adopted for 1953-54 and suggest modifications with a view to its application in future years. The Committee revised the formula and recommended its application on a compulsory basis. In the modified formula, the share of the cane-growers in the net sugar price realised during a year was in the same ratio as the cost of cane bore to the total cost of production of sugar during that year, excluding taxes. The modified formula was accepted by the Government of India for adoption on a compulsory basis, with effect from 1958-59 season, on an all-India basis.

2.31 In the meantime, the Tariff Commission examined the cost structure of sugar and fair price payable to the sugar industry and recommended in its Report of 1959, four regional schedules for determining the price of sugar. The Government of India accepted the recommendations and the cost schedules were applied for fixing the controlled price of sugar, where necessary.

2.32 It was found that the implementation of the price-linking formula presented certain difficulties in the context of the recommendations of the Tariff Commission about the fixation of ex-factory price of sugar. The cane-growers represented that the formula was not only complicated but also unfavourable to them. The industry wanted that provision should be made in the formula for rehabilitation allowance and that there should be no sharing in periods of control. In view of these difficulties, the Government of India asked the Tariff Commission in 1960 for a fresh examination of the matter.

2.33 In its 1961 Report, the Tariff Commission discussed the various aspects of the price-linking formula and recommended, *inter alia,* that "the scheme of linking the price of cane with the price of sugar, which is not linked with the quality of cane, which completely ignores the interests of the consumers and does not also promote good relations between the growers and the millers, is not in the larger interests of the sugar economy and should be terminated as soon as possible." The Government of India accepted this recommendation and the formula was given up with effect from the season 1962-63.

2.34 From the information given by the Directorate of Sugar and Vanaspati of the Ministry of Agriculture it appears that the total amount payable to cane-growers under the formula incorporated in the Sugarcane (Control) Order, 1966, in respect of the 4 years 1958-59 to 1961-62 amounted to more than Rs. 4 crores. This is not a big amount considering the large number of cane-growers and the quantities of cane involved. Even so, if the formula had continued to remain in force, cane-growers would have received over the last 10 years something like Rs. 10 crores as additional payment.

2.35 The question of sharing extra realisations with cane-growers was discussed with representatives of the industry. The industry has shown its willingness and accepted its responsibility for sharing the extra realisations with cane-growers. It is remarkable that no section of the industry questioned or challenged the principle of sharing before us. We are convinced of the fairness of the claim of the cane-growers to share extra realisations from sugar with the industry. In addition, we need the money for the purposes of providing monetary incentives to cane-growers to supply cane regularly to factories. This will benefit the industry itself. Both on grounds of principle and expediency, we have come to the conclusion that the Scheme of sharing extra realisations by cane-growers must be revived and re-introduced.

2.36 Following this, the question arose as to in what manner the extra realisations should be shared by the industry and the cane-growers. A demand was made by the National Federation of Co-operative Sugar factories and representatives of cane-growers that the entire sales realisations should be passed on to the cane-growers. But this demand was found to be untenable. For the last several years since the price linking formula incorporated in the Sugarcane (Control) Order, 1955 (Since replaced by the Sugarcane (Control) Order, 1966), was given up, the industry has not been required to pass on to the cane-growers any share of the price realized for sugar. Now that the principle of sharing is proposed to be revived in the interest of both the cane-growers and the industry, it will be unreasonable to deny to the sugar industry a share in its extra realizations. It was urged by the representatives of the Indian Sugar Mills Association that the industry should have, in the extra realizations, a larger share than the cane-growers as it had to meet many liabilities and expenses for which no provision was made in the levy prices of sugar. It was stated that the sugar factory needed funds to meet its commitments under bonus, gratuity, interest on borrowed capital and debentures, dividend on preference shares, income-tax and requirements for rehabilitation, modernisation and expansion. It was, therefore, proposed that the extra sales realisations should be divided between the cane-growers and the factories after making provision for the above commitments.

2.37 It was also contended that the share of the cane-growers in the sales realisations should be in the same ratio as the cost of sugarcane had in the cost of sugar. The sugarcane cost was reported to be between 60 per cent and 70 per cent of the cost of sugar.

2.38 We feel that the formula for sharing extra realisations should be simple, easy of application and intelligible to the cane-growers. If the Commission were to make a separate provision for any one or more of those items, the formula would become complicated and controversial. In view of this, we have not gone into the merits of the demand for provision for any of the items mentioned above. Instead, we have taken into consideration these factors and allowed to the industry a percentage share which, in our opinion, will give them a reasonable margin for meeting their requirements. In so far as the interests of cane-growers are concerned, we have ensured that the cane-growers share the extra realisations in the same ratio as the cost of sugarcane has in the cost of production of sugar.

2.39 After considering all these facts, we have decided that the extra realisations on the sale of sugar be divided between the growers and the industry in the ratio of 50 : 50. A provision to this effect has been made in Clause (9) of the Scheme. It should be mentioned that after deducting the tax obligations to be borne by the industry, the actual accruals will be in the proportion of 70 to the cane-growers and 30 to the industry. This share of cane-growers approximates the share of the cost of cane in the cost of sugar.

2.40 As already stated the extra realisations are to be calculated by deducting from sales realisations the

sugar price calculated on the basis of statutory minimum prices for cane and according to the Tariff Commission cost schedules in force. This ensures that the Scheme of sharing recommended by us does not come into conflict with the Tariff Commission schedules.

Higher Cane Prices paid during a Season

2.41 As discussed earlier sugar factories have to pay higher prices than the statutory minimum prices in lean years for attracting sugarcane, in competition with gur and khandshari manufacturers. This expenditure was met out of and in anticipation of the extra realisations from the sale of sugar. The Scheme provides that the amounts already paid to cane-growers by way of higher prices should be deducted from the share of cane-growers in extra realisations and the balance should become available for distribution as additional price, among the cane-growers who are entitled to it under the Scheme.

2.42 A deduction upto a fixed limit from the minimum gate price is allowed for cost of transport of cane. For the purposes of Clause (10) of the Scheme, higher cane price means the price actually paid to the cane-grower at the centre plus the transport charges calculated at the rates prescribed by the Government of India.

Execution of Agreements for Supply of Cane

2.43 As the Scheme aims at encouraging execution of agreements by cane-growers and discouraging those cane-growers who do not execute them, certain facilities are provided under the Scheme to the former and disincentives to the latter. In regard to execution of agreements, the position so far has been that agreements are entered into between a factory on the one hand and a cane-grower or a cane-growers' society on the other. Whether the agreement is directly with a cane-grower or with a cane-growers' society, it is a bilateral agreement. A new concept has been introduced in the Scheme—that of a tripartite agreement among the factory, the cane-growers' society and the individual members of the society. It means that separate agreements will be drawn up in respect of each cane-grower, to which the factory, the society and the grower member will be parties. The respective rights and obligations of each party will be laid down in the tripartite agreement. It is felt that the execution of tripartite agreements will make the individual cane-grower more conscious of his obligation to fulfil his contract. The existing Central and State legislation regulating purchase and supply of sugarcane, provides for bilateral agreements only. It will be necessary to amend the relevant law so as to permit execution of tripartite agreements, as envisaged under the Scheme. This arrangement is considered essential for the implementation of the Scheme as reliable information will be required about the quantities for which agreements are executed by individual cane-growers whether members of the societies or not, the quantities supplied, the quantities in deficit, etc. It will also be necessary to have information about bonded and unbonded cane. In the absence of such information, it will be impossible to enforce the provision, relating to an additional price and other incentives to cane-growers and to enforce penalty clauses by the factory against the direct suppliers and by the society against its defaulting members. There is no intention of by-passing the cane-growers' societies. It has, therefore, been provided that the factory will enter into agreement with cane-growers through their co-operative societies. The existing organisation of co-operative societies for supply of cane and the relationship between the societies and their members will not be disturbed by the execution of tripartite agreements, to which the factory will also be a party. The payment of cane price to members of cooperative societies will also continue to be made through the societies.

Incentive and Disincentives to Cane-growers

2.44 Various incentives and disincentives have been provided in the Scheme, the main object of which is to encourage cane-growers to execute and fulfil agreements for supply of cane and to discourage cane-growers who do not or who break their agreements. The incentives are : payment of an additional price in years when sales realisations are available, preference in the matter of purchase of cane during the season, execution of agreements for the following year and supply of agricultural credit in cash or kind. The disincentives are that unbonded cane, purchased by a factory after the normal crushing period will be paid for at a lower rate than bonded cane, and that, in years of excess cane, the supplies made by cane-growers in the previous years will be taken into consideration. A cane-grower who does not fulfil his contract in a year will come to realise that his earlier default will affect his future supply adversely.

Pass Book

2.45 The practice of factories issuing pass books to cane-growers who supply cane to them exists in almost all areas. Where cane-growers' societies operate, they issue such pass books to their members. These pass books are described by various names in different regions, but all of them contain information about the name and address of the cane-grower, the area under cane and the quantity of cane which the cane-grower has to supply. The pass book is presented to the factory official concerned every time the cane-grower brings his cane to the factory or the purchasing centre and entries are made in it about cane supplied, cane price due and paid, etc. The importance of the pass book will increase considerably with the enforcement of the Scheme, as it is necessary for the purposes of the Scheme to know whether or not the cane-grower supplying cane has executed an agreement and, later, fulfilled his agreement. It is necessary that the pass book should also contain basic information relevant to the Scheme. A model pass book form should be devised and adopted by all factories and cane-growers' societies with suitable modifications. But the pass book should coutain all the essential data as indicated in clause (20) of the Scheme.

Sugar Sales Committee

2.46 Experience of the working of price sharing formulae in the past has shown that the cane-growers

generally showed lack of confidence in the accounts of factories, while there are also factories in whose *bona fides* the canegrowers have trust. It appears that during the implementation of the earlier formulae, the cane-growers came to know of the sales relisations only at the time of the computation of extra realisations. It seems to us that it will be better if the cane-growers are brought in the picture at an early date. They should be kept informed from the very beginning about the progress of sales of sugar, the prevailing market rates, the rates at which sugar is sold, the party to which it is sold, etc. They should have a say in the matter of sales without restricting the powers of the management to sell sugar for the best prices that can be obtained. They should be consulted in deciding the prices below which the factory shall not sell sugar and, when sugar is sold below the price indicated, they should be informed of the reasons. Cane-growers should also have a right to inspect the accounts of sales of sugar. These objectives can be achieved by setting up a Sugar Sales Committee in which the management, cane-growers and workmen of the factory should be represented. Where the organisation of a factory so demands, the constitution of the Committee may be suitably amended. This will be the first attempt to bring cane-growers, workmen and factory management together in the discharge of an important and responsible function, namely sale of sugar. Its importance and significance lies not in the particular form or method of the association but in the principle of association itself. It introduces the principle of direct involvement of cane-growers and workmen in the process of sale of sugar.

2.47 On behalf of the industry it was urged that in a number of cases the head offices of factories were situated at long distances from the factories and that if Sugar Sales Committees had to be consulted, it would dislocate the business because transactions of sales of business were entered into at the head offices. In our recommendation, we have only suggested that the Sales Committees will indicate a minimum price below which sugar will not be sold. The factory management will, therefore, have full liberty to sell sugar at any higher price and only when it becomes necessary to sell sugar at a price lower than that fixed by the Committee, a meeting of the Committee will be necessary. This should not, in our opinion, cause any great inconvenience.

2.48 The Tariff Commission in its Report of 1961 recommending the abolition of the system of sharing of sales realisations had stated that that scheme did not promote good relations between the management of the factories and the cane-growers. In the Scheme suggested by us, all members of the Sales Committee will have a common interest in ensuring that the best favourable price is realised by the factory, and we do not, therefore, think that there will be any occasion for a conflict to arise.

Exemption from the Scheme

2.49 In this Scheme sharing of extra realisations between a factory and its cane-growers has to be done on the basis of half and half. It is reported, however, that cooperative factories in Maharashtra and Gujarat and some factories in other States have in the past been passing on to the cane-growers and their members a much higher percentage of the extra realisations. The Scheme should not stand in the way of such higher payments. It has, therefore, been provided in clause (21) that clause (9) of the Scheme dealing with the division of extra realisations between canegrowers and factories shall not apply to factories which pay to canegrowers prices higher than laid down in the Scheme. However, some cooperative sugar factories in other parts of the country are either not sharing any portion of their extra realisation with the canegrowers at all or are passing on to them only a small portion of the extra realisations. To such factories, the Scheme will apply.

ANNEXURE F

Cane-growers and Factory Agreement Form

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ANNEXURE 'F'

FORM A

Agreement between a canegrower and the occupier of a factory.

[Clauses 3 (3) and 4(1)]

I, ————————, son of———————— caste ————————, a canegrower of village———— pargana ————————, district ————————, hereinafter to be referred to as the first party and———— and occupier of ————————factory hereinafter to be referred to as the second party, hereby enter into an agreement for the sales and purchase of cane on the following terms :

*(1) The first party agrees to sell during the season 19—— 19 , his sugarcane crop standing on—— hectares as detailed below with an approximate yield of ———quintals to the second party at the minimum price notified by Government subject to such deductions, if any, as may be notified by the Government from time to time. The first party further undertakes to supply good cane free from leaves, tops and roots at the factory gate or at ———— purchasing centre in such quantities and on such date as may be specified in the requisition slips issued by the occupier of the factory in conformity with this agreement and the instructions issued by the Cane Commissioner.

(2) The cane shall be taken by the second party in instalments equitably spread over the whole working period of the factory.

*(3) In the event of wilful failure to supply at least 85 per cent of the agreed quantity of sugarcane, the first party shall be liable to pay the second party compensation at a rate not exceeding thirty-three naye paise per quintal on such deficit.

(4) In case the first party wilfully fails to supply cane to the second party on three consecutive occasions according to the requisition made by the second party, the first party shll cease to have a claim to sell cane to the second party.

*(5) In the event of the second party wilfully failing to take delivery of the cane, which the first party is ready to deliver in accordance with this agreement, the second party shall be liable to pay to the first party the actual price of the quantity of such cane which he fails to purchase. In the event of the second party otherwise than wilfully failing to purchase cane in accordance with this agreement, he shall be liable to pay the first party compensation at a rate not exceeding thirty-three naye paise per quintal for such quantity of cane as the second party fails to buy : Provided that for any deficiency in purchase in the instalments fixed for the period after 1st day of April, the second party shall be liable to pay compensation to the first party at a rate not exceeding sixty-six naye paise per quintal.

(6) In the event of a breakdown at the factory or of other circumstances due to natural causes, calamities or accident beyond human control, arising to show that the second party will not be able to purchase the cane he has agreed to purchase, the first party, after giving a week's notice to the second party and with the previous permission of the Cane Commissioner shall have the option of making other arrangements for the disposal of the cane and in such case no compensation shall be payable by either party to the other.

(7) No compensation for breach of this agreement shall be payable by either party when such breach is due to natural causes, calamities or accidents beyond human control.

(8) Any dispute between the parties regarding the quality and condition of the cane, the place of delivery, the instalments and other matters partaining to the agreement, shall be referred to Arbitration in the manner provided for in the rules. No suit shall lie in a civil or revenue court in respect of any such dispute.

Signature of the canegrower (or his thum-impression).

Singature of the occupier or his authorised representative in token of his accepting the above contract.

Dated ————————

Village	Area under sugarcane			Approximate yield in quintals*	Quantity offered for sale.	Remarks
	Desi	Improved				
		Ratoon	Plant			
1	2	3	4	5	6	7

*Vide notification No. 3178-S/XVIII-C-1621-61, dated October 13, 1961.

ANNEXURE G

Note by Shri Bansi Dhar

ANNEXURE 'G'

Note of dissent by Mr. Bansi Dhar

I appreciate the Commission's desire that any scheme of incentives for production of better quality cane should be more broadbased with a maximum possible coverage. The Commission has tried to achieve this by lowering the present all India basic recovery from 9.4 per cent to 8.5 per cent. This, it is claimed would widen the base so as to cover more than 90 per cent of the cane crushed in the country. Still 10 per cent of the cane crushed would be left out. The objective would be more effectively served by linking cane price to regional basic recoveries instead of such an all India low figure.

The regional recoveries provide the real base from which the grower should be induced to make an effort to improve his quality of cane. This would also help to further widen the coverage and thereby make the scheme more real and purposeful. It would also prevent widening of the existing regional disparities in the matter of cane payments and consequent regional imbalances which otherwise would follow the Commission's suggestion of a reduced all India basic recovery. While attempting to widen the coverage of the incentives, this aspect of the matter, which too has vital bearing on the long term objectives of sugarcane price policy, should not be overlooked.

G-2. Along with lowering the all India basic recovery the Commission has also suggested the fixation of cane price premium on the basis of complete proportionality. The two together would lead to considerable distortions in the present sugarcane and sugar economy. This would be clear from the comparative figures given in Statement 'G' of the minimnm price payable now with the basic recovery of 9.4 per cent and the premium rate of 6.6 paise and with the proposed basic recovery of 8.5 per cent with the premium rate based on complete proportionality assuming the statutory minimum cane price at Rs. 8.50 per quintal. It will be seen therefrom that the cane price in regions of higher recovery which is essentially due to natural and climatic factors, would unduly rise without any change whatsoever in the quality of cane. For instance, for a factory with 11.5 per cent recovery, the minimum cane price would go up from Rs. 8.76 to Rs. 11.50 reflecting an increase of almost 31 per cent. There can be no justification for conferring such undeserved gains on sugarcane growers quite unrelated to their efforts since the higher recoveries are due to natural and climatic factors and essentially a varietal function.

It was a gift of nature and the grower has precious little to do in increasing the sugar content of cane.

G-3. The U.P. Government too have expressed the view that the basic recovery should not be reduced to unrealistic low level. I feel, due consideration should have been given to the views of the U.P. Government.

G-4. Unfortunately, the suggestion of the Commission to lower the basic recovery to 8.5 per cent and provide for complete proportionality disregards completely the consumer interests. If the minimum cane price is raised to Rs. 8.50 as reported in the press with basic recovery of 8.5 per cent and complete proportionality, the consumers' price throughout the country would go up by about Rs. 25 per quintal.

This will also make our exports costlier. There will be no commensurate gain so far as improvement in the quality of cane is concerned. As is well known, linkage of sugarcane price to recovery has not resulted in an improvement in the quality of cane oversince 1962-63 when the system of linking the sugarcane price to recovery was introduced. In fact, recovery percentages have gone down progressively in almost all the parts of the country. It has to be recognised that the growers' interest lies mainly in increasing the yields which help augmentation of his earnings in a more substantial way. The Commission has also admitted this aspect of the matter. The Commission has also accepted that the sugar factories have definite role in improving the recoveries both through cane development work and through their working efficiency. Due regard has also to be given to the sizeable expenditure which the Central and State Governments are incurring on providing the infra-structure facilities such as; irrigation, electricity for tube wells, roads etc. Is it not fair that the sugar cansumers should also share the benefits accruing from such investments ? With redueed basic recovery and complete proportionality, the entire gains would be apportioned to the canegrower who in fact, has shown little interest in improving the quality of cane and any hope to the consumers for lower sugar price consequent upon the increase in sugar recoveries would be dashed for all times to come and the consumers will have to reconcile himself to ever increasing prices. This would be grossly unfair. The consumer should legitimately share the gift of nature *i.e.* higher sucrose conteut in cane.

G-5. Provision of complete proportionality would also sap the industry's initiative for investments for improving the working efficiency, which, in fact, is the one single factor responsible for improving the recoveries. Even now 84 per cent of the gain is being apportioned to the growers. It is proposed to

raise it further to 100 per cent which would mean denial of even the small incentive of 16 per cent which remained with the factories. I am afraid, the withdrawal of this small incentive will dampen the interest of factories and discourage them from investing funds and making efforts to recover more sugar from the same cane through modernisation of their equipment and machinery at the prevailing high costs. The Commission's assumption that after providing for complete proportionality, adequate savings would be retained by factories in the conversion charges due to improvement in recoveries is not correct. If such savings are realistically estimated, it will be seen that they would not even cover the high interest and depreciation charges on fresh investments required by the factories for installing additional equipments. In fact, even now when 16 per cent of the gain is apportioned to the factories, it is not possible to provide for these charges adequately. With the dampening of fresh investments in the industry for improving recovery, the consumers' interest would further suffer.

G-6. The demand from complete proportionality has been before the Government for quite sometime now. A Departmental Committee presided over by the then Joint Secretary (Sugar), Shri R. S. Talwar, was appointed to go into this matter. The Talwar Committee had recommended full proportionality. However, Government could not see their way to accept the recommendations of the Talwar Committee on the following considerations :

(1) While the sugarcane grower has to play an important role in the improvement of sugar content in sugarcane, the factory has also to play a significant role in taking suitable measures for obtaining maximum recovery of sugar.

(2) Sugar content is largely dependent upon natural and environmental factors, *viz.* climate, rainfall, maximum and minimum temperatures, humidity and the nature of the soil.

(3) The system could not operate in such a way that the farmers in different areas got widely different cane prices for the best cane they could grow.

G-7. I believe, the aforesaid considerations are valid even today and it would be improper to disregard them.

G-8. In the present context of the policy of decontrol or partial decontrol, the statutory minimum cane price assumes the same role as that of support purchase price announced by the Government for the various other commodities like wheat, maize, etc. It is common knowledge that in doing so, Government adopts a uniform level of price and there is no provision for price escalations on considerations of quality etc. These considerations do influence only the actual market price and it is left to the buyer to pay the price which a particular quality commands. But so far as the support purchase price is concerned, it remains the same. There appears to be no justification for making a departure in case of sugarcane where undeserved gains are sought to be conferred on certain regions where, due to climatic and natural factors, cane normally yields higher sugar recoveries.

G-9. The suggestion of the reduced all-India base recovery with the provision of complete proportionality has to be further considered in the light of the proposed scheme of price sharing by the Commission. Under this scheme also the cane payments by factories with higher recoveries would be substantially higher. The 1962 Tariff Commission, after a thorough consideration of the matter, discarded price sharing in the sugar industry as impractical. Instead, it recommended linkage of minimum cane price to the recoveries of individual factories which Government have adopted since 1962-63. It is strange that the Commission now intends to reintroduce price sharing while maintaining linkage of cane price to recoveries of individual factories in a more liberal manner. There appears to be no justification for reintroducing price sharing and also continuing with linkage of cane price to sugar recoveries. In fairness, either there should be price sharing or linkage of cane price to sugar recoveries. Adoption of both would place unduly heavy burden on the industry affecting its production and productivity. It would also impair its future growth and development, which in turn would undermine the larger interests of sugar consumers.

G-10. In the past, we never had both the price sharing and the linking of cane price to sugar recovery operating simultaneously. Now that the Commission is proposing a price sharing which would take adequate care of high recovery zones by way of larger cane price payments, it is only proper and desirable that the linking of cane price to sugar recoveries should be discarded. Its operation during the last 10 years has not yielded any result nor it is expected to do so. Its operation is against the interests of consumers. I strongly feel that linkage to recovery scheme should be discarded and the levy prices for sugar should be fixed on the basis of flat rate of statutory minimum cane price to bring them down to the benefit of the consumers. Although this will be against the interests of the industry, as at present, the incidence of payment of cane premium is duly accounted for in the levy prices and its risk is reduced. Still, in the larger interest of the consumers, I would urge that the scheme of linking of cane price to sugar recovery should be discarded giving the much deserved relief to the sugar consumers. As already explained, so far as the growers are concerned, they will not suffer in any way as their share in the price sharing would correspondingly go up with the widening of the gap between the levy prices and the average realisations. It is a legitimate hope which the consumers nourish of getting cheaper sugar with improvement in recoveries. The suggestion of the Commission to reduce the basic recovery and provide for complete proportionality is complete negation of consumers' hope for any possible reduction in prices.

STATEMENT No. G-1

Comparative Cane Prices for Various Recoveries

Recovery %	Cane price per quintal of cane			% increase in cane price
	Rs. 7.37 linked to Base recovery of 9.4% and premia 6.6 paise for every point increase in recovery	Rs. 8.50 linked to Base recovery of 8.5% with complete proportionality	Increase in case price Column 3 over column 2	
1	2	3	4	5
8.5	7.37	8.50	1.23	15.3
8.6	7.37	8.60	1.23	16.7
8.7	7.37	8.70	1.33	18.0
8.8	7.37	8.80	1.43	19.4
8.9	7.37	8.90	1.53	20.8
9.0	7.37	9.00	1.63	22.1
9.1	7.37	9.10	1.73	23.5
9.2	7.37	9.20	1.83	24.8
9.3	7.37	9.30	1.93	26.2
9.4	7.37	9.40	2.03	27.5
9.5	7.44	9.50	2.06	27.7
9.6	7.50	9.60	2.10	28.0
9.7	7.57	9.70	2.13	28.1
9.8	7.63	9.80	2.17	28.4
9.9	7.70	9.90	2.20	28.6
10.0	7.77	10.00	2.23	28.7
10.2	7.90	10.20	2.30	29.1
10.4	8.03	10.40	2.37	29.5
10.6	8.16	10.60	2.44	29.9
10.8	8.29	10.80	2.51	30.3
11.0	8.43	11.00	2.57	30.5
11.2	8.56	11.20	2.64	30.8
11.4	8.69	11.40	2.71	31.2
11.5	8.76	11.50	2.74	31.3

ANNEXURE 'H'

Note of dissent by Shri P. C. Rajagopal Naidu, Member, Sugar Industry Enquiry Commission

ANNEXURE H

Note of Dissent by Shri P. S. Rajagopal Naidu,

Member, Sugar Industry Enquiry Commission

Sub. : Optimum period Vs. Normal Crushing period.

I am sorry I cannot subscribe to the majority view in the Commission for changing the existing formula of fixation of cane price on the basis of average recovery of the optimum period of the working of a factory in the preceding season. The change that is now proposed by the Commission is by way of a compromise between the protagonists of the existing system and of those who advocate that payment of cane price should be on the basis of average recovery for the entire season.

H-2. It may be recalled that the need for fixation of statutory minimum price for sugarcane was felt to put an end to the exploitation of the sugarcane growers—a weaker section of the community—by more organised and resourceful owners of the sugar mills. It is necessary to fix a remunerative price for sugarcane so that the grower is able to adequately meet the cost of production of sugarcane, and having regard to the prices and profitability of other alternative crops, to ensure that there is no undue diversion of area under sugarcane to other crops. The minimum price for sugarcane had been fixed by States from 1934. From 1950-51, the power to fix the minimum price for sugarcane was taken over by the Central Government to bring about uniformity in this regard all over the Country. From 1962-63 season, the system of fixing the minimum price on weight basis was given up and instead, the system of linking the minimum price to a basic recovery with premia for higher recoveries was adopted. In pursuance of the paramount objective of protecting the interests of the growers, the Central Government, for assessing the sugar recovery for purposes of fixation of minimum cane price made two important concessions in favour of the growers, namely :—

(1) Instead of taking the average recovery of the entire season, the recovery during the optimum period was taken ; and

(2) the recovery during the optimum period was increased in favour of the growers by rounding off the recoveries at the second place of the decimal to the next higher point in the first place of the decimal. For example, the recoveries of 9.51 per cent or 9.59 per cent were both rounded off to 9.6 per cent.

H-3. The justification given by the majority in the Commission for the change from optimum to normal crushing period is that this will protect the genuine interests of the cane growers, industry and the consumers. This will not, however, be the case. By the proposed change, the growers will receive a lower minimum price for the cane than what they are now receiving under the existing formula. Even according to a table of figures furnished by an hon'ble Member of the Commission covering 19 factories in West U.P. for the season 1970-71, the difference in recovery during the optimum period (December to March) and that during normal crushing period (assuming it is from November 15 to April 30) is as much as .2 per cent in some factories. Based even on the existing price of cane at Rs. 7.37 linked to a recovery of 9.4 per cent with 6.6 paise premium, the growers will get a lesser amount of Rs. 1.30 P. per tonne. Based on a calculation of Rs. 8/- per quintal for 9 per cent recovery with a premium of 7.50 paise per quintal for every .1 per cent recovery which is recommended by the Agricultural Prices Commission, the growers will get a lesser price of Rs. 1.50 per tonne. Assuming that a price of Rs. 8.50 per quintal is fixed for a recovery of 8.5 per cent with proportional premium, the growers will get Rs. 2/- less per tonne. If the difference is this much even in a part of a State like U.P., where the duration of the crushing season ranges round 150 days, the difference will be much larger in States like Tamil Nadu where the average duration for the past three seasons has been over 200 days and where the optimum period fixed is between December to March. What the majority now recommends runs counter to the observations made in para (1.20) of the Report namely that "having regard to all these factors, it is essential not only to fix a remunerative price for sugarcane but also a price which has slight edge over the parity prices for other crops so that growers may be willing not only to increase the yield per hectare but also in due course of time, to increase the area under sugarcane." I feel that the Commission is rendering injustice to the growers while recommending this change in calculations.

H-4. For a proper comparison of the average quality of cane supplied to a factory, it is essential that it should be judged during the period when sugarcane gives the best or nearly the best results. It is only then that we will be in a position to know whether or not there has been collective improvement in the quality of cane in the factory area.

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H-5. As regards protecting fair interest of the industry, it is not clear how the industry loses under the present formula. Whatever may be the recovery taken, either on the basis of optimum or normal period, the entire cane cost will be taken while fixing the levy prices. The industry's interest is, therefore, fully protected at least in respect of the levy quantity. In regard to free sale quantity, it does not matter because the price of sugar in the open market will always be higher than the levy price. In fact, the scheme of partial control is meant to induce the factories to pay a much higher than the minimum price to attract cane supplies. The higher the minimum price, the more will be the capacity of the factories to pay higher cane prices in competition with gur and khandsari. The change will also not be in the interest of maximising sugar production.

H-6. As regards protecting the interest of the consumer, I am not suggesting for a moment that the consumer price has to be increased by adopting a formula which will increase the cost of sugar. If my suggestion is to reduce the present optimum period to a lower level, then I can be accused of making a suggestion which will go against the consumer's interest.

H-7. I feel that the formula now adopted by the Government of India for fixing the sugarcane price based on the optimum period of the previous season is based on sound logic and principles. It has to be appreciated that the sugarcane is an important crop. It is perishable in nature and cannot be stored for use later. Therefore, it must be harvested and utilized within a short period of its maturity. Utilisation of sugarcane before the maturity of the crop and after the maturity period is not so economic as during the maturity period. The crop during the hot months dries up and loses in weight as well as in sucrose contents. The interest of the canegrowers requires that the sugarcane should be utilised only when it is matured. However, sugar industry's capacity to crush sugarcane during a limited period is also limited. Sugarcane growers are, therefore, anxious that their sugarcane is crushed by the factories when sugarcane is matured. The crushing of cane when it is not sufficiently matured or after maturity period when the crop begins drying is not in the interest of the growers. Sugarcane growers, being mostly small growers, are in a vulnerable position compared to the organised sugar industry. Having regard to these considerations, the Central Government very wisely takes, for purposes of fixing the minimum price, the recovery of a factory during the optimum period, *i.e.* excluding the low recovery periods at the commencement and towards close of the season. This is also necessary for having a comparable basis for fixation of minimum prices on quality basis in all the years.

H-8. The recovery of sugar not only depends upon the sucrose contents of the cane but also varies with the duration of the season. By prolongation of the season, the recovery goes down. It is, therefore, necessary that for fixation of price of sugarcane on the basis of quality of cane, the recovery during a prescribed period in the middle of the season is taken into account.

H-9. It has to be remembered that the sugar factory is also not at its maximum efficiency towards the commencement of the crushing season and towards the closure of the crushing season. Fixation of minimum sugarcane price on this basis is also necessary to discourage the sugar factories to unnecessarily prolong their crushing season which will result in low recovery and undue loss to the sugarcane growers. When the sugar factories are required to prolong their crushing operations in order to crush extra sugarcane available, the Central and State Governments normally grant incentives in the form of rebate in excise-duty and remission in the purchase tax.

H-10. The present method of fixing the sugarcane price taking the optimum recovery has also the following advantages :

(i) the recovery of sugar obtained by a factory varies from year to year depending upon the length of the crushing season—recovery being lower if the season is longer and higher if the season is shorter. The recovery during the normal crushing period even though it may be lower when compared to the average season will not be a correct criteria for fixation of the minimum price of sugarcane on quality basis. The basis of recovery during the prescribed period when the maturity remains high is a better criterian in this regard.

(ii) Although the overall recovery of sugar from sugarcane during the whole of the season or even during the normal crushing period may vary from year to year, the recovery obtained during the optimum period which exist now every year will be a fair indication of the sucrose contents of cane from year to year.

H-11. It has been argued by the majority that in view of their recommendations made elsewhere to reduce the basic recovery from 9.4 per cent to 8.5 per cent linked to a particular cane price (actually the reduction will be of a lesser magnitude, if the basic recovery of 9.0 per cent recommended by the Agricultural Prices Commission is taken) the change from optimum period to normal duration period even though admittedly the grower gets a lesser price for cane by this change, he still stands to gain on account of lower base recovery. In my view this may be marginally advantageous to high recovery regions in the country, but definitely this will not enthuse the growers in areas where the average recovery is round about 8.5 per cent like that of States of Tamil Nadu, Kerala, Pondicherry, Punjab, Haryana, etc. It has also to be appreciated that lowering of the base recovery is being recommended to remove the hardships caused to that section of the industry where the recoveries range between 8.5 per cent and 9.4 per cent. As mentioned earlier, the factories get the full cane price in the levy price of sugar, whatever may

be cane price, basic recovery premium, or the period of recovery—optimum, normal or average. Why disturb the peace of the grower who is already apprehensive of the treatment of sugar mills ?

H-12. I do not have objection for fixing normal crushing period for each factory for the purpose of bonding and computation of periods within which bonded cane has to be crushed but to extend this period for purposes of fixing minimum price of cane is in my view not based on any sound principles.

H-13. It was brought to the notice of the Commission that some factories in U.P. have taken up the matter to the Courts of Law *inter alia,* asking for relief to change the optimum period into the average duration for calculation of payment of cane price to the growers and that some cases have been disposed of and some cases are still pending. Similarly, some factories in U.P. have taken up the matter questioning the policy of rounding off the recoveries obtained by factories at the second place of decimal to the next point in the first place of decimal and this matter is also *sub-judice.*

H-14. I pressed the Commission to defer consideration of this issue, now while submitting the interim report, and consider this deeply before the Commission submits its final report. I made the suggestion in the following context :

(i) That there was no such question for change from optimum period to normal crushing period included in the Questionnaire issued. The only question on which opinion was called for was Question No. 179 which reads as follows :—

> Q. No. 179. What is the basis for fixing the period of 'optimum recovery' of a factory in a season for purposes of calculating the average recovery to be used for determining the sugarcane price for the following years ?

(ii) That no question was put to any witnesses who were examined by the Commission inviting their views on this point.

(iii) That no written or oral opinion was invited either from ISMA or from the National Federation of Cooperative Sugar Factories when their representatives were examined on more than one occasion.

(iv) That no views either from any growers' associations or of any of the State or Central Government, were invited on this specific point.

(v) This subject was introduced for the first time in the working paper, which was circulated after all the evidence was recorded.

(vi) That though there was considerable discussion amongst the members of the Commission on this point during the last few weeks, yet in the absence of any expert opinion having been invited from the Growers' Organisations, Industry, Central and State Governments, it is not proper for the Commission to take a final decision on an important matter as this, which vitally affects the economy of millions of sugarcane growers in the country.

H-15. The sugarcane growers in the country are well aware of their rights and privileges. They easily understand where the shoe pinches. It is my considered view that the growers in low recovery areas are not very much benefited even now by our recommendation lowering down the base recovery from 9.4 per cent to 8.5 per cent. When that be the case, to recommend to enlarge the optimum period even by a day will not be liked by the growers, particularly those growers, hailing from those regions, where the duration is larger and recovery lower. This recommendation is positively disadvantageous to the growers on the whole and therefore, I am not in agreement with the majority view on this point.

System of rounding off recovery figures

H-16. The Government of India had advisedly decided to round off the recoveries obtained by factories at the second place of decimal to the next point in the first place of decimal. This has been done since it has been felt by the Government that there is scpoe for manipulation by unscrupulous sugar manufacturers. At any rate the advantage by this rounding off is confined to those recoveries which fall within the range of 0.1 to 0.4. The recoveries at the second place of .05 to .09 will automatically get rounded to the next higher. I feel that there is absolutely no necessity to disturb the marginal advantage which now the growers are enjoying in this respect.

Payment of discount price for cane supplied after normal crushing period

H-17. Another recommendation which the majority Members of the Commission had made is to discount in the minimum statutory cane price for every decrease of .1 per cent recovery below the average recovery of the last week of the normal crushing period. This was experimented some years ago by the Government and had to be given up for the reasons that no grower will like to deliver his cane at a lower price than what was delivered by his fellow grower a day earlier. It has to be appreciated that the minimum price is a notional price. The entire scheme of the Commission envisages deferred second instalment price to those growers who had bonded their cane and had supplied their cane to the factory as per the bond. I fail to understand as to why a grower who had not bonded the cane to the factory should be deprived even of the statutory minimum price fixed by the Government. Accepting cane for crushing, which is not bonded, is at the discretion of the factory. Then once the factory accepts such unbonded cane, it is in the fitness of things that grower is paid the minimum statutory price for the cane. If there is any element of compulsion by the State Government as is mentioned by some members, in some States to crush even stale cane, after the season is over, it is the responsibility of the State Governments to compensate such factories adequately for the losses that would be incurred on account of extending the duration of crushing. but it is not fair to recommend to deprive the grower of even the statutory minimum price of cane.

STATEMENT

Estimated requirement
Cane Crushed by

State	1965-66			1966-67		
	Estimated requirements of cane	Cane crushed (supply)	% of cane crushed to total requirements	Estimated requirements of cane	Cane crushed (supply)	% of cane crushed to total requirements
1	2	3	4	5	6	7
Uttar Pradesh	13061	14480	111	12943	7417	57
Bihar	3434	3980	116	3417	2172	64
Assam	71	99	139	68	70	103
Punjab	540	872	161	553	419	76
Haryana	764	987	129	764	532	70
West Bengal	116	127	109	112	84	75
Orissa	124	133	107	119	102	86
Madhya Pradesh	334	392	117	260	82	32
Rajasthan	149	205	138	150	103	69
Maharashtra	6108	6871	112	6215	5551	89
Gujarat	469	535	114	499	401	80
Andhra Pradesh	2845	3199	112	2558	1660	65
Karnataka	1392	1492	107	1176	743	63
Tamil Nadu	2567	2708	105	2724	2008	74
Kerala	320	319	100	243	135	56
Pondicherry	170	123	72	183	158	86
All-India	32464	36512	112	31984	21637	68

STATEMENT No. 2.1

equirements of Cane and Crushed by Sugar Factories

(In thousand tonnes)

	1967-68			1968-69			1969-70			1970-71		
% of cane crushed to total requirements	Estimated requirements of cane	Cane crushed (supply)	% of cane crushed to total requirements	Estimated requirements of cane	Cane crushed (supply)	% of cane crushed to total requirements	Estimated requirements of cane	Cane crushed (supply)	% of cane crushed to total requirements	Estimated requirements of cane	Cane crushed (supply)	% of cane crushed to total requirements
7	8	9	10	11	12	13	14	15	16	17	18	19
57	12751	8536	67	13113	12961	99	12935	18078	140	13208	14183	107
64	3077	1555	51	3190	2709	85	3421	3638	106	3336	3248	97
103	63	43	68	68	55	81	72	121	168	69	92	133
76	537	326	61	655	546	83	648	794	123	633	561	89
70	749	623	83	788	751	95	789	1109	141	771	952	123
75	100	71	71	109	78	72	110	148	135	104	88	85
86	109	60	55	134	154	115	133	196	147	125	91	73
32	180	44	24	284	164	58	332	407	123	335	407	121
69	131	64	49	148	146	99	195	234	120	208	145	70
89	6495	5418	83	7311	8865	121	8353	9700	116	9073	9349	103
80	574	446	78	851	828	97	1048	1027	98	1244	821	66
65	2773	2025	73	3069	3705	121	3110	3695	119	3164	2616	83
63	1416	1110	78	1849	2041	110	2086	2459	118	2283	1936	85
74	2878	2126	74	3190	4222	132	3242	3671	113	3356	3325	99
56	271	82	30	270	200	74	285	241	85	287	183	64
86	183	109	60	208	274	132	249	183	73	282	202	72
68	32287	22638	70	35237	37699	107	36998	45701	124	38478	38199	99

SOURCE : Based on information supplied by the Directorate of Sugar & Vanaspati, New Delhi.

NOTE.—Estimated normal requirements of cane during the season have been worked out by multiplying the average duration of crushing season during the ten years 1958-59 to 1967-68 (used by S. & V. Dte. for working out installed capacity etc.) and the actual cane crushing capacity per day during the different years).

CHAPTER III

CONCLUSION

3.1 The Commission has so far dealt with the various aspects of the Scheme separately. All these are intended to lead to one single result and it is that the supply of cane to the factories for production of sugar should not vary from year to year to any large extent consistent with the increasing supply needed by the factories for production of greater amount of sugar to meet the projected requirements of the commodity.

3.2 In most other countries regular supply of sugarcane to the factories is ensured by arranging for agreements between the cane producers and the factories so that the farmers produce cane in accordance with the requirements of the factories and supply their cane to the factories. The variations in the total quantities of cane crushed by factories from year to year are directly the result of fluctuations in cane production. In our country, however, the situation is complicated by two factors. First, the number of growers supplying cane to a sugar factory is very large, sometimes as much as 30 to 40 thousand with many of them having small holdings. Secondly, there is production on a very large scale of gur and khandsari. As these two factors do not occur in other countries, they have found it easy to enforce agreements entered into between the factories and the canegrowers for the supply of cane to the factories. In this Scheme, an attempt has been made to adopt the system so as to make it effective even under the conditions existing in India.

3.3 In order to ensure that the canegrowers produce sufficient quantity of cane and supply it to the sugar factories, incentives are needed. The first incentive in the Scheme is the announcement of a remunerative minimum price which will give an adequate return as compared to competitive crops. It has been suggested that the cane price should be so fixed as to have an edge over the return from competitive crops in view of the requirements of increasing production of sugar to meet the projected demand in the next 10 to 15 years so that the cultivators are encouraged to extend cane cultivation while going not too high or too low. In our country, it is not very likely that at the initial stage the grower will feel attracted to growing of cane merely because a scheme is enforced promising an additional deferred payment. An average cultivator is usually influenced by the minimum return promised to him and the deferred payment can come as incentive only after the cultivator sees that he or others have derived advantage from it. The Commission, therefore, envisages that in the first year when this Scheme is enforced by the Government, the cultivators in entering into agreements to supply cane and in fulfiling those contracts will be influenced primarily by the minimum price which under the Scheme will be the initial price payable to all cultivators. Since this minimum price will be payable even to those cultivators who do not enter into agreements, there is a possibility that the number of growers who enter into agreements and ultimately fulfil those agreements may not be very large. However, this need not be treated as a disturbing factor. At the end of the first year the surplus realisation from sale of sugar, that will become divisable to the cultivators as additional price, will be the amount related to the entire cane crushed by the factory including the cane supplied by persons who did not enter into agreements, or who, having entered into agreements only fulfil them partially and to the extent required by the Scheme. This surplus will, however, be divided amongst the limited number of growers who will have entered into agreements and will have fulfilled them. Consequently the amount available for distribution as additional price, particularly in the ensuing one or two years when it is envisaged that the extra realisation on free sale of sugar will be substantial due to scarcity of sugar at the present time, will enable the cultivators, who keep the agreements, to receive as additional price amounts which are likely to bear a good proportion to the minimum or the initial price. If such a situation does occur, it will have a great impact on the cultivators in choosing their course for the next year. The cultivators who did not enter into agreements or who committed breaches of agreements will find that they are at a great disadvantage in comparison with the cultivators who did enter into and fulfilled their agreements. Consequently a large number of growers will tend to enter into agreements and fulfil the agreements and not treat them as mere scrap of paper, which is the tendency when those agreements are not enforced against them.

3.4 An additional incentive to enter into and to keep the agreements will be that cultivators who have fulfilled their agreements will be entitled as of a right to agreements for the next year to the extent to which they have earlier fulfilled agreements. For the additional requirements of the factories they will be entitled to compete on equal footing for next year's agreements with others who did not enter into agreements or committed breach of their agreements. This will be a marked advantage which will further induce the cultivators not only to enter into agreements but also to supply cane to the factories in accordance with the agreements.

3.5 The third influencing factor in the Scheme is that the growers who enter into agreements to supply cane will be entitled to preference in the crushing of their cane by the factories and will also receive full price of the cane even if for any reason their cane is not crushed within the normal period. On the other hand, there will be disincentive to keep away from entering into agreements because those cultivators who adopt this course, may have to face the situation in a year of excess production of cane that they will be left behind in supplying their cane to the factories and may receive price at lower discounted rate in case it becomes necessary for the factory to crush their cane after the end of the normal period when the quality of cane may have deteriorated giving lower recovery.

3.6 The practice of having agreements executed by canegrowers for supply of cane to the factories either directly or through their canegrower cooperative unions has been existing in the past almost all over the country. But the experience has been that the cultivators in spite of penalty clauses, have not hesitated from committing breaches of their agreements mainly because the penalties provided in the agreements are rarely enforced. In this Scheme the penalties provided and realised will not be payable to the factories to make up their losses due to non-supply of contracted cane. The penalty will be divisible among those cultivators who fulfilled their agreements. This will again induce the cultivators who may have committed breaches of their agreements not to do so in future because it will be a natural reaction for every person to prefer to belong to the group receiving additional money rather than the group which pays penalty for payment of that additional amount. The loss of the factory will be compensated by better supplies of cane in future years.

3.7 The net result of all the measures suggested in our Scheme is to increase the returns of the canegrowers. This has been done deliberately. As an immediate objective we are interested in creating a climate in which the growers will be encouraged to enter into agreements with the factories and abide by these. More importantly, these incentives would encourage a higher rate of growth in cane production and efforts for improving the quality of cane. This we believe will be in the larger interest of the consumers also.

3.8 Apart from these incentives that have so far been included in the Scheme, the Commission was of the opinion that one more great incentive that could be provided, would be to arrange that every cultivator who enters into an agreement to supply cane to the sugar factory, is given credit and is supplied with inputs such as improved and good quality seeds, fertilizers and pesticides by the factory. This facility would not be available from the factory to cultivators who did not enter into agreement at the time of planting or soon thereafter when they require this facility. The Commission has however not included a detailed recommendation on this aspect at this stage because it involves examination of its feasibility. This aspect has been dealt with in detail in Part III.

3.9 There are certain other measures that can be taken to ensure stability of sugarcane supply to the factories, such as building up of a buffer stock of sugar in years of excess production so as to prevent the sugar price and consequently the cane price from falling so low as to become unrenunerative to the cultivator and using that buffer stock to keep down the price of sugar in years of shortage. Some additional measures may have to be taken in respect of production of gur and khandsari which in years of shortage of sugarcane production, create the main problem in the supply of cane to the fatcories. The success of the Scheme depends largely on the prompt payment of cane price by factories. This will ensure stability of supply on a continuing basis. In certain States like Maharashtra and Gujarat the cane price is paid to the growers ex-field, in addition to harvesting charges.

3.10 The Commission considers it necessary to emphasize the fact that this Scheme is an integrated one containing measures to be taken on various aspects relating to supply of sugarcane to factories. Each part of the Scheme is linked with the other and it is necessary that the Scheme is implemented as a whole. A mere implementation of a portion of it may not prove successful. In the past a number of Commissions have had occasion to deal with some of these aspects but, unfortunately, even those recommendations which were similar to some of the recommendations being made by us, were not given effect to. If those measures had been taken in those years, it is very likely that the problem would not have been so acute about the shortage of sugar as we are passing through today. This Scheme envisages that the factories and the canegrowers will have to take steps to enter into agreements almost in the beginning of the planting season which in most parts of the country begins in September or October. Early enforcement of the Scheme by the Government can make this Scheme effective from the coming crushing season of 1972-73. The Scheme is a long term one envisaging stability of sugarcane supply only after the cultivators have realised and have actually experienced the advantages of entering into agreements with the factories for supply of cane and keeping those agreements and the disadvantages for not doing so. The Commisison, therefore, recommends that this Scheme may be brought into force at a very early date in all its constituent aspects.

VOLUME II

PART III

FUTURE DEVELOPMENT OF THE SUGAR INDUSTRY

INTRODUCTION

In this part of the report, we have discussed the aspects of the sugar industry covered by term 8, and the remaining aspects of terms 6 and 7 not dealt with earlier. Chapters I and II are concerned with sugarcane and sugar research and development. Chapter III outlines the development of sugar industry during the next 10 to 15 years and indicates the targets of sugar production by 1985-86. Chapters IV to VIII discuss important problems pertinent to the development of the sugar industry, such as licensing, sugar machinery, export, utilisation of by-products, etc. Chapter IX deals with the development of gur and khandsari industries and Chapter X with the training of managerial and technical personnel. In Chapter XI laws and practices concerning the relationship between the suppliers of cane and owners of factories have been discussed. In Chapter XII concluding observations have been made.

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CHAPTER I

RESEARCH ON SUGARCANE AND SUGAR

1.1. In Part II of our report, the annual requirements of sugarcane for the sugar, gur and khandsari industries taken together, were placed at 2360 lakh tonnes by 1985-86. The highest all-India average yield of cane so far has been 49 tonnes per hectare. On this basis the cane area required in 1985-86 works out to 48.16 lakh hectares. The highest acreage under cane so far has been 28.36 lakh hectares. This means that if the sugarcane yield remains static at 49 tonnes per hectare, the additional area needed will be about 20 lakh hectares. It will be difficult to make available such a large area, considering that land resources are limited and will be needed for other crops as necessary as sugarcane. Looking at the problem from another stand-point the maximum sugarcane production at 49 tonnes per hectare from 28.36 lakh hectares comes to about 1400 lakh tonnes. If this area has to produce 2360 lakh tonnes, the average all-India yield will have to go up from 49 to 83 tonnes per hectare—an increase of about 70 per cent, giving an annual rate of increase of about 5 to 6 per cent over the next 12 to 15 years. This too is impossible to achieve, considering the progress made in the last 10 to 12 years and limitations on availability of fertilizers, irrigation facilities, etc. in the future. In Part II of our report we estimated an increase in yields at the rate of 2 to 2.5 per cent, for raising by 25 per cent the all-India average of sugar-cane yield per hectare by 1985-86. Recently the Task Force for the Sugar Industry set up by the Ministry of Agriculture for, inter alia, working out the requirements of sugarcane during the Fifth Five Year Plan has envisaged an increase in yield from the estimated 48 tonnes at the end of the Fourth Plan to 53 tonnes at the end of the Fifth Plan. This also assumes an annual increase in cane yields by 2 per cent only. Increase in later years also may be assumed at approximately the same rate. But at this rate of increase the requirements of sugarcane in the future will not be met, unless an increase in cane area also takes place. The need for and the possibility of expansion of cane area has been recognised by the Task Force. It has estimated an increase in cane area from 28 lakh hectares to 32 lakh hectares during the Fifth Plan itself.

1.2. It seems that there is no escape from an increase in cane area if the future sugarcane requirements are to be met, even if the annual rate of increase in yield were much higher. Some increase in cane acreage is bound to take place following the establishment of a large number of new sugar factories and the expansion of existing factories during the next 10 to 15 years. Some factories may be set up in backward areas with a view to improving the socio-economic condition of the rural communities in those areas. To start with there may be little cane cultivation there, but they may be potentially suitable for cane cultivation with the provision of irrigation and other facilities. As such, cane production will develop there in due course of time. On the other hand, there may be a shrinkage of cane acreage in some areas, not necessarily or particularly factory areas, for various reasons, such as competition of more remunerative crops with cane. For the country as a whole, the extent of expansion of cane area will be determined largely by the extent to which yields of cane and sugar per hectare improve. There is, therefore, great need for improvement in cane and sugar yields per hectare, not only from the point of view of optimum utilisation of available land but also of maintaining or improving the position of sugarcane vis-a-vis other competing crops. Significantly higher yields per unit of area will enable sugarcane, with its quality of sturdiness and advantage of being an 'insurance crop', to hold its own or improve its position against other competing crops. At this point serious notice must be taken of the fact that while during the First, Second and Third Plan periods the cane acreage in the country increased from 18.47 lakh hectares (at the end of First Plan) to 28.36 lakh hectares (at the end of the Third Plan), there has been no firm or sustained increase in the area under cane during the next three non-plan years and the Fourth Five Year Plan. The estimated cane acreage in the last year of the Fourth Plan is 28.0 lakh hectares. This tendency has to be countered if the full requirements of sugarcane have to be met in the future.

1.3. The present levels of yield of cane and sugar per hectare are low taking the country as a whole, as the yields of cane and sugar per hectare over a very large percentage of cane area in the country are very low. There are, however, regions where either the yields in tonnage or sugar per hectare or both compare favourably with corresponding yields in some of the more advanced sugarcane producing countries. Sustained and intensive effort is called for to raise the levels of sugarcane production of the country. For this purpose, it is necessary to identify and fill the gaps in sugarcane research in the laboratories and at the research farms and in cultural practices in farmers' fields. We should also bridge the communication gap between sugarcane research at the research stations and the application of the results of research on cane growers' farms, in other words, between the sugarcane researcher and the sugarcane grower.

1.4. We discussed with the sugarcane experts the possibilities of technological break-through in the breeding and evolution of new varieties of sugarcane so as to obtain a variety or varieties vastly superior to those evolved and released so far. We also consulted

them about how a green revolution in sugarcane production could be achieved. We were told that a technological break-through in cane, of nearly the same dimensions as has recently taken place in cereals, had occurred about half a century ago, soon after the establishment of the Sugarcane Breeding Station (now Institute) at Coimbatore in 1912. Many new hybrid varieties were developed and released for commercial cultivation. Within a comparatively short period they completely replaced the *desi* varieties and a number of inferior exotic varieties. The whole country was saturated with Co-varieties. Cane yields doubled and sucrose content improved considerably, which in effect constituted the green revolution in sugarcane. The experts were highly sceptical of any free spectacular 'break through' in yield or sugar content of cane, through breeding. They did not visualize any startling scientific or technological advance in this field in the foreseeable future. The utmost they expected was the possibility of breeding a variety which might be capable of giving 10 to 20 per cent higher yield than the potential yields of the best varieties evolved so far. That by itself may not do much good unless its capabilities were thoroughly utilised. In their opinion a second 'green revolution' will have to come mainly and primarily by exploiting in full the yield and sucrose potentials of the current varieties and of those to be released in the future. They pointed out that in most regions only a part of the potentital of the existing varieties had been utilised so far and that there was vast scope for obtaining mueh higher yields through proper cultivation.

1.5. One may or may not agree with the experts about the possibility of developing a variety definitely superior to those already bred. The possibilities of research are limitless and one could imagine a variety capable of a performance very much better than any of the existing varieties, even with the present standards of cultivation. But research is time consuming and we fully agree with the experts, however, that what should be done and can be done straightaway is to take effective measures to get the best out of the existing varieties, and those which may be released by the research institutes from time to time. The potential of a green revolution in cane already exists in the current varieties; only the potential has to be fully exploited. This can be done by simple, well-known and practical measures and techniques recommended by agricultural experts—measures such as adequate and timely irrigation; use of healthy seed; application of organic and inorganic fertilizers in dosages and at times suitable for different climates and soils; and plant protection and disease eradication measures. The high yields obtained in cane competition plots all over the country testify to the truth of this assertion.

1.6. It is a matter for regret that while the potential of a green revolution in sugarcane production has existed all these years, it has not been fully exploited; instead it has deteriorated through poor and sub-standard cultivation in most parts of the country. We find that for this the farmer is less to blame than the agencies and the authorities whose responsibility it was to give him the relevant knowledge and know-how and to provide him with the means—irrigation, seed, fertilizer, agricultural credit, etc.—necessary to get the best out of the varieties available for cultivation. The country has in various ways suffered a tremendous loss over the years in the absence of a dynamic policy and programmes for cane research and development.

Sugarcane Research

1.7. Research in sugarcane in India received great impetus when in 1929, the Imperial Council of Agricultural Research established sugarcane research stations in important sugarcane growing States. The Indian Central Sugarcane Committee which was set up in 1944, took over the activities of sugarcane research and formulated schemes for each sugarcane producing State. This resulted in the establishment of a chain of State sugarcane research stations and sub-stations in almost all the sugarcane producing States. Consequent upon the abolition of the Indian Central Sugarcane Committee in 1965, the sugarcane research was transferred to the Indian Council of Agricultural Research. At present there are 6 Central sugarcane research institutes/stations, all under the ICAR, and 38 State research stations/sub-stations which are actively engaged in research in sugarcane. The Agricultural Universities at Ludhiana, Pant Nagar, Pusa, Rahuri, etc., also carry out research in sugarcane.

1.8. The main objectives of the sugarcane research have been : (i) to breed cane varieties with high yield and sugar content suitable for different agro-climatic regions of the country; (ii) to evolve efficient cultural practices such as time of planting, spacing, tillering, weeding, inter-cropping, etc.; (iii) to work out suitable schedules for irrigation and fertilizer application in different areas and zones; (iv) to develop control measures against diseases and pests like red-rot, smut, wilt, ratoon stunting, grassy shoot, pyrilla borers, etc.; (v) to develop improved agricultural implements for sugarcane cultivation, etc. As a result of researches carried out by the Central and State research institutes and centres and the universities, considerable knowledge and know-how have been available for cultivating sugarcane in a scientific and efficient way in each tract of the country. The contribution of research to production of high quality canes and to maintenance of cane crops in healthy condition is a continuous one and there is no doubt that coordinated sugarcane research will improve cane cultivation techniques in the future.

Research on Sugarcane Breeding

1.9. The first task of sugarcane research is to breed continuously new high yielding and disease resistant varieties suitable for the different climatic conditions of the country. This work has been carried out mainly by the Sugarcane Breeding Institute, Coimbatore since its establishment in 1912. The only other institutes where breeding of sugarcane has been done (on a comparatively small scale) are the Sugarcane Research Stations at Pusa in Bihar and Hebbal in Karnataka. Recently (from 1971) the Sugarcane Institute at Padegaon in Maharashtra has also taken up this work. The

Coimbatore Institute has bred and evolved a large number of varieties (known as Co-varieties) which have flourished throughout the country and also abroad. The Pusa Institute also has bred a number of varieties (referred to as B.O. varieties) which have found acceptance mainly in Bihar and Eastern Uttar Pradesh. Other research centres have not made any significant contribution yet as they have only recently taken up research in breeding and it takes at least ten years to breed and evolve a new variety.

1.10. Earlier the Coimbatore Institute used to send only sugarcane setts to other research stations for trial and experiments to find out and select a variety best suited to local agro-climatic conditions. Only for the last few years the Institute has been sending fluff instead of cane setts. It was realised that a particular genotype could give best performance only under certain external environment. The appreciation of the importance in plant breeding work of the interaction of genotype versus environment led to the revision of the earlier practice under which all the processes upto the stage of preparation of sugarcane setts were carried out at Coimbatore. Only Pusa, Hebbal and Padegaon produce their own fluff. Other research stations and centres depend on Coimbatore Institute for their requirements of fluff.

1.11. As mentioned earlier, breeding and evolution of a variety is a time consuming process spread over 10 to 12 years. In our discussions with sugarcane scientists and technologists, we explored the possibility of reducing the time taken in breeding and evolution before it is released to farmers for commercial cultivation. The experts were generally of the view that a drastic reduction was highly improbable. One of them, however, suggested that, if the tests to determine the susceptibility of a variety to various diseases were carried out with the seedlings instead of full grown canes, there could be a saving in time of a couple of years or so. The seedlings should be blasted with the inocculum of the most virulent type of virus or fungus so that the unpromising varieties are eliminated at a comparatively early stage. If this suggestion finds acceptance with and is carried out by experts responsible for breeding and evolution of new varieties and results in saving of time, it will be a great help for an accelerated programme of producing new varieties which are badly needed.

1.12. The need for a dynamic programme of breeding and evolution of new improved varieties cannot be over-emphasized. A wide gap exists between the requirements of new varieties and their availability. During the course of our visits to different parts of the country and our discussions with canegrowers and factories we received frequent complaints about the shortage of new varieties to replace the current deteriorating ones. In many areas there was a feeling of frustration among the farmers on account of non-availability of new improved varieties. As sugarcane is vegetatively propagated it is exposed to viruses and other infections and the varieties undergo serious deterioration sooner or later, depending on the degree of care and attention paid to their maintenance and the standard of cultivation. In some regions a new variety seldom lasts in good health and vigour for more than six years. The situation can be met by prolonging the life of a variety and also by producing more new varieties. Clean cultivation and adoption of various prophylactic measures such as heat treatment of seed before sowing can help in prolonging the life considerably. For production of more new varieties a bigger programme is required. The dimensions of the problem will become clear if we take into consideration the large increase in cane acreage from 13.86 lakh hectares in 1932-33 to 28 lakh hectares in 1973-74. The cane area has more than doubled since the Coimbatore Institute began to operate effectively and is likely to go up further in the next ten to fifteen years. More and more factories are coming up and the demand for sugarcane is growing. We have to meet most of our requirements of sugarcane by higher tonnage and sugar per hectare so that the need for expanding cane area is reduced to the minimum. Apart from exploiting the potential of the existing varieties to the maximum extent, which we have discussed earlier, a great deal is expected from the sugarcane breeding institutions in the form of larger numbers of improved varieties. More crossings should take place and more fluff should be produced. Already there are complaints from several research stations that the fluff supplied by Coimbatore is insufficient in quantity and that the Institute is unable to meet the reasonable demands of research centres. It seems that the Coimbatore Institute with its present organisation and strength is not able to meet the growing demand for more fluff and more varieties. The position will become worse as years roll by, unless action is initiated early to fill the widening gap between demand for and supply of improved varieties. It is necessary that we should plan ahead for meeting the developing situation so that the country may have, at any given time, enough new varieties available to replace the comparatively inferior ones as well as to replace the deteriorated varieties.

1.13. The Pusa Institute in Bihar and the Padegaon Institute in Maharashtra which have been carrying out work of breeding for some time, have recently been taken over by agricultural universities. It is hoped that this will bring about coordination of research on sugarcane with research on other crops. With the facilities and expertise available at the universities it should be possible for the Institutes to carry out fundamental research on breeding and evolution of new varieties more effectively. For this purpose we recommend that these institutes should be strengthened. There is, however, a limit to which these Institutes can be strengthened : a university has to maintain a balance among its various departments. The demand for new sugarcane varieties is so widespread and intense that the strengthening of these institutes alone will not be sufficient to meet the requirements. Apart from research on evolution of new varieties, there are other important activities which need considerable strengthening and extension, such as production and supply of fluff and cane setts to research stations and centres year after year ; assistance to farmers and factories in the propagation and multiplication of healthy seed of new varieties as well as current varieties; etc. Such services can best be rendered by sugarcane institutes whose responsibility in these matters is direct.

1.14. There are two ways of meeting this problem. The first is to enlarge and strengthen the Coimbatore Institute ; the other is to establish a second one. We feel that it will be advantageous to set up a new institute. Both the institutes should carry on research in breeding, produce sufficient fluff and breed an adequate number of varieties to meet the increasing demand for improved varieties.

1.15. During the course of our discussions with sugarcane scientists and technologists the need for strengthening the Coimbatore Institute was repeatedly emphasized. On this score there is no difference of opinion. But as stated earlier, we see more advantage in establishing a new institute rather than enlarging the existing one only. There is no doubt that if the increasing expectations from and demands on the present Institute are to be met, it will have to be enlarged very considerably, even to the point of becoming unmanageable. The establishment of a second institute will not only avoid the risk of unwieldiness of the present Institute but will also facilitate specialisation of each of them in different but related fields of research.

1.16. There are two views regarding the location of the new institute. One view is that it should be established in the south ; the other view is that it should be set up in the north. In support of the former view it is stated that the climate in the south is favourable for profuse flowering of sugarcane which is a basic need for successful breeding work; that the genetic content of a variety is not affected at all by environment; and that as such the fluff obtained in the south can do very well in the north irrespective of the different agro-climatic conditions of the region. There is, therefore, no need for producing fluff elsewhere, particularly in regions where conditions are not favourable for flowering of sugarcane. Also, if the work of crossing is concentrated in an area most suitable for it, larger quantities of fluff could be produced.

1.17. On the other hand, it is pointed out that the need for having a breeding institute in the north is great inasmuch as more than 50 per cent of the area under cane is in the sub-tropical belt whose problems are somewhat different from those in the south. Even at present the Coimbatore Institute has to keep in view the demands and requirements of different regions and research stations in selecting a variety or varieties for crossing purposes. This means that regional requirements do play a part from the very initial stages of breeding work. If the new institute is established in the north, it will be more in touch with the needs of the northern belt and will concentrate on producing fluff by crossing varieties which have responded well to sub-tropical agro-climatic conditions. The fact that the genetic content of a variety is not affected or influenced by change of environment is not an adequate argument for keeping the entire breeding work in south only. As to flowering of sugarcane it has been pointed out that it is not as if flowering does not take place in the north, the fact being that flowering does take place in the sub-tropical belt also and that viable fluff is produced, as the breeding work at the Pusa Sugarcane Research Institute in Bihar has shown. Even profuse flowering can now be induced as a result of technological advances in this field and advantage of the modern technology of flowering can be taken for obtaining flowering to the extent desired. The quantity of the seed and not the nature and quality of the seed depend upon the extent of flowering. Even with small flowering one could develop good varieties. The establishment of an institute in the north will reduce the coverage area of the Coimbatore Institute and it will be possible for each of the institutes to keep a closer eye on the evolution of varieties through the fluff supplied by them to different regions.

1.18. It will be seen from the above that there is a good case for the establishment of a second breeding institute. This institute should be established by the Central Government, as it will be an All-India Institution serving the country as a whole. As a Central Institute, it will have a wider field of operation and will be in a position to engage highly qualified experts, equip itself with the latest and sophisticated equipment and carry out fundamental research along with problem-oriented research.

1.19. Taking into consideration the existing and the future requirements of improved varieties of sugarcane we recommend that one more Central Breeding Institute should be established. The new institute should start as a branch of the Coimbatore Institute as that will help considerably in the initial stages of its organisation. Later, say within 5 to 10 years, it should become an independent institute.

1.20. During the course of our discussions with sugarcane experts, a few regions were suggested as suitable for establishment of new breeding institute—West Karnataka, East U. P. and Bihar. It will, however, be necessary to make a more detailed study for deciding upon the location of the institute. We suggest that Government should set up an expert committee to go into this question and to give its views about the location of the institute. It should also plan a project for the establishment of the institute at an early date and for training the technical staff that will be required for the institute. The institute will take several years after its establishment to be in a position to make any significant impact on the availability of new varieties of sugarcane. In the circumstances, the earlier a project is planned and executed, the better it will be.

Research on Cane Development

1.21. The second major Central Institute for research on sugarcane is the Indian Sugarcane Research Institute, Lucknow. Its main functions are—(i) to conduct research on fundamental aspects of sugarcane cultivation ; (ii) to coordinate sugarcane research in different States ; (iii) to develop implements and machines for sugarcane cultivation and (iv) to train workers of State Governments and sugar factories in improved methods of cane cultivation for carrying out extension work. This Institute has developed new systems of cane cultivation. One of them is the nursery-cum-plantation system which enables cane plants to stand

severe climatic stresses like drought and low winter temperatures. Crops from transplanted material have given extra yield of 5 to 10 tonnes per hectare. An improved method for cane cultivation in alkaline soils has been developed which increased cane yields. For northern Indian soils another system of cane cultivation has been evolved which makes efficient use of water and fertilisers resulting in higher yields even upto 100 tonnes per hectares with average inputs. The intercropping technique in which cane is grown simultaneously with wheat, potato, etc., has been developed. Bullock drawn and tractor driven planting machines, implements for fertiliser application and for weed removal have been developed. Exhaustive studies have been made on the mechanism of the spread of red-rot pathogen; prophylactic measures against that disease have been evolved. Techniques for hot air and hot water treatments of cane setts against fungs contamination have been improved considerably. Chemical and parasitic methods for control of borer and insect pests have been propagated.

1.22 This Institute was established in the year 1952. At that time the total area under sugarcane in Maharashtra and in southern States was 2 lakh hectares only which represented 11.6 per cent of the total area under cane in the country, while the cane area in Uttar Pradesh and Bihar was 13.2 lakh hectares which formed 70 per cent of the total area under cane. The existence of such a large area in U. P. and Bihar was probably the main factor responsible for the decision to locate the Sugarcane Research Institute in the north. The position has changed a great deal since then, inasmuch as the total area under cane in Maharashtra and Southern States has increased very considerably. Most of the Sugar factories set up since 1952 have been established in Maharashtra and the southern States. (out of 97 factories established since 1952, 78 have been set up in the tropical region). The importance of the tropical region as a producer of sugarcane and sugar has increased rapidly and will increase further. It is estimated that more than two-thirds of the new sugar factories to be set up in the next 10 to 15 years will be established in the tropical region. With the expansion of the cane area which has already taken place and which will take place in the near future, and the setting up of more sugar factories the problems relating to sugarcane having regional characteristics will demand increasing attention, both as a subject matter for research and for improvement in cultural practices. There is also increasing need for agronomic studies based on the conditions obtaining in the tropical region. The country is so vast and the problems of sugarcane in the tropical and the sub-tropical regions are in some respects so different that it is necessary to have a separate institute located in the tropical region also for closely attending to the problems of sugarcane in the tropical region. We, therefore, recommend the establishment of a central sugarcane research institute in the tropical region on the same lines as the Indian Sugarcane Research Institute, Lucknow. In this case also the new sugarcane research institute should start as a branch of the Lucknow Institute to develop later into an independent institute.

Research on sugar Technology

1.23 The National Sugar Institute, Kanpur is the only sugar technological institute in the country. The main functions of the Institute are to undertake research on problems pertaining to sugar technology, sugar chemistry, sugar engineering and by-products of the sugar industry; to provide technical education in all branches of sugar chemistry and technology; to give technical advice and assistance to sugar factories, Central and State Governments in matters relating to the sugar and allied industries; and to collect, collate and issue technical statistics relating to the sugar industry.

1.24 The Institute renders technical advice and services to the sugar industry to solve technical problems and to improve the overall efficiency of sugar factories. The Institute also provides training to technical personnel to man the industry. But the Institute is not fully equipped in men and material to meet the increasing demands on its services of the fast growing sugar industry. In their replies to the General Questionnaire a number of factories have complained that the industry is unable to obtain the required help and assistance from the Institute expeditiously.

1.25 Representations have been made to this Commission urging the need for the establishment of a similar sugar institute in the south. The Ramakrishnan Committee appointed by the Government of India recommended in its report (1967), the establishment of another institute for sugar technology in the south. Sugar industry has been fast growing with increasing shift towards the south. In the next 10-15 years many more factories will be established in the south than in the north. The Group on sugar and allied industries constituted under the Panel on Consumer Industries by the National Committee on Science and Technology in its Interim Report (July, 1973) has strongly recommended that the scope and facilities at the National Sugar Institute, Kanpur should be enlarged so that "the Institute may undertake and discharge its various responsibilities connected with training, research, advisory and extension services satisfactorily in the context of the expanding production and the growing responsibilities it will have to shoulder". The Group has also recommended the establishment of two more regional research institutes—one at Poona and the other at Madras—to carry out some of the functions of the National Sugar Institute. We fully endorse the recommendations for the strengthening of the Institute at Kanpur and we recommend the setting up of another Institute in the south on more or less the same lines as the Kanpur Institute.

1.26 Research on sugarcane breeding and cultural techniques and sugar manufacture has to be strengthened if the sugar industry has to play its expected role in the national economy. Sugarcane and sugar research has not received the attention that it deserved. Neither the sugar industry nor the Government has provided adequate resources for carrying out sugarcane research on the scale that is necessary. This is in spite of the fact that the Central exchequer is raising a revenue of about Rs. 200 crores annually from the sugar industry by way of excise duty. The amount that is being spent

on research on sugarcane and sugar by the Central Government is about Rs. 50 to 60 lakhs annually. The status and dimensions of research in most of the advanced sugar producing countries are much higher and greater than in India. Even countries which produce less than one-fourth of the sugar produced in India, spend proportionately four times more on sugar and sugarcane research than India. Australia spends more than Rs. 2 crores on sugarcane research. Mauritius, whose production of sugar forms only a fraction of sugar production of India, spends about Rs. 60 lakhs on sugarcane research. The total expenditure on sugarcane and sugar research in India does not work out even to 1 per cent of the revenue from the sugar industry. The total provision for sugar and sugarcane research made by the Central Government and the State Governments is wholly inadequate to meet the requirements of even the essential research. The various sugarcane research institutes suffer on account of inadequacy of staff, equipment and land necessary for conducting research and experiments. If the sugar industry is to develop on proper lines and reach a high standard of efficiency and if sugarcane yields and sucrose content have to reach reasonable levels, research must be intensified very considerably. We attach the greatest importance to research and suggest that the allocation of funds for sugar and sugarcane research, which is at present very low, should be increased immediately at least to 1 per cent of the total revenue earned by the exchequer and should be progressively and steadily raised year by year so that within the next 10-15 years it represents about 2 per cent of the total revenue realised from sugar and sugarcane. The sugar industry should also contribute liberally to the organisation and execution of research programmes—as has been done by the sugar industry by several sugar produeing countries. It should be realised that expenditure on research of sugar and sugarcane is, in effect, more of an investment than expenditure, for improvements in sugarcane and sugar production in quality as well as quantity will more than repay the expenditure incurred.

Coordination of Research on Sugarcane and Sugar

1.27 At present there is insufficient contact between the sugarcane research institutes and the sugar institute at Kanpur. There is also very little coordination between the two wings of research—research on sugarcane and research on utilisation of sugarcane. This lack of coordination is hardly conducive to sugar and sugarcane research and development of the sugar industry as will appear from the following instance. A few years ago a new variety, Co 1148, which is a high yielder, was released in West U. P. Its crushing by factories created considerable technological problems as its juices offered many processing difficulties. The rate of crushing in factories had to be reduced markedly as a result of low settling characteristics of the juices. Research had then to be carried out on the relevant technological problems by the National Sugar Institute, which suggested modifications in the process to suit the new varieties. The losses that the factories suffered meanwhile could perhaps have been eliminated had there been active collaboration and coordination between the sugarcane institutes and the sugar institute.

1.28 We consider it of great importance that all the research institutes plan and work in coordination with one another. This coordination can be achieved in many ways. One way is that senior experts of one institute visit the other institutes carrying on research in related fields. We learnt with surprise that during the last five years hardly any expert of the National Sugar Institute, Kanpur had visited the Sugarcane Breeding Institute, Coimbatore, and *vice versa*. It is not only desirable but necessary that the experts carrying on research in the utilisation of sugarcane should remain constantly in touch with the experts carrying out research in breeding and production of sugarcane. There should also be half-yearly or annual meetings of senior sugarcane and sugar experts of the Central and State research institutions and centres and the agricultural universities and of the sugar institutes for a joint study of the problems facing the canegrowers and the sugar industry. In Part I of our report we have recommended the setting up of a Central Organisation (National Sugar Authority/National Sugar Commission) for the control, supervision and guidance of the sugar industry. One of its major functions will be to coordinate research on sugar and sugarcane.

1.29 We have already drawn attention to the paucity of funds for sugar and sugarcane research which seriously affects the volume and intensity of research. But even within the limited financial allocations made for research, work is impeded on account of considerable delays which occur in obtaining financial sanctions from higher administrative authorities for research programmes. Heads of research institutions have inadequate financial powers and have to await sanctions for expenditure even on minor items of equipment, however essential. Handicaps of this kind not only delay the progress of work on schemes of research, but discourage the scientists who feel frustrated. It should be appreciated that research cannot flourish in an atmosphere of checks and controls and there should be freedom for the research worker to work in his own way without undue out side constraints. Obviously, there is need for greater autonomy to the research institutions and scientists, which should have far reaching and beneficial effects on the progress and results of research.

CHAPTER 11

SUGARCANE DEVELOPMENT AND PRODUCTION TARGETS

2.1 While stressing the need for sustained and intensive research on agronomical aspects of cane cultivation as outlined in the previous Chapter, we would like to emphasise that the existing know-how should be utilised fully for increasing the yields and improving the quality of cane. Where the existing knowledge has been utilised to the optimum level, as in the case of prize plots, very high yields have been obtained. The following data relate to the highest yields of cane obtained in crop competitions in the year 1971-72.

TABLE NO. 2.1

Sugarcane yields of prize winning plots in All India Sugar Cane Crop Competitions (1971-72)

State	Variety		Yield tonnes/ha.
1	2		3
(a) *Short duration crop*			(*Duration* 365 *days*)
Madhya Pradesh .	Co.	678	180.80
	Co.	419	168.00
Uttar Pradesh .	Co.	1148	142.13
Maharashtra .	Co.	740	290.08
Tamil Nadu .	Co.	419	211.28
	Co.	740	191.83
(b) *Eksali Crop*			(*Duration from* 366 *to* 425 *days*)
Bihar . . .	Co.	1158	246.23
Maharashtra .	Co.	740	363.92
Andhra Pradesh .	Co.	62175	345.62
(c) *Adsali Crop*			(*Duration* 425 *days*)
Maharashtra .	Co.	740	440.83
(d) *Ratoon Crop*			
Gujarat . .	Co.	419	206.75
Maharashtra .	Co.	419	170.34

NOTE 1. To be eligible for cane competition the minimum area under cane is 0.2 hectare.

2. Only crop which have juices of minimum 18 Brix qualify for competitions.

SOURCE : Directorate of Sugarcane Development, New Delhi.

2.2 The Directorate of Sugarcane Development conducts all India sugarcane crop competitions annually with the main object of propagating cultural practices for increasing the yields. Though one of the conditions for the competition is that the crop should have juice of minimum 18 Brix—which is a measure of the sugar content—the emphasis is on maximum yields. We consider that it is necessary to place equal—if not more—emphasis on the quality of cane too, so that the available scientific knowledge for improving the quality of cane would be fully utilised. We suggest, therefore, that competitions should also be held on the basis of both the quality and the yield of cane, the criterion being the total sugar (tonnes brix) per hectare.

2.3 The results of the crop competitions as carried out so far (*vide* Table 2.1) clearly show that several existing cane varieties are potentialy capable of giving very high yields with adequate and timely irrigation, application of fertilizer in adequate quantities and use of modern agricultural techniques. The main reason why the potential has not been realised fully on a large scale, is the lack of irrigation facilities, which has precluded the use of inorganic fertilisers in recommended doses even where and even when fertilisers have been available. Other useful agricultural practices also could not be adopted by farmers in the absence of facilities necessary for following them. The differences between the yields in the tropical and the sub-tropical regions are, however, accounted for not only by the comparatively low standard of cane cultivation in the north but also to some extent by the different agro-climatic conditions obtaining in the two regions. The equable climate in the tropical region is conducive to regular and continuous growth of sugarcane throughout the year leading to higher yields. Generally speaking, the growth period is only six months in the north and about 10 months in the south. There was near unanimity among the sugarcane experts who gave evidence before us that, if sugarcane were grown both in the north and in the south in the best conditions suitable for the respective regions, the yields in the north will always be lower than those in the south. But because yields in the north are generally very much lower than the potential, there is considerable scope for increasing them. Experts were of the opinion that though it was possible to increase the yields by about 10 per cent by adopting improved agricultural techniques alone, substantial increase in yields could be obtained by adequate irrigation.

2.4 The very low and halting progress in cane yields and near-stagnation in sucrose content during the last 10 to 12 years is a matter for cencern. This state of affairs is the result not of lack of knowledge of what has to be done for improving the yields and sugarcane content but of lack of adoption on a large scale of even the elementary measures essential for cane cultivation. We do not propose to recapitulate here in detail the various measures recommended by the

earlier Commissions and Committees for improvement in cane cultivation. Almost all of them have emphasised, in varying degrees, the need for adequate irrigation, good seed, sufficient and suitable fertilizers and drainage facilities, plant protection services, etc. These are basic and elementary measures which must be taken. It is here that factories and other organisations and agencies concerned with cane development can provide necessary help to canegrowers.

Agencies for Cane Development—Development Councils

2.5 The main agencies for carrying out the cane development in the areas of sugar factories are Government departments, sugar factories, canegrower unions and cane development councils. The pattern of organisation, however, differs from State to State. In some States, for example in Uttar Pradesh, there is a separate department for cane development while in other State such as Tamil Nadu, Bihar, the Department of Agriculture looks after sugarcane along with other agricultural crops. In some States—Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, etc.—factories deal directly with canegrowers in matters of cane development while in some other States, for example Uttar Pradesh and Bihar, the factories deal mostly with canegrowers unions instead of individual canegrowers. Apart from Government Departments, factories and canegrowers' unions, there are also statutory cane development councils in certain States—for example Uttar Pradesh, Bihar, Madhya Pradesh, etc.—for carrying out cane development activities. A development council for a factory area is constituted under the provisions of the relevant State Act and Rules and generally consists of representatives of canegrowers, canegrowers' society/union, sugar factory and gur and khandsari industries and State Government officials. The chairman of the council is nominated by the Cane Commissioner/Sugar Commissioner with or without the prior approval of the State Government concerned. A Government official acts as the Secretary/Member-Secretary of the council. The council draws up and executes schemes for cane development. The programme of work includes introduction of new cane varieties, supply of seed and fertilizers, development of minor irrigation, etc. The main source of income of a development council is a share in the commission payable by the factories on the cane purchased by them. The cane development work is carried out by the staff employed by Government, the canegrowers' societies/unions, factories, etc.

2.6 The functioning of these development councils and canegrowers' societies/unions in respect of cane development in States like Uttar Pradesh, Bihar, Madhya Pradesh, etc., has received considerable criticism on account of very slow progress in cane development in factory areas. During our visits to sugar factories in U.P. and Bihar, we discussed the functioning of the councils and unions/societies with canegrowers, factories, officers of the State Governments and others concerned. Sugar factories complained that the councils and societies/unions were politics ridden and did little for the benefit of canegrowers and for the development of cane. Favouritism and nepotism existed in the issue of *purchies* for cane supplies, and in the grant of agricultural credit. The small canegrower was harassed and put to considerable difficulties in getting loans and facilities for cane development. Canegrowers and canegrowers' societies/unions, on the other hand, made a series of complaints against the factories. They remarked that the factories worked for the dissolution of the unions ; that they purposely delayed payment of cane price to the societies/unions to create bickerings and quarrels among the members of the unions ; and that the factories took little interest in cane development work. From our discussions with the managements of a number of factories, we got the impression that after paying the commission to the societies/unions and councils and purchase tax to the State Government, they felt no responsibility for cane development work and considered that it was no longer their business. Their attitude was that it was the duty of only the councils and unions/societies and the State Government to look after the cane development work. The effect of this attitude on cane development work can easily be visualized.

2.7 The Pasricha Committee (1971) appointed by the Government of India studied, *inter alia*, the problem of sugarcane development in northern India. It came to the conclusion that all the cane development agencies (including Government Departments) had not been successful in promoting cane development in the Factory areas to any appreciable extent, primarily due to inadequacy of funds. In most of the States, the Governments allotted wholly inadequate amounts for cane development ; sugar factories made little financial contibution, if at all, to cane development expenditure ; the resources of cane unions were limited and the scale of loans per hectare was very low ; and the cane development councils suffered from acute lack of funds. The Committee was strongly of the view that Government and factories should contribute more generously towards cane development if any significant progress was to be made. In this connection, the Committee also suggested certain changes in the organisation and functions of canegrowers' unions and cane development councils. It was of the view that the canegrowers' unions should attend to cane marketing work only and that the factories should be more effectively associated and involved in cane development. It also recommended the creation of a special agency consisting of representatives of factory, canegrowers and State Government for intensive cane development work within a radius of 10 kms of a factory, and allocated to the existing development councils the responsibility for carrying out development work outside the area. The Pasricha Committee Report is still under the consideration of the Government and we cannot anticipate Government decisions on its recommendations. We are of the view, however, that there is no need or justification for creation of a special agency as recommended by the Committee. (One of our colleagues who was a signatory to the Pasricha Committee Report does not accept this view). What is required is more funds rather than duplication of agencies for carrying out cane development in factory areas. On the other hand, if adequate funds are not available, there is no point in dividing the inadequate funds between the development council and a new special agency.

2.8 We are convinced that active and direct participation of factories in cane development will be an effective means for achieving rapid cane development in the country. Some factories have qualified technical staff for extension work in cane cultivation. Almost all of them have workshop facilities which could be utilised for helping canegrowers in repairing their agricultural implements. Above all they have bank credit facilities to obtain loans and to give agricultural credit to canegrowers. Factories should assume the responsibility for cane development in their areas. For this purpose, we recommend that factories should be given an effective voice in the development councils. A council should constitute of 7 members—3 members from the factory, 3 from canegrowers and one Government official. Where canegrowers' unions exist, the representatives of canegrowers' union should be members of the council concerned. Otherwise, they should be nominated by the State Government or by a subordinate authority empowered to do so. A senior executive of the factory should be its Chairman. The Secretary of the council should be a regular employee of the council. Competent and qualified agricultural experts should be employed and maintained by the factory for extension services. They will, of course, be in addition to the cane development staff maintained by Government and canegrowers' unions.

2.9 The funds of the council should be augmented considerably if any useful and effective development work has to be done. We suggest that a factory should contribute to the funds of the council of its area at the rate of five paise per quintal of cane purchased by it. This amount should not form part of the sugar price but should qualify as development expenditure for the purposes of exemption from corporate/income tax. Canegrowers should contribute to the funds of the council at the rate of two paise per quintal of cane. The Central and the State Governments should each contribute at the rate of 10 paise per quintal. In addition to the above, the council should receive, as at present, its share from the commission payable by a factory on cane purchased by it, which is 7 paise per quintal. The factories in the south do not at present have to pay any commission on cane purchased by them as there is no canegrowers' union or development council in their areas. It is proposed that, on the establishment of development councils in the areas of the factories in the south, they should also contribute 7 paise to the funds of the council, corresponding to the commission paid to the council by the factories in the north. This amount of 7 paise paid as commission should be included in the sugar price. The contributions on the lines and scales indicated above will place about Rs. 5 lakhs annually (for a factory of 1250 tonnes capacity) at the disposal of the council for cane development activities in a year. This, in our opinion, is the minimum required for making a development council effective. The factories should not consider their contribution to the development council and the cost of the maintenance of the cane development staff as unjustified expenditure. They should realise that cane development in their areas is in their own interest.

2.10 In our view the cane development councils, if they have adequate finance, can be very useful and effective instruments for cane development in factory areas. They can help in spreading new varieties of cane, in providing fertilizers and other requirements.

2.11 We recommend that cane development councils should be established in those States also where they do not exist at present so that cane development work is carried out with the active collaboration of the factories and the canegrowers on the lines indicated above. One of our colleagues (Shri P. S. Rajagopal Naidu) does not agree with the views and recommendations made above in regard to the extension of the development council to all the factories in the country and the suggestions about factories and canegrowers contributing to the funds of the council.*

2.12 As regards canegrowers' unions/societies we do not consider it advisable or feasible to eliminate them. They are canegrowers' organisations and help protect and advance their interest. But we appreciate the need for a direct link between the factories and those canegrowers also who are members of, and supply cane through, their unions. To this end we have already recommended the execution of tripartite agreements. In the case of cooperative factories, however, there does not appear to be justification or need for having separate canegrowers' unions. Actually canegrowers' unions exist in the areas of some cooperative factories in Uttar Pradesh only. They do not exist in the areas of cooperative factories elsewhere. We consider that it will be more in the interests of canegrowers as well as cooperative factories if all or most of the canegrowers of the areas of the factories become members of one society only—namely, the factory cooperative.

Note of Shri P.S. Rajagopal Naidu :—

'I am unable to agree with my other colleagues that the Cane Development Council should be established in factories in those States also where they do not exist at present. I firmly believe that the cane development work in the area of a factory can best be done by the factory itself and not through any other agency. In all the southern States where there are no Development Councils and cane development is carried out by the factories themselves, the standard of cane development is much better, as compared to the standard of cane development in areas where there are Development Councils. In the case of the cooperatives, where the growers and the factory owners are the same, there is no need of a Development Council having representatives of the factory and the canegrowers.

I, however, endorse the recommendations of my colleagues in regard to the improvement in the functioning of Councils where they exist at present with the exception that the factory and the growers should not be made to contribute to the funds of the Council. The Central and the State Governments which are collecting large revenues by way of excise duty and purchase tax should meet the entire cost of cane development in the factory areas. The contribution to the fund of the Council at the rate of 10 paise per quintal of cane crushed each by the Central and the State Governments, as suggested by my colleagues, together with the present share of 7 paise per quintal of cane out of the society's commission will place about Rs. 4 lakhs at the disposal of a factory of 1250 tonnes capacity. This amount, I feel is more than adequate for the work proposed to be done by the Council.

The contributions of each of the Central and the State Governments at the rate of 10 paise per quintal of cane crushed should also be made in the case of factories where I am not proposing any Councils and should be given directly to the factories which will utilise it only for cane development in the areas in a manner that may be determined from time to time by the Central or the State Government. This will, in fact augment their resources for cane development work.

Maintenance of Varieties—Role of Sugar Factories

2.13 Maintenance of the vitality and vigour of the existing varieties is no less important than the evolution of new varieties. A variety which had been evolved after 8 or 10 years of arduous research and after a large expenditure should not be allowed to deteriorate. There are some regions where due to lack of care and poor standard of cultivation sugarcane varieties tend to deteriorate and the continuous use of unhealthy and inferior seed accelerates the deterioration of varieties. There are, however, regions where due to healthy practice of cane cultivation, varieties are maintained for longer periods. Thus in Maharashtra Co 419 has been in vogue for more than 20 years until a high yielder Co 740 was introduced in the middle of 1960's. In Eastern U.P. and Bihar, varieties deteriorate fast on account of water-logging, floods and unhealthy cultivation practices. Deterioration of varieties occurs primarily due to virus infection of which the major source is the diseased or infected cane setts used for planting. The research at Lucknow Institute has shown that heat treatment of cane setts eliminates or minimises the infection. Its importance is now universally accepted not only for arresting the varietal deterioration but also for increasing cane yields. This technique should be adopted for which adequate facilities should be provided by research centres, factories, Government department, etc. Maintenance of varieties is feasible only when healthy disease-free seed is developed, multiplied and distributed in a continuous stream. Planned and sustained efforts are necessary to achieve this objective.

Sugar Factory and Farms

2.14 Sugar factories can play useful and effective role in carrying out such a programme. Many sugar factories have sugarcane farms. Hitherto almost all the farms have been utilised for growing sugarcane for crushing in the factories. Only a few farms have grown seed for supply to canegrowers. The contribution of these farms to the maintenance of sugarcane varieties has been negligible. Many of these farms will now disappear with the enforcement of land ceilings. Their disappearance will not make much of a difference to the canegrowers in so far as their past and present activities are concerned. In our opinion, these farms should have been used mainly for the purpose of propagating seeds of new improved varieties and for multiplying seeds of current varieties with a view to maintaining their health and quality. In fact there is a real need for sugarcane farms for this purpose. The few Government agricultural farms that exist here and there cannot possibly cope with this problem. In any case, few of them are located within or near the areas of sugar factories. The problem of propagation of the seed of newly evolved varieties and multiplication of good quality seed of existing varieties requires an effective and urgent solution if the life of the improved high-yielding varieties with high sucrose content is to be prolonged and the standard of sugarcane crop all over the country is to be raised. We feel that the best solution to this problem lies in the setting up of sugarcane farms by sugar factories for this specific purpose. We recommend that each sugar factory should maintain a farm or farms in its area with a total acreage sufficient to produce seed to meet the requirements of its area under a scheme of seed propagation and multiplication. The factory farms will function only as primary seed farms and not as foundation seed farms or secondary seed farms. The factory farm should have sufficient area for—(i) planting seed of new varieties received from research centres, (ii) growing healthy seed of existing successful varieties and (iii) carrying out demonstrations. The seed of the new as well as the existing varieties produced by the factories at their primary farms will be released to selected farmers for multiplication in their fields under the guidance and supervision of the research centre/station of the areas or the technical staff provided by Government or factories. A scheme should be prepared under which it should be possible to provide healthy seed for every plot of land at least in five years. In this way the entire crop area will be 'rejuvenated' in a five-year cycle. The varietal deterioration due to accumulation of inocculum potential in the seed with age could then be arrested.

2.15 Normally, the area from which a sugar factory draws its cane supplies ranges between 2000 and 6000 hectares. In some cases this area is compact while in others, parts of it lie at some distances from the factory. As such, in the former case the establishment of a single farm in the area will serve the purpose; in the latter case it will be necessary to establish more than one farm, as may be required. The total area of the farm or farms should be about 40 hectares, which is the minimum required. Taking the reserved area of a factory as 4000 heetares, it will be necessary to provide healthy seed for 800 hectares annually for general cultivation, so that replacement of seed in the entire area of the factory takes place every 5 years. To enable the secondary nurseries (maintained by progressive farmers) to supply this much of seed, the factory farm functioning as a primary nursery will have to produce sufficient healthy seed to serve the secondary nurseries for which it will require 8 to 10 hectares. Another 8 to 10 hectares will be needed for demonstration purposes. As sugarcane is a rotational crop, the minimum area required by the factory will thus be about 40 hectares. We would have recommended a larger area for factory farms but have kept it at the barest minimum in view of the legislation on ceilings on holdings.

2.16 The seed—cane setts—grown at the secondary nurseries should be supplied to cultivators at subsidized rates. The subsidy can be given in various ways and forms and the rate of subsidy can vary depending on the degree of need or urgency of introducing a new variety or replacement of an old one. Already several State Governments have schemes under which they pay premium to growers who raise cane seed and subsidy to canegrowers who take and plant new seed. The Development Council should have suitable schemes for achieving this object. The subsidy should come out of the funds of the Council. The cane development staff should ensure that the healthy and improved seed actually supplied goes for planting and that the farmer who can obtain healthy seed from or

through the factory, does not use inferior and unhealthy seed.

2.17 When making this recommendation, we do not visualise the factory sugarcane farm only as a farm by itself. We would like it to function as a centre for rendering various kinds of services to the canegrowers with a view to improving cane cultivation. There should be a soil testing laboratory as an integral part of the farm where farmers may get their soils tested free of cost or on payment of a nominal fee and obtain advice regarding the kinds and doses of fertilizers to be used in their fields and on other relevant matters. A small workshop for repairing agricultural implements commonly used in the area may also be set up as an adjunct to the farm. Most of the factories have got large workshops for the repair and maintenance of the sugar machinery. Workshop facilities can be made available to canegrowers either through a separate small workshop as indicated above or through their main factory workshop. Arrangements could also be made for sale of fertilizers from depots located in the farm premises. These various facilities will attract canegrowers to the farm and will give them an opportunity to see the various demonstrations and experiments that may be conducted by a factory on its farm. The factory will be expected to maintain the farm and the demonstrations and experimental plots in a state of technical efficiency if it has to impress the farmers for better cultivation and production of cane.

2.18 The services, if rendered efficiently and sympathetically, by this complex, will bring the factory and the farmers closer. Considering the near absolute need for a seed propagation and multiplication farm in any scheme for cane development in a factory area, and the impact which the provision of the various facilities to farmers at sugarcane farms of factories will have on the factory-farmer relationship, Government should give every reasonable assistance and facility to factories to establish and maintain such farms, workshops, etc. Government help will be needed by factories in acquiring land for the farms and this should be freely given in cases in which factories do not have farms at present. In the case of factories already having farms, they may be allowed to retain a suitable area of land for the purpose indicated above, we recommend that an exemption from the land ceiling laws should be granted in respect of factory farms.

Agricultural Credit

2.19 One of the main reasons for slow progress in cane development has been the lack of adequate credit facilities to the farmers particularly in the northern States. Agricultural credit facilities are made available to farmers in one or more of the following ways and by one or more of the following agencies.

2.20 Some factories obtain loans from banks and advance loans to canegrowers in cash or kind. They receive their dues through deductions from cane price, in terms of the agreements executed between them and the farmers. They charge interest on the loans advanced. In some cases the factories advance loans at a rate of interest slightly higher, say, by ½ per cent, than the rate at which they borrow money from banks. Some factories do not themselves borrow money from banks but guarantee or under-write loans that may be given to canegrowers by banks directly. The factories undertake to recover the loans through deductions from the cane price, for which they are paid some service charges by banks.

2.21 Canegrowers' unions borrow money from cooperative and other banks and they have some funds of their own. In some cases the banks grant loans to the unions on the guarantee of the State Government concerned. The cane unions give loans to their members within the limits laid down in their bye-laws. The loans are recovered through deduction from cane price. The facility of the unions getting loans from cooperative banks has been withdrawn lately in accordance with the policy laid down by the Reserve Bank of India that credit should be disbursed by credit societies only and not by marketing unions or societies. The canegrowers' unions which market cane of their members, do not fall within the definition of credit societies. The enforcement of this policy has reduced the loaning capacity of, and upset the arangements for grant of loans by, cane unions in several States in the north—*e.g.* Uttar Pradesh, Bihar, etc. The cane unions now find that the main source of their funds (loans and borrowings from cooperative banks) has dried up. The matter has been under the joint consideration of the Reserve Bank of India and the State Governments concerned with a view to evolving a procedure whereby loans from the cooperative banks could become available to members of cane unions for cane development without adversely affecting the cooperative credit structure at the base—at the village level.

2.22 Village primary credit societies work out the credit requirements of their members for different crops and obtain loans from cooperative banks upto and within the prescribed limit and distribute loans to their members. Sugarcane is only one of the crops for which loans are advanced by the village primary credit societies and has, therefore, to stand in queue along with other crops. But grant of loans from the societies, until recently had this demerit that if the society became a defaulter for one reason or the other—generally due to default of its members in repaying loans—it became ineligible for further loans from cooperative banks. The result was that even those farmers who had repaid their earlier loans were denied further loans. In the case of loans for sugarcane in factory area, the recovery of loans is comparatively assured, but that did not help the canegrowers if the village society itself become a defaulter and so unable to borrow money from cooperative banks. The position became intolerable from the point of view of those farmers who were not defaulters, particularly canegrowers. It has, however, improved with the decision that a village society could borrow money from cooperative banks in respect of members who were not defaulters and to the extent to which the non-defaulting members were entitled to loans. In this way, the paying farmers have now been assured of grant of loans within the prescribed limits. As the village primary societies are in many areas still in the early stage

of development, their performance is far from satisfactory. But there are areas, generally in the south, where the village credit societies are functioning effectively.

2.23 Of late, commercial banks have also entered the agricultural credit field and are gradually extending their activity and areas of operation. These banks also advance loans to farmers and make their own arrangements for recovery of their loans. But their infrastructure working in the countryside is still in its infancy and will take some time to develop into an effective organisation. In so far as the canegrowers supplying cane to sugar factories are concerned, the banks advance loans to canegrowers fairly liberally and on reasonable terms only when factories recommend and under-write or guarantee the loans to canegrowers such cases the factories concerned agree to recover the loans given by the banks from the canegrowers by deduction from the price of cane payable to them and pass on the amounts recovered to the banks.

2.24 We discussed with a number of canegrowers and some of their unions the problem of credit facilities made available by village credit societies. They were of the view that sugarcane crop should not be equated with other crops as it was a long duration crop and its credit needs were more than those of most other crops. There is also considerable delay in the grant of loans through village credit societies. We are satisfied that there is genuine need for treating sugarcane crop meant for sugar factories in a special way. We recommend that agricultural credit to canegrowers should be made available primarily by sugar factories and canegrowers' unions instead of through the village credit societies.

2.25 This matter was discussed by us with the representatives of a few scheduled banks. It was stated that banks could advance adequate loans provided that the repayment of the same was assured. Loans could be easily advanced to growers who supply cane to sugar factories if the factories guarantee recovery of loans through deductions from cane price. Alternatively sugar factories could themselves borrow funds from banks and issue loans to individual growers. Though sugar factories in the south follow one or the other of these procedures, very few factories in the north do so. Even in the case of loans given to canegrowers from whom factories can purchase cane directly, they can recover the loans only if certain conditions have been fulfilled. For instance, the loans can be recovered only if they have been distributed with the prior permission of the competent authority. As a result of this very few factories advance loans even to canegrowers from whom they purchase cane directly. In Uttar Pradesh canegrowers' unions exist in the areas of all sugar factories and supply praetically the entire quantity of cane crushed by factories. The position in Bihar is somewhat different. The legal position there is that if in the area of operation of a village society more than two-thirds of the canegrowers are members of the village society (affiliated to or member of the canegrowers' union of the factory), the factory cannot purchase the cane of any cultivator of the area except through the society. The latter in its turn supplies the cane through the union. Thus the canegrowers' union supplies cane not only of the members of the village societies but also of non-members who are under obligation to supply their cane through the societies. There is, however, a large number of canegrowers in the areas of factories in Bihar who are not members of village societies and are also not under obligation to supply their cane through them and, therefore, through the union(s). With them the factories enter into bilateral agreements and purchase their cane directly. In their cases too, as stated earlier, a factory cannot recover the loans, if any, advanced by it unless such loans have been advanced in accordance with the relevant rules and orders. In some other States also, the same principle applies though the actual form of legal provisions differs from State to State. Factories are thus precluded from recovering loans, if any, given to farmers, whether members of cane unions or not, through deduction from their cane price. In Madhya Pradesh, only loans advanced by a 'notified agency' can be recovered through deduction from cane price. But as sugar factories have not been declared there as a 'notified agency', they cannot recover in this way any loan given by them.

2.26. As regards the scale of loans, the factories, banks and village credit societies in the south give loans at very high rates ranging from Rs. 1200 to Rs. 5000 per hectare. In the north, however, the scale is very much lower because of inadequate funds and low yields on account of which chances of recovery of large loans are poor. It is seldom that a loan exceeds Rs. 1000 per hectare. The existing bye-laws provide very low rates of loan—Rs. 500 to Rs. 1000 per hectare. These rates of loans were fixed in many cases a long time ago when the cost of cane production and the minimum cane price were much lower than now. There is obviously need for revising and raising the rates, but a mere revision of rates upward has no meaning and will remain an academic and futile exercise only, unless the factories and societies have adequate funds with them for grant of loans.

2.27 We have considered this matter in some detail and are of the view that adequate agricultural credit must be made available to the growers in the north also for cane development. This is possible only if the factories which have adequate bank credit facilities are actively involved in this matter.

2.28 In our opinion advancing of loans by factories to canegrowers in their areas will be greatly facilitated if there is direct contact between them and their canegrowers. In Part II of our report, we recommended that in areas where canegrowers' unions operate there should be a tripartite agreement for the supply of cane—among the factory, the cane union and the cane grower member concerned and not as at present a bilateral agreement between a factory and its cane union. The main objectives of this proposal are to stabilise cane supplies and to improve cane cultivation. The first objective will be helped by making every canegrower, who enters into an agreement for supply of cane, responsible to the factory also for fulfilling his contractual obligations. The second objective will be gained by factories advancing loans to canegrowers for cane development.

2.29 With a view to ensuring active participation and involvement of sugar factories in making agricultural credit available to the canegrowers of their areas, irrespective of whether they are members of cane unions or not, it is proposed that every factory should be under obligation to advance loans or arrange for loans (in cash or kind or both) for cane development to the canegrowers of its area when the canegrowers enter into tripartite or bilateral agreements, as the case may be. The amount of loan which a factory should advance or arrange for should be not less than 40 per cent of the value of the cane agreed to be supplied. It is necessary that factories should make serious and genuine efforts in this direction so that cane development receives impetus and cane supplies are stabilised. A factory may borrow funds from banks and then advance loans to the canegrowers or arrange for grant of loans by the banks directly to the canegrowers on its recommendation and guarantee or under-writing. In any case, it should be the responsibility of the factory to ensure that the canegrowers of its area get cane production loans. The facilitate factories granting loans to the canewrowers, it is necessary that they should be allowed and enabled to recover the loans through deduction from the cane price. We recommend that the relevant laws and rules should be amended for this purpose. The forms of agreement (bilateral or tripartite) should also include suitable terms in regard to the grant and recovery of loans. We have indicated these terms in Chapter XI. We have also recommended elsewhere that payment of cane price should invariably and in all cases be made by factories directly to canegrowers, even in respect of canegrowers who supply cane through canegrowers unions.

Irrigation

2.30 Provision of adequate irrigation facilities is of the utmost importance for cane development. Without it, no cane development is possible. Inorganic fertilizers cannot be used without adequate irrigation. In the main sugar producing States of the tropical region—Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra—almost 100 per cent of the area under cane is irrigated. But in the major sugar producing States of the sub-tropical region—Uttar Pradesh and Bihar—only 67 per cent and 37 per cent respectively of the cane area is irrigated. It may be pointed out that though this areas is classified as irrigated, the irrigation available is inadequate and not always available at the proper time. While the cane crop ordinarily requires 10 to 12 irrigations in the sub-tropical region, a large number of farmers are able to give only 3-4 irrigations and that too with difficulty. The need for increasing irrigation facilities for proper cane cultivation in the greater part of the country is thus obvious.

2.31 In so far as the Central and the State Governments are concerned; they create irrigation potential by providing large tubewells, construction of canals, erection of dams and bundhs, etc. They also grant loans and subsidies to canegrowers and their societies for drilling small tubewells, constructing surface wells, minor lift irrigation schemes, etc. But these efforts and contributions are inadequate in many cane areas, and need extension as well as intensification to produce a significant impact on the irrigation situation in the widely dispersed areas supplying cane to sugar factories. Some individual canegrowers, who can afford to do so, construct their own tubewells, install pumps for lift irrigation, etc., for irrigating their cane and other crops. In a small number of cases they sell (surplus) water to other farmers. But a large majority of farmers are not in a position to create and develop irrigation facilities and, therefore, they have to go without them. Cane development councils and sugar factories can render great help in providing irrigation facilities to the mass of canegrowers of their areas, either by creating minor irrigation facilities where they do not exist at all or by supplementing the existing but inadequate irrigation facilities in other areas. In specific terms, they could themselves construct at subsidized rates small tubewells, install pumping sets and generally help canegrowers in improving irrigation facilities. Efforts made and expenditure incurred by development councils and sugar factories on planning and executing schemes for providing irrigation will be in their own interest and will repay them handsomely, in terms of larger quantities of sugarcane from areas nearest to them, fresh supplies and better sugar recoveries and in other ways. We, therefore, strongly recommend that cane development councils and factories should launch minor irrigation schemes in their areas on a significant scale.

2.32 While establishing new factories, we suggest that provision should invariably be made for developing minor irrigation facilities, within a radius of 10 to 15 kilometers of the factory. If a factory starts providing such irrigation facilities as it can, and helping canegrowers within its area even while it is being set up, it will create among the farmers a psychological climate favourable to the factory. It will also enable the factory to obtain substantial supplies of sugarcane in its very first crushing season. It is true that already the cost of a factory is very high. Still it will be to the advantage of the factory if a few lakhs of rupees, say, Rs. 10 lakhs, are included in the project estimates itself for provision of irrigation facilities in its area and the available funds are invested in development of irrigation from the very beginning.

Water-logging—Drainage

2.33 In areas which are subject to floods and water-logging, the provision of drainage facilities is necessary. Large areas needing drainage facilities exist in Bihar and, therefore, drainage schemes should receive high priority. In Western U.P. and the Punjab and other parts of the country, the problem of water-logging has in the last few years been assuming significant dimensions and it is imperative that the problem should be dealt with effectively. Water level has risen in many areas served by canals. Construction of tubewells and surface wells in such areas has helped in lowering the water level and in providing drainage. This problem can be satisfactorily tackled only by the Central and the State Governments, but to a small extent and in limited areas the development councils and the factories

can also help in improving the situation. Government, which are expected to resolve the irrigation problem, can and should attend to the drainage problem also.

Fertilizers

2.34 The problem of availability and application of fertilizers is no less acute than the problem of availability and use of irrigation and good and healthy seed. Sugarcane is a long duration crop and needs comparatively heavy doses of fertilizers. It depletes rapidly the nutrients of the soil and it is, therefore, essential to make up the deficiency by applying adequate and balanced fertilizers before raising a second crop in the same field. We find that while in some areas in the south, high (even excessive) doses of nitrogen are applied with a view to obtaining higher yields, in the sub-tropical regions even the minimum recommended doses of nitrogen are not applied. There are large areas where fertilizers are not applied at all. The arrangements for making fertilizers available to farmers are far from satisfactory in most of the areas. During our visits to sugar factories, a number of cultivators complained that fertilizers were not available at proper times and they had to purchase them at high prices. We recommend that the development councils and factories should evolve schemes for providing required quantities of balanced fertilizers to canegrowers at proper times and if possible at subsidised rates.

Control of Pests and Diseases

2.35 It is estimated that 8 to 10 per cent of the sugarcane crop is lost due to pests and diseases. Red rot is the most serious disease and causes the largest damage. Pyrilla poses a serious threat to sugarcane crop in the sub-tropical regions. Another acute problem comes from borers. A number of exotic parasites have been introduced for trails against sugarcane borers by the Commonwealth Institute of Biological Control at Bangalore. Biological control of pests is the most effective way and the results of research of this Institute are becoming increasingly useful. There is need for augmenting research on biological control. The problem of pests is more acute in the north than in the south and it is necessary that facilities for research on biological control are strengthened in the north. We suggest that a section for research on biological control should be added at Lucknow Institute.

2.36 For protection of certain agricultural crops from pests and diseases, the Central Government gives grants, subsidies and loans to the State Governments under two schemes : (i) Endemic Area Scheme and (ii) Epidemic Area Scheme. In the former scheme, the Central Government subsidises the operation cost of aerial spraying and the State Government bears the cost of insecticides. In the other scheme the Central Government gives a grant upto 50 per cent of the cost of insecticides and 25 per cent as loan, to the State Governments. It is understood that sugarcane crop is not included in the list of crops covered under the above schemes. The present measures undertaken by State Governments for control of endemic and epidemic pests of sugarcane are wholly inadequate and they need to be intensified and strengthenend. The importance of plant protection measures in the case of sugarcane cannot be over-emphasised. The loss in sugarcane crop due to pests and diseases is roughly estimated at 13 million tonnes of cane in a year. This is a substantial loss, which can be avoided to a large extent by taking appropriate anti-pest measures. We, therefore, recommend that sugarcane should be included in the above-mentioned schemes and more funds be made available to the State Governments for plant protection of agricultural crops including sugarcane.

2.37 The development council and factories should also participate actively in the control of pests and diseases of sugarcane crop in their areas. We recommend that factories should maintain on their staff a qualified plant protection officer whose duty should be to guide the canegrowers in maintaining their crop well. Suitable pesticides should be supplied to canegrowers at subsidised rates. Spraying equipment should be maintained by the development councils and factories and given to the canegrowers at nominal hire rates. These measures are supplementary to the State Governments efforts.

Harvesting and Transport of cane

2.38 Government fixes a minimum price to be paid by a factory for the sugarcane purchased by it. It is for cane delivered at the factory premises. The factories are allowed to pay a lesser price for cane if delivered at out-station purchasing centres. In Maharashtra the cooperative factories started paying to their members the minimum gate price of sugarcane as ex-field price. They also arrange to harvest and transport the cane at their own cost. In case harvesting/transport was done by the farmers, the factories paid them the cost of harvesting/transport. The joint stock factories in Maharashtra also began to adopt the same practice with the result that the canegrowers in Maharashtra have, for the last few years, been enjoying a minimum gate cane price plus harvesting plus transport charges. In some States, for example, Andhra Pradesh, Karnataka and Tamil Nadu, the factories do not pay to the farmers the cost of harvesting and transport, but they provide transport facilities to farmers and deduct from the minimum gate price the cost of transport at prescribed or agreed rates. In some years, however, factories have borne the whole or part of the cost of transport.

2.39 It has been suggested that the system of harvesting and transport of cane by factories should be adopted all over the country. It is stated that if a factory itself arranges harvesting of cane, it ensures cutting of cane according to its requirements. It could also enforce harvesting of cane on maturity basis more effectively. The transport of cane by factories ensures quicker transport in an organised manner. This helps maintain the freshness and the quality of cane when it reaches the factory and leads to better recovery. The grower, the factory and the country gain considerably in terms of more sugar output if cane is harvested at the proper time and transported to the factory quickly. Sugar factories are in a much better position to make these arrangements than individual farmers.

2.40 The system demands for its success, a limited number of farmers large holdings, high yields of cane

per hectare, good roads and adequate means of transport and rapport between the farmers and the factories. There are several difficulties in introducing the system in States and regions where the number of canegrowers is large, their holdings are small, the yield per hectare are low and the quantity of cane supplied by each canegrower is small. At present conditions are not favourable to the introduction of the system in the areas of most of the factories in the north. This explains the reluctance and hesitation on the part of factories in the north to adopt this scheme. In view, however, of the definite benefits accruing from the system to the canegrowers as well as to the factories, we would like factories and canegrowers unions seriously to explore the possibility of introducing it. Where conditions are favourable, factories should endeavour to introduce and work the scheme in consultation with and cooperation of the canegrowers and canegrowers' unions of their areas. We have no doubt that if the condition of roads and communication improves, means of transport develop and the cane supply organisation becomes more efficient, the system of harvesting and transport of cane by factories will find increasing acceptance.

Ex-field Price

2.41 It has been urged before us that payment of minimum price ex-field should be adopted all over the country and that Government should fix the minimum price ex-field and not at the factory gate. If this was done, all the farmers of the factory would get the same price of the cane and would not suffer any reduction in cane price on account of the distance of their field from the factory. It appears that this demand is based on the belief that the minimum gate price will be converted straightaway into ex-field price and the farmers will then get in addition an extra payment for harvesting and transport. In other words, the demand is for an addition to the minimum gate price by way of allowances for cost of harvesting and cost of transport.

2.42 In examining this demand it is to be realised that the existing minimum gate cane price includes in it elements of cost of harvesting and transport. In other words, the present minimum gate price takes into consideration all the constituents that go to make up its total cost to the farmer upto the time of delivery of the cane at the gate of the factory. The fact that some deduction from the minimum gate price is allowed to the factory if cane is delivered to the factory at a place other than the gate and the factory has to transport the cane from their to its gate, show that the minimum gate price includes the cost of transport as well as harvesting. In the circumstances, the acceptance of the proposal that the minimum cane price should be ex-field may mean the deduction, from the minimum gate price of an estimated or averaged amount representing the cost of harvesting and transport, the balance being the minimum price ex-field. A farmer will then get his cane price ex-field plus cost of harvesting plus cost of transport if he does both the operations himself, or only the ex-field price if harvesting and transport are done by the factory.

2.43 If harvesting and/or transport are/is done by the farmers (with or without hired transport facilities being placed at their disposal), it may become necessary to work out the rates per kilometer in the case of transport and the rates per quintal of cane in the case of harvesting, so that canegrowers are paid in accordance with the distance of their field from the factory and the rates prevalent in an area for harvesting cane.

2.44 It will be seen that if the cost of transport and cost of harvesting are taken out of the minimum gate price to work out the ex-field price, the farmers will not get more than what they are getting at present with the minimum price being fixed for gate. They will get (in total) more or less the same price but in three parts-price for cane ex-field, cost of harvesting and cost of transport.*

2.45 On the other hand, if the demand is for additional payments being made to farmers over and above the existing minimum gate price, then it is, in effect, a demand for increase in cane price, whether at gate or not. That is, in its essence, a matter entirely different from the demand in principle for an ex-field price and separate payments for harvesting and transport. As such it can be dealt with as a simple question of what the minimum price for sugarcane should be. This subject we have dealt with at length in Part II of our Report. We do not, therefore, see much practical wisdom in the suggestion that cane price should be split up into three components.

2.46 This does not, however, mean that where factories can do so they should not or need not pay additional allowance for transport or harvesting of cane. But this extra burden must be borne by the factories themselves and should not be passed on to the consumer.

2.47 This brings us to the important question of development of roads and communications in factory areas. The inadequacy of roads and feeder roads in the areas of sugar factories and their general poor condition have been responsible not a little for losses in sugar recovery. As a very high percentage of cane crushed by factories is transported from fields to factories and their out-station purchasing centres by bullock carts, considerable time elapses between the harvesting and the crushing of cane. The time lag increases if cane has to be transported (sometimes after rains) over kutcha tracks and bad roads. The greater the delay in cane reaching the factory, the greater is the loss in sugar recovery. Experts have estimated that such losses sometimes reach 0.1 per cent, which is a very high loss. It is a matter for regret that little special attention has been paid to the construction of feder roads in factory areas mainly from the point of view and for the purposes of facilitating sugarcane transport, though, of course, if such roads were constructed they would benefit the

*To illustrate. For the season 1973-74, the Central Government has fixed a minimum gate price @ Rs. 8/- per quintal. This includes cost of harvesting and transport. If x represents cost of harvesting and y represents cost of transport, the farmer will get Rs. 8—x-y, as ex-field price, if the minimum price were fixed ex-field, and not Rs. 8 plus x plus y.

movement and transport of all commodities. The lack of roads has also precluded the admission of trucks and other power driven vehicles into the interior areas, with the result that cane transport continnes to move at the same slow speed in most of the areas as it did decades ago. Where new factories are established, it is seldom that the road system in their areas is adequate to meet the demands of and need for quick movement of sugarcane from the field to the factory. This is by far the greatest obstacle in the way of factories arranging for transport of cane from farmers' fields to factroy gates. It is imperative that the road system in factory areas should be vastly improved if sugarcane has to reach the factories in fresh condition. The importance of roads has increased considerably over the last decade or so as more and more factories have had to take up transport of cane (even over long distances) by road instead of rail due to frequent non-availability of rail wagons in numbers and at times required. The need for improvement of existing roads and the construction of new roads in factory areas is urgent. To some extent, the factories, the cane development councils and the canegrowers unions may be able to improve the situation, but they cannot possibly undertake any major road building activity. State Governments concerned should pay early attention to this problem.

2.48 Most canegrowers within a radius of 16 kilometers or so of factories ordinarily take their cane to the gates of the factories and, as mentioned earlier, do so by bullock carts. A small number of them carry their cane by trucks and other means of transport. Canegrowers at longer distance from factories deliver their cane at out-station purchasing centres. The system of out-station purchasing centres obtains in all the States of the north and also in the case of some factories in the south. In the majority of cases there is a purchasing centre within 8 kilometers of each village. But there are villages which are situated at longer distances from a purchasing centre. As the condition of roads is generally poor and transport of cane over longer distances by bullock carts is difficult and time-consuming, canegrowers have been demanding the establishment of more out-station centres near their villages. We consider that this request is reasonable and suggest that, as far as possible, no canegrower should have to transport his cane over a distance of more than 8 kilometers. Where factories themselves arrange for transport of cane or provide facilities to canegrowers for transport of cane from farmers fields, the need for out-station centres does not arise.

Reservation of Areas

2.49 Earlier in this Chapter we have strongly urged that sugar factories should directly and effectively participate in all developmental activities such as building roads, providing irrigation facilities, advancing loans, supplying seed to the canegrowers, etc. in the areas from which they get their cane supplies. But then they should be sure of their areas on a long term basis. Also the areas should be contiguous and compact. We have dealt with this matter in detail in Chapter XI.

Companion Cropping

2.50 Among the various measures for encouraging cane cultivation, mention must be made of companion cropping or inter-cropping of sugarcane with other crops, such as wheat, potato, etc. A vast majority of our farmers have very small holdings and they have to raise both foodgrains and commercial crops for their requirements. Where conditions are suitable for sugarcane cultivation, it is generally one of the main crops grown by most farmers. The companion cropping technique enables the raising of an additional crop in between sugarcane rows and leads to better utilisation of fertilizer and irrigation. The Sugarcane Research Institute, Lucknow has carried out large scale experiments in companion cropping and has strongly advocated the adoption of the scheme by farmers on the ground that it gives to the farmer an additional crop besides sugarcane and is economically more paying to the farmer. Companion cropping is generally possible in the north with sugarcane planted in October-November. This cane will mature early and will be available for crushing in the initial part of the season. A number of progressive farmers in West U.P. have already taken to companion cropping.

2.51 The above scheme is, however, yet at an experimental stage. Various sugarcane and agricultural experts have expressed different opinions about its possibilities. The general feeling is that the scheme has great potentiality in the north but is unlikely to be successful in the south, mainly due to climatic conditions and the absence of a crop which could be intercropped with sugarcane. While in the north, sugarcane does not dominate or overshadow the other crop, e.g., wheat till almost maturing time of the latter, in the south sugarcane grows faster than the companion crop. However, where it proves agriculturally feasible and economically successful, it will no doubt be adopted by an increasing number of farmers.

Ratooning

2.52 Ratoon crop matures early and is generally crushed in the early part of the season. Ratooning has in the past been generally discouraged. The main reasons for this attitude are first, that the ratoon crops were found to be more susceptible to diseases and pests ; secondly, their yields were substantially lower than the plant crop yields, and, thirdly, the root system of cane spread deeply and widely by taking two or more ratoons and was difficult to pull out. Experts are, however, of the opinion that a ratoon crop is susceptible to diseases and pests mainly because the parent plant crop itself is diseased or pest ridden and that, if the plant crop is healthy and well maintained, its ratoon will also be healthy. What is, therefore, required is to ensure that the plant crop itself is free from disease and is kept free from pests. As regards low yields, it has been claimed that the yield of ratoon crop can be more or less the same as that of plant crop if only the same attention and care in the matter of inputs, irrigation and agricultural techniques were paid to the ratoon crop as in the case of plant crop. In any case, even where the yield is slightly less, the loss due to the lower yield will be more than made up by

savings on seed, preparation of land and other operations. It is here that the canegrower is to be educated about the care and attention to be paid to the ratoon crop and about its advantages. The present attitude of most of the canegrowers of treating ratoon as bonus crop has to be changed. The development councils and the factories should launch schemes to demonstrate in factory farms and in the field of progressive farmers, how good ratoon crop can be obtained by adopting proper techniques. As regards the uprooting of the stumps or lumps, the problem will not be acute if only one or two ratoons are taken. The problem may become acute in some kinds of soil only but not in others. It may be mentioned here that in some countries—e.g., Cuba, Hawaii—5 to 7 ratoons are taken. The climatic and soil conditions and the needs of the sugar industry in our country demand that, subject to proper care and attention being paid, encouragement should be given to farmers for taking at least two ratoon crops, if not more.

Maturitywise Harvesting

2.53 It is necessary to organise maturity tests of the standing crop and drawing up harvesting schedules maturitywise. The National Sugar Institute, Kanpur has prepared a detailed scheme for carrying out maturity tests in fields with the help of a simple equipment—the hand refractometer. The results of the scheme have been very encouraging and have indicated that the overall recovery could be increased by 0.5 to 1 per cent. A number of factories have adopted this scheme, as a result of which their recoveries have improved considerably. We suggest that factories and canegrowers' unions should adopt this scheme. Maturitywise harvesting schedules should be drawn up on the basis of the brix data of sugarcane crops in different fields.

Irrigation Potential and Targets of Cane Production in Different States

2.54 Of the various measures for cane development discussed earlier, we attach the greatest importance to the provision of irrigation facilities. It is almost axiomatic that is impossible to produce a good crop without irrigation. The irrigation potential varies from State to State. It will be useful, therefore, to examine the position of cane development in different States. In this connection we addressed the sugar producing States and asked them to give their own estimate of the possibilities of development of sugarcane in their respective States. We also discussed with the officers of the State Governments concerned the schemes and plans which were being executed or which were under consideration of the State Governments to improve cane agriculture. In the following paragraphs we have made an assessment of the position on the basis of the written replies of the State Governments and discussions with their officers and also other data and knowledge available to the Commission. When working out the targets of increase in cane area and yields in various States, we have kept in view the findings of the Irrigation Commission (1972) about the existing actual and the future potential of irrigation in the various States, for irrigation plays a vital role in the cultivation and development of cane.

2.55 As observed by the Irrigation Commission (1972), the future 'improvement in cane production will involve mainly—(a) firming up irrigation in areas where facilities are at present inadequate; (b) providing irrigation to unirrigated crop; and (c) extending area under the crop in regions where assured perennial irrigation from storage system is available.' In view of this the areas where irrigation potential exists to a significant extent are the areas in which development of cane can best be achieved. The Irrigation Commission has estimated the irrigation potential in different States. The following table gives the irrigated area (1966-67) and the 'ultimate' irrigation potential in different States :—

TABLE NO. 2.2

Ultimate Irrigation Potential—Statewise

(Million hectares)

State	Ultimate Potential				As per States replies	Area irrigated (1966-67).
	Major* & Medium Projects	Minor Projects* Surface water	Minor Projects* Ground water	Total		
1	2	3	4	5	6	7
Andhra Pradesh	6.5	2.0	1.8	10.3	8.7	3.9
Assam	1.0	1.0	0.2	2.2	1.3	0.6
Bihar	4.4	1.8	1.8	8.0	5.8	2.0
Gujarat	2.1	0.5	1.2	3.8	2.6	1.1
Haryana	@	0.05	0.8	0.85	2.4	1.8
Jammu & Kashmir	0.1	0.4	0.1	0.6	0.4	0.3
Kerala	0.6	0.8	0.1	0.5	—	0.5
Madhya Pradesh	5.6	0.8	1.6	8.0	—	1.1
Maharashtra	2.3	0.8	1.4	4.5	6.2	1.4
Karnataka	1.8	0.8	0.8	3.4	5.5	1.2
Nagaland	na	0.05	—	0.05	na	0.02
Orissa	2.4	1.2	0.4	4.0	—	1.1
Punjab	4.1	0.1	1.9	6.1	—	3.4
Rajasthan	3.2	0.4	1.4	5.0	3.2	2.1
Tamil Nadu	1.5	0.8	1.3	3.6	3.1	3.4
Uttar Pradesh	7.6	1.0	6.5	15.1	25.5	7.2
West Bengal	2.3	1.2	0.8	4.3	—	1.2
Union Territories	na	0.3	0.1	0.4	—	0.3
TOTAL	45.5	14.0	22.2	81.7	—	32.8

*Fourth Five Plan (1969—74)—Planning Commission.

**Working Group Report for formulation of Fourth Plan Proposals on Minor Irrigation & Rural Electrification.

@Included in Punjab.
na=Not available.

Source : Report of the Irrigation Commission, 1972 —Vol. I, pp. 218-219.

In this table, 'ultimate potential' means the potential upto the end of the current century. For the purposes of assessing the possibilities of cane cultivation in various States, we have assumed that about half of the 'ultimate potential' will be realised and become

actual by the end of 1985-86. We have kept the irrigation data in view in analysing and assessing the possibilities of development of sugarcane and of sugar industry.

Andhra Pradesh

2.56 In Andhra Pradesh, the cane area during the period 1960-61 to 1970-71 has ranged between 91,000 hectares and 1.58 lakh hectares. The cane yields have been fairly good, ranging from 74 to 81 tonnes per hectare. The highest production of sugarcane was 120 lakh tonnes in 1968-69. On the basis of the estimates made by the Irrigation Commission (1972), the irrigation potential in Andhra Pradesh is likely to increase from 3.9 million hectares (1966-67) to 7.1 million hectares by 1985-86 i.e., the irrigated area is likely to increase by about 80 per cent. The State Government plans to increase the area under cane from 1.58 lakh hectares to 2.40 lakh hectares by 1985-86, and raise the cane yields to 95 tonnes per hectare and the total can production to 220 lakh tonnes by 1985-86.

Assam

2.57 One of the important features of the cane crop in Assam is that it is completely rain-fed. In 1971-72 the area under cane was 33,800 hectares with a production of 13 lakh tonnes of sugarcane. The yields have been rather poor—about 38 tonnes per hectare. The Irrigation Commission estimates that the area under irrigation is likely to increase from the present 0.6 million hectares (1966-67) to 1.4 million hectares by 1985-86. The increase in irrigation facilities will help in cane cultivation. The State Government estimates that with improved cane cultivation, irrigation and other inputs, there is scope for increasing the can yields upto 50 tonnes per hectare. There are plans to increase the area under cane to 64,000 hectares by the end of 1985-86.

Bihar

2.58 In Bihar, the area under cane has been more or less static during the last 20 years—around 1.6 lakh hectares. The yields have been rather low, ranging from 30 to 40 tonnes per hectare. Less than one-third of the area under cane is irrigated. That also does not get irrigation to the extent required. For this reason, as also for other reasons, the standard of cane cultivation is generally poor. One of the important problems affecting sugarcane cultivation and yields in some areas of Bihar is waterlogging. There is evidence of quicker degeneration of cane varieties in Bihar than perhaps in other States. Cane varieties get affected by virus and other infections due to waterlogging.

2.59 According to the estimates of the Irrigation Commission, the irrigation potential is likely to increase from the present 2.0 million hectares to 5.0 million hectares by 1985-86. The estimate of the State Government is that with increase in the use of fertilizers and improvement in cultural practices there is scope for the yields to increase from the present 40 tonnes per hectare to 45—50 tonnes per hectare by the end of the Fifth Plan and to even 70-80 tonnes by 1985-86.

Gujarat

2.60 Out of one million hectares of irrigated land, 36,000 hectares were under cane in 1971-72. The yields per hectare have ranged between 48 and 68 tonnes during the last ten years except once when the yield was 68 tonnes (1964-65). By 1985-86 the total irrigation potential can be placed at 3 million hectares. The State Government estimates that by 1985-86 the yields will go up to 80 tonnes per hectare. One of the important measures being taken for increasing cane yields is the establishment of seed farm(s) in each factory areas. By 1985-86 the area under cane is expected to be 95,000 hectares.

Haryana

2.61 The cane area in Haryana ranged between 1.14 lakh hectares and 1.96 lakh hectares during the period 1965-66 to 1971-72. About 85 per cent of the cane area is irrigated. Because of the extreme climate conditions, yields are low—about 44 tonnes per hectare. On the basis of the estimates made by the Irrigation Commission the irrigated area is likely to increase from the present 1.8 million hectares to 2.2 million hectares. The State Government estimates that by 1985-86, the cane area is likely to increase to 1.8 lakh hectares and the cane yields to 48 tonnes per hectare.

Karnataka

2.62 Karnataka has about 1.2 lakh hectares under cane out of 12 lakh hectares of irrigated land. The cane yields are the best in India—90 tonnes per hectare—and the quality of cane is also good—the recoveries ranging between 9.68 per cent and 11 per cent, during the last ten years. Some of the factories in Karnataka work for more than 200 days a year. The total cane production was about 88 lakh tonnes in 1971-72. The irrigated area in the State is expected to be doubled by 1985-86. According to the information submitted by the State Government the major and medium irrigated projects are at various stages of execution and are expected to be completed by the end of Fifth Plan. These are likely to add 1.2 lakh hectares area under cane. State Government expects that with this increase in area and with some improvement in yields, the cane production is likely to increase by about 135 lakh tonnes by 1985-86.

Kerala

2.63 The cane area in Kerala was hardly 8,00[illegible] hectares in 1971-72. The cane yields are around 62 tonnes per hectare. The quality of cane is poor due to lack of adequate irrigation facilities. All the three factories of the State suffer from shortage of cane. State Government proposes to clear off 1,00[illegible] hectares of forest area for cultivating cane

For this purpose the State Government has set up a State Farming Corporation which is already cultivating cane in about 1,000 hectares. The irrigated area is estimated to increase from the present 0.5 million hectares to 1.2 million hectares by 1985-86. The State Government has plans to improve the irrigation facilities and expects that the quality of cane will improve. An additional area of about 20,000 hectares is expected to come under cane by 1985-86. Most of this area will be managed by the State Farming Corporation.

Madhya Pradesh

2.64 The total area under cane in Madhya Pradesh is 56,000 hectares which forms only 0.35 per cent of the total irrigated area. Hitherto the emphasis has been on the cultivation of foodgrains. The State average cane yield is very low indeed—26.7 tonnes per hectare. In factory areas the yield is, however, 40 tonnes per hectare. The Irrigation Commission estimates that the irrigation potential will increase from the present 1.1 million hectares to 4.5 million hectares by 1985-86. The State Government has plans to increase the area under cane upto 1.50 lakh hectares and the yields to 60 tonnes per hectare in factory areas by the end of 1985-86.

Maharashtra

2.65 The area under cane in Maharashtra has more than doubled during the last 20 years and was 2.2 lakh hectares in 1969-70. This has been primarily due to the establishment of a large number of factories, which increased from 13 to 41 during the same period. Sugarcane production in this State in 1969-70 was 144 lakh tonnes. The irrigation facilities in Maharashtra are limited, i.e., less than 10 per cent of the cultivated area is being irrigated. The State Government 'rations' the supply of water to cane cultivation. Cane crops receiving water from State canals or other State sources get adequate irrigation, but some areas which have come up under irrigation in the last few years obtain their irrigation from wells, tanks and other sources created and constructed by individual canegrowers or their cooperative societies. In such cases, irrigation water is not always available to the same extent as from Government canals and is somewhat inadequate for the number of irrigations required. The irrigation is from surface wells or by lifting water from rivers and is, therefore, largely dependent on rains. Due to scarcity of rain in the last 2-3 years drought prevailed in large areas of Maharashtra and agriculture, including cane cultivation, suffered badly. The effects of drought are more disastrous for cane cultivation in Maharashtra than in some other States such as Uttar Pradesh and Bihar. Cooperative sugar factories have undertaken and executed several schemes of irrigation through the construction of percolation tanks, digging surface wells, etc., to fight drought. The present inadequate irrigation facilities are reported to be responsible for the declining cane yields. The yield per hectare was around 80 tonnes upto 1964. It decreased in recent years and came down to 65 tonnes. In some way the quality of cane has also been affected.

2.66 The estimated increase in irrigation potential, according to the Irrigation Commission, is from the present 1.4 million hectares to 3.6 million hectares by 1985-86. We had discussions with the representatives of the State Government on the available water resources and we were told that cane would have to depend mainly on under-ground resources. Survey for under-ground water resources has been conducted by the State Ground Water Survey and Development Agency and a plan for developing under ground water resources has been drawn up. It is reported that the State Government has obtained a loan of Rs. 32 crores for the purpose. It has proposals to increase the area under cane to 3 lakh hectares by the end of Fifth Plan. The State Government is of the view that through intensive cane development measures the yields are likely to go up to 90 tonnes per hectare by the end of the Fifth Plan and to 100 tonnes per hectare by the end of 1985-86.

Orissa

2.67 In Orissa out of 1.1 million hectares of area under irrigation (1965-66), a very small percentage (0.35) is under cane. The cane yields have been low, ranging from 29 tonnes to 58 tonnes per hectare. The quality of cane is also poor, the recoveries varying between 8.26 and 9.67 per cent. Cane crop is affected by cyclones.

2.68 The irrigation potential is likely to increase to 2.6 million hectares by 1985-86. It is probable that with increase in irrigated area, cane area will also increase. The State Government estimates an increase in cane area from about 34,000 hectares to 55,000 hectares with an increase in cane production from 25 lakh tonnes to about 42 lakh tonnes by 1985-86. An increase in cane yields upto 76 tonnes per hectare is visualised by the State Government.

Punjab

2.69 During 1960-61 to 1962-63, the cane area was about 2.6 lakh hectares but it went down to 1.04 lakh hectares in 1971-72. The estimated area under cane in 1973-74 is 1.3 lakh hectares out of a total area under irrigation of 3.4 million hectares. The cane yields and recoveries are among the lowest in the country. In 1970-71 the yield was about 44 tonnes per hectare which increased to nearly 51 tonnes per hectare in 1972-73. The State Government expects that the yield will increase to 70 tonnes per hectare in the next ten to fifteen years. The area under irrigation is expected to increase by about 90 per cent by 1985-86.

Rajasthan

2.70 In Rajasthan, the area under cane ranged from 20,000 to 57,000 hectares during the last ten years. The average cane yields have been of the order of

20 tonnes only per hectare. The area under irrigation is expected to go up from 2.1 million hectares to 3.6 million hectares by 1985-86. According to the information submitted by the State Government the area under cane, which has fallen sharply in recent years, will increase upto 50,000 hectares by the end of the Fifth Plan. There are plans for improving cane cultivation and to increase the yields from the present 20 tonnes to 25—30 tonnes per heetare by the end of the Fifth Plan and to 40—50 tonnes per hectare by the end of 1985-86.

Tamil Nadu

2.71 Iu 1951-52, the area under cane was about 50,000 hectares. It increased to a maximum of 1.7 lakh hectares by 1968-69. There has been great improvement in cane cultivation in Tamil Nadu. The yields have been fairly high during the last ten years—about 75 to 80 tonnes per hectare. The quality of cane grown in Tamil Nadu is, however, poor as shown by the fact that the recoveries have often been below 9 per cent. But the State average has generally been pulled down by the recoveries obtained by factories crushing 'coastal cane'.

2.72 According to the estimates of the Irrigatiou Commission, the present irrigation potential of 3.4 million hectares is expected to increase to 4.3 million hectares by 1985-86. The area under cane may increase from the present 1.2 lakh hectares to about 1.7 lakh hectares, and the cane production, from 97.5 lakh tonnes (1971-72) to 170 lakh tonnes by the end of 1985-86. In this region, though the quality of cane is comparatively poor, the per hectare sugar productoin is high. With better irrigation facilities and proper attention to cane cultivation, the yields can improve as well as the quality of cane. With these improvements, the production of sugar per hectare in Tamil Nadu will further increase. The cane area in the State is also expected to increase significantly; thc State Government has, however, not given a clear idea of the expected increase.

Uttar Pradesh

2.73 Uttar Pradesh has more than half the cane area in the country. In 1971-72, it was about 12.7 lakh hectares, of which about three-fourths falls in the reserved area of factories. The cane yields during the last ten years ranged between 33 tonnes and 44 tonnes per hectare, which are definitely low. This is obviously due to the poor standard of cultivation and inadequate inputs like irrigation and fertilizers. In quality, Uttar Pradesh cane is in a mid-way position and the sugar recoveries ranged between 8.06 and 9.58 per cent during the ten year period 1960-61 to 1969-70.

2.74 The Irrigation Commission envisages a large increase in irrigation potential in this State. The present 7.2 million hectares of irrigated area is expected to increase upto 10.9 million hectares bv 1985-86. The State Government has recently launched a number of schemes on cane development in collaboration with sugar factories. The yields and recoveries in U.P. have shown improvement during the last three years. The new varieties of cane—Co 1148 and Co 1158—now being cultivated in U.P. have coutributed to this. The State Government has proposals to increase the cane area in factory zones to 11.76 lakh hectares by 1978-79, to 12.50 lakh hectares by 1983-84, and to 12.80 lakh hectares by 1985-86. It is estimated that with the development measures already in hand, the caneyields will increase to about 52 tonnes per hectares by the end of the Fifth Plan and to about 60 tonnes per hectare by 1983-84, and to 65 tonnes per hectare by 1985-86.

West Bengal

2.75 Out of 1.5 million hectares of irrigated land, only 38,000 hectares was under cane in 1970-71. The cane yields have been between 43 and 47 tonnes per hectare and recoveries, betweeu 7.6 and 10.18 per cent during the last ten years. The recovery has fallen drastically in the last 2-3 years. The State Government has plans to increase the cane area by about 6,000 hectares.

2.76 The development programme submitted by different State Governments have been helpful in giving a general idea of the cane potential in different States. It may be observed, however, that the estimates of some of the State Governments, especially in respect of increase in cane yields, have been rather on the optimistic side. It is no doubt true that cane yields can be increased substantially in most of the areas by giving optimum doses of irrigation and fertilizers. But the inadequacy of irrigation and fertilizers so long as it lasts will stand in the way of achievement of otherwise achievable targets. Allowance must, therefore, be made of this practical difficulty in determining the probable yields to be reached. On the other hand, in some regions the yields are so low that merely improvement in agricultural practices will show significant results even with the existing inputs and irrigation facilities. We must, therefore, be pragmatic in estimating the probable increases in cane yields in different States and regions. In respect of increase in cane area too, there is a limitation. Though a marked increase in irrigation potential in different States has been envisaged by the Irrigation Commission, the increase in area under cane in all probability will be less than proportionate.

Targets of Cane Production up to 1985-86

2.77 In Part II of our Report the requirements of cane for all the sweetening agents have been placed at 1835 lakh tonnes by the end of Fifth Plan and at 2360 lakh tonnes by the end of 1985-86. Keeping in view these requirements and the various aspects discussed in the preceding paragraphs, we have worked out the Statewise targets of sugarcane production. The Planning Commission has also estimated the Statewise sugarcane requirements by the end of the Fifth Plan. These figures are given in the following table.

TABLE No. 2.3

Targets of Sugarcane Production upto 1985-86

Area — 1000 Hectares

Yield — Tonnes/Hectare

Production — Lakh tonnes

Sl. No.	State	Present (1971-72)			Targets (By the end of 1978-79)			Targets (By the end of 1985-86)		
					By the Commission			By the Commission		
		Cane area	Cane Yield	Cane Production	Cane area	Cane yield	Cane production	Cane area	Cane yield	Cane production
1	2	3	4	5	6	7	8	9	10	11
1.	Andhra Pradesh	125.5	89.3	112	180	90	162 (140)	235	90	212
2.	Assam	33.8	37.7	13	45	40	18 (18)	64	50	32
3.	Bihar	141.9	31.5	45	180	45	81 (80)	228	45	103
4.	Gujarat	36.4	50.8	18	80	65	52 (50)	109	70	76
5.	Harayana	114.0	45.1	51	150	50	75 (80)	196	50	98
6.	Karnataka	106.8	82.2	88	150	90	135 (112)	180	90	162
7.	Kerala	7.6	51.4	4	14	60	9 (11.3)	21	65	14
8.	Madhya Pradesh	59.9	27.1	16	75	32	24 (22)	87	45	39
9.	Maharashtra	181.8	63.2	115	250	80	200 (180)	330	85	280
10.	Orissa	33.7	57.6	19	40	60	24 (24)	53	65	34
11.	Punjab	104.0	39.1	41	130	50	65 (70)	160	65	105
12.	Rajasthan	27.6	43.6	12	50	30	15 (14.5)	45	40	18
13.	Tamil Nadu	120.7	81.1	98	160	90	144 (140)	198	95	187
14.	Uttar Pradesh	1274.0	39.0	497	1600	50	800 (780)	1750	55	963
15.	West Bengal	38.3	54.2	21	40	55	22 (20)	48	60	29
16.	Other States/Union Territories	10.0	39.0	4	15	40	6 (5.8)	18	45	8
	All-India	2416.0	47.6	1154	3160	58	1832 (1747.6)	3722	63	2359

NOTE :—The figures in brackets under Column 8 are the targets given in the Draft Five Year Plan (1974—1979).

it will be seen that our target of all-India sugarcane production by the end of the Fifth Plan is about 5 per cent higher than that of the Planning Commission. But the Statewise targets are more or less the same in both the cases except in the States of Andhra Pradesh, Maharashtra and Karnataka. The Planning Commission targets for these States are 140 lakhs, 180 lakhs and 112 lakh tonnes as against our targets of 162 lakhs, 200 lakhs and 135 lakh tonnes respectively. We are of the view that in case the targets of cane production as envisaged by us are to be achieved special efforts will have to be made in these States. The standard of cane cultivation in these three States is high. With serious and sustained efforts it should be possible to achieve the targets. It may be added that the targets laid down by us are lower than the potential envisaged by the respective State Governments.

2.78 To achieve the targets suggested by us, the total cane area in the country will have to increase from 24.16 lakh hectares in 1971-72 to 31.60 lakh hectares by the end of the Fifth Plan and to 37.22 lakh hectares by 1985-86. The area under cane in 1971-72 was about 7.4 per cent of the total irrigated area of 328 lakh hectares (1966-67). The irrigation potential by 1985-86, according to the Irrigation Commission, will be about 573 lakh hectares. The cane area will then form about 6.5 per cent of the total irrigated area. Although the cane area will increase, it will not be in the same proportion as the increase in the irrigation potential.

2.79 The all-India average cane yield in 1971-72 was 47.7 tonnes per hectare. We envisage that it will increase to 58 tonnes per hectare by 1978-79 and to 63 tonnes by 1985-86. During the last 15 years, the increase in yield was at the rate of 0.4 tonne per hectare per annum (See Fig. 2.1). With improved agricultural practices and larger inputs, we expect that this rate will increase considerably. The targets indicated above require that this increase will have to be at the rate of 1.33 tonnes per hectare per annum (Fig. 2.1). We would like to emphasize here that this rate is not difficult to achieve if timely and proper action is taken. The research institutes, the State Governments, the factories, the Cane Development Councils and the growers will have to make concerted and coordinated efforts to obtain the above rate of increase in yield. These efforts are specially called for in the sub-tropical region where the yields are generally low and where a large potential for increase exists.

2.80 The total cane production in 1971-72 was about 1150 lakh tonnes. The target is to raise it to about 2360 lakh tonnes by 1985-86, i.e., an increase by 1210 lakh tonnes. About 370 lakh tonnes of this increase in cane production is expected to be realized through increase in yields from 47.7 tonnes per hectare to 63 tonnes per hectare. The rest of the inerease in cane production will have to come from additional cane area. During the last 15 years, the rate of increase in cane production was 27 lakh tonnes per annum. The future projection envisages an annual increase of 86 lakh tonnes (See Fig. 2.1.).

2.81 As regards the share of the major sugarcane producing States, it will be seen from Fig. 2.2 that U.P. will continue to be the major contributor to the country's total production of cane (40.8 per cent); the other States producing more than 100 lakh tonnes will be Maharashtra (11.9 per cent), Andhra Pradesh (9.0 per cent), Tamil Nadu (7.9 per cent), Karnataka (6.9 per cent), Bihar (4.4 per cent) and Punjab (4.4 per cent).

CHAPTER III

SUGAR PRODUCTION TARGETS

3.1 The last term of reference of the Commission requires us to prepare a blue-print for the development of the sugar industry for the next ten to fifteen years. In our first interim report we placed the sugar requirement in the country by the end of the Fifth Plan at 65 lakh tonnes and by 1985 at 95 lakh tonnes. To meet this requirement it will be necessary to increase the installed sugar production capacity from the present 41 lakh tonnes to 95 lakh tonnes, which is equivalent to about 300 factories of 1,250 tonnes capacity each producing about 18,000 tonnes of sugar in a year. For achieving this target of production, we must have more cane of good quality; more machinery and equipment, better means of cane and sugar transport; and better management and organisation. All this requires large scale finance and detailed and careful planning both at the Central and the State levels and close cooperation of all concerned—the industry, canegrowers, workers, Government, etc.

3.2 The future requirements of cane for meeting the above targets of sugar production and the steps to be taken to achieve them, as also the Statewise cane production targets upto 1985-86, have been discussed in the previous Chapter. In this Chapter, we propose to deal with the development of the sugar industry in different States. In doing so we shall first refer to the plans of various State Governments for the future expansion of the industry in their States.

Andhra Pradesh

3.3 There are at present 19 sugar factories in the State with a total installed capacity of 27,500 tonnes of cane per day. During the ten years 1962-63 to 1971-72, the duration of the season ranged between 79 and 159 days and the average recovery, between 8.76 and 10.32. The highest annual sugar production in this State was about 3.4 lakh tonnes in 1968-69. The State Government has proposals for doubling the capacity of most of the existing factories and for setting up 17 more factories. Of these 17, two are already under erection and letters of intent have been issued in the case of 7 others. Sites for the remaining units have been provisionally selected.

Assam

3.4 There is only one cooperative factory in the State with an installed capacity of about 800 tonnes of cane per day. The factory worked for 75 days in 1971-72. Since its establishment in 1958-59, only in 4 years the factory operated for more than 100 days. The recoveries have ranged between 7.89 and 9.69. The annual sugar production in the factory has been between 4,000 and 10,000 tonnes of sugar during the last ten years. The State Government has plans to set up 7 more factories by the end of 1985-86.

Bihar

3.5 At present there are 30 factories in the State with a total installed capacity of about 34,400 tonnes of cane per day. Of these, 5 factories have remained closed for some years due to various reasons, including shortage of cane. The sugar factories in Bihar utilise about 50 per cent of the total cane produced in the State. During the last ten years, the average duration varied between 61 and 147 days and the average recovery, between 8.86 and 10.02. The sugar production ranged between 1.5 lakh tonnes and 3.9 lakh tonnes. The State Government has proposals for expansion of the existing factories and for setting up 6 more new factories during the next ten years.

Gujarat

3.6 There are 7 factories (all cooperatives) with a total installed capacity of 11,600 tonnes of cane per day. The average duration of the season in this State was from 100 to 195 days and the average recoveries, from 9.25 to 10.89. The annual sugar production in recent years was about 1 lakh tonnes. The State Government has plans to set up 19 more factories in the next 10 years.

Haryana

3.7 In this State, not more than 15 per cent of the total production of cane goes to sugar production in the existing 3 sugar factories. Their total daily installed crushing capacity is about 6,000 tonnes. The average duration of the season was between 90 and 187 days and average recovery, between 8.02 and 9.33 during the last ten years. The 3 factories produced about 72,000 tonnes of sugar in 1971-72. The State Government has proposals to set up 4 more factories by 1985-86, of which 2 have already been licensed and are under establishment.

Karnataka

3.8 There are 13 factories in the State which utilise 25 to 30 per cent of the total cane produced. The total crushing capacity of these factories is about 20,300 tonnes per day. In this State some factories have two seasons and have generally a duration of more than 200 days. The average duration of the season, however, ranged between 96 and 211 days. As mentioned in the previous Chapter, the quality of cane is good and the recoveries have always been

above 10 per cent except in 1969-70 when it was 9.68. The sugar production in 1971-72 was 2.47 lakh tonnes.

3.9 The State Government has plans to expand most of the existing factories and to set up 15 factories in the Fifth Plan and 10 more in the subsequent period upto 1985-86. Of the 15 factories to be set up in the Fifth Plan, licences have already been issued for 8 factories. The State Government is of the opinion that with the expansion of the industry, the annual production of sugar is likely to be about 12 lakh tonnes by the end of 1985-86.

Kerala

3.10 This State has 3 sugar factories with daily crushing capacity of 2540 tonnes. As mentioned in the preceding Chapter, all the 3 factories do not have sufficient cane. The average duration of the season has varied from 36 days to 121 days during the last 10 years. Only once it was 190 days in 1962-63 when there was only one private factory. The recoveries have ranged between 7.60 and 8.85. The sugar production was 16,000 tonnes in 1971-72. The State Government has plans to expand the existing factories and to set up 4 more factories by the end of 1985-86.

Madhya Pradesh

3.11 In Madhya Pradesh most of the factories were set up in the erstwhile princely States with tax concessions and other facilities granted to them. All the existing six factories are located in the north-west of Madhya Pradesh. Their total daily cane crushing capacity is 5200 tonnes. They generally suffer from shortage of cane. The average duration of the season was as low as 23 days in 1967-68. The maximum duration was 120 days in 1964-65. The recoveries in this State have ranged between 8.12 and 9.62. About 21,000 tonnes of sugar was produced in 1971-72. The State Government has proposals to set up 10 more factories in the State by the end of 1985-86.

Maharashtra

3.12 During the last two decades, there has been considerable expansion of the sugar industry in this State. The number of sugar factories increased from 13 (1952) to 42 (1971-72). The present installed daily cane crushing capacity is 60,760 tonnes. A significant feature of Maharashtra is that about 60 per cent to 70 per cent of cane produced in the State goes to sugar factories while in most of the other States the percentage is about 25 to 30. The duration of the season in this State has varied between 136 and 200 days. The sugar recovery in this State is the highest in the country. It has generally been over 11 per cent except in 1969-70 when it was 10.76. In 1971-72, the sugar production was about 10 lakh tonnes. The State Government expects to produce about 31 lakh tonnes of sugar by 1985-86. For this purpose, it proposes to expand the present licensed capacity of 83,550 tonnes per day (1973) to 1.34 lakh tonnes per day by the end of the Fifth Plan and to 1.98 lakh tonnes per day by the end of 1985-86. State Government proposes to achieve this by expanding the present units and by setting up 21 factories during the Fifth Plan and 12 more factories in the subsequent period upto 1985-86.

Orissa

3.13 There are two factories at present working in this State. One more is expected to go into production in 1973-74 season. The installed capacity of the existing two factories is 1,670 tonnes only. The duration has ranged between 65 and 147 days and recoveries, between 8.26 and 9.67, during the last 10 years. The maximum sugar production in the State was 17,000 tonnes in 1969-70. The State Government has proposals to establish 3 new sugar factories during the Fifth Plan period. No indication has been given by the State Government for the later period.

Punjab

3.14 There are at present 6 factories in the State with installed daily cane crushing capacity of 6570 tonnes. The average duration in the State was between 61 and 193 days, and recoveries between 7.02 and 8.84. Punjab produced about 31,000 tonnes of sugar in 1971-72. The State Government expects that in the next 10 to 15 years the sugar production will improve and that there will be enough cane to meet the requirements of two more factories.

Rajasthan

3.15 Presently the total cane crushing capacity of the 3 existing factories is about 3,100 tonnes. In this State also factories suffer from cane shortage. The average duration of the season ranged between 52 and 143 days. The recoveries have been low and have ranged between 8.09 and 9.46 during the last 10 years. In 1971-72 the sugar production in this State was only about 8,000 tonnes. The State Government has plans to set up two more factories in addition to the existing 3 factories by 1985-86.

Tamil Nadu

3.16 In this State the utilization of cane by the existing 17 factories has varied between 19 per cent and 41 per cent of the sugarcane produced. The total daily cane crushing capacity is 22,280 tonnes. Some of the factories in the State have very long season, the State average varying between 134 and 243 days. The recoveries have ranged between 7.87 and 9.43. About 3 lakh tonnes of sugar was produced in Tamil Nadu in 1971-72. The State Government has proposals to set up 8 new factories during the Fifth Plan period and another 14 factories by the end of 1985-86. By the expansion of the existing factories and by setting up new factories, the State Government expects an increase in sugar production to 9.5 lakh tonnes by the end of 1985-86.

Uttar Pradesh

3.17 Sugar industry is one of the major industries in U. P. and it has the largest number of sugar factories—73. A new sugar factory of 2,000 tonnes capacity in the public sector is likely to go into production

in the current year *i.e.*, 1973-74. The total daily cane crushing capacity of the existing factories is 1.10 lakh tonnes. Although the cane production in this State is the highest in the country, only about 30 per cent of the cane goes to sugar factories due to severe competition from gur and khandsari industries. The average duration of the season varied from 81 to 188 days. The annual production of sugar in U. P. has varied widely from year to year during the last 10 years. The maximum production was 16.24 lakh tonnes in 1969-70. The State Government has plans to increase the present daily cane crushing capacity to 1.45 lakh tonnes by the end of the Fifth Plan and to 1.85 lakh tonnes by 1983-84, and to about 2 lakh tonnes by 1985-86. The estimated sugar production is about 22 lakh tonnes by 1978-79, 27 lakh tonnes by 1983-84 and 30 lakh tonnes by 1985-86. The extra production is proposed to be achieved by expansion of most of the existing factories and by setting up 13 more factories by the end of the Fifth Plan and 12 more factories by the end of the Sixth Plan.

West Bengal

3.18 There is only one factory working at present in the State. Two other factories remained closed for a number of years. Only about 4 per cent of the cane produced was utilized by the single working factory. The rest of the cane production was utilized by gur and khandsari and for other purposes. The duration has been generally very low, varying between 56 and 132 days. In 1971-72, it was only 10 days. The sugar production in the State was very low, being 1,000 tonnes in 1971-72. In the previous years, however, it ranged between 7,000 and 14,000 tonnes. The State Government has set up a Sugar Corporation to improve cane cultivation in the State. The State Government has plans to set up 4 or 5 new factories by the end of 1985-86.

Targets of Sugar Production by 1985-86

3.19 While planning the expansion of the sugar industry during the next ten to fifteen years we have kept in view the need for improving the lot of the weaker sections of the population in rural areas. In Part I we have observed that the agro-based sugar industry is a powerful instrument for achieving this objective. In addition, factors such as the productivity of the region, quality of cane, competition from gur and khandsari, advantages and disadvantages of growing other crops, etc., have been taken into consideration in working out plans and targets for future expansion of the industry in different areas. As discussed later in this Chapter, we have envisaged that about 40 per cent of the additional capacity will be created by expansion and about 60 per cent by setting up of new factories. In regard to the latter we have envisaged that in selecting sites consideration will also be given to the need for opening up and developing backward areas widely dispersed over the country, so that the benefits resulting from the setting up of a new factory are enjoyed by rural communities in as many parts of the country as feasible. Further, we would like to emphasize the need to utilise the installed capacity over a longer season. This will reduce the cost of production of sugar and increase the profitability of industry.

3.20 Keeping the above aspects in view, we have drawn up the Statewise targets for increasing the installed capacity and sugar production. These are given in Table No. 3.1.

TABLE NO. 3.1

Statewise Targets of Installed Cane Crushing Capacity and Sugar Production by the end of 1978-79 *and* 1985-86

Installed capacity — '000 t.c.d.

Sugar Production — '000 tonnes.

State	Present (1971-72)			Targets by the end of 1978-79			Targets by the end of 1985-86		
	Installed capacity	No. of factories	Sugar production.	Installed capacity	No. of factories	Sugar production	Installed capacity	No. of factories	Sugar production.
1	2	3	4	5	6	7	8	9	10
Andhra Pradesh	27.5	19	302	40	26	500	57	33	700
Assam	0.8	1	5	2	2	20	4.5	4	50
Bihar	34.4	30	150	38	30	400	46	32	550
Guajarat	11.6	7	98	20	11	310	35	19	550
Haryana	6.0	3	72	9	5	100	12	7	130
Karnataka	20.3	13	246	35	20	680	56	30	1100
Kerala	2.5	3	16	4	4	36	7	6	70
Madhya Pradesh	5.2	6	21	6	6	55	10	8	100
Maharashtra	60.8	42	1002	92	60	1700	135	80	2450
Orissa	1.7	2	7	3	3	24	6	5	65
Punjab	6.6	6	31	8	6	65	11	7	100
Rajasthan	3.1	3	8	4	3	30	5	3	50
Tamil Nadu	22.3	17	299	37	23	610	55	30	950
Uttar Pradesh	110.5	73	831	140	85	1900	175	95	2500
West Bengal	1.0	1	1	2	2	20	4	3	40
Other States/Union Territories	1.8	1	23	4	3	50	5.5	4	65
All-India	316.0	229	3112	444	289	6500	624	366	9470

3.21 The sugar production in the country has been varying from year to year. It reached a maximum figure of 42.6 lakh tonnes in 1969-70. Thereafter it fell to 37.40 in 1970-71 and it was only 31 lakh tonnes in 1971-72. The production has again picked up and in 1973-74 it is expected to be about 45 lakh tonnes. Even though there have been fluctuations from year to year the production of sugar has been on the increase over the years. During the last 15 years, the rate of increase in production of sugar has been, on an average, 1.7 lakh tonnes per year. We envisage that to meet the requirements of 95 lakh tonnes by 1985-86 the rate of increase has to be 4.5 lakh tonnes per year (see figure 3.1). To achieve this rate of production, the daily installed cane crushing capacity has to be increased from 3.16 lakh tonnes in 1971-72 to 4.44 lakh tonnes by 1978-79 and to 6.24 lakh tonnes by 1985-86. The number of factories which was 229 in 1971-72 is expected to increase to 289 by the end of Fifth Plan and to 366 by the end of 1985-86. The installation of 137 new factories will increase the daily cane crushing capacity 1.71 lakh tonnes corresponding to an increase of about 56 per cent; the rest of the increase in capacity will be by expansion. The annual rate of increase of the installed capacity had in the past been 6.6 per cent from 1960-61 to 1965-66, and 5.7 per cent from 1966-67 to 1972-73. According to the targets laid by us the annual average rate is about 7 per cent. We do not envisage a higher rate of increase in view of various limitations especially of finance and machinery. As pointed out earlier, the emphasis should be on utilization of the installed machinery over a longer period in order to achieve the targets of production of sugar.

3.22 The percentage of the total production of sugar in major sugar producing States is given in Table No. 3.2.

TABLE No. 3.2

Percentage production of sugar in different States

State	1971-72	1972-73	1978-79	1985-86
1	2	3	4	5
Uttar Pradesh .	26.70	34.70	29.23	26.40
Maharashtra .	32.20	27.93	26.15	25.87
Tamil Nadu . .	9.61	8.68	9.38	10.03
Andhra Pradesh .	9.70	6.66	7.69	7.39
Karnataka . .	7.90	7.15	10.46	11.62
Gujarat . .	3.15	3.50	4.77	5.81
Bihar . .	4.82	5.60	6.15	5.81
Others . .	5.92	5.78	6.17	7.07
All-India . .	100.00	100.00	100.00	100.00

It will be seen that Uttar Pradesh and Maharashtra will produce by 1985-86 a little more than half the country's production of sugar.

CHAPTER IV

LICENSING POLICY

4.1 Since 1952, the development of the sugar industry is being regulated by the Government of India under the provisions of the Industries (Development and Regulation) Act, 1951. Both substantial expansions in the existing sugar factories and the setting up of new units are controlled through the licensing system. Some relaxations from the licensing provisions were made in November, 1966 and again in February, 1970. According to the first relaxation, the existing sugar factories can expand without a licence upto 25 per cent of their installed capacity provided that this can be carried out by addition of minor balancing equipment and provided further that no foreign exchange is required. This relaxation is applicable to all factories, including those belonging to larger industrial houses. In the second relaxation, expansion in the existing capacity of the factories has been allowed without a licence subject to the condition that the investment on land, plant and building will not exceed Rs. 1 crore, whether the expansion is carried out in one stage or more than one stage. This concession is, however, not applicable in the case of foreign companies and larger industrial houses.

4.2 At present the procedure for licensing of both the expansion and the new units in the sugar industry is that the applications received by the Government of India are examined by a Screening Committee in the Department of Food. During the course of examination, this Committee considers various relevant matters such as the availability of cane in the present and in the future having regard to irrigation potential, the capacity of the applicant to complete the scheme in a reasonable period, etc. In the case of expansions, all sectors are treated alike and licences are generally granted to all applicants whether in the joint stock sector, cooperative sector, etc. In the case of new sugar factories, however, preference is given to the cooperative sector and licences to the joint stock or the public sector are given only where sugar factories cannot be set up in the cooperative sector. In view of this policy, most of the new units have been licensed in the cooperative sector since 1952. The present policy of licensing expansions to all factories irrespective of the sector to which they belong and preference to cooperatives in the matter of new units should continue. We find that the present system of licensing new units and expansions has helped the growth of the industry in a planned manner. Here we would like to point out that this industry is distinguished from other industries inasmuch as it is generally located in the rural areas and is closely linked with a large number of canegrowers. Its dispersal and location all over the country in suitable areas will be in the interest of overall development of the rural economy and the mechanism of licensing should be used to this end.

4.3 While discussing this subject we would like to refer to some cases, which have come to our notice, of factories languishing for want of cane. This is due to the location of the factories in areas where there is no cane at present and little possibility in the near future of growing sufficient quantities of cane for the factories. The factories have, therefore, suffered high financial losses. It appears that in such cases the matter of availability of cane did not receive the attention that it deserved before issue of licences. It is imperative that this aspect should be very closely examined when dealing with applications for licences and that licences should be issued for setting up sugar factories in those areas only which have cane and which can grow more within a year or two of a factory coming into production. The setting up of new factories in areas where there is very little cane potential should be severely discouraged. A sugarcane expert should be associated in the study of this point and the Screening Committee may be strengthened by including a sugarcane expert.

4.4 Some change is also necessary in the licensing policy for expansion. There are a large number of sugar factories whose daily cane crushing capacity is well below 1,250 tonnes—the 'floor' capacity for which new units are licensed. The new plants are now being so designed that they can be easily expanded upto 2,000 tonnes with minimum additions and alterations. So far this expansion could be carried out with an investment of less than Rs. 1 crore and no licence therefore was required under the present liberalised policy of licensing. But due to rapid increase in prices such alterations and additions can no longer be effected in most cases within this financial limit. Also in many of the old units where large scale changes are required it will not be possible to expand upto 2,000 tonnes capacity without investment of more than Rs. 1 crore. Very few factories can, therefore, benefit from the liberalised policy of licensing. There is, however, great need for expansion of units of small capacities with a view to improving their productivity and profitability. Moreover, in view of the rising cost of plant and machinery and the fact that expansion is cheaper and quicker than the setting up of a new factory, it will be desirable to add as much capacity as possible by way of expansion than by establishment of new factories. We recommend, therefore, that all sugar factories should be exempted from the licensing restrictions in respect of expansion upto 2,000 tonnes of cane per day.

4.5 We find that licensing of additional capacity by way of new units has not been properly phased. The

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following table gives the number of licences issued in each year during the period 1950-51 to 1972-73 :—

TABLE No. 4.1

Number of Licences issued in Different Years (1952—73)

Year	No. of licences/ letter of intent issued	Year	No. of licences/ letter of intent issued
1952	—	1964	—
1953	2	1965	7
1954	12	1966	11
1955	12	1967	1
1956	17	1968	3
1957	7	1969	34
1958	—	1970	6
1959	—	1971	11
1960	13	1972	5
1961	3	1973 (upto Sept.)	10
1962	1		
1963	2		
		TOTAL	157

It may be noted that in some years very few licences were issued or no licence was issued at all, and in some other years, a large number of licences were issued. For instance, no licence was issued in 1964, 1 only in 1967, 3 in 1968 and 34 in 1969. Such uneven licensing creates many problems and causes delay in establishing the required capacity. We recommend that Government should work out a long term plan and should issue licences in a phased manner.

4.6 The country's requirements for sugar will continue to increase. This requirement has to be met by expansion of the existing factories, setting up of new units and increasing the productivity of factories by prolonging their duration and improving sugar recovery. As such, most of the existing sugar factories will have to be expanded sooner or later, say, upto 3,000 to 4,000 tonnes. This aspect has to be kept in view while sanctioning new units in the vicinity of existing sugar factories. We find that in many cases this has been overlooked. A few new factories have been licensed in the cane supplying zones of some of the existing factories. Further, licences have been issued in some cases for locating factories in close proximity to one another. The existence of two or more factories within a short distance of one another causes confusion and irregularity in cane supplies. With increased capacities, the problem will become more acute. In the future, a new sugar factory should not ordinarily be set up within 50 kilometres of any other sugar factory. This will not only safeguard the future expansion programmes of factories, but will also lead to their greater dispersal and to the distribution of economic advantages therefrom over a wider area.

4.7 Earlier in Chapter III, we have envisaged the establishment of additional capacity equivalent to 300 factories of 1,250 tonnes capacity by 1985-86. Such a large additional capacity cannot be created in any single region or State. We recommend, therefore, that sugar factories should be established in all regions which have adequate potential for sugarcane production, as mentioned earlier, and not be limited to any particular region or regions on considerations of productivity alone. In making this recommendation we have taken into consideration the desirability of development of backward areas as also the need for insurance against the effects of drought, floods, etc., on the production of cane and sugar in one or the other main sugar producing area. If sugar production is concentrated in or limited to a particular region only and drought or floods affect that region, the loss in sugar production cannot be made good by sugar production elsewhere. On the other hand, if there is a wider dispersal of the sugar industry over suitable areas in the country, the loss in one area or region could be made good wholly or partly by more production in another area. In this way dispersal of the sugar industry over a wide area will help even out the effects of varying weather conditions in different regions, on sugar production.

4.8 So far additional capacity has been obtained more through the establishment of new factories than by expansions. Less than 40 per cent has come by way of expansion and more than 60 per cent by setting up new factories. In view of the very high cost of new machinery and the fact that expansion of an existing unit is cheaper than installation of a new unit, it is desirable that where potential for adequate supply of cane exists within a reasonable distance of an existing factory, the latter should be expanded instead of a new factory being set up within a short distance of it.

CHAPTER V

SUGAR MACHINERY

5.1 The present installed capacity of the sugar industry is about 41 lakh tonnes and is expected to increase to about 43 lakh tonnes by the end of the Fourth Plan (1973-74). It will, therefore, be necessary to add a capacity of 22 lakh tonnes during the Fifth Plan period and another 30 lakh tonnes between 1979-80 and 1985-86. For some time new factories have been licensed with an initial capacity of 1250 tonnes per day capable of expansion with minimum additions and alterations upto 2,000 tonnes per day. Earlier in this report it has been suggested that so far as expansion is concerned, no licensing should be necessary, provided that the capacity after expansion is limited to 2,000 tonnes. At present the all-India average crushing capacity of a factory is about 1,400 tonnes per day. With liberalisation of licensing for expansion, it is expected that the average crushing capacity of a factory in 1985-86 will increase to about 1,800 tonnes per day. Of the total additional capacity of 52 lakh tonnes required to be installed by 1985-86 about 21 lakh tonnes representing about 40 per cent of the total might be created by expansion and about 31 lakh tonnes (60 per cent) by setting up new units. If expansion is encouraged as suggested earlier, this ratio might progressively change in favour of expansion.

Future requirements of Sugar Machinery

5.2 Sugar machinery is required for creating the additional sugar production capacity as outlined above as well as for rehabilitation and modernisation of the existing units and for export purposes. The average annual sugar production of a factory of 1,250 tonnes capacity may be taken as 18,000 tonnes. On this basis, the number of plants of this size required will be 122 during the period 1974-75 to 1978-79 and another 166 units during the period 1979-80 to 1985-86. This means the establishment of additional capacity equivalent to 24 units of 1,250 tonnes capacity each year. Of this the capacity equivalent to 10 factories may be obtained by expansion and the rest by setting up 14 new factories. The machinery requirements for rehabilitation and modernisation of the existing factories have been assessed and are roughly of the order of two plants per year. Further, some provision is to be made for the export of sugar machinery, which, in terms of cost, has increased from Rs. 3.4 lakhs in 1966-67 to Rs. 29.4 lakhs in 1969-70. One of the machinery manufacturers has secured orders for setting up complete plants in East Africa and Malaysia. Thus, the future annual requirement of sugar machinery has been estimated at more than 26 units.

Present Sugar Machinery Manufacturing Capacity

5.3 There are at present seven main sugar machinery manufacturers in the country who supply complete sugar plants. None of them, however, produces the entire plant and all the items of machinery in its workshop. They manufacture mills and other equipment in which they specialise and the rest of the equipment is obtained from other firms. The entire requirements of sugar machinery and equipment are being met from indigenous manufacturers. A few components are, however, still imported but they constitute about 5 per cent only of the total value of a complete sugar plant.

5.4 The capacity of the sugar machinery manufacturers in the country has been licensed in terms of money value of the equipment produced. The total capacity value was fixed several years ago at Rs. 3,500 lakhs. Most of the units engaged in the manufacture of sugar plants are multi-purpose workshops where items other than sugar machinery are also manufactured. Taking this fact into consideration, the Task Force on Sugar Machinery Industry for the Fifth Plan has estimated the effective capacity for the manufacture of sugar machinery at Rs. 2,500 lakhs per year excluding the capacity for mill turbines, tubro-alternators and boilers. According to the estimates of the Directorate General of Technical Development and the Task Force, the cost of a sugar plant-excluding mill turbines, tubro-alternators and boilers—of 1,250 tonnes capacity is Rs. 123 lakhs. On this basis, the present capacity in the country is 20 plants as shown below.

TABLE No. 5.1

Present Licensed Capacity of Manufacturing Sugar Machinery

Name of firm	Present annual licenced capacity	Number of complete plants actually commissioned						
		1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
1	2	3	4	5	6	7	8	9
Binnys	2	—	—	—	—	—	—	—
Buckau Wolf	3	—	1	2	2	1	1	1
Walchandnagar	4	—	1	1	2	2	—	5
I.S.G.E.C.	2	—	—	—	—	—	1	1
K.C.P.	4	1	—	—	—	1	2	—
Texmaco	2	—	—	—	—	—	—	
Triveni	3	—	—	1	1	—	2	2
TOTAL	20	1	2	4	5	4	6	9

5.5 Besides the above seven manufacturers, there are a number of other firms which are manufaeturing and supplying different items of machinery such as diffusers, juice heaters, pans, evaporators, etc., not only to the sugar factories directly, but also to the seven main sugar machinery manufacturers. Although the licensed capacity of the main sugar machinery manufacturers is about 20 plants, two manufacturers, having a capacity of two plants each, did not supply any complete plant during the last 7 years. They had, however, manufactured some items of machinery for sugar factories.

5.6 It will be scem from Table 5.1 that during the current Five Year Plan the number of new plants commissioned in a year ranged from 4 to 6 in each of the first three years ; the maximum number of units installed was 9 in the season 1972-73. During this period, the manufacturers also supplied machinery for expansion, modernisation and rehabilitation. Even taking this into consideration, it appears that the sugar machinery manufacturers have produced machinery much below their licensed capacities.

The main reasons for the low output are the following :—

(i) Uneven licensing of sugar factories ;

(ii) Delay in arranging finances by purchasers of sugar machinery ;

(iii) Non-availability of steel ; and

(iv) Delay in the supply of some critical equipment.

Uneven Licensing

5.7 We have pointed out earlier that the licences for new sugar factories have not been issued in a phased manner. Uneven issue of licences leads to very few orders being placed with machinery manufacturers in one year and a large number of orders in another year leading to difficulty in plannig of production and disruption in their working schedules. We discussed this matter with sugar machinery manufacturers who stated that they had to divert their manufacturing capacities to other industries as they could not keep their equipment or establishment idle for want of orders. During our visits to some of the machinery manufacturing units, we noticed that the firms had been manufacturing equipment for the Navy, Atomic Energy Establishments, steel industries, etc. Once a sugar machinery manufacturing firm diverts its activities to other industries, it becomes difficult for it to break its ties with those industries and revert to sugar machinery manufacture only. We are of the view that for a proper planning of production it is essential that there should be a regular and even flow of orders on the manufacturers. This will be facilitated if the granting of licences is evenly phased, as recommended earlier, keeping in view the required installed capacity of the sugar industry and also the capacity of the sugar machinery manufacturers.

Delay in Arranging Finances by Purchasers of Machinery

5.8 Table No. 5.2 shows the time taken for the establishment of new sugar factories from the date of issue of letter of intent or licence.

TABLE NO. 5.2

Statement showing the time taken for establishment of new sugar factories from the time of issue of letter of intent/licence to the time of commencement of sugar production*(1951-52 *to* 1972-73)

State	Number of sugar factories established									
	Number of years taken for establishment									
	less than 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	More than 8	Total
1	2	3	4	5	6	7	8	9	10	11
Uttar Pradesh	—	—	1	1	—	3	1	—	—	6
Bihar	—	—	—	—	—	—	—	—	1	1
Punjab	—	1	1	—	—	1	2	—	—	5
Haryana	—	1	1	—	—	—	—	—	—	2
Madhya Pradesh	—	—	—	—	—	—	1	—	—	1
Rajasthan	—	—	—	—	1	—	—	—	—	1
West Bengal	—	—	—	1	—	—	—	—	—	1
Orissa	—	—	—	—	—	—	1	—	—	1
Assam	—	—	—	1	—	—	—	—	—	1
Nagaland	—	—	—	—	1	—	—	—	—	1
Maharashtra	3	6	9	11	4	—	1	1	1	36
Gujarat	—	1	5	1	1	—	—	—	—	8
Karnataka	—	—	1	4	2	1	1	—	—	9
Tamil Nadu	—	1	2	2	4	4	—	—	—	13
Pondicherry	—	—	—	1	—	—	—	—	—	1
Andhra Pradesh	—	—	—	2	3	2	3	—	—	10
Kerala	—	—	—	1	1	—	—	—	—	2
TOTAL	3	10	20	25	17	11	10	1	2	99

*Before 1965 licences were issued. From 1965 a letter of intent is issued in the first instance. Licences are issued late after the terms and conditions stipulated in the letter of intent are complied with.

Factories should ordinarily be established within a period of two to three years after the issue of licence, which is generally the time that sugar machinery manufacturers take in producing and erecting plant. Out of 99 factories established between 1951-52 and 1972-73, 69 factories took more than three years and 13 factories more than 6 years after issue of letter of intent/licence. The time lag in setting up new factories was due to delay in placing orders, in selecting sites and in supply of plant and equipment by machinery manufacturers. In some cases the plants could not be installed because civil works and the laying of foundation which were expected to be carried out by the factories could not be completed in time. In the case of cooperative sugar factories the delay was also due to difficulty in raising substantial amounts of money towards share capital from canegrowers residing within a limited area.

5.9 At present contribution by State Governments to the share capital of a cooperative factory is generally made on a matching basis. It is suggested that the State Governments should contribute to the share capital to the maximum extent they can without waiting for a corresponding matching amount being collected by canegrowers towards share capital of a cooperative factory. This will enable the cooperative factories to place orders for plant and machinery more quickly than has been the case so far. Apart from the contribution which the State Governments make to the share capital from the funds placed at their disposal by the National Cooperative Development Corporation they should also find funds from their own sources as well. No risk is involved in this procedure as the extra amount invested by them can be recouped or redeemed as soon as the growers' contribution of share capital has been collected.

Non-availability of Steel

5.10 Delays in executing the orders are also, to a large extent, due non-availability of adequate quantities of steel. The requirement of steel for a plant of 1250 tonnes capacity is about 1500 tonnes. On the basis of the yearly requirement for 26 plants, about 40,000 tonnes of steel per year will be required by the sugar machinery manufacturers. The total production of steel in the country is expected to increase substantially (100-105 lakh tonnes) in the Fifth Plan and later Plans, and the requirement of sugar industry forms a very small percentage (less than 1 per cent) of the total production. To avoid delay in the manufacture of sugar plants, this quantity may be earmarked for manufacture of sugar machinery and placed at the disposal of the central organisation (N. S. A./N. S. C.) which would make allotment to the sugar machinery manufacturers. In case sufficient steel cannot be allocated from indigenous production, the manufacturers should be allowed to import the required quantities of steel.

Delay in Supply of Critical Equipment

5.11 There are few important items such as turbines, alternators, boilers and centrifugals whose non-availability in some cases causes delay in the setting up of sugar factories. The present installed/licensed capacities and the requirements for the same during the next 10 years are given in Table No. 5.3

TABLE NO. 5.3

Capacities for Manufacture of some important items of sugar plant machinery

Sl. No.	Equipment	Present annual installed/ capacity	Annual requirement
1	2	3	4
1.	Mill Turbines	148*	52
2.	Boilers	77	52
3.	Turbo-alternators	28	26
4.	Centrifugals	405	338

*Includes other industrial turbines also.

It may be seen from the above that the present annual installed licensed capacities of some of the critical equipment are more than adequate. In the case of turbo-alternators, however, the excess capacity is only marginal. But we understand that a proposal to increase the capacity in this case is already under the consideration of the Government. During the Fourth Plan, difficulties were experienced in achieving the licensed capacities in respect of the above critical equipments. Among these were delays in import of some components, in the supply of boiler tubes and special steel.

Bridging the Gap in Sugar Machinery Manufacturing Capacity

5.12 As discussed earlier, the minimum annual requirements of complete plants over the next ten to twelve years will be twenty six as against the present licensed capacity of 20 plants. However, in engineering industry of this nature, it is difficult to achieve full capacity utilisation. We are, therefore of the view that there is need for installing additional manufacturing capacity and recommend that Government may take suitable action for setting up one or more sugar machinery manufacturing units. We would like to point out that the need is also urgent in view of the fact that it takes several years before a machinery manufacturing unit can be established and brought into production and, therefore, an early action is called for.

5.13 We propose that the additioual capacity may be given to entrepreneurs outside the existing sector with a view, *inter alia,* to providing healthy competition between the existing machinery manufacturers and the new manufacturers in respect of cost and quality. A part of the additional capacity can be obtained by expansion of the existing units. In licensing

a new unit or units, as may be found necessary, consideration may be given to the fact that there is already a large cooperative sector in the sugar industry and that the number of cooperative sugar factories will increase considerably in the future as a result of the policy of the Government to encourage cooperative processing of sugarcane

Cost of Sugar Plants

5.14 As has been mentioned at several places and in various contexts, the cost of plant and equipment of a sugar factory has been going up rapidly. In 1957, the cost of a standard plant of 1250 tonnes capacity was Rs. 90 lakhs; in 1965, Rs. 120 lakhs; in 1972, Rs. 210 lakhs and in 1973, Rs. 250 lakhs. In 1974 (January), it reached a figure of Rs. 320 lakhs. This has given rise to great dissatisfaction among the entrepreneurs, cooperatives as well as others, who want to set up sugar factories.

5.15 It has been alleged that the sugar machinery manufacturers have not been utilising their capacity for manufacture of sugar machinery, that they have created an artificial scarcity and that there is now a seller's market. These allegations have been strongly refuted by the manufacturers. The latter have pointed out that the cost of materials and of labour has gone up very high, that the required steel is not made available by Government at controlled rates and that they have to purchase it in the open market. In view of this criticism and controversy we feel that there is need for a cost investigation by experts. We understand that the Bureau of Industrial Costs and Prices has recently initiated a techno-economic study of sugar machinery manufacturing industry. The purpose of the study is, *inter alia*, to ascertain the extent to which the prices of Indian sugar plant equipment are higher as compared to similar equipment manufactured in other countries; whether the disparity in Indian and foreign prices of machinery and equipment has tended to widen over the last few years and to identify the factors which are contributing to higher costs as also to the extent possible, quantify the impact of these factors on the selling prices of machinery and equipment. We suggest that the Bureau may be asked to find out the cost of standard plants and major components.

Control on Capacity Utilisation

5.16 As indicated earlier, the sugar machinery manufacturers have been utilising their capacity in varying degrees for manufacturing machinery and equipment for other industries and Government Departments. This has been partly due to insufficient as well as unevenly spaced orders for sugar machinery. If the requirements of plant and equipment required for the future development of the sugar industry are to be met, it is necessary that the entire sugar machinery manufacturing capacity should be available to and utilized for manufacture of sugar plants and machinery. It is very probably that the sugar machinery manufacturers will not divert their capacity to other industries if they have adequate or sufficient orders for sugar machinery. But to ensure that this does not happen, it is necessary to exercise some supervision and control over the working of the sugar machinery manufacturers.

Control on Quality

5.17 There have also been some complaints about the quality of plant and machinery. It is necessary to maintain a high standard of quality of production not only from the point of view of indigenous requirements but also from the point of view of export. At present there is no organisation or arrangement for checking the quality of the machinery and plant.

5.18 A reference to the functions of the National Sugar Authority/National Sugar Commission outlined in Chapter VI/VII of Part I will show that the N.S.A./N.S.C. will have to carry out technical inspections and audit of sugar factories. The technical wing of the N.S.A./N.S.C. should have the authority and the responsibility for supervision over sugar machinery manufacture and quality control of sugar machinery. Alternatively, the National Sugar Institute, Kanpur may be entrusted with the responsibility for quality control.

Research on Sugar Machinery Manufacture

5.19 All the major sugar machinery manufacturers have established their units with foreign know-how. Agreements in many cases have lapsed, but some are still continuing. Most of the designs of the equipment being manufactured in India are based on foreign designs, though a few firms have effected some improvements. Few sugar machinery manufacturers in the country carry out research on design and development. It is understood that the Group on Sugar and Allied Industries of the National Committee on Science and Technology has recommended the establishment of a new organisation—Sugar Machinery Development Organisation at Poona at an estimated cost of Rs. 2.5 crores. There is a Design and Development Section in the National Sugar Institute, Kanpur. It is reported that this Institute has developed some useful designs for various unit operations. These should be tested in cooperation with the industry and if found to be commercially satisfactory, should be adopted by the sugar industry. In any case, intensive and continuous research on design is called for. We feel that the facilities in the Institute are meagre, and recommend that these should be augmented.

5.20 In our discussions on the utilisation of bagasse for the manufacture of paper, we have emphasized the need for a furnace which can work efficiently both on coal and bagasse, alternately, when required. We understand that a boiler fitted with a furnace which can work both on coal and bagasse is available, but does not give the same output when worked on coal. For the reasons given later, we consider it essential that a furnace should be designed and manufactured which should be capable of working primarily on coal but could be run efficiently on bagasse also, should coal be not available. To this end, we recommend that intensive research should be carried out.

CHAPTER VI

EXPORT OF SUGAR

6.1 India's production of sugar, which has been between 31 lakh and 42.6 lakh tonnes during the last five years, forms 4.2 to 5.8 per cent of the world production of about 740 lakh tonnes (1971) from both sugarcane and beet. International trade in sugar involves about 220 lakh tonnes i.e., 29.7 per cent of the world production. In the international market, India's contribution, at its highest, has been about 1.5 per cent. Though India has the largest sugarcane area and the largest production of sweetening agents (sugar, gur and khandsari)—about 105 lakh tonnes in terms of raw sugar—it does play only a small part in the international market. The reason is obvious. With its comparatively large production, it is, however, unable to meet in some years the requirements of its large and rapidly increasing population even at comparatively low rates of per capita consumption. The per capita consumption of sugar in India is 7.3 Kgs. only (1971) which is lower than the per capita consumption of even the developing countries, such as Egypt (15.5 Kgs.), Malaysia (35.7 Kgs.), Brazil (39 Kgs.), etc. It stands no comparison with the per capita consumption of developed countries, such as U.S.A. (50.2 Kgs.), U.K. (52 Kgs.), Australia (56.4 Kgs.), etc. This makes it abundantly clear that unless very special efforts are made to increase the production of sugar in the following decades, it will be difficult to increase substantially the export of sugar.

6.2 In our first interim report, the requirements of sugar for export and for building up of buffer stock have been estimated at about 5 lakh tonnes by 1978 and 6 lakh tonnes by 1985-86. The Perspective Division of the Planning Commission, however, estimated the above requirements at 12 and 14 lakh tonnes respectively. Our lower estimates are based on the past export performance. The year-wise exports and the foreign exchange earned are given in Table No. 6.1.

TABLE NO. 6.1

Quantity of Sugar Exported and Foreign Exchange earned

Year	Quantity exported (Lakh tonnes)	Foreign exchange earned (Rs./ Crores)
1	2	3
1957	1.47	11.89
1958	0.50	2.47
1959	0.16	0.77
1960	0.18	0.81
1961	2.68	13.32
1962	3.73	14.76
1963	4.79	32.51
1964	2.34	19.08
1965	2.67	11.30
1966	4.41	17.86
1967	2.17	14.86
1968	0.99	10.44
1969	0.94	9.85
1970	3.18	25.70
1971	3.32	31.51
1972	0.99	12.52
1973	2.49	42.50

Source : Indian Sugar Industry Export Corporation Ltd.

The exports have ranged from the minimum of 16000 tonnes in 1959 to a maximum of 4.79 lakh tonnes in 1963. The quantity of sugar exported each year depended on both the availability of sugar and the international prices.

6.3. India is a member of the International Sugar Agreement (I.S.A.) and has also quotas in the preferential markets of U.S.A. under the U.S. Sugar Act and of U.K. under the Commonwealth Sugar Agreement (C.S.A.). The realisations from exports to the preferential markets have been generally higher than those for exports under the I.S.A. quota to the free market. India's quota under the I.S.A. is 2.5 lakh tonnes, about 70,000 tonnes under the U.S. Sugar Act and 25,400 tonnes under the C.S.A. The term of the present I.S.A. is upto the end of 1973. International conferences were held recently in Geneva to work out a new sugar agreement. We understand that no agreement has so far been arrived at. Under the terms of the existing I.S.A., there are no restrictions on the exports when the world market price of sugar is beyond the specified price of 5.25 cents (U.S.) per lb. of sugar. Since December, 1971, the world prices have been more than 5.25 cents per lb. and all the exporting countries are free to export as much quantity as they can. As U.K. has joined the European Economic Community (E.E.C.) from January, 1973, the C.S.A. may no longer hold good after 1974.

6.4. The export of sugar from India in most of the years has been possible only at a loss. Table No. 6.2 gives the loss incurred per tonne of sugar exported during the years 1964—71.

TABLE NO. 6.2

Loss per Tonne of Sugar Exported

Year	Loss per tonne (Rs.)
1	2
1964	71.88
1965	540.32
1966	532.83
1967	526.09
1968	229.72
1969	202.24
1970	453.77
1971	296.25

Source : Indian Sugar Industry Export Corporation Ltd.

The loss on export is due to higher cost of production of sugar in the country than the international sugar prices. There is little scope for reducing the cost of production because nearly two-thirds of the cost of sugar is the cost of the raw material, the price of which is not likely to come down in the near future. The conversion charges also cannot be reduced to any appreciable extent. As such sugar export will generally entail a loss except in years when the international sugar price is exceptionally high. For instance in 1973, the international price for white sugar was over £ 150 per tonne and sugar was exported to the free market at some profit.

6.5 The world sugar consumption is increasing at a faster rate than sugar production. The world sugar stocks of about 24 million tonnes in 1969 decreased to about 17 million tonnes by 1972. They decreased further to about 16 million tonnes (estimated) by the end of 1973. The world free market prices are consequently on the increase. The price rose from £ 45 per tonne (London Daily Price—LDP) in 1971 to over £ 90 per tonne in December, 1972, to £ 115 in December, 1973 and to £ 196 in January, 1974. With such high international prices, sugar exports are likely to earn profit. It will be seen from Table No. 6.1 that there is a good scope for earning foreign exchange, and export of sugar will be in the interest of both the industry and the nation to increase export. So far India's exports have fluctuated widely from year to year. Under such conditions it becomes difficult for the importing countries to rely on India for meeting their import requirements. If these conditions were to continue, it would greatly damage the prospects of expansion of sugar exports. The country has a large potential for sugar production and if serious efforts are made to place sugar exports on a firm footing, it should not be difficult to step them up. In connection with meeting loses on export of sugar, the Central Government enacted the Sugar Export Promotion Act in 1958 which stipulates that the loss in sugar exports will be met by the industry. The validity of this Act was challenged in the Supreme Court by two factories on the ground that the Act placed unreasonable restrictions upon the fundamental rights to hold, acquire and dispose of property and to cary on occupation, trade or business. The Act was upheld by the Supreme Court on the ground that the control price of sugar then fixed contained a provision of 50 paise per maund(Rs. 1.37 per quintal) to cover the export losses. As the sugar prices fixed from 1961 did not contain such a provision, Government negotiated each year with the industry regarding the extent of loss to be met by the latter.

6.6 The pattern of meeting export losses in India has been different from year to year. From 1958 to the first half of 1961 during which period exports were limited, the entire losses were met by the industry. From the second half of 1961, as the quantum of export increased, the industry found it difficult to meet the entire loss. During the period from the second half of 1961 to 1963, the loss in export of suagr was mainly met by the Central Government and the industry met only a nominal loss. From 1964 to 1967, the Central Government met the entire loss as the industry refused to meet any part of the loss. In 1968 and 1969 as the exoprts were confined only to the preferential markets where the loss is less, it was borne by the industry. In 1970 the loss was shared by the industry and the Government, while in 1971 it was met by the Government only. In 1972, exports were limited to a preferential quota and the losses were borne by the industry. In 1973 also the industry borne the loss on the preferential quota of about 98,000 tonnes. The export of 1.5 lakh tonnes against the I.S.A. quota in 1973 was on Government account.

6.7 It is seen from the above that there is no fixed procedure for meeting the export losses. Consequently, a number of difficulties were experienced in export of sugar and some of them are—(i) prolonged negotiations between the Government and the industry for deciding how much loss is to be met by the industry; (ii) uncertainty about the quantity of sugar that can be exported because of the delay in deciding the mechanics of meeting the export losses ; (iii) delay in making the arrangements for manufacture of raw sugar by factories and (iv) delay in sale of sugar to the buyers, who generally cover their requirements well ahead of the beginning of the calendar year. For these reasons, India could not utilise its full quotas in some years even though the position of availability of sugar was satisfactory. For instance in 1969 India exported only the preferential quota and no exports were made against the I.S.A. quota in spite of the favourable sugar availability position in that year. We are of the view that for building up and sustaning our export market it is necessary to evolve a definite long term policy in regard to the manner in which the export losses should be met. It seems to us that it is reasonable to expect the industry to share a part of the losses although it may not be fully justifiable in years of complete control. But it is unfair to expect the industry only to bear the entire loss in transactions which are carried out to earn foreign exchange in the interest of the country as a whole. Government, therefore, should also share the losses. We suggest that as a long term policy, the export under the preferential quota should be on the industry's account and the export under the I.S.A. quota, on the Central Government account. In regard to the sharing of profit or loss, the arrangement should be as follows. If profit is made under one quota and loss is incurred on exports under the other quota, the profit of the first should be utilised for off setting the loss and only the balance of profit, if any, should be retained by the former. If the entire sugar trade is taken over by the Government in accordance with our recommendation in this regard in Part I, a provision for export losses may be made in the sugar price and founded separately. The loss in exports, if any may be met from this fund. Any savings in a year could be utilised for supporting export in other years.

6.8 The Indian Sugar Mills' Association has represented that the present system of disbursing the export loss to individual factories is not reasonable and results in unequal sharing of export loss by them. According to the provisions of the Sugar Export Promotion Act, the quantity of sugar to be exported in a year

is apportioned to the factories in proportion to their production. The Indian Sugar Industry Export Corporation (an organisation of the joint stock and co-operative sector of the industry) specified as export agency under the said Act to handle sugar exports on behalf of the Government, makes payment to the factories for the sugar delivered by them as their export quotas. The total sale proceeds are worked out from which the expenditure incurred by the export agency is deducted and the balance is distributed among the factories in proportion to the quota delivered by them. By this procedure, each factory gets the same price per tonnes of sugar of its quota, irrespective of its cost of production. For instance if from the export of, say, 1 lakh tonnes of sugar, the total amount after meeting all expenses is Rs. 12 crores, the export agency will pay to each factory at the rate of Rs. 1200 per tonne or Rs. 120 per quintal. But if the levy price, say, in Zones A and B, is Rs. 140 and Rs. 180 per quintal respectively, the loss to a factory in Zone A on account of exports will be Rs. 20 per quintal whereas the loss to a factory in Zone B will be Rs. 60 per quintal. We are, therefore, of the view that the present system of apportionment of sale proceeds from exports is not reasonable. We recommend that Section 9 of the Sugar Export Promotion Act should be suitably amended so that the losses are distributed in such a way that the loss per tonne of sugar will be the same for all factories.

6.9 Both raw sugar and direct consumption white sugar are required by the importing countries. The main importing countries, such as U.S.A., U.K., Canada and Japan, purchase only raw sugar. Most of the developing countries import generally the white sugar. India will have, therefore, to manufacture raw sugar also. As sugar is generally exported at loss, there is need for procuring sugar in the country for export purposes at the lowest price possible and to minimise the transport charges from the factory to the port. The cost of production of raw sugar is lower than that of white sugar. This is mainly due to the lower consumption of chemicals and fuel and higher sugar recovery. The difference is of the order of Rs. 3 to 4 per quintal of sugar. We observe that in actual purchase of raw sugar, this benefit of lower cost of production is not reflected. For instance, raw sugar during 1973 was purchased at Rs. 149.00 per quintal ex-Bombay port. The white sugar of D-30 grade for export during the same year was also purchased from the same factories at Rs. 150.79 per quintal ex-Bombay port. The average freight per quintal of sugar from the factories to Bombay was taken as Rs. 5.00 during the period of the year when raw sugar was purchased and Rs. 6.00 for white sugar purchased later. Thus the ex-factory price was Rs. 144.00 per quintal for raw sugar and Rs. 144.79 per quintal for white sugar. The levy price (D-30) for all those factories was Rs. 144.79. Purchase of raw sugar at about the levy price of white sugar is hardly justifiable, and it should have been lower. Most of the sugar factories near the ports, from whom sugar is normally purchased to keep the transport charges as low as possible, are generally reluctant to supply raw sugar at prices lower than those fixed for white sugar. Because of this difficulty, which has been experienced since 1964-65, the Government of India has introduced a condition in the licences for expansion or setting up new units issued thereafter, that sugar factories if required by Government, shall manufacture and supply raw sugar for export purposes. The Government has, however, not so far made use of this provision for procuring raw sugar. Purchases are being made each year on tender basis even though the sugar for export comes out of the levy quota. We are of the view that Government should make use of this condition and ask selected factories to manufacture raw sugar for which payment may be made at the price not of white sugar but of raw sugar according to cost schedules which may be worked out from time to time. This would reduce the export losses to some extent.

6.10 We discussed with the officials of the Indian Sugar Export Corporation the port facilities available in the country for purposes of export of sugar. We have been informed that since 1960 the exports have been effected through Bombay, Madras, Vizag, Calcutta, Goa, etc. Though Bombay is a good port in all respect, it is a busy one and has limited berthing facilities. As such sugar exports are sometimes delayed. Moreover, the godown facilities at Bombay are inadequate. We have been further informed that Kandla port in Gujarat is suitable from all angles. It is served by both meter and broad gauge railways; has facilities for berthing large size vessels upto 20,000 tonnes; and has enough godown space. Kandla port also should be utilised for export of sugar. Some of the sugar factories located in Gujarat should be asked to manufacture raw sugar. In addition, we suggest that a few factories of large capacity may be set up in the public sector in Gujarat in particular, and also in Maharashtra, Tamil Nadu and Andhra Pradesh, for producing sugar for export.

6.11 We understand that Andaman Islands are climatically suitable for sugarcane cultivation. A preliminary survey in this connection was made by an inter-departmental team of the Planning Commission, Ministry of Rehabilitation, Ministry of Industry and Ministry of Agriculture, but a detailed study is needed to find out the possibilities of setting up sugar factories in the Islands. It is reported, however, that Little Andamans has sufficient land under forests, part of which could be cleared for cane cultivation. At present, cane is grown in the Islands in a small area and is reported to be 40-45 tonnes per hectare. With the use of fertilizers and other inputs, the yield is likely to improve substantially. We suggest that the possibility of setting up and developing sugar industry in suitable areas of the Islands should be fully explored.

CHAPTER VII

UTILISATION OF BY-PRODUCTS

7.1 The main by-products of the sugar industry are bagasse, pressmud and molasses on the utilisation of which considerable amount of work has been done. They are at present being used in varying degrees. Research is in progress not only at the National Sugar Institute, Kanpur, but also in other chemical and technological laboratories for developing processes for fuller utilisation of the by-products.

Bagasse

7.2 Of the three by-products, the largest production is that of bagasse. The quantity of bagasse produced annually is 30-35 per cent of cane crushed in sugar factories. In 1969-70, about 150 lakh tonnes of bagasse was produced. On the basis of an estimated sugar production of 65 lakh tonnes by the end of the Fifth Plan (1978-79), the production of bagasse in the country may be about 210 lakh tonnes.

7.3 Bagasse, as produced has about 50 per cent moisture and is used more or less in full as fuel for the generation of steam. In fact a large number of sugar factories not only consume the entire quantity of bagasse produced but also use some extra fuel in the form of wood, coal and furnace oil. Some factories do, however, save bagasse. Table No. 7.1 gives the Statewise number of factories saving different quantities of bagasse.

TABLE NO. 7.1

Number of Factories Saving Various Quantities of Bagasse

State/Region	No. of factories reported	No. of factories saving bagasse (average saving of bagasse per season during the last 5 years 1965-66 to 1969-70)								
		Below 1000 tonnes	1000 to 2000 tonnes	2001 to 3000 tonnes	3001 to 4000 tonnes	4001 to 5000 tonnes	5001 to 6000 tonnes	6001 to 7500 tonnes	7501 to 10000 tonnes	Above 10000 tonnes
1	2	3	4	5	6	7	8	8	10	11
Andhra Pradesh	18	1	1	—	1	—	1	1	—	—
Assam	1	—	—	—	—	—	—	—	—	—
Bihar	23	9	—	—	1	—	—	—	—	—
Gujarat	5	2	—	—	—	—	—	—	—	—
Harayana	3	—	1	—		—	—	—	—	—
Karnataka	10	2	—	—	—	—	—	—	2	—
Kerala	3	1	1	—	—	—	—	—	—	—
Madhya Pradesh	5	3	—	—	—	—	—	—	—	—
Maharashtra	33	10	3	2	2	—	—	1	—	1
Orissa	2	—	—	—	—	—	—	—	—	—
Pondicherry	1	—	—	—	—	—	—	—	—	—
Punjab	6	4	—	—	—	—	—	—	—	—
Rajasthan	2	1	—	—	—	—	—	—	—	—
Tamil Nadu	15	1	1	2	2	2	—	—	—	—
U.P. West	18	3	1	2	1	—	—	—	—	*1
Central	17	4	2	1	3	1	—	—	—	1
East	32	11	1	1	—	—	—	1	—	—
West Bengal	1	1	—	—	—	—	—	—	—	—
All India	195	53	11	8	10	3	1	3	2	3

REMARKS—Two factories have reported to have saved bagasse but figures have not been given.

*Meerut factory which is saving bagasse for its card board factory and is using alternate fuel.

7.4 Dry bagasse, in general, contains 40 per cent cellulose, 30 per cent pentosans and 20 per cent lignin, the balance 10 per cent being sugar, wax, minerals, dirt, etc. The different components of bagasse can be used as raw material for manufacture of a number of products. Cellulose can be used for manufacture of paper, cardboard, active carbon, etc. By sacharification with hydrofloric acid, sulphuric acid, etc., cellulose can be converted into sugars which can be fermented to give alcohol or used in food processing industries. Hydrolysis of pentosans gives furfural which is used for a variety of purposes, such as the manufacture of synthetic fibre, synthetic resins, ester insecticides, refining of lubricating oils, etc. Lignin is the main source for the manufacture of vanillin, an important perfume and flavouring agent.

7.5 Bagasse because of its high cellulosic content has great potential for use in the paper industry. At present the requirement of cellulosic fibre for the manufacture of various types of paper is met from bamboo and special types of wood and grass. Wood pulp is also used for the manufacture of rayon. The forest resources in India are both limited and inaccessible and cannot meet the increasing requirements of paper and rayon industries. In view of this, bagasse from sugar factories can serve as a good substitute for bamboo, wood, etc., as raw material for the paper industry. The total requirement of paper by the end of the Fifth Plan is estimated at 13.3 lakh tonnes. As about 6 lakh tonnes of bagasse is needed to manufacture one tonne of paper, the requirement of bagasse to meet the full demand of paper industry works out to about 80 lakh tonnes. This forms 38 per cent of the total estimated production of 210 lakh tonnes of bagasse by 1978-79. But as other raw materials, like bamboo, grass, etc., will also continue to be used, the requirement of bagasse will be less. Even if the paper industry were to meet only 50 per cent of its requirements of raw material from bagasse, something like 40 lakh tonnes of bagasse will be needed annually for the paper industry by the end of the Fifth Plan.

7.6 There are several difficulties in setting up paper mills based on bagasse as primary material. Of the bagasse produced by the sugar factories, more than 95 per cent is used as fuel by the factories themselves. In addition some factories use other fuels (firewood, coal or furnace oil) for starting the boilers and also in the manufacturing process in cases where the bagasse produced is not sufficient to meet the fuel requirements of the factories. The 'saved' bagasse (representing about 5 per cent of the total production) is available in small quantities with different factories dispersed all over the country. In any given region/State it is inadequate to sustain a viable paper mill. For instance, in Maharashtra the average annual saving of bagasse amounts to 0.6 lakh tonnes which is insufficient to meet the requirements of a viable paper mill using bagasse to the extent of 50 per cent only of its raw material requirements. If it has to be collected from several sugar factories located at long distances from the paper mill. its transport will present difficulties and will also be costly.

7.7 As it is obvious that a paper mill cannot possibly be run on the basis of 'saved' bagasse only, it will be necessary for a paper mill to secure from a sugar factory or a group of factories suitably situated in relation to it, the whole or substantial part of the bagasse of the factory or factories concerned. This will necessarily entail the conversion of bagasse furnaces into coal furnaces in the case of factories which agree to supply the whole or the greater part of their bagasse to the paper industry. There will, however, be reluctance on the part of sugar factories to guarantee supply of definite quantities of bagasse to paper mills on the ground that if they supply their bagasse to the paper industry and coal did not become available at any time, for one reason or the other, their working would be endangered. In such a situation, it will not be only the sugar factory which will suffer but also the hundreds and thousands of canegrowers who supply their cane to the sugar factory. Any interruption in the working of the sugar factory for want of coal would deny the canegrowers the opportunity to supply their cane to the factory during the period of the closure of the factory and would delay the harvesting of their crop, resulting in serious damage to the cane crop. That would also be a national loss. The consequence of this will be not only immediate loss and hardship to the canegrowers but also prove to be a set back to the cane production and cane supplies in the following years. In the circumstances the conversion of boiler furnaces from bagasse to coal cannot be lightly undertaken. Ways must be found to ensure that the working of the sugar factory is not unduly disturbed and that the canegrowers do not suffer from the closing down of the sugar factory concerned due to shortage or non-availability of coal.

7.8 The existing boilers in most sugar factories are designed for the use of bagasse only; in some of the new factories, however, there are arrangements for use of furnace oil also. Very few factories have boilers with coal firing. The use of furnace oil has not been encouraged in the past on account of its cost and short supply. The oil position has seriously deteriorated recently. In case a sugar factory has to convert its boilers for coal, it will have to incur considerable expenditure. It will also have to carry large stocks of coal as a safeguard against sudden interruption in coal supplies. As such a sugar factory will not incur this expenditure and take this risk without assurance of adequate economic return.

7.9 With a view to ensuring an uninterrupted working of sugar factories supplying their bagasse to the paper industry and protecting the interests of their canegrowers, it is essential that they should be equipped with convertible furnaces, so that in case of shortage or non-availability of coal the factories may be able to run on bagasse alone. In other words, they should have boiler furnaces of a design which could operate on coal as well as on bagasse, as may be uecessary. We understand that a boiler which can work on bagasse as well as on coal alternately has been designed. Such a boiler is operating in a sugar factory in the north. It is designed primarily for

bagasse but can be switched over to coal, if necessary. It is, however, reported that that boiler does not operate with the same output on coal. What is required, therefore, is a design for a boiler which should work primarily on coal but also on bagasse, when required, without too much fall in its output and efficiency. Earlier we have recommended that research should be undertaken to design and develop boiler furnaces functioning efficiently both on coal and bagasse. We consider this of the utmost importance in the interest of the factories concerned and their canegrowers.

7.10 In view, however, of the great urgency and need for development of the paper industry in the country, we feel that the conversion of furnaces of boilers of a few selected sugar factories from bagasse to coal and the diversion of substantial quantities of the bagasse produced by the factories to the paper industry, may not be postponed till an efficient convertible boiler furnace has been designed, developed and set up on the lines indicated above. As it is in the national interest to save and utilise bagasse for production of paper, special measures should be taken to ensure that the supply of coal to sugar factories does not fail. The paper mills should be set up adjacent to the bagasse supplying sugar factories to avoid costly transport over long distances. Also in setting up a paper-cum-sugar complex care should be taken that it is not located at a place too distant from the coal mines, so that in an emergency it should be possible to transport coal from the mines to the factory by road. All reasonable precautions should be taken to ensure that canegrowers do not have to suffer because of closing down of the factory for lack of fuel. To induce sugar factories to change over to coal firing with a view to diverting their bagasse to the paper industry, it will be necessary for the Government and the paper industry to give them adequate incentives.

7.11 The paper industry is highly capital intensive, a viable unit of 100 tonnes costing about Rs. 35 crores. It is unlikely that many entrepreneurs would come forward to establish paper mills. As the national need for development of paper industry is immediate, it is suggested that the Central Government itself should initiate early action to set up a paper-*cum*-sugar factory complex in the public sector. It will be advisable to establish a sugar mill of about 5,000 tonnes capacity in an area having adequate cane potential. The boilers of the sugar factory should, from the very beginning, be based on coal and the entire production of bagasse should be utilised for paper. Assuming the duration of the sugar factory to be 150 days, the annual production of bagasse will be 2.2 to 2.5 lakh tonnes which will be sufficient for a paper plant of 150 tonnes capacity on the basis of bagasse forming 60 per cent of the raw material used by the paper mill.

7.12 The country is facing acute shortage of cellulosic raw material for the paper industry. All efforts should be made to save as much bagasse as possible. Some of the sugar factories consume more than 30 per cent of bagasse on cane while some factories adopting steam economy measures use only about 25 per cent on cane. The techniques and equipment required for fuel and steam economy resulting in saving of bagasse are available. Sugar factories should take recourse to these techniques and equipment and reduce the consumption of bagasse to the minimum. The bagasse saved by factories should be converted into paper pulp by installing suitable equipment and transporting the pulp to a central paper factory. For this purpose, sugar factories should be given suitable incentives.

7.13 As mentioned earlier bagasse can also be used for production of furfural, the present requirement of which is about 1,500 tonnes and is expected to increase in the future. Furfural can also be made from other vegetable by-products besides bagasse, such as oat hulls, cottonseed hulls and rice hulls. The recovery of furfural from bagasse is about 8 to 10 per cent on dry bagasse basis. Recently, a furfural plant based on bagasse as raw material has been set up at Ahmedabad with a capacity of 600 tonnes per annuam. Another plant with a capacity of 6,000 tonnes per annum is being set up in South Arcot district in Tamil Nadu. A few more licences for setting up furfural plants have been issued. The production in excess of internal requirements is for export purposes. Use of bagasse for furfural manufacture is thus gaining momentum. In the sugar-*cum*-paper project suggested above, furfural can also be manufactured from the pith separated from bagasse before using the latter for paper manufacture.

7.14 Considerable work is reported to have been done at the National Sugar Institute, Kanpur, and the Regional Research Laboratory, Hyderabad for the production of activated carbon from bagasse. Some quantities of active carbon are being manufactured from bagasse on a small scale. In regard to the other uses of bagasse, especially on sacharification, production of vanallin from lignin, etc., the available information is inadequate. Research on these uses of bagasses should be intensified.

Pressmud

7.15 The production of pressmud in sugar factories is about 3.5 per cent on cane in sulphitation factories and 7.0 per cent in carbonation factories. It contains some mineral and organic matter including wax. The pressmud from sulphitation factories is mainly used as manure and is given to the cultivators free or at a nominal price. Thus pressmud, although not bringing any substantial return to the factories, is being put to profitable use. Wax can also be extracted from the sulphitation pressmud, the wax content of pressmud being fairly high, from 9 to 21 per cent on dry basis. Though adequate technical know-how exists for extraction of wax from pressmud, the wax produced is crude and needs to be refined and modified suitably for use in the manufacture of shoe polish, carbon paper, floor polish, etc., if it is to be accepted as a substitute for the imported carnauba wax. A couple of plants set up in the country for extraction of wax closed down due to

lack of market for the cane wax. Research has been in progress at the kanpur Institute so that wax of a quality acceptable in the market is produced on a commercial scale. The extraction of wax from press-mud does not affect the manurial value of the pressmud.

7.16 The pressmud from carbonation factories contains large quantities of lime salts (calcium carbonate). No definite economic use has been found for it yet and its disposal poses a problem to the carbonation factories. At some places it has been used as manure for highly acidic soils. Use of carbonation pressmud in cement manufacture has been studied. The presence of small quantities of magnesium in the pressmud causes the cement to have slow setting properties. Carbonation pressmud has also been tried as a substitute of lime in preparing cinters of iron ores fines. The carbonation pressmud can be used for manufacture of building lime and a process for the same is reported to have been developed by the Building Research Institute, Roorkee. This has, however, not yet been commercially exploited.

Molasses

7.17. Molasses is another by-product of the sugar industry. Table No. 7.2 gives the quantities of molasses produced during the period 1961-62 to 1971-72.

TABLE No. 7.2

Statement showing the Quantities of Molasses Produced During the Years 1961-62 *to* 1971-72

Season	Cane crushed (Lakh tonnes)	Molasses per cent cane	Molasses production (Lakh tonnes)
1	2	3	4
1961-62	279	3.91	10.86
1962-63	208	3.60	7.99
1963-64	257	3.74	9.64
1964-65	335	4.00	13.44
1965-66	365	4.17	15.30
1966-67	216	3.91	8.38
1967-68	226	3.81	8.66
1968-69	377	4.46	16.71
1969-70	457	4.37	20.04
1970-71	382	4.25	16.11
1971-72*	310	3.89	12.06

*Provisional

In India, molasses is mainly used for the manufacture of alcohol by distilleries. There were only a few distilleries before the grant of protection to the sugar industry in 1932. In subsequent years with the increase in sugar production molasses production also increased and its disposal became a problem, the then existing capacity of distilleries being insufficient to handle all the molasses produced. As the sugar industry at that time was mainly concentrated in U.P. and Bihar, Government of these two States passed enactments for the compulsory admixture of alcohol with petrol to give a fillip to setting up of more distilleries. The use of alcohol as motor fuel in admixture with petrol was introduced as there was acute shortage of petrol during the Second World War period. Subsequently, when petrol became available freely, admixture of alcohol with petrol was discontinued and alcohol was used for chemical industries. There are at present about 70 distilleries in the country, with installed production capacity of 3.25 lakh kilolitres of alcohol. For production of one kilolitre of alcohol about 4.5 tonnes of molasses are required. The existing distillery capacity is capable of handling about 15 lakh tonnes of molasses annually. The production of alcohol has been far lower than the installed capacity. Table No. 7.3 shows the quantity of molasses utilised in distilleries and the alcohol produced.

TABLE No. 7.3

Statement showing quantities of alcohol produced in different years

Year	Molasses Utilised in distilleries tonnes)	Molasses Utilised per cent total production	Alcohol produced (Lakh kilolitres)
1	2	3	4
1965	8.64	64.29	1.92
1966	9.23	60.33	2.05
1967	6.08	72.55	1.35
1968	6.93	80.02	1.54
1969	9.99	59.78	2.22
1970	11.39	56.84	2.53
1971	11.43	70.95	2.54
1972	9.20	76.87	2.6

It will be seen from the above that the maximum production of alcohol so far has been 2.54 lakh kilolitres (in 1971) which is far below the installed capacity. This cannot be entirely attributed to non-availability of molasses, as in the year 1969-70 hardly 55 per cent of molasses produced were utilised by distilleries. This indicates the need for better planning in the use of molasses.

7.18 Due to lack of proper storage facilities, substantial quantities of molasses undergo deterioration, particularly in the years of large production. If this is avoided, the production of alcohol can be increased. Sugar factories do not generally provide

adequate and suitable molasses storage capacity. The sugar industry contends that the price and distribution of molasses are controlled by the Central and State Governments, that the price is very low—Rs. 6.70 per tonne upto 5th February, 1972, increased thereafter to Rs. 10 per tonne—and that the price is wholly inadequate to meet even the charges of the storage and handling of molasses. The sugar industry has for a long time been urging for a substantial increase in the price of molasses. The All India Distillers' Association, on the other hand, has resisted this demand on the ground that an increase in the price of molasses will make alcohol costly and effect adversely the economics of alcohol-based industries. The Distillers' Association has further pointed out that while an increase in the price of molasses will hardly reduce the price of sugar, it will substantially increase the cost of alcohol.

7.19 The question of the prices of molasses has been considered more than once by the Tariff Commission. We are of the view that there is definite need for increasing the price of molasses. At the same time, one cannot overlook the effect of increase in the price of molasses on alcohol-based industries. But a substantial part of alcohol produced from molasses is utilised for manufacture of potable liquors. It should not be difficult to work out the quantity of molasses corresponding to the potable liquors manufactured. We recommend that the price of that quantity of molasses should be fixed at a much higher rate.

7.20 Molasses finds use, to a limited extent, as cattle feed, manure, curing tobacco, binding material in foundaries, etc. The alcohol produced from molasses forms the raw material for several products, such as acetic acid, acetic anhydride, synthetic rubber, plastics, etc., and is also used in pharmaceuticals. Alcohol can be mixed with petrol to reduce, to some extent, our dependence on imports for petroleum products. Molasses is also used as raw material for production of lactic acid, oxalic acid, citric acid, butanol and dextran by chemical or biochemical process. Molasses is rich in potash which can be recovered from spent wash of distilleries, after the recovery of alcohol. Recently a plant for the manufacture of baker's yeast from molasses has been installed at Dhampur in Uttar Pradesh.

7.21 Thus molasses is too valuable a by-product to be wasted. Efforts should be made to provide adequate storage facilities to prevent deterioration of molasses. The cost of construction of a steel tank which will hold about 2000 tonnes of molasses is about Rs. 3 lakhs. The incidence of interest and depreciation on this investment is estimated at about Rs. 60,000 per annum. The cost of 2000 tonnes of molasses, even at the present increased rate of Rs. 10 per tonne, is only Rs. 20,000. Because of this, some of the sugar factories are not willing to put up proper molasses storage tanks.

7.22 This attitude of the factories cannot be considered to be reasonable, as the expenditure on storage of molasses incurred by them is accounted for in the cost of sugar. The industry does not, therefore, stand to lose by investment in providing suitable molasses storage capacity. It is in the national interest to preserve the valuable by-product molasses from deterioration and wastage. It is understood that in the new specifications drawn up for the machinery of a standard factory, the molasses storage tanks form an integral part of the factory equipment. Factories already established and not having adequate and suitable molasses storage tanks should be asked to instal them.

CHAPTER VIII

BEET SUGAR

8.1 In several States of the country the duration of cane crushing season is short, in some years unduly short, due to non-availability of raw material, namely, cane. The need for increasing the duration of the crushing season has been felt by the industry, the labour and the Government. A longer season will tend to reduce cost of production, provide longer whole-time employment to labour and result in greater production of sugar. Various efforts are being made to prolong the season, mainly through increased production of cane. In this connection, use of other raw materials like beet root and sweet sorghum has been suggested. We have discussed with a few experts the alternative or supplemental sources of raw material. It is reported that sweet sorghum is not suitable for production of crystal sugar because of high starch content and it is used only for manufacture of syrup in some countries. Sugarbeet is extensively used for the production of crystal sugar in countries of temperate climate. It is also grown to some extent in the sub-tropical countries, like Syria and Pakistan, which have agro-climatic conditions similar to those obtaining in some parts of North India, where sugarcane of good quality cannot be grown. The need for development of beet sugar industry in these parts has been felt and the Government of India has sponsored schemes for study of cultivation of sugarbeet and its processing. The studies carried out by the Indian Sugarcane Research Institute, Lucknow, and the National Sugar Institute, Kanpur, show that sugarbeet can be successfully grown in irrigated plains of Punjab, Haryana, Rajasthan and Western U.P. as winter crop and in Jammu and Kashmir and Himachal Pradesh as summer crop. As winter crop, it is sown in October and harvested in April-May. In Jammu and Kashmir, however, the sowing time is in March and the crop is ready for harvesting in July-August. For proper growth of beet roots, 120 Kgs. of Nitrogen, 80 Kgs. of P_2O_5 and 80 Kgs. of K_2O. per hectare and 6 to 7 irrigations are essential. The yield range from 30 to 50 tonnes per hectare with an average sugar content of 13 to 15 per cent. The cost of cultivation of sugarbeet per hectare has been worked out at Rs. 2,850. According to the estimates of the Lucknow Institute, the net income per hectare on beet cultivation (yield 35 tonnes and a price of Rs. 115 per tonne—assumed), is about Rs. 1180.

8.2. The results of beet cultivation in the tropical regions have not so far been encouraging. In Maharashtra and Tamil Nadu where the yields of sugarcane are generally high, the yield of beet ranged between 25 and 30 tonnes per hectare, the quality of beet being comparatively poor (sugar content—11 to 12 per cent). The economics of cultivation and the climatic conditions do not suggest any extensive beet cultivation in these regions.

8.3 Unlike sugarcane, beet is not suitable for manufacture of gur and khandsari. The farmers cultivating beet have to depend solely upon sugar factories for disposal of their produce. They will, therefore, cultivate beet only on an assurance that their entire produce will be paid for by the factories irrespective of whether the mills work or not.

8.4 Beet cannot be processed with the existing equipment in sugar factories in India. Additional machinery, such as washing machine for cleaning the beet roots, slicing machine for cutting the roots into small pieces (cossetts), a diffuser for extraction of juice and equipment for dewatering the beet pulp, are required to be installed. Moreover, the beet juice cannot be clarified by sulphitation process and the carbonation process has to be adopted. However, it is possible to process beet to a very limited extent in sulphitation factories having diffusers. We had occasion to see this being done in a factory in Maharashtra.. In view of this limited use even in factories of the tropical regions having diffusers, the duration of the season is not likely to be extended to any appreciable extent. Thus there is little scope for beet sugar manufacture in sugar factories located in the tropics.

8.5 In the sub-tropical region, however, as mentioned earlier, there are possibilities of cultivating sugarbeet in some areas, but as the beet season is for about 60 days only, sugar factories based on beet alone cannot be viable. This is particularly so because for beet processing, extraneous fuel has to be used, as the beet pulp, unlike bagasse, cannot serve as fuel. Beet has, therefore, to be processed in the existing factories with proper modifications and after adding necessary equipment for extending the season. The Director, National Sugar Institute, Kanpur worked out the cost of production of sugar from cane alone for a 1000-tonne sugar factory with a duration of 120 days and an average sugar recovery of 8.5 per cent and also the cost of production from cane-cum-beet in the same factory having a duration of (165 days, 120 days with cane and 45 days with beet) with an average recovery of 9.16 per cent (8.5 per cent for cane and 11.5 per cent for beet). Assuming the cane price of Rs. 8 per quintal and beet price of Rs. 10.82 per quintal, the cost per quintal or sugar beet processing cane alone has been worked out at Rs. 141.33 and when both cane and beet are processed—one after another—the cost per quintal of sugar works out at Rs. 147.25. The higher cost of production of sugar in the latter case is due to cost of fuel and due to the interest on the capital required for additional equipment. The Director observed that the higher cost would be off-set by a return of Rs. 1.20 per quintal on sugar from beet pulp and an additional

return of about Rs. 6.0 per quintal of sugar, from beet molasses. We feel that as the beet molasses will be roughly of the same quality as obtained in the carbonation cane sugar factories, it is difficult to expect any higher realisation from beet molasses. As such, processing of beet, in spite of higher recovery, is not likely to make sugar cheaper. However, if the factories save enough bagasse from crushing cane and use it during the period of processing beet, the cost of production of sugar may be reduced and the beet processing may be advantageous.

8.6 Sugarcane production in India, particularly in the north, fluctuates within wide limits, as a result of which the duration of the factories has wide variations : in some years the factories close before March while in some years they run upto May-June. The beet has to be processed, as mentioned above, in April and May and, therefore, in years of excess of cane production, complications may arise. In years of short production, the cultivation of beet will definitely help in increasing the duration of the season and, therefore, the sugar production. It may, however, be added that in seasons of short cane supplies, factories usually work under capacity and there is hardly and saving of bagasse. While processing beet, extraneous fuel has, therefore, to be used. In view of the above, if beet has to be processed in the existing factories in the sub-tropics, planning of cane and beet cultivation will have to be done very carefully.

8.7 The Ganganagar Sugar Facory in Rajasthan, which geuerally suffers from low recovery and short cane supplies, has been making efforts for using beet for increasing its production and recovery. After a few experiments with beet, it has installed a cane-cum-beet disffuser. It has, however, not worked so far with full capacity with beet. There is a proposal for setting up of a new sugar factory in Jammu and Kashmir based entirely on sugarbeet. A letter of intent for processing 2000 tonnes beet per day has been issued. It is reported that experiments have been conducted there on cultivation of beet. The plant has not yet been ordered.

8.8 From the above it is clear that beet sugar manufacture in this country has not so far made much headway. The Government of India has sponsored two research schemes—one under the Indian Council of Agricultural Research and the other under the Department of Agriculture. The former scheme is for research on agronomical aspects of beet cultivation and the latter, on the field trials. Research is also in progress for development of sugarbeet seed. So far beet seed has been imported. It is understood that the National Seeds Corporation has taken up seed production in Himachal Pradesh in collaboration with the State Department of Agriculture.

8.9 We would like to observe that in view of the problems involved in beet sugar manufacture, as discussed in the foregoing paragraphs, the cultivation of beet should be taken up with caution and only in areas where enough sugarcane of reasonable quality cannot be grown and there is absolute certainty that the entire beet crop will be utilised for sugar production. To this end, it will be necessary to plan and regulate sugarcane production also. In addition to the Government schemes now in progress, research and development activities should, therefore, be oriented towards developing.—

(a) coordinated programme for cane and beet cultivation;

(b) procedures for reducing the fuel consumption in factories processing cane and beet; and

(c) procedures for proper utilisation of by-products, particularly beet pulp.

We would like to recommend that work on the above aspects should be taken up at the National Sugar Institute, Kanpur in collaboration with the Indian Institute of Sugarcane Research, Lucknow and some sugar factories.

CHAPTER IX

GUR AND KHANDSARI INDUSTRIES

9.1 Before the sugar industry developed to any significant extent in the country i.e., before the grant of protection to the industry in 1932, most of the cane produced was used for the manufacture of gur and khandsari. Over the years, the sugar industry has been drawing an increasing proportion of the cane crop, from less than 10 per cent in early thirties to around 30 per cent in late sixties. Currently about 12 to 15 per cent of cane production is utilised for seed, feed and chewing. Of the balance, only about one-third is used by the sugar industry and more than two-thirds by the gur and Khandsari industries. The dominant position of the latter in meeting the requirements of sweetening agents is thus obvious. The ratio of utilisation of cane for the manufacture of gur and khandsari has remained more or less static during last decade in most of the States, the only exception being Maharashtra, where the proportion utilised for gur and khandsari has come down from 68 in 1960 to 21 per cent in 1969.

9.2 The following table shows the State-wise production of gur (and khandsari) since 1960-61 :

TABLE No. 9.1

Statewise production of Gur (including khandsari) in India from 1960-61 to 1970-71.

(Lakh tonnes in terms of gur)

	60-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70 (P)	70-71 (P)
1	2	3	4	5	6	7	8	9	10	11	12
Andhra Pradesh	4.67	5.23	5.68	7.25	7.96	6.72	6.05	7.28	7.51	6.62	7.15
Assam	0.75	0.94	0.88	0.91	1.02	0.82	0.84	0.99	0.94	1.29	1.03
Bihar	1.86	1.50	2.44	2.06	1.74	1.21	1.60	1.90	2.37	1.99	2.33
Madhya Pradesh	0.81	0.92	0.91	0.91	1.16	1.23	0.81	0.79	1.08	1.07	1.02
Tamil Nadu	4.58	4.34	2.97	3.82	3.72	3.52	4.66	6.34	8.84	6.02	6.65
Maharashtra	6.75	5.98	5.07	5.63	3.59	2.57	3.88	4.62	2.87	3.81	4.56
Karnataka	3.52	3.95	4.22	5.24	3.69	3.94	5.50	5.80	6.25	4.50	5.76
Punjab	7.89	6.66	6.33	7.02	8.76	9.46	3.40	3.66	3.96	4.61	4.05
Haryana							3.93	3.50	5.10	5.82	5.16
Uttar Pradesh	32.02	31.27	28.42	29.36	34.94	34.35	26.52	24.14	30.61	34.23	33.80
Other States*	4.02	3.53	3.82	4.67	5.47	5.29	4.06	4.03	3.93	4.05	4.87
All India	66.87	64.32	60.74	66.67	72.05	69.11	61.25	63.05	73.46	74.01	76.38

NOTES : According to available data the estimated annual production of khandsari was 3.1 lakh tonnes in 1960-61 and 1961-62 and 2.9 lakh tonnes in 1962-63 and 1963-64 (*vide* Report of the Sugar Enquiry Commission, 1965), Separate data for Khandsari are not available for years after 1963-64.

*Relates to Gujarat, Orissa, Rajasthan, West Bengal, Kerala, Delhi, Tripura, Himachal Pradesh and Jammu & Kashmir.

(P) Provisional.

SOURCE : Directorate of Economics & Statistics, Ministry of Agriculture, New Delhi.

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It will be seen from the above Table that the Uttar Pradesh produces, on an average, 45 per cent of the total quantity of gur (and khandsari) manufactured in the country. No other State generally produces more than 10 per cent of the total production.

9.3 It may be noted that except for the figures of the quantity of cane crushed by the sugar industry which are based on actuals, the others derived ones. The data on cane production are based on crop-cutting experiments in most of the States, and on the basis of eye estimates in others. But the estimates of utilisation of cane for seed, food and chewing purposes are based on the studies carried out in the mid-fiftees by the Directorate of Marketing and Inspection and have not been since revised. Of the total estimated output of cane, after deducting the conventional percentage for these items, and after taking into account the cane crushed by the sugar industry, the rest is assumed to be utilised for gur and khandsari. Further, between gur and khandsari, no authentic break-up is available, though the Central Excise Department does collect some data on khandsari production and some tentative estimates of this production are also prepared by the Khadi and Village Industries Commission. Earlier the official publications used to give separate figures for gur and khandsari, but in recent years estimates for these are lumped together, presumably because it was felt that the figures for khandsari production were not reliable. The absence of firm and reliable data is a great handicap in analysing the performance of these two sectors. It is necessary that in all the important gur and khandsari producing States, data on the production and other essential aspects of these important sweetening agents should be collected and co-related regularly and maintained properly. Suitable agencies should be made responsible for this.

9.4 The present consumption of gur and khandsari in the country is about 76 lakh tonnes as against 40 lakh tonnes of sugar. In per capita terms, out of 22 kgs of all the sweetening agents, the consumption of sugar is about 7.5 kgs or say a third of the country's requirements of the sweetening agents. There is no possibility in the next two or three decades of such rapid expansion of the sugar industry that it alone could meet the full requirements of sweetening agents even at the present (1970-71) low per capita consumption of 22 kgs.

9.5 Obviously, the present consumption of sweetening agents in general, and of sugar in particular, will go up with increase in population, greater urbanisation and higher standards of living. According to our estimates, the total requirement of gur and khandsari is likely to reach 111 lakh tonnes and of sugar, 95 lakh tonnes by 1985-86. Thus the production of these sweetening agents is inescapable and will have to continue as an important economic activity in the foreseeable future.

9.6 The main criticism against these industries is that, not only are they inefficient users of sugarcane, but also that their existence creates large fluctuations in cane prices, and consequently in cane production, with the organised sugar industry bearing the main brunt of these fluctuations. We have discussed in detail the problem of fluctuations in Part II of our Report. Here we shall consider the problem of inefficiency in the conversion of sugarcane.

9.7 It has been repeatedly pointed out by the sugar industry and sugar technologists that both the gur and khandsari industries are inefficient inasmuch there are large losses of sugar in their manufacture. The extraction of sugar from cane in gur production has, for a long time, been 55 to 60 per cent as against the average of 90 to 92 per cent in sugar factories. During the last decade, as a result of the encouragement given by the Khadi and Village Industries Commission, improved designs of *Kohlus* have become available, which can increase the extraction of sugar from cane upto 65 per cent. Many crushers of improved design, run by power, are being adopted by progressive and well-to-do farmers. Inspite of these improvements, the loss of sugar from cane in gur manufacture remains significantly high. On the plus side, it may be stated that the gur industry is a labour intensive village industry which provides a large scope for self-employment. Besides, it provides an avenue to cane-growers in factory areas for the disposal of their surplus cane in years of excess cane production, when factories are unable or unwilling to lift all the supplies offered to them.

9.8 The paramount need, therefore, is for improving the technique of gur production. Losses of sugar should be reduced and gur of better quality should be manufactured. We understand that in a factory set up at Jukanur (in Karnataka) gur is being manufactured by the vaccum pan process, the equipment employed being practically the same as used in a sugar factory upto the pan station. As a result, the recovery of gur has gone up by more than three units. Manufacture of gur by vacuum pan process is, however, still at an experimental stage and some problems are yet to be resolved. However, the technique adopted in Jukanur deserves encouragement and careful study.

9.9 A six-roller hydraulic crusher—of 325 x 450mm size—having crushing capacity of 4 tonnes per hour has been designed by the National Sugar Institute, Kanpur. It has been manufactured on a commercial scale and has been used in khandsari units for the last 10 years. This crusher can also be used profitably in the manufacture of gur. It gives 80 per cent extraction and can increase recovery of gur from 10 to 12 per cent. The cost of the plant is about Rs. I lakh. The institute should popularise this crushers among gur manufacturers, in cooperation with the manufacturers of the crusher and the rural development agencies. The Institute may also bring out easily understandable literature which even neo-literates can follow on the subject showing the technical and economic advantages of the crusher and may organise demonstrations in important gur producing areas. If cane-growers are convinced of its satisfactory performance—from technological as well as economic angles—it could be set up by village level cooperative societies for processing canegrowers' cane into gur.

9.10 In so far as khandsari is concerned, the process of production has been improved considerably by various technical advances. The National Sugar Institute, Kanpur and the Planning, Research and Action Institute, Lucknow, have made significant contributions in this direction. For example, by employing two mills with hydraulic loading, mill extraction has increased to about 80 per cent. The quality of sugar has also improved considerably by the adoption of sulphitation process for clarification of juice; and the sugar recovery has increased from 6 per cent to 7 per cent. In some cases, a recovery of 8 per cent is also obtained.

9.11 The sugar industry has been agitating for a long time for strict action by the States to discourage gur and khandsari production in the factory areas. It will be easily appreciated that control over gur production by bullock-drawn *kohlus* (which is mainly for home consumption), and much more its total prohibition, is extremely difficult; perhaps, not even desirable. But gur production in the vicinity of sugar factories through power crushers must be regulated and controlled, as such crushers are generally used for production of gur for commercial purposes.

9.12 As regards the manufacture of khandsari, while there is a clear case for its control in the factory areas, one need not exaggerate its role as a rival to the organised sugar industry. Taking the country as a whole, khandsari production, and the requirements of cane therefor, are comparatively small. It is, however, a fact that in factory areas where khandsari units exist in large numbers, cane supply to the factories in the shortage years is adversely affected. From a short-term point of view khandsari units are a boon to the farmers, both in years of shortage and excess of cane; in the former case, they pay a higher cane price than the sugar factories and in the latter case, they help dispose of the excess cane even though they may pay a price less than the minimum cane price payable by the sugar factories. In the long run, however, because of the uncertainty in cane supply to the sugar industry which uncertainty they directly or indirectly encourage, they work against the interests of the canegrowers. Thus the demand of the sugar industry for keeping khandsari units outside the factory areas is a reasonable one.

9.13 Most of the State Governments regulate the establishment of khandsari units through licensing. New units are generally not allowed in factory areas and continuance of old ones is discouraged by refusal to renew their licences, if such a step is considered necessary in the interest of the sugar industry or in the wider public interest. Even positive inducements have sometimes been offered, in some cases, to khandsari units to shift away from the sugar factory areas. Considering the general obligation of factories to purchase the cane grown in their reserved areas, offered for sale to them by a particular date, and keeping in view the need for factories to have a reasonable duration of season, some action for assuring adequate supply of cane to sugar factories is necessary. As gur and khandsari industries must also continue and have cane for crushing, suitable arrangements on the lines indicated above should be made, by legal and executive mesaures, to coordinate cane supplies to them and to the sugar industry.

9.14 In the field of economic activity, administrative action, however, well intentioned and efficiently executed has its own limitations and must be supplemented by economic measures. In connection with the stabilization of cane supplies to the sugar, gur and khandsari industries, the role of stabilising gur prices should be properly appreciated. Among the various factors which influence and determine production of cane, the price which gur fetches in a year is the most important factor, particularly so in areas where a large part of cane is utilised for the manufacture of gur. High price of gur in a year generally leads to a larger area being brought under cane in the next following sowing season, generally resulting in higher cane production; the reverse happens with a fall in the gur prices. Apart from fluctuations in cane supplies, the demand for the different sweetening agents, depending as it does to some extent on their relative prices, further complicates the matters. The consequences of alternating high and low prices of gur and their effects on the fortunes of the sugar, the gur and khandsari industries and on cane growers have been discussed in Part II. The need for stabilising the gur prices was also underlined in that context.

9.15 During periods of high gur prices State Governments have sometimes imposed restrictions on movement of gur. Such restrictions are difficult to enforce and are resented by a large community of gur manufacturers. It has been suggested that in order to protect the interest of gur manufacturers Government should announce a support price for gur, so that, in years of abundance of cane, the farmers do not suffer unduly but a minimum price will have meaning only if the Government is able to purchase the gur offered for sale at that price. Apart from the operational difficulties in implementing the scheme, there is the problem of the disposal of the stocks so acquired by Government. In case of gur, storage is difficult as gur deteriorates rapidly. Though the technology of storage of gur has made some advances in recent years, and gur can now be kept in storage for fairly long periods without appreciable deterioration, the cost of storage will be high. If Government sell the stock in the open market the price that may be obtained may not meet the cost of gur and its storage and Government may suffer a financial loss. In the circumstances the idea of Government announcing a support price and purchasing (large) stocks of gur and selling them later does not appear to be feasible.

9.16 An alternative suggested is that the unsold stocks with the Government may be processed in the sugar factories for production of sugar in the following season. At the beginning of the season when sugar recoveries from cane are low, each sugar factory of 1250 tonnes capacity can easily process about 10 tonnes of gur per day without affecting its crushing rate. Processing gur along with cane juice can, however, be continued only for about 60 days in the beginning

of the season. Subsequently, due to increase in recovery of sugar from cane, additional load due to gur processing may not be feasible without substantial additions to the equipment. Thus, if need be, each factory can process in a season about 600 tonnes of gur with the existing equipment.

9.17 The cost of sugar production from gur will depend mainly upon the price of gur. In any case, it will be higher than the cost of sugar from cane. Sugar factories can be compensated for this difference either by allowing a higher percentage of sugar obtained from gur to be sold in the free market or, alternatively, by a suitable rebate in the excise duty or in any other suitable manner.

9.18 It seems to us, however, that the real solution of the problem lies in the building up and skilful manipulation of a buffer stock of sugar. Gur prices can be maintained at a reasonable level if an adequate sugar stock is maintained and releases from it are so regulated that they prevent, through the inter-play of economic factors, the falling of gur prices to uneconomic levels on the one hand, and help in keeping the prices from shooting up unduly on the other. This will in due course lead to a narrowing of the range of fluctuations in the area and production of cane and stabilization of cane supplies to each of the sugar, the gur and the khandsari industries.

9.19 We would like to point out that very little research has been done to evolve varieties of sugarcane suitable for production of gur. It is recognised that gur production will improve considerably qualitatively and quantitatively if it is manufactured from canes which are specially suitable for gur production.

9.20 There is also need for improving techniques of gur storage so that gur can be stored over comparatively long periods without loss in weight, quality and colour. Facilities for scientific storage of gur are very limited in the country. Considering the importance and dimensions of this industry, it is surprising that so little has been done by way of research or practical application of whatever scientific know-how exists in this regard. We recommend that research on these aspects should be intensified.

9.21 We find that apart from the Village and Khadi Commission which encourages production of gur on improved lines in various ways, there is no department to study the problems and co-ordinate the policies relating to the gur and khandsari industries at the all-India level. Even though these industries are the direct concern of State administrations, it is desirable that there should be a department or directorate at the Centre also to initiate and coordinate policies and programmes for the proper development of these industries. We suggest that the existing Directorate of Sugar and Vanaspati should be enlarged so as to deal with the gur and khandsari industries also. When the Central organisation, as recommended by us, is set up, it will take over these responsibilities. As these industries must continue in the foreseable future, there is every reason to ensure that they run efficiently.

CHAPTER X

TRAINING OF TECHNICAL AND MANAGERIAL PERSONNEL REQUIRED FOR THE SUGAR INDUSTRY

In this report we have made various suggestions and recommendations for the development of the sugar industry on efficient lines. Like any other industry or organisation the success of the sugar industry also will largely depend upon the men who manage both its executive and technical aspects, the quality of its experts and the skill and ability with which they handle its problems. We have, therefore, to consider the problem of the training of managerial and technical personnel in adequate number and of the required calibre. We have dealt with the limited problem of the requirements of units which might be nationalised, in a communication addressed to the Department of Food (*vide* Annexure E Part I), and propose now to examine the requirements and needs of the industry as a whole, against the background of the progressive increase in the number of factories and the continuous development of the industry which we have visualised and discussed.

Technical Staff for Sugarcane Cultivation

10.2 For intensive cane development activities over a continuously increasing area under cane, State Government, factories, canegrowers' unions, cane development councils, etc. will have to employ a large field and extension staff. In 1955 the Indian Central Sugarcane Committee considered that for effective cane cultivation it would be necessary to have one supervisor for every 400 hectares, one assistant cane development officer for every 2,000 hectares and one cane development officer for every 12,000 hectares. We have estimated the requirements of cane development staff on this basis for the additional cane area of 13 lakh hectares required by 1985-86 (*vide* Chapter 1 of this Part). Most of this additional area will very probably be in the factory zones. The following tables give the statewise requirements of different categories of technical staff for sugarcane cultivation :

TABLE No. 10.1

Statement Showing Requirements of Additional Agricultural Trained Staff with the Increase in Area under Sugarcane by 1978-79 and 1985-86

(Base year 1971-72)

State	By 1978-79				By 1985-86			
	Additional cane area over 1971-72 ('000 hectares)	Number of persons required.			Additional cane area over 1971-72 ('000 hectares)	Number of persons required		
		Supervisors	Asstt. Cane Development Officers	Cane Development Officers.		Supervisor	Asstt. Cane Development Officers	Cane Development Officers
1	2	3	4	5	6	7	8	9
Andhra Pradesh	54.5	136	27	5	109.5	274	55	9
Assam	11.2	28	6	1	30.2	76	15	3
Bihar	38.1	95	19	3	86.1	215	43	7
Gujarat	43.6	109	22	4	72.6	181	36	6
Haryana	36.0	90	18	3	82.0	205	41	7
Karnataka	43.2	108	22	4	73.2	183	36	6
Kerala	7.4	19	4	1	13.4	34	7	1
Madhya Pradesh	15.1	38	7	1	27.1	68	13	2
Maharashtra	68.2	170	34	6	148.2	370	74	12
Orissa	6.3	16	3	—	19.3	48	10	2
Punjab	26.0	65	13	2	56.0	140	28	5
Rajasthan	22.4	56	11	2	17.4	44	9	1
Tamil Nadu	39.3	98	20	3	77.3	193	39	6
Uttar Pradesh	326.0	815	163	27	476.0	1190	238	40
West Bengal	1.7	4	1	—	9.7	24	5	1
Other States/Union Territories	5.0	13	2	—	8.0	20	4	1
All India	744.0	1860	372	62	1306.0	3265	653	109

The shortfall in qualified personnel in position at present will also have to be made good. In estimating the future requirements of trained staff allowance has been made for this. Except for supervisors the other personnel must he graduates in agriculture; supervisors may be under-graduates with agriculture as their special subject but preferably agricultural graduates. In addition, factories should employ specialists such as entomologists, agronomists, plant protection officers, etc. to attend to the special problems of cane cultivation in their areas.

10.3 At present training in sugarcane cultivation is imparted in a number of agricultural universities up to the graduate level—B.Sc. (Agriculture). For post-graduate training, facilities exist at the Indian Agricultural Research Institute, New Delhi; the Sugarcane Breeding Institute, Coimbatore; the Sugarcane Research Station, Pusa; and various agricultural universities. We consider the existing training facilities adequate for meeting the needs of the sugar industry. Cane Development Officers may also undergo short course in management in agriculture. Facilities available for such a course at the Indian Institute of Management, Ahmedabad or any other organisation may be utilised.

10.4 In addition to the graduates, there will be need at lower levels for under-graduates qualified in agriculture. About 10,000 additional village level workers will be required by 1985-86. They should be given extensive training in cane cultivation. The Indian Institute of Sugarcane Research, Lucknow, offers training to employees of State Governments and sugar factories in improved methods of cane cultivation and in extension. The Sugarcane Research Institute which may be set up in the South as recommended by us in Chapter I (Part III) of this Report, should also undertake the training of the field staff on the above lines, but even so the facilities at these institutes will not be sufficient. We suggest, therefore, that the various State sugarcane research stations/centres should also take up the training of field and extension staff of Government, factories and canegrowers' union. State Governments should provide funds and adequate facilities for this purpose at their research stations/centres.

Technical Staff for Sugar Manufacture

10.5 The requirements of technical staff for the individual sugar factories have been worked out on the existing pattern. They are given below in tabular form:—

TABLE NO. 10.2

Statement showing all-India requirements of staff (Graduates and Under-graduates) for new sugar factories by the end of 1978-79 and 1985-86

Designation	No. of posts per factory	By 1978–79						By 1985–86					
		Personnel requirements for 229 factories (71-72)	Wastage per year @3%	Personnel required for 60 new factories	Addl. annual requirements for expansion upto 78–79	Total requirements per year	Total requirements Upto 1978-79	Personnel requirements for 77 addl. New factories	Addl. annual requirements for expansion upto 1985-86	Wastage per year for 289 factories*	Total requirements Per year	Total requirements By 78-79	Total requirements By 85-86
1	2	3	4	5	6	7	8	9	10	11	12	13	14
I. GRADUATES													
Chief Chemist	1	229	7	60	9	16	114	77	11	7	18	126	241
Manufacturing Chemist	4	916	27	240	34	61	434	308	44	27	71	497	937
Lab. Incharge	1	229	7	60	9	16	114	77	11	7	18	126	241
Bench/Lab. Chemist	4	916	27	240	34	61	437	308	44	27	71	497	937
Chief Engineer	1	229	7	60	9	16	114	77	11	7	18	126	241
Shift Enginner	5	1145	34	300	43	77	548	385	55	34	89	623	1178
II. UNDER-GRADUATES													
Head Panman	1	229	7	60	9	16	114	77	11	7	18	126	241
Panman	4	916	27	240	34	61	434	308	44	27	71	497	937
Mill House Suppervisor	4	916	27	240	34	61	434	308	44	27	71	497	937
Boilor House Supervisor	4	916	27	240	34	61	434	308	44	27	71	497	937
Head Mechanics	4	916	27	240	34	61	434	308	44	27	71	497	937
Senior Fitter	14	3206	96	840	120	216	1537	1078	154	96	250	1750	3308

* Figures assumed to be identical with requirements for 229 factories, as new recruits for 60 new factories not expected to retire within this period.

The wastage @3% will apply only to the cadre as a whole and not to each grade; thus a Chief Chemist or a Chief Engineer may be expected to retire after serving say 10 years on the average.

The figures in columns 8 and 14 include wastage @3% of the additional requirements of personnel given in columns 5 and 10.

10.6 In estimating our requirements, it has been assured that the 229 existing factories (1971-72) are now fully manned and there will only be the normal intake of 3 per cent new hands annually. For arithmetical purposes figures have been given for each grade, but in fact wastage will normally occur only at the highest grade and the average of 3 per cent will apply only to the cadre as a whole. It may be seen that by 1985-86 about 1390 sugar technologists will be needed for manning the posts of Chief Chemist, Manufacturing Chemist and Laboratory Incharge. About the same number of sugar engineers* for the posts of Chief Engineer, Shift Engineer and Factory Workshop Foreman will have to be trained. The annual requirements will be of the order of 100 technologists and 100 engineers. They should be trained according to a planned programme so that the needs of the new factories and the additional needs of old factories after expansion could be met as they arise.

10.7 The only institute which at present provides facilities for post-graduate training in sugar technology is the National Sugar Institute, Kanpur. The maximum number of candidates who have been trained hitherto is about 60 per year, the average being about 40. Earlier the Andhra University, Waltair, also had 2 years' M.Sc. (Tech.) course in which sugar technology was an elective subject, but it was discontinued. It is understood that the university is at present considering re-starting the sugar technology course. The proposed new Institute in the South, which we have recommended (Chapter I, Part III) will also impart training in sugar technology but may take time to come up; as such, the facilities at the Kanpur Institute should be increased at an early date and utilised to the maximum.

10.8 As far as sugar engineers are concerned, the industry has been facing an acute shortage for a long time. There are a number of engineering colleges and Technological Institutes which impart training in various disciplines of engineering, such as mechanical, electrical, civil, etc., but sugar engineering is taught at post-graduate level only at the National Sugar Institute, Kanpur, where B.E. graduates are admitted for a diploma course in sugar engineering. The maximum number of seats in this course is only 12. Because of the lack of adequate training facilities at post-graduate level, a significant proportion of senior engineers in the industry are without sugar engineering qualification. This has affected the proper maintenance of the plant and machinery and the technical efficiency of the industry. We, therefore, urge very strongly that necessary steps should be taken immediately for augmenting training facilities. This can be done in a number of ways. First, the number of seats at the Kanpur Institute should be increased considerably. Secondly, the other Technological Institute which may be established in the South; should have larger facilities for such training. Further, some of the Indian Institutes of Technology in the country should be requested to start special courses in sugar engineering. With these increased facilities it should not be difficult to turn out about 100 qualified personnel annually. The engineering staff already working in the sugar factories and not possessing the required qualification, should be given preference in admission so that they also would get qualified quickly.

10.9 Regarding the under-graduate staff required both in the technology and engineering wings of the industry, the requirements are very large, being about 400 annually. There are very few institutions—*e.g.* the Kanpur Institute, and the Government Polytechniques at Kolhapur, Madras, etc.—in the country which train junior technicians for the industry, but taken together they have facilities for training about 100 technicians only. These training facilities will have to be expanded on a large scale. State Governments of all major sugar producing States should therefore, select one or two polytechnics in their States and institute courses for training suitable number of technicians.

Managerial Personnel

10.10 The need for facilities for training managerial personnel is no less urgent; if at all it is more acute. A majority of the existing personnel will need training and the new staff required for the increasing number of factories and the new organisations which may be set up at the National and State levels as recommended by us, will also have to be properly trained. Further, it is desirable that even the purely technical staff should be given some basic knowledge of scientific management.

10.11 For the existing personnel, it should be sufficient to hold short term courses, extending from six to eight weeks, during the off-season of the factories. Regarding the new personnel, courses extending to six months may be organised for the top officials of the National Sugar Authority/National Sugar Commission and for the Chairmen and Managing Directors of the State level Sugar Corporations. Arrangements may be made with the various management institutes in the country to organise such short term courses. The facilities available for business management training to senior executives at the Hyderabad Staff College may also be utilized. The personnel at lower levels may be given training for a longer period. We have already suggested that a committee of experts should be set up to prepare courses of study and training for technical as well as managerial personnel at various levels--(*see* enclosure 'F', Part I).

10.12 For the nationalised sector of the industry (whether it includes only a segment or the whole), special managerial cadres should be created or otherwise the existing industrial cadres should be enlarged to meet its requirements of expert managers. In this

*This figure (1390) does not include personnel required by sugar machinery manufacturing industry.

sector it should be ensured that qualified personel are available on a long term basis and should not be from outside on short-term deputation. The officers promoted from lower to higher levels in the managerial cadres should be given orientation courses to equip them for the higher responsibilities, particularly when their duties change *i.e.* from purely technical control to say man-management. There is and there will be need of trained Managing Directors, General Managers, Managers etc. for the sugar industry and in other sectors too and arrangements should be made for training adequate number of persons in sugar factory management.

10.13 Not only the managerial personnel at the policy level (such as Managing Director/General Manager etc.) but also the technical personnel in key posts in a factory *e.g.* Chief Chemist, Chief Engineer and Chief Accountant should be given some training in modern management and techniques. Apart from equipping them for performing their technical duties with greater efficiency, it will enable them to make efficient and economic use of scarce resources and give them a balanced view of the functioning of a factory in its various departments.

10.14 Besides the training on the lines indicated above, there should be provision for periodical refresher courses (including seminars, workshops, etc.) for both the technical and the managerial personnel to enable them to keep abreast of the latest developments in their own respective fields of responsibility.

CHAPTER XI

LAWS AND PRACTICES RELATING TO SUPPLY AND PURCHASE OF CANE AND PAYMENT OF CANE PRICE

Our sixth term of reference requires us to study the relationship between sugarcane suppliers and the owners of sugar mills, with particular reference to the supply of cane and the payment of cane price and make suggestions for improvement in the present laws and practices in this behalf. We have already dealt with the factory-farmer relationship in some detail in Chapters VI and VII of Part I and in Part II. The main activities which bring the farmer and factory into frequent and close contact and largely make up the corpus of their relationship relate to reservation of areas ; regulation of supply and purchase of cane ; canegrowers' unions ; weighment of cane ; payment of cane price ; credit facilities and recovery of dues ; and sharing of extra sales realisations from sugar. In this Chapter, we shall briefly consider the laws and practices concerning this relationship and make suggestions for their improvement. In doing so we shall take up only those laws and practices which in our opinion require change and improvement.

11.2 The first piece of legislation affecting factory-farmer relationship was the Sugarcane Act, 1934 enacted by the then Central Government. In Part II of the Report we have given the background against which this legislation was enacted. Its main provisions related to the fixation of minimum cane price, sale and purchase of cane and organisation of canegrowers' societies. It authorised the then Provincial Governments to declare any area to be a controlled area and to fix the minimum price of sugarcane in the controlled area ; to prohibit the purchase of sugarcane from any person other than the actual grower ; and to frame rules for, *inter alia*, the regulation of sale and purchase of sugarcane, payment of cane price, organisation of growers of cane into societies for sale of their cane ; etc.

11.3 In exercise of the powers delegated to them under the Central Sugarcane Act, 1934, the Governments of Uttar Pradesh and Bihar where the sugar industry was concentrated at the time and where the largest number of canegrowers came into contact with the industry, passed orders fixing the minimum prices for sugarcane and framed rules about the supply and purchase of sugarcane, payment of cane price and other matters. Subsequently, with the coming into force of the Government of India Act, 1935, the State Governments enacted their own legislation. The Bihar Government passed the Bihar Sugar Factories Control Act, 1937 and the Uttar Pradesh Government, the Sugar Factories Control Act, 1938. The objects and provisions of both these Acts were almost the same. They provided not only for the regulation of the supply and purchase and the price of sugarcane 'intended for use' in sugar factories, but also for the licensing of sugar factories and fixation of sugar prices. These Acts were amended from time to time and have since been replaced by later legislation. The latest enactments in force in Uttar Pradesh and Bihar respectively are the Uttar Pradesh Sugarcane (Regulation of Supply and Purchase) Act, 1953 and the Bihar Sugarcane (Regulation of Supply and Purchase) Act, 1971. These Acts do not provide for licensing of new factories or expansion of old factories or for fixation of sugar or sugarcane prices as these functions and powers have been assumed by the Central Government since 1952.

11.4 With the development of the sugar industry in other parts of the country, other Provincial/State Governments also enacted legislation more or less on the lines of the Uttar Pradesh and the Bihar Acts, for the regulation of supply and purchase of sugarcane and conneeted matters. The erstwhile Madras Government enacted the Madras Sugar Factories Control Act, 1949 which continues to be in force, in its amended form, in the present Tamil Nadu State. The erstwhile Punjab Government enacted the Sugar Factories Control Act, 1950 which has since been replaced by the Punjab Sugarcane (Regulation of Purchase and Supply) Act, 1953. The Punjab Act operates, with suitable modifications in the States of Punjab and Haryana. The Andhra Pradesh Government enacted the Andhra Pradesh (Andhra Area) Sugar Factories Control Act, 1949, enacted by the then Madras Government and later adopted by Andhra Pradesh, which has since been replaced by the Andhra Pradesh Sugarcane (Regulation of Supply and Purchase) Act, 1961. The Madhya Pradesh Government adopted the Madhya Pradesh (Regulation of Supply and Purchase) Act, 1958 which is still in force as amended from time to time. The various State Governments also framed Rules and Orders under their respective Acts.

11.5 State Governments which have not enacted their own legislation so far—*e.g.*, Maharashtra and Karnataka Governments—have been making use of the powers delegated to them under the Sugarcane (Control) Orders issued by the Central Government. The first Sugarcane (Control) Order was issued in 1955 under Section 3 of the Essential Commodities Act, 1955. It has since been replaced by the Sugarcane (Control) Order, 1966. The Order covers the same ground as covered by the existing States legislation ; in addition, it provides for fixation of sugarcane price by the Central Government. The licensing of sugar factories, the fixation of sugar price and several other matters relating to the sugar industry have been taken care of by separate Acts and Orders of the Central Government. Some of the States Acts passed

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before the Central Government assumed powers for licensing of sugar factories and fixation of sugar and sugarcane prices provided for these matters also, but later States legislation has excluded them.

Reservations of Areas

11.6 The various States Acts and Rules as well as (Central) Sugarcane (Control) Order, provide for reservation of areas or zones or declaration of reserved areas or zones. The Uttar Pradesh and the Madhya Pradesh Acts provide for an 'assigned' area also. In a reserved area, a factory has the right to purchase cane to the exclusion of any other factory and has to purchase all the cane offered for sale to it, subject to a ceiling, if any prescribed by a competent authority ; in an 'assigned area' more than one factory can purchase a specified quantity of cane. A 'reserved area', so to say, belongs to the factory concerned ; an 'assigned area' does not. In the Punjab Act the expression 'reserved area' does not find a place ; instead the expression 'assigned area' only has been used, but it has the same meaning and connotation as the term 'reserved area' has in the Uttar Pradesh, Bihar and other States Acts.

11.7 The States which have their own legislation issue reservation orders under their Acts and the Rules and Orders framed thereunder. Other States which do not have their own legislation such as Karnataka State do so under the (Central) Sugarcane (Control) Order, 1966. The Maharashtra Government, however, does not have its own legislation and also does not pass statutory reservation orders under the Sugarcane (Control) Order either. But it issues reservation orders in the form of Government Resolutions, which are purely of administrative nature. Canegrowers, in the area reserved for a factory by such executive orders are legally free to sell their cane to any factory and any factory is free to purchase cane from that area. In a large number of cases the question of supply and purchase of cane is left to negotiations and agreements between canegrowers and factories, with the result that cane grown within a short distance of a factory is sometimes taken over long distances to another factory. Cases of two or more factories purchasing cane from the same village even from the same canegrowers, are not uncommon. Sometimes even the very village in which a factory is located finds place in the list of villages reserved for and in the area of operation of another factory. In several cases villages reserved or (allotted) to different factories are interspersed, resulting in the lack of contiguity in the 'reserved' areas of individual factories. In the case of cooperative factories their areas of operation are defined in their respective bye-laws, but the bye-laws do not have the force of law vis-a-vis non-members and other sugar factories. In some States the 'reserved area' of a cooperative factory is not co-extensive with its area of operations as defined in its bye-laws.

11.8 Though there is provision in all the States Acts and the Rules and Orders framed thereunder for reservation of areas or declaration of reserved areas (or assigned areas) for a *season* or *seasons*, the practice in all the States is to pass reservation orders annually. Only the Punjab Act seems to provide for assignment of an area for a 'particular crushing season' ; but the provision is capable of being interpreted to mean that assignment of areas can be made for more than one season.

11.9 The sugar industry has for a long time been asking for reservation of areas on a permanent basis and failing that on a long term basis; say, for at least five years at a time. This, in its opinion is necessary to create a sense of responsibility and reciprocity among the factories and the farmers and also to encourage factories to take sustained interest in the development of their reserved areas. The State Governments have pointed out that though the reservation orders are issued every year, in actual practice the same area is reserved to a factory every year. It is only when a new factory is established in the neighbourhood of an existing factory or the latter expands its capacity that suitable adjustments have to be made in the reserved area to meet the demands of the new situation. In such cases also it is seldom that the gate area of a factory is affected. The State Governments maintain that there is need for an annual review of reservation orders in the context of the changing position of cane production and supplies from year to year.

11.10 In our opinion, the annual *de novo* consideration and issue of reservation orders is a very disturbing factor in more ways than one. It stands in the way of long term planning and execution of plans for cane production and for development of sugar factory areas. Pre-sowing agreements also cannot be entered into between factories and canegrowers as, at present, reservation orders are generally issued after sowing of cane and only a few weeks before the commencement of the crushing season. On the other hand, reservation of areas for a longer period will create more favourable conditions for cane development and organisation of cane supplies and will also have the time and energy spent every year on the procedure of passing reservation orders for all the factories. It will be advantageous in many other ways to reserve areas for a period of at least five years, of course with the stipulation that the reservation orders can be revised any time to meet special situations. The 'special situations' should also be clearly specified such as the establishment of a new factory in the neighbourhood, the expansion of the capacity of the factory, exceptionally high or low production of sugarcane in the reserved area, and so on. The normal thing will then be to pass reservation orders for five years or more to be reviewed during this period only if special circumstances demand a review.

11.11 A reference may be made here to the recommendations made by the Uttar Pradesh High Powered Sugar Industry Advisory Committee (1963) that areas should be reserved for sugar factories on a long term basis to provide inducement to them for development work. This was an eminently sensible recommendation, but it has not found acceptance in practice so far. We do not see any insuperable difficulty in reserving areas for sugar factories for a period of five years or more instead of one year only. The law,

the rules and the orders on the subject should be amended so as to make it obligatory on the competent authority to pass orders for reservation of areas for a period of not less than five years, unless there are adequate reasons, to be recorded, to the contrary. Even if this is not made a statutory obligation, the State Governments should, in practice, under the existing law, reserve areas to sugar factories for at least five years at a time. We have recommended elsewhere that a new factory should not be set up within 50 kilometers of an existing factory so that each factory ordinarily has for itself an area within a radius of 25 kms of its location. The implementation of this recommendation will remove one of the major reasons for changes in the reserved areas of factories established earlier.

11.12 State Government which do not at present pass statutory reservation orders under the provisions of any law should also fall in line and pass reservation orders under the Central Sugarcane (Control) Order till they have their own legislation in this regard. In doing so, it will be necessary for them to demarcate and allocate areas in accordance with the general principles and policies which have formed the basis of the legal provisions relating to the reservation of areas in the various States' Acts and the Central Order.

11.13 Another matter relating to reservation of areas which needs attention is the tendency to reserve unduly large areas for individual sugar factories. This almost always results in poor organisation and regulation of cane supplies. In such cases a factory has to spread its purchases over a large area and a large number of canegrowers with the result that even those canegrowers who want to supply all or most of the cane grown by them cannot do so.

11.14 The increase in the size of reserved areas is partly due to the farmers of more and more villages wanting to be included in the reserved area of a factory, especially in years of excess production of cane. They do so with the knowledge that they need not supply any cane to the factory if they do not want to, but that the factory will have to purchase (at least some of) their cane if they are in its reserved area and offer their cane to it for sale. So, while in years of excess cane they exercise their (legal) right to sell cane to the sugar factory, in years of short production they forget their (moral) obligation to supply at least some of their cane to the factory. As explained later, they have at present no legal obligation to supply any cane to the factory, unless they are required by the competent authority to do so, but such orders are seldom passed and enforced, if ever. A few factories also instead of making serious and all-out efforts to attract more cane per acre from a compact area in their vicinity by offering various incentives to canegrowers, which is the proper course, adopt the easier course of supplementing their supplies by purchases of cane from distant and widely dispersed areas.

11.15 Sometimes factories make purchases of cane, specially in years of short production from areas, known as 'free areas', which are not reserved for or assigned to any factory. Such purchases are made at the expense and to the disadvantage of canegrowers of the reserved areas. The factories heat the cane grown in their reserved areas as 'captive cane' as no other factory can purchase that cane and try to purchase as much cane as they can and as early as possible from the free areas, least it should be taken away by some other factory or factories. But in doing so they cause undue hardship to the canegrowers of their reserved areas, which in the long run proves detrimental to the interests of the factories themselves. In any case it is unfair and inequitable that canegrowers of the reserved areas who cannot sell their cane to any other sugar factory, should be placed in a disadvantageous position *vis-a-vis* canegrowers of free areas. Complaints of purchases from free areas are not infrequent in Bihar and it is necessary to frame suitable rules to discourage factories from this practice. Even if they genuinely need to supplement their cane supply by purchases from free areas, such purchases should be strictly regulated so that they do not unduly reduce cane purchases from the reserved areas at any time. For instance, factories may not be allowed to purchase more than a reasonable percentage of their daily requirements from free areas unless, of course, they cannot obtain their full requirements from their reserved areas. To ensure that the legal provisions and restrictions that may be made and imposed are not contravened, an effective inspectorate should be set up.

Regulation of Supply and Purchase of Cane

11.16 In the reserved area of a factory, a canegrower or canegrowers' society is not under obligation to offer to sell to the factory any part of the cane so grown by him or its members unless directed to do so by a specific or general order of the competent authority-State Government, Board, Cane Commissioner, Sugar Commissioner, etc. But if a canegrower or a canegrowers' society offers to sell his/its members' cane to the factory by a prescribed date or within a prescribed period, the factory is bound to enter into an agreement with him/it within a given time for the purchase of all the cane offered for sale, subject to such limit or ceiling as may be fixed by the competent authority by a specific or general order.

11.17 The sugar industry has pointed out that the existing legal provisions in this regard are wholly one-sided, inasmuch as while they require a factory to enter into an agreement with a canegrower who may offer to sell cane to it, they do not place a corresponding obligation on a canegrower to offer to sell his cane to the factory. The demand of the industry is that a canegrower should also be under legal obligation to sell to the factory the whole or a reasonable part or a reasonable part of the cane grown by him. Under the existing legislation, State Governments and Central Government have the power to require a canegrower or canegrowers generally to sell to the factory concerned a specific quantity or percentage of sugarcane grown by him/their members in the reserved area. But this power

is seldom exercised and rarely used effectively. For instance, the reservatiou orders in Karnataka generally enjoin upon every canegrower in the reserved area of a factory to supply to the factory 95 per cent of the cane grown by him directly or through the canegrowers' society concerned, as the case may be. The Maharashtra Government also sometimes bans the movement of sugarcane from within a district to outside the district and directs the canegrowers of the district to supply 75 per cent of the cane grown by them to the factory/factories within that district. But there is little evidence to show that such orders are either complied with or enforced. The emphasis in such cases seems to be on form rather than on substance. . . . .

11.18 The scheme of reservation of areas is intended to facilitate organisation and regulation of cane supplies and to create a sense of inter dependence between a factory and the canegrowers of its area. On the one hand, the factory is assured that normally no other sugar factory shall deprive it of the cane grown in its area; on the other hand, it assures the cauegrowers that normally all the cane grown by them shall be purchased by the factory if they offer to sell it to the factory. But in years of short production many a canegrower chooses not to offer to sell any of his cane to the factory. This absence of obligation on the canegrowers of the reserved area of a factory to sell any part of their cane to the factory creates uncertainty in the working of the factory and results in wide fluctuations in cane supplies from year to year. It is common knowledge that in years of over-production of cane, factories are persuaded or required to prolong their crushing season in the interest of the cauegrowers. But in years of short production, factories find themselves compelled to shut down quickly for want of supply of cane even when all around them there is cane in the fields sufficient to meet their normal requirements. We consider this state of affairs unfortunate, but remediable. In our opinion a canegrowers in the reserved area of a factory should also be under obligation to supply canc to the factory. But we would like to lay down a precondition for this, and it is that the minimum price for canc intended for usc in sugar factories should be notified by the Central Government well ahead of the cane sowing season every year. In Part II of our Report we have recommended that the minimum price for sugarcane for a crushing season should be announced before the sowing of the cane that will be crushed in that season. For instance, the canc price for supply during the crushing season 1975-76 (October-September) should be announced some time in July/August, 1974. If this is done and a canegrower in the reserved area of a sugar factory grows sugarcanc it would not be unreasonable to require him to supply a specified quantity or percentage of the cane grown by them to the factory concerned. The principles and criteria for calculating and determining the percentage or quantity or quota of cane to be supplied by each canegrower could be worked out each year. from region to region. even from factory to factory. This could be done by mutual agreement between a factory and its canegrowers/canegrowers' union(s) or by the competent authority. We recommend that, in the circumstances indicated above, State Governments should effectively use the legal powers which they already have under their own existing legislation or under the Sugarcane (Control) Order, 1966 to require each canegrower of reserved areas to supply a specified quantity or percentage of cane grown by him to the factory concerned directly or through the canegrowers' union, as the ease may be.

Canegrowers' Unions

11.19 We have discussed the working of the canegrowers' unions in an earlier chapter of this Report and we have recommended that a direct link should be established between factories and the individual members of the cane unions. To achieve this direct relationship we have recommended in Chapter II several measures:

(i) Execution of tripartite agreements among the factory, the union concerned and each individual canegrower member;

(ii) Legal obligation of every factory to give a loan or arrange for a loan to every canegrower who enters into an agreement to supply cane;

(iii) Legal right to a factory to reeover the loan given by it to a canegrower through deduction from the price of canc due to the canegrower; and

(iv) Direct payment of cane price by a factory to all the cane suppliers.

The first measure concerns the members of canegrowers' unions only; the others concern all the canegrowers who enter into agreements to supply cane to the factory.

11.20 A scheme of financing as envisaged and recommended here can function properly only if adequate funds are available with the commercial banks and the latter are willing and in a position to advance loans to individual canegrowers on the recommendation and guarantee or underwriting of the sugar factories concerned. To enable the banks to participate in the scheme effectively, policies will have to be worked out and laid down at the appropriate levels furthering the objectives of the scheme. We have made these recommendations in the belief that the banks will be directed and enabled to make the scheme a success.

Agricultural Credit Facilities

11.21 We have discussed this subject in Chapter II of this Part and have recommended that every factory shall be under a legal obligation to give loan or arrange or loan from a bank to each canegrower who executes an agreement to supply cane to the factory.

The principle on which the loans will be given, the scales on which they will be given, the instalment and the manner in which they will be given, etc., shall be such as may be worked out between the factories, banks and canegrowers. The loan to be given to or to be arranged for a canegrower shall, however, not be less than 40 per cent of the value of the cane bonded by him. This is the minimum which must be provided even in areas where the credit facilities existing so far are wholly inadequate or even non-existent. Where the organisation for grant of agricultural production loans is comparatively developed, it should be improved further. In no case should the existing level of credit facilities be lowered. Everywhere efforts should be directed towards progressively increasing the scale of loans so as to reach a stage at which the credit requirements of canegrowers in factory areas will be met in full.

11.22 In order that there may be no undue discriminaiton as between one canegrower and another where a factory and a canegrowers' union of its area both advance loans to different canegrowers, it is suggested that the scale of loans and the terms of the grant of loans should be uniform in respect of all the canegrowers of the areas.

11.23 To give effect to the scheme relating to the agreements for supply of cane by canegrowers to factories and to arrange for agricultural credit being made available by factories to the cultivators for cane production, it will be necessary to make suitable statutory provisions either in State Acts or a Central Act. They must include the following:—

(i) Every factory shall enter into agreements with the canegrowers of its area for supply of cane upto its full requirements for a normal crushing period;

(ii) Where canegrowers supply cane through a society, tripartite agreements for supply of cane should be executed to which the factory, the society and the individual canegrower concerned should be parties;

(iii) The agreement shall specify the quantity of cane to be supplied by the cultivator to the factory and the area and the particulars of the plot or plots the crop of which will be supplied to the factory;

(iv) On execution of the agreement for supply of cane by a cultivator to the factory, the factory shall be under obligation to advance loan in cash or in kind or both to the canegrower for the purpose of production of cane;

(v) The amount of loan shall not be less than forty per cent of the value of the cane agreed to be supplied, calculated at the minimum price for the cane fixed, by the Government;

(vi) In the alternative to itself advancing the loan as mentioned in clause (iv), the factory shall arrange for the advance by a bank of the stipulated amonnt of loan to the canegrower by guaranteeing or/and underwriting such loan;

(vii) On execution of the agreement and payment of the loan the factory will be entitled to recover the loan and the interest thereon through deduction from the cane price payable to the canegrower concerned;

(viii) In case of a wilful default by the factory in arranging for the loan as stipulated in clause (vi), the agreement shall be voidable at the option of the cultivator ; if the cultivator does not declare the agreement as void, he may apply to the appropriate authority for specific performance of this term and the said authority may require the factory to advance the stipulated amount to the canegrower. The order of the appropriate authority shall have the force of a decree of a court and shall be executable as such;

(ix) The factory shall not charge interest at a rate higher than the rate charged by the bank for advances for sugarcane cultivation and shall not realize from the canegrower any part of the service charges incurred by it on the disbursement and recovery of the loan.

NOTE : We have not at this stage suggested the imposition of a penalty on the factory for a wilful default in arranging for a loan for each cultivator as we expect that the factory in its own interest will be keen to arrange for the loan and should have no difficulty in doing so as long as the amount is available from a bank on the basis of its guarantee or underwriting. The suggestion made is that, in the few eases of default that may occur, an application to the appropriate authority should lead to an order directing advancement of loan and that order can then be enforced by that officer as a decree. It is because the order is to be enforced as a decree that it will be necessary to make provision by statutory law and not by a mere order. However, if it is found that this provision is not sufficient and wilful defaults are made by factories in arranging for loan at an appreciable scale, a provision can be introduced in the law subsequently that on such wilful default, a factory shall be liable to pay a penalty to the grower which may extend to 10 per cent of the amount of loan required to be advanced and that penalty shall be recoverable as arrears of land revenue. In case there is any difficulty in amending the State laws or in passing a special law in States where orders under the Essential Supplies Act are in force, this provision for penalty can be made in the Rules or in the Control Order. But in that case, the order

directing the payment of loan by the appropriate authority will not get the force of a decree and that suggestion will, therefore, have to be dropped.

11.24 Besides these changes in the laws, amendments will have to be made in the laws and agreements to incorporate the recommendations made in Chapter III, Part II of our Report. In addition the following two terms should also be contained in each agreement :—

(i) On receipt of the loan granted (in cash or in kind or both), the cultivator shall utilize it exclusively and only for the purpose of cane production in the area and in the plots specified in the agreement; and

(ii) In the case of breach of the above clause by the canegrower, he shall also be liable to pay penal interest at a rate not exceeding twice the rate of interest at which the loan has been given.

Agreements

11.25 As stated in Part II of this Report, the agreements between factories and canegrowers' unions or individual canegrowers provide, *inter alia,* for penalty for deliberate default in supply of cane. We have observed there that economic incentives will be more effective than coercive measures to persuade canegrowers to fulfil their contract and we have suggested a comprehensive package scheme to that end. Even penalties from defaulters are to become incentives for regular supply. All the same, when considering legal provisions, we must not lose sight of the fact that if any law or rule or agreement has to be enforced, the penalty for its breach should be sufficiently heavy to deter any party to the agreement from deliberately committing a breach of it. As it is, the penalty provided in most of the prescribed forms of agreement is very small. In most States it represents 5 per cent to 10 per cent only of the minimum cane prices which have been notified by Government from year to year during the last 10 years. However in two States, namely, Andhra Pradesh and Punjab, the prescribed penalty is substantial—in Andhra Pradesh it is Rs. 5 per quintal and in Punjab it is 20 per cent to 40 per cent (under different circumstances) of the deficit in cane supplies or cane purchased. As cane price may vary from year to year it is better to fix a percentage of the cane price rather than a given amount per quintal as penalty to which a defaulter might become liable. We propose that penalty for deliberate default on the part of a canegrower should be equivalent to 50 per cent of the price of cane in deficit and on the part of a factory equivalent to the full price of the cane in deficit. A heavier penalty has been suggested for the factory keeping in view its relative financial strength *vis-a-vis* a canegrower.

11.26 Most of the forms of agreement provide that a contract for supply of cane will be considered as having been fulfilled if the canegrower supplies 85 per cent of the contracted quantity. The same percentage holds good as far as purchase by the factory is concerned. In Part II of our report we have maintained this percentage as a criterion for the fulfilment of the contract by a canegrower but have raised the percentage which a factory should purchase from a canegrower if it is to be held that it has fulfilled its contract. We have suggested that the factory should be under an obligation to purchase upto 110 per cent of the contracted quantity of cane for the fulfilment of its contract. The forms of agreement should be amended accordingly.

11.27 In most of the prescribed forms of offer to sell and forms of agreement, information is required about the area under cane but not about the survey numbers of the plots. It will be useful to include in the forms information about the survey number and area of each plot in which cane has been grown or is proposed to be grown. The form of offer to sell and the form of agreement to sell and purchase cane should clearly indicate the plots whose cane will be supplied to the factory.

Payment of Cane Price

11.28 In Part II of the report, we emphasized the need for prompt payment of cane price and observed that this matter was closely linked with the question of facilities available to sugar factories for obtaining adequate funds for prompt and regular payment.

11.29 We find that the majority of factories start making payment of cane price several days after commencement of purchase of cane. The explanation given is that it takes a few days to process the cane, pledge the sugar with the bank and obtain funds against the pledged sugar stocks. Till funds become available from the banks, many factories find it difficult to pay the cane price. We do not consider this a valid excuse for not paying cane price from the first day of cane purchases. We see no reason why factories should not arrange for funds required for this purpose. Ordinarily, a factory of 1,250 tonnes crushing capacity would require about Rs. 10 lakhs for payment of cane price for about a week. A factory should normally not fiud it difficult to arrange this amount. It can do so by taking advances or conserving advances taken against pledged sugar stocks of previous year's production or by sale sugar or making any other alternative arrangement. In any case the factory must ensure to have, at the commencement of the season, adequate funds in its hands to be able to pay cane price on the very first day of purchases of cane.

11.30 It has been stated on behalf of the industry that in years of large production of sugar with releases and sales of sugar regulated by Government, the market prices of sugar tend to fall as they did in 1969-70. In such a situation the banks increase their margin and advance to factories against pledged stocks of sugar only 75 per cent to 80 per cent of the value of sugar calculated at levy prices. The result is that adequate funds do not become available to factories to enable them to make payment of cane prices promptly and also to meet their various other urgent and unavoidable obligations. In addition to the demand that banks should keep their margin low, the industry has urged that the credit limits for the industry and

for individual factories should be fixed at a higher level than has been the practice in the past, so that more funds become available to factories for payment of cane price and for meeting their other financial obligations. These are matters on which the Central Government and the Reserve Bank of India take decisions from time to time taking an overall view of the economic and financial situation at a given time. We do feel, however, that in fixing the credit limits for the sugar industry as a whole and for individual factories and in determining the margins for the purposes of advancing money against pledge stocks of sugar, due consideration should be given to the requirements of funds for payment of cane price which formers about two-thirds of the cost of production of sngar) and the need for its prompt payment.

11.31 This observation should not be construed to mean that factories are absolved of their responsibility for securing funds from whatever sources they can for payment of cane price regularly and promptly. This responsibility is not whittled down in the least by such factors as fixation of high margins by banks and releases by Government of sugar quotas for sale at a speed greater or lower than required or desired by individual factories. From the canegrowers' point of view, these are extraneous considerations which should not affect their right to immediate payment for the cane supplied by them.

11.32 As regards the actual payment of cane price to canegrowers, the legal position differs from State to State. In some States, such as Uttar Pradesh and Madhya Pradesh, a factory becomes liable to payment of cane price immediately upon delivery of cane. In some States a factory is required to make payment of cane price within a week of delivery of cane ; in some States the price is payable within a fortnight of the delivery of cane. Under the Central Sugarcane Control Order, 1966, a factory 'shall, unless there is an agreement in writing to the contrary between the parties, pay within fourteen days from the date of delivery of the sugarcane to the seller or tender to him the price of cane sold.....' In some other States, it is provided that where the 'person liable' (to pay the price of cane) is in default in making the payment of the price for a period exceeding fifteen days from the date of delivery of the cane, he shall also pay interest from the said date of delivery of cane. In our opinion there should be uniformity in the law and rules relating to the payment of cane price and also interest in defanlt of payment of cane price within the prescribed period. We consider that a factory should be under obligation to make payment of cane price immediately on demand and in any case not later than 24 hours of demand after delivery of cane, at the gate of the factory. For outstation purchasing centres the payment should be made not later than 72 hours of demand after delivery of the cane at the centre. The State Government or an authority empowered to do so may extend the period of 72 hours in respect of outstation purchasing centres were he is satisfied that payment of cane price within this period is not feasible. The relevant provisions of the State Acts and Rules and the Central Sugarcane (Control) Order should be amended accordingly.

11.33 In an earlier chapter we have examined the possibility of ensuring immediate payment of cane price under the procedures and practices obtaining at present in regard to payment of cane price and have come to the conclusion that the only way in which prompt payment, even immediate payment, can be arranged is to make the factories responsible for payment of cane price directly to canegrowers irrespective of whether they are direct suppliers or suppliers through a canegrowers' union or society. We, therefore, recommend that provision should be made in the laws, rules and orders relating to the payment of cane price accordingly.

11.34 It has been pointed out to us that the recovery of loans through deduction from cane price also stands in the way of prompt payment of cane price, for before price due for a particular lot of cane supplied can be paid, the loan advanced to a canegrower has to be recovered in part or whole. In that connection, on presentation of the weighment slip, a reference has to be made to the ledger of loans and the relevant account of the canegrower has to be traced to find out the amount of loan which has been advanced to the canegrower and to determine the amount which has to be recovered from the price of the particular lot of cane supplied.

11.35 In our opinion, there need be no serious difficulty in expediting cane price payments. This will be very considerably facilitated by issue to each canegrower of a pass book as recommended in Part II of the Report. The pass book should contain, *inter alia*, all the relevant information about the canegrowers' ledger and account number, the amount of loan advanced, the number and amounts of instalments in which it is to be recovered, the deductions made from time to time and so on. On presentation of the weighment slip and the pass book together the necessary verification with reference to the union or factory records should not take too long. If at all necessary, the factory and the union may engage some additional staff and also improve the efficiency of their working so that payment is expedited. If proper planning is done in advance and recovery schedules are prepared carefully, it should not be difficult to make payments of cane price within a reasonable time after delivery of cane. For this purpose as also for the reasons given in Part II of the Report, it should be made legally obligatory on every factory or union, as the case may be, to issue a pass book to every canegrower.

11.36 We would also like to encourage canegrowers to open their accounts with banks as that will facilitate the payment of their cane price into their account immediately it becomes due. This system is already in operation in the case of some factories in the south. It will be particularly helpful in the payment of cane price to canegrowers who supply cane at outstation purchasing centres where it is not feasible for various reasons to make daily payments. If canegrowers have their accounts in the banks, it will be possible for the factory to transfer to their respective accounts the amount of cane price due to them, after making such deductions as may be necessary. In case, however,

loans to canegrowers have been advanced by the very bank in which they have their accounts, the method of recovery of the loan of the bank will become simpler. The factory will transfer to the bank the entire amount of cane price due to a canegrower and the bank will credit the amount to the account of the canegrower and debit the recoverable amount of loan from time to time. It will be a matter between the canegrower and the bank how the account is operated. To facilitate the working of such a scheme, it is desirable that branches of banks should be established near the sugar factories so that the canegrowers are able to draw from their account when they visit the factory. Where a canegrower requests for payment of his cane price by cheque the factory concerned should make arrangement for payment by cheque. This will encourage banking habit among canegrowers.

Development Councils

11.37 We have recommended that development councils should be set up for the area of every sugar factory in the country. We have also recommended that the financial position of the development councils should be strengthened by contributions by the Central and the State Governments, the factories and the canegrowers as follows : the Central Government and the State Government concerned each at the rate of 10 paise per quintal of cane ; factories at 5 paisc per quintal ; and canegrowers at 2 paise per quintal. We have recommended that the constitution of the development councils should be as follows—three representatives of the factory and three representatives of canegrowers' and one Government official. Where canegrowers' union exist, canegrowers on the council, should be the nominees of the canegrowers' union or unions concerned ; where there is no canegrowers' union, the representatives of canegrowers should be nominated by the State Government or by an officer authorised by the State Government to do so. The Chairman of the development council should be a senior executive of the factory and the Secretary of the development council should be a paid employee of the development council itself. The Government officer should be an officer concerned with cane development in the factory area. In the case of a cooperative factory the constitution of the development council will be adjusted to the extent that the canegrowers will be nominated by the Board of Directors of the cooperative factory and may be the directors of the Board.

11.38 The functions of the development councils have been detailed in the States Acts of Uttar Pradesh, Bihar, Madhya Pradesh, Punjab and Haryana. Allowing for minor differences in the functions prescribed in the various Acts and Rules, they all relate to measures that should be taken for improved cane cultivation and development of the factory area in the matter of irrigation facilities, roads, etc. A uniform set of functions should, however, be prepared for development councils all over the country. Suitable provisions should be made on the basis of above in the relevant States Acts, Rules and Orders and in the Central Sugarcane (Control) Order.

Sharing of Extra Sales Realisations

11.39 In Part II of the Report we recommended that extra sales realisations from sugar should be shared between factories and the canegrowers according to a formula devised by us. Necessary provision should be made in the Central Sugarcane Control Order giving statutory sanction to this recommendation. Provision should also be made in the said Order that only those canegrowers who enter into contract for supply of cane during a season and fulfil their contracts will be eligible for sharing the extra sales realisations with the factories. A suitable machinery should also be set up having adequate powers under the law to verify the extra sales realisations from sugar and to enforce the sharing of extra realisations between factories and canegrowers and their distribution among the eligible canegrowers. It should also be laid down that penalties realised from defaulting canegrowers will be proportionately distributed to canegrowers who fulfil their agreements to supply cane in each year. Provision shonld also be made for the submission by factories of fortnightly or monthly returns of sugar sales and the prices obtained by them and for their checking from time to time. Proper forms should be devised in consnltation with financial experts.

Sales Committee

11.40 In Part II of the Report we recommended the setting up of a Sales Committee at every factory and outlines its functions and constitution. As, however, the Commission has unanimously recommended the 'nationalisation' of the marketing of sugar (*vide* Chapters VI and VII of Part I), there is no need for the establishment of sales committees.

Labour and Canegrowers' Representation

11.41 We have recommended that labour should be represented on the Boards of Managements/Directors of factories. Suitable provision should be made in the relevant Acts requiring managements of factories to have on their Boards of Managements/Directors at least one representative of labour who should be a worker-employee of the factory concerned. Factories other than cooperative factories should also provide for the inclusion of a canegrowers' representative on their Boards of Management. Pending formulation of rules and procedure for the election of the representatives of workers and canegrowers, they should be nominated by the State Government concerned or by an authority empowered to do so.

Limited application of the recommendations on cooperative factories

11.42 As this stage it may be made clear that some of the recommendations made in this Chapter relating to reservation of areas, obligation of canegrowers and factories to sell and purchase cane grown in the reserved areas, would not apply to cooperative sugar factories and the canegrowers of their areas, inasmuch

as the areas of their operation are defined by their bye-laws and the relations between them and their shareholder-canegrowers in regard to production and supply of cane, payment of cane price, etc., are governed by their bye-laws. There should, however, be a statutorily reserved area for every cooperative factory, generally co-extensive with its area of operation as defined in its bye-laws. The general law precluding a factory from purchasing cane from the reserved area of another factory should apply to cooperative factories also.

11.43 Cooperative factories are not under obligation under their bye-laws to purchase cane from canegrowers in their areas who are not their shareholders and members. The interests of such canegrowers are not governed or protected by the bye-laws of the cooperative factories. Not all of them can become shareholders and members of the cooperative factories in whose area they grow cane. As such the canegrowers who cannot become members should have the right and the opportunity to sell their cane to other factories and the latter to purchase the cane. As regards the law and rules relating to immediate payment of cane price as recommended by us, they should apply to cooperative factories in the case of non-member canegrowers from whom they purchase cane. The cooperative factories should also be under obligation to grant agricultural credit facilities to all canegrowers with whom they enter into agreement for purchase of cane.

Bye-laws of Cooperative Societies*

11.44 In Chapter V of Part I, we have discussed the working of the cooperative sugar factories. In the course of our discussion we have drawn attention to certain shortcomings of the cooperative factories. We find that the bye-laws of the cooperative factories do not contain a clear indication of the objectives which a cooperative factory should have in view and should aim at—for instance, socio-economic development of its area and rendering services to the vulnerable and weaker sections of the community. We suggest that the 'aims and objects' of every cooperative society should include the social objectives which have been indicated in Chapter VII of Part I. The bye-laws should also be revised where necessary with a view to broadening the base of the cooperative factories so that with every increase in the capacity of the factory, new members also should be enrolled from amongst cultivators who want to become members of the cooperative factories.

*Shri Bansi Dhar, Member, has submitted the following note on the subject of Cooperative factories:—

'There is an urgent need that bye-laws of each and every cooperative factory are thoroughly studied. These studies should be taken up with a view to amending the existing bye-laws of cooperative factories so as to bring them in line with the various Central and State Enactments. Besides, cooperative factories are getting various advantages *vis-a-vis* other sectors. Mention may be made particularly of disparities in the rate of depreciation, income tax and other matters. The cooperative factories which are also large scale industrial establishments, should be brought on par with sugar factories in public and private sectors in the matter of fiscal and other policies.'

CHAPTER XII

CONCLUDING OBSERVATIONS

12.1 In dealing with its terms of reference, the Commission has kept in view the role the sugar industry can play in achieving the national socio-economic objectives and targets. The very wide terms of reference requiring us to study the sugar industry in all its aspects as well as ancillary industries, necessitated exhaustive studies by the Commission after obtaining very elaborate data from all possible sources. The Commission has collected data relating to technical and financial performance of almost every sugar factory in the country together with details of the condition of plant and machinery of all the factories. It is for the first time that the working of every individual factory has been examined in all its important aspects, which, apart from financial and technical performance and condition of plant and machinery, included diversion of funds, diversification of activities, participation in development of cane cultivation by the factories, practices of cultivation obtaining in different parts of the country, availability of sugarcane to sugar factories, payment of cane price, commission, excise duty and texes, type and quality of management. factory-farmer relationship, industrial relations and contrihution of factories to socio-economic development of the community in the factory areas. A technical-cum-financial report was prepared separately in respect of each factory. These were supplemented by reports of visits to the factories made by the technical, financial cooperative labour and other experts of the Commission. With the additional knowledge obtained by members through their personal visits to the factories, the Commission has made an assessment of individual factories as well as of the sugar industry as a whole and by sectors. The recommendations made in the three parts of our report are based on this assesment. but the detailed material will remain available even for examining any other aspects of the industry that may arise in the near future.

12.2 In assessing the technical performance of the industry, the Commission has also laid down norms or yardsticks with reference to which the technical performance of individual sugar factories was measured and judged. The norms laid down relate to the present conditions existing in the industry in the country and appear to the Commission to be fair and generally applicable to most of the factories. Allowance, of course, has to be made for special circumstances or conditions existing in any individual factory. In general, however, the norms and yardsticks accepted by the Commission have resulted in a good comparative assessment of the functioning of the industry. The Commission did not accept the plea advanced by a large section of the sugar industry that such general norms and yardsticks for judging the technical performance of individual factories could not be fixed. In fact, these norms were very useful in focussing the attention of the managements of the factories to their inadequacies from which they had been suffering from time to time. Now that the norms have been formally indicated by the Commission, it is hoped that it will be possible in future to measure the efficiency of the factories with reference to them. The norms, of course may have to be improved or revised from time to time in the light of research and technological development or marked change of conditions. The technical performance of a factory can hereafter be an important criterion in assessing the success or failure of a factory.

12.3 In dealing with the question of rational and efficient organisation of the sugar industry and in suggesting measures for resolving the problems of sick mills, the Commission has attempted to take an overall view of all the aspects of production, distribution and marketing of sugar, cane supply and relationship between canegrowers and factories and labour relations and has not confined itself to the mere question of ownership of factories. A unanimous recommendation has been made that a Central Organisation (National Sugar Authority or National Sugar Commission) should be set up for the purpose of looking after its various aspects. Another important unanimous recommendation by the Commission is that this Central Organisation should take over the marketing of the entire produce of all the factories in whatever sector they may be working. This has been suggested with a view to improving the organisation of marketing of sugar so as to make sugar available to the consumer at a reasonable price, in adequate quantity and regularly without interruption. The distribution and marketing of sugar at the stage of sale by the manufacturers is sought to be brought under the exclusive control of the public sector so that the interest of the consumers may be protected. Even under this scheme the dual price system for sugar can be continued, as sugar can be sold at a reasonably low price for the majority of individual consumers, while a higher price can be charged from bulk consumers of sugar, while ensuring a reasonable return to the manufacturers.

12.4 The Commission, in its report in Part I, has highlighted the role that the sugar factories can play in the socio-economic development and in helping to improve the lot of the weaker sections of the community in their areas. Sugar is the largest rural-based industry and it has been felt that sugar factories should not confine themselves purely to production of sugar as they are in the best position to look after the socio-economic development of rural areas around them.

The Central Organisation, it has been suggested, will supervise such activities of the sugar factories also and issue necessary directions to them for the purpose.

12.5 In mentioning the recommendations made by the Commission on the remaining terms of reference, emphasis has to be laid on the fact that the entire progress of the sugar industry is dependent on development of sugarcane cultivation both in quantity and quality. The requirements of the sugar industry as well as other sweetening agents have been estimated by the Commission and the Commission discussed with the representatives of various State Governments the possibility of achieving the required target. It appears that very vigorous and constant steps will have to be taken to develop cane cultivation all over the country if the future requirements are to be met and in fact, if there is success in this behalf, sugar can become a major commodity for earning foreign exchange.

12.6 As has been said earlier, the requirements of cane can be met partly by increasing the area under cane cultivation and partly by improving methods of cultivation so that the existing land under cane produces more and more cane in quantity and the quality is also improved so as to raise recoveries of sugar from the cane. For this purpose, a number of measures will have to be taken, which we would like to bring out prominently here.

12.7 One step that we have suggested is that there should be an expansion of the research facilities for cane production. We have recommended that another Sugarcane Breeding Institute like Coimbatore should be set up at some suitable place in the country, as the existing Institute by itself cannot possibly meet the future needs for improving seeds. Similarly, we have recommended the establishment of an Institute like the Indian Institute of Sugarcane Research, Lucknow in the tropical region, where there has been and there will be in future very considerable increase in cane production looking at the potential that exists there. A third recommendation is that an Institute on the lines of the National Sugar Institute, Kanpur, should also be established somewhere in the tropical region. In making these recommendations the Commission is fully aware that the Central Government will have to incur considerable expenditure, but the Commission thinks that the money that will be spent should not be treated as expenditure but as investment. The Central Government receives very large income in the form of excise duty on sugar. As the provision for research facilities will improve production of sugar, the income from excise duty will keep going up and we expect that the expenditure incurred will generate such large sources of income that the Government will be able to count on excise duty on sugar as an expanding source of taxation.

12.8 We have also made recommendation for expenditure being incurred by the Central and the State Governments on irrigation schemes particularly for areas where sugarcane has to be grown. Again, we may emphasise that this expenditure should also be treated as an investment which will give considerable returns in future to both the Central Government and the State Governments in the form of excise duty for the former and purchase tax for the latter. The Commission is aware of the requirement of irrigation for other competing crops, particularly foodgrains. But that should not in our opinion stand in the way of special steps being taken for raising irrigation facilities for cane cultivation as the resources generated by higher production of cane will be available for financing schemes for other crops. We would, therefore, like to impress on the Central and State Governments that benefits will certainly accrue in case adequate funds are provided for research on sugarcane and for providing irrigation facilities.

12.9 The Commission would like to draw attention to the fact that the projections which the State Governments have given about the potential for increase in cane cultivation and expansion of capacity to manufacture sugar with all their optimism will still add up to a figure which is below the requirement for the commodity in the next 10 to 15 years. Mere optimistic projections by the State Governments will serve no purpose. Vigorous efforts will have to be made and constant steps will have to be taken to ensure that the States achieve not only the targets envisaged by them but exceed them so that the future requirements of sugarcane and sugar are met fully.

12.10 On the manufacturing side the Commission is of the opinion that more importance should be attached to the expansion of the existing sugar factories than has been the case in the last 10 or 15 years. In the case of a number of factories the sugarcane grown within their assigned area is utilised by them to the extent of only 30 per cent or so. Efforts have to be made to ensure that a larger proportion of sugarcane becomes available to the factories for production of sugar and there is less diversion for the manufacture of gur and khandsari which industries can better be encouraged in areas which cannot supply cane to sugar factories. To achieve this object, steps in two different directions have been suggested by the Commission.

12.11 One step suggested is that the factories themselves must take an active part in the development of cane in their areas and must establish a rapport with the canegrowers so as to sustain the latter's long term interest in supplying cane to the factories in preference to gur and khandsari industries despite the temporary advantage due to higher prices being offered by gur and khandsari industries in years of short production. For this purpose, the Commission, in its first interim report (now Part II of the Report), worked out an integrated scheme for stabilisation of sugarcane supplies to the factories, which has been further supplemented in the final report. The scheme is based on incentives being given to cultivators to produce cane and to supply it to the factory. The scheme includes the incentive of share in sugar sales realisations facility of obtaining crop loans with the cooperation of the factory, preference being given to their cane at the time of crushing and conferring on those who regularly supply cane the right of precedence in the scheme

in future. There is also to be a deterrent provision to the effect that the cultivators entering into agreements to supply cane and failing to keep their contract would be liable to penalties. But these penalties themselves are to be an incentive for keeping the contract by laying down that the amount of the penalties realised will not be appropriated by the factories but will be distributed amongst those canegrowers who fulfil their contracts. As pointed out in our first interim report (Part II) this scheme has to be given effect to as an integrated one in all its aspects and the Commission feels confident that if this is done, the present difficulties of short production of cane and short supply of cane to the factories will very considerably be minimised. Piecemeal acceptance of the several recommendations will defeat the purpose of our having proposed an integrated scheme.

12.12 The second step is the creation of a buffer stock of sugar together with some regulation of gur and khandsari industries. The creation of a buffer stock of sugar should not pose a big problem, if the suggestion of the Commission of ensuring marketing of sugar through the central organisation is implemented. The stocks are not likely to pose any large problem of storage as the sugar can be stored in the godowns of the factories themselves. Proper and judicious manipulation of a buffer stock of sugar can go a long way in stabilising prices not only of sugar but also of gur and khandsari and of ensuring that the cultivators in producing cane do not err on the side of extremely high or extremely low production of cane.

12.13 If the measures suggested above are taken, the production of sugar can be increased very considerably by expanding capacity of the existing sugar factories wherever possible and by establishment of new sugar factories and their subsequent expansion. In fact, the Commission has envisaged that more than 40 per cent of the future requirement will be obtained by expansion. Installation of new factories will necessarily involve bringing considerably new areas under cane cultivation and will further by very costly owing to the larger investment now needed for setting up new manufacturing plants. Expansion of existing capacity can be managed at much lower cost and the Commission hopes that all necessary action will be taken to encourage the increase in capacity in the existing factories.

12.14 The Commission in giving this report has tried to assess the situation as it exists today and has taken into account the history of the industry during the last 10 to 12 years. The recommendations of the Commission are based on this study and are expected to achieve the results envisaged if these recommendations are given effect to at an early date. We therefore, suggest that early action should be taken for the implementation of our recommendations.

Chairman :

V. Bhargava

Members :

J. C. Dixit

B. N. Khosla

S. L. Saxena

V. S. Vyas

P. S. Rajagopal Naidu

Fazlur Rahman

Bansi Dhar

A. C. Bose

R. H. Chishti

N. A. Ramaiah,
Secretary

New Delhi, February 27, 1974

SUMMARY OF RECOMMENDATIONS

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1. The following norms should be adopted for assessing the technical performance of sugar factories :—

Particulars	Norms
Sugar per cent bagasse	3.0
Total sugar losses per cent eane	
(*a*) for carbonation factories	2.3 to 2.5
(*b*) for sulphitation faetories	2.3 to 2.7
Reduced mill extraction	93
Reduced boiling house extraction	90
Reduced overall extraction	84
The break-up of the total sugar losses is as follows :—	
(*i*) Loss of sugar in bagasse per cent cane	0.9 to 1.1 depending upon quality of cane.
(*ii*) Loss of sugar in press-cake per cent cane	0.1
(*iii*) Loss of sugar in molasses per cent cane	1.2 to 1.4 depending upon quality of cane.
(*iv*) Undetermined loss of sugar per ceñt cane	0.1

(Para 3.17, Page 36) Vol. I

2. The requirement of fuel depends on the type of equipment, its maintenance, process adopted and the efficiency of operation. In well maintained and well operated modern factories having steam economy measures, the fuel requirement in terms of bagasse is about 26—28 per cent on cane. In carbonation factories where the consumption of steam is higher, a further 2 per cent bagasse on cane is needed. In the case of well balanced old plants having fuel and steam economy measures, the consumption of bagasse per cent cane should be 30.

(Para 4.31, Page 59 Vol. I)

3. The norms laid down relate to the present conditions existing in the industry in the country. The norms may have to be improved or revised from time to time in the light of research and technological development and marked change of conditions. The technical performance of a factory can hereafter be an important criterion in assessing the success or failure of a factory.

(Para 12.2, Page 274 Vol. II)

4. **Rational and Efficient Organisation of Sugar Industry.**

(a) **Recommendations from Chapter VI :**

(i) There should be a statutory provision for membership of a representative each of labour and canegrowers on the board of management of each sugar factory.

(Paras 6.32 & 6.35, Pages 89 & 92 Vol. I)

(ii) The units, which have failed to observe even the minimum norms to be indicated to judge the performance in respect of financial and technical management, deserve to be looked into more carefully and if the charge of failure is established due to factors within the control of the management, they should be acquired by the Central Government to facilitate a change in their management. A statutory provision should be made to enable the Government to acquire all such units. Such units could be termed as sick units. (List of *prima facie* sick Mills is at P. 147 Vol. I).

(Paras 6.44 & 6.49, Pages 93 & 94 Vol. I)

(iii) Good units, operating as private limited companies, proprietory or partnership concerns, should be converted within a stipulated time into public limited companies. If such units do not comply with this requirement within the time allowed, they should be taken over and nationalised.

(Para 6.50, Page 94 Vol. I)

(iv) A statutory provision should be made for constitution of a National Sugar Authority (N.S.A.).

(Para 6.69 & 6.71, Page 97 Vol. I)

(v) The National Sugar Authority should be a well-knit body of eleven to fifteen persons nominated by Government of India. It will include five whole-time persons *viz.*, the Chairman, the Managing Director, a Technical Member, a Financial Member and an Economist. The other members will be nominated on the basis of their knowledge of sugar industry including persons who will represent interests of canegrowers, labour and factories. All policy decisions will be taken at the meetings of the NSA. The day-to-day administration will be in the hands of an executive of five persons *viz.*, the Chairman, the Managing Director, the Technical Member, the Financial Member and the Economist Member. The status of the Chairman must be fairly high corresponding to, say, a Senior Secretary in the Government of India.

(Para 6.72, Page 97 Vol. I)

(vi) In each sugar producing State, there can be a regional body or statutory corporation, either for whole State or co-terminus with sugar zones, members of which may be nominated by the State Government concerned in consultation with NSA. This regional body or corporation will be directly incharge of running the public sector factories in its region and will also be responsible for other functions to be delegated by the NSA.

(Para 6.72, Page 97 Vol. I)

(vii) The functions of the National Sugar Authority will be :

(1) To assess the demand for sugar for domestic requirement and for exports.

(2) To arrange for the production of sugar through factories in the corporate, co-operative and public sectors and arrange for its marketing in an orderly manner.

(3) To build and operate a buffer stock of sugar with the objective of stabilisation of prices.

(4) To acquire sugar processing units and to run them directly or through regional subsidiary bodies.

(5) To plan production and assist in development of cane in different regions of the country.

(6) To ensure technical efficiency of factories by way of regular technical audit, and to maintain Research and Development Divisions at the central and regional offices.

(7) To arrange for efficient utilisation of by-products directly or through subsidiary organisation.

(8) To regulate marketing of other sweetening agents.

(9) To arrange for equitable distribution of sales realisation on a pre-arranged basis; and

(10) To act as spokesman of the sugar industry at international forums.

(Para 6.73, Page 97 Vol. I)

(viii) The National Sugar Authority will have the authority to permit higher prices in particular areas than those recommended to overcome difficulties in the procurement of cane. A limit to these prices can be suggested on the basis of the opportunity cost of cane in the manufacture of gur and khandsari in areas where they offer stiff competition to the sugar units.

(Para 6.74, Page 98 Vol. I)

(ix) Factories in all the sectors will conform to the guidance and supervision of the N.S.A. and the N.S.A. can recommend take-over or acquisition of defaulting units.

(Para 6.72, Page 97 Vol. I)

(b) **Recommendations from Chapter VII :**

(i) The entire private sector of the sugar industry, other than the cooperative sugar factories, should be nationalised ;

(ii) The marketing of sugar upto the level of wholesale trade should be completely nationalised;

(iii) Provision should be made for adequate representation of labour and canegrowers in the nationalised sector and in the cooperative sugar factories at all levels;

(iv) For formulating and executing policies in regard to the entire sugar industry (public sector and cooperative sector) and for the administration of the public sector of the sugar industry, the following statutory bodies and organisations should be set up :

(1) A National Sugar Commission (NSC); and

(2) State Sugar Corporations.

The National Sugar Commission should have the power to fix the prices of sugar and sugarcane in consultation with such organisations and experts as it may deem fit or may be required. It should lay down the policies for the marketing of sugar and the regulation of the working of sugar industry in its various aspects. It should build up and operate a sugar buffer stock. It should carry out technical, financial and other inspections and audits of the different sugar factories in the country. It should develop professional management. It should plan and implement the plans for the growth of the industry to meet the current and future requirements, particularly as regards finance, sugarcane development, plant and machinery, better utilisation of by-products and quicker realisation of the socio-economic obligations of the sugar industry. For these purposes, the National Sugar Commission may utilise existing agencies or may create new agencies with the approval of the Government. The National Sugar Commission should be a well-knit body and have on it representatives of canegrowers, workers and cooperative factories.

Every State Government may set up one or more Corporations to run the sugar factories in the public sector. The Management Boards of the State Corporations will have on them representatives of workers and

canegrowers. The National Sugar Commission will have the power of giving directions to the State Sugar Corporations for the efficient working of the factories and for the marketing of sugar through the Food Corporation of India and cooperative societies.

(v) At every sugar factory, there should be a Managing Committee on which canegrowers and workers should be represented.

(Paras 7.82 & 7.83, Pages 125-126 Vol. I)

5. The central organisation (National Sugar Authority/National Sugar Commission) should be a high powered body. The organisation and its chief executives should have a feeling of involvement in the tasks entrusted to them so that the objectives aimed at are realised not only in letter but also in spirit. The personnel required to manage, guide and inspect the nationalised sector of the sugar industry should be competent in their respective fields of specialisation and should be conscious of their responsibilities.

(Para 5, Page 156 Vol. I)

6. The organisation should essentially be a two-tier system with the State Sugar Corporation entrusted with the actual management of the required units and the central organisation acting as an apex organisation at the central level.

(Para 6, Page 156 Vol. I)

7. The organisation at the central level will be a statutory body established by an Act of Parliament. The basic structure of the central organisation will be as follows :

(a) It will consist of a whole time Chairman, 4 whole time members and 10 part time members.

(b) The Chairman and whole time members should have among themselves special knowledge, experience and expertise in administration; finance and economic affairs; agriculture; sugar technology and engineering; and marketing. They should also have adequate practical experience in their particular fields as head of an organisation or institution or department. This is necessary as, apart from participation in policy making, they will have to implement and execute the policies and administer the various programmes and schemes relating to the functions and work of the Commission.

(c) The part time members may consist of the following :

(i) Director, National Sugar Institute, Kanpur—ex-officio;

(ii) Two representatives of State Corporations and Governments of States where there is no State Corporation;

(iii) A representative of the public sector;

(iv) A representative of the private sector (if private sector exists);

(v) A representative of the cooperative sector;

(vi) A person who, in the opinion of the Central Government, is capable of representing the interests of the canegrowers;

(vii) A person who, in the opinion of the Central Government, is capable of representing the interests of the workers; and

(viii) Two other persons having knowledge and experience of the sugar industry.

(d) The term of the Chairman and the whole time members may be 5 years at a time; the term of the part time members may be 3 years, except in the case of the *ex-officio* member.

(e) There shall be an Executive Board consisting of the Chairman and the whole time members. Each whole time member will be placed in charge of work and functions of the central organisation for which he may be best qualified or may be found suitable. The Chairman besides being in overall charge of administration and coordination of the work of the Commission, will be in charge of nationalisation and acquisition of sugar mills in the future (if the organisation functions as N.S.A.) fixation of prices of sugar and sugarcane (if the organisation functions as N.S.C.); and such other work as he may like to deal with.

(f) The central organisation will have the power to set up standing committees and *ad hoc* committees to deal with such matters and responsibilities as may be entrusted to them by it. Each standing committee/*ad hoc* committee may consist of some members of the Commission and others, including experts.

(g) One of the standing committees may consist of the Chairman and some or all the members of the central organisation and the Chairmen of State Corporations and the representatives of Governments of States which do not have a State Corporation. The representative of a State Government will be the officer appointed for controlling and supervising the management of the sugar factory/factories of the State.

(h) The central organisation will have the power to nominate one director on the Board of Directors of every State Corporation.

(i) All central assistance to State Corporations for rehabilitation of sugar factories and for other purposes will be channelled through the central organisation.

(j) The central organisation will have power to issue directions to State Corporations on matters of general policy.

(k) The role of the central organisation *vis-a-vis* Central Government will essentially be advisory except in so far as fixation of sugar and sugarcane prices is concerned when functioning as N.S.C. However, as the principal authority responsible for the regulation and development of sugar and allied industries, it will have important executive functions also.

(l) The central organisation will be the spokesman of the sugar industry as a whole at the national and international forums.

(m) The central organisation will have two wings—(a) secretariat, and (b) functional divisions/directorates dealing with specific fields of activities of the central organisation.

(Para 7, Page 156 Vol. I)

8. (a) A State Corporation may be a statutory body created by State legislation or may be a Government company within the meaning of Section 617 of the Companies Act, 1956. It will work as an autonomous legal entity subject to the overall supervision of the State Government and the general directions of the central organisation (N.S.A./N.S.C.) on policy matters.

(b) It will have a whole time Chairman-*cum*-Managing Director and a number of whole time and part time officials and non-officials as its directors. One director will be a person capable of representing the interests of workers and one director capable of representing the interests of canegrowers. One of its directors will be a nominee of the central organisation. Subject to the above conditions, the constitution, powers and functions of a State Corporation may be drawn up more or less on the lines of the Uttar Pradesh State Sugar Corporation. The State Corporation will have the requisite financial, technical and other staff.

(c) A State Corporation may manage 5 to 10 factories and there may be more than one Corporation in a State. Where there is no State Corporation, the State Government will appoint a suitable officer for controlling and supervising the management of the factory or factories in the State. This officer will represent the State Government on the standing committee.

(d) The State Corporation will, *inter alia*, plan and carry out the rehabilitation of the sick mills in its charge and secure funds for the purpose from the State Government and other agencies.

(e) There shall be a nominee of the central organisation on the Board of Directors of every State Corporation.

(f) The State Corporation shall carry out the directions of the central organisation in matters of general policy.

(Para 9, Pages 157-158 Vol. I)

9. (a) There shall be a Board or Committee of Management at each nationalised unit.

(b) It may consist of the General Manager of the factory and 4 or 6 other members of whom one shall be a representative of the factory canegrowers and one of factory labour.

(c) The Board/Committee will work under the general supervision and guidance of the State Corporation or the officer concerned and will look after the day-to-day management of the factory and take decisions on matters within its scope as may be laid down by the State Corporation.

(Para 10, Page 158 Vol. I)

10. The annual cost of the central organisation will be Rs. 20 lakhs to Rs. 25 lakhs. The cost will be borne entirely by the Central Government.

(Para 11, Page 158 Vol. I)

11. A State Corporation will cost Rs. 6 lakhs to Rs. 8 lakhs annually. The cost will be borne by the State Government and the factories concerned.

(Para 11, Page 158 Vol. I)

12. The sugar marketing transactions carried out by the central organisation may contribute to some extent towards the expenditure on the central organisation, if any part of sugar is sold at prices higher than levy prices.

(Para 11, Page 158 Vol. I)

13. A Factory Board/Committee of Management will cost about Rs. 10,000 to Rs. 15,000 per year. Its cost will be met from the earnings of the factory.

(Para 11, Page 158 Vol. I)

14. The Sugar Development Council set up under Section 6 of the Industries (Development and Regulation) Act, 1951 should function in close association with, preferably as a wing of the central organisation. The Chairman of the central organisation may be nominated as Chairman of the Sugar Development Council and some members of the central organisation also may be nominated on the Council.

(Para 12, Page 158 Vol. I)

15. The Sugarcane Development Council set up by a Government resolution may be converted into a Standing Committee set up by the central organisation under its own powers with the same functions and constitution.

(Para 13, Page 158 Vol. I)

16. Action for selection of officers for appointment to the various managerial posts of central organisation, State Corporations, Factory Boards/ Committees of Management, etc., should be started immediately.

(Para 5, Pages 160-161 Vol. I)

17. Government should invite applications for the managerial posts from the General Managers/Managers by a general circular/notification. Selection may be made from the applicants for temporary appointments but they should be assured in advance that they will be considered for regular appointment in the public sector if they fulfil the qualifications and conditions which may be prescribed for recruitment and appointment to the services in the public sector on a regular permanent basis.

(Para 3, Page 160 Vol. I)

18. The training of the selected officers should begin without any loss of time. The selected officers should be given an intensive training for 12 weeks or more depending on the time available before they are placed in charge of sugar factories. Their practical training may include training at the National Sugar Institute, Kanpur for one month and at the Indian Institute of Sugarcane Research, Lucknow for a fortnight. For another month and a half the officer should be placed for training under competent and experienced Managing Directors/General Managers of selected factories.

(Para 5, Pages 160-161 Vol. I)

19. Officers who have had previous experience of running sugar factories as receivers/authorised controllers, should be appointed straightaway as General Managers/Managers, etc.

(Para 5, Pages 160-161 Vol. I)

20. Government should start on the work of creating a pool of officers who are trained and qualified for working as Chairman-*cum*-Managing Director/ General Manager/Manager, etc., of sugar factories as their regular and permanent career.

(Para 6, Page 161 Vol. I)

21. The practice of deputing officers from the administrative and executive services to the posts of Managing Director and General Manager etc., should be stopped as soon as possible.

(Para 7, Page 161 Vol. I)

22. If it is at all neeessary to fill these posts by officers from administrative and executive cadres, the officers should be given intensive training in theory and practice of management of Sugar factories before they are put in charge of the factories and they should continue there for a reasonable period, say, four to five years.

(Para 7, Page 161 Vol. I)

23. Every State which has or expects to have in the near future 5 sugar factories should create a sugar industry management cadre. The industrial management cadre of the State should be adequately strengthened by increasing the number of posts in the cadre to the extent required for manning posts in the State Corporation(s) and sugar factories in the State.

(Para 8, Page 161 Vol. I)

24. The scales of pay and eonditions of service of officers in these cadres should be laid down. As far as possible the elassification of posts and the scales of pay should be the same in all the States.

(Para 8, Page 161 Vol. I)

25. A meeting of the representatives of State Governments should be called at an early date to discuss and decide the matters relating to the cadres.

(Para 9, Page 161 Vol. I)

26. A small Committee should be set up to work out the strength of cadres, conditions of service, qualifications etc. In drawing up the rules of service, the modern trend of giving opportunity to the juniormost member of the staff including technical staff of an organisation, to rise by promotion on ground of competence from one rung to another right upto the highest post in the organisation, should be kept in view.

(Para 9, Page 161 Vol. I)

27. The State Public Service Commission should be requested to recruit the requisite number of candidates for the various posts urgently.

(Para 10, Page 161 Vol. I)

28. Alternatively an *ad hoc* Selection Board may be set up early by the Central Government in consultation with the State Governments. The Board should make selections separately for different States, maintaining a uniform standard of selection.

(Para 10, Page 161 Vol. I)

29. It is derisable that there should be a central cadre also, not only to work at the centre but also sometimes in the States, particularly those States which do not have a cadre of their own.

(Para 11, Page 161 Vol. I)

30. A small Committee of experts should also be set up straightaway to prepare a syllabus for the training—theoretical and practical—of the selected candidates.

(Para 12, Page 161 Vol. I)

31. Candidates for the posts of Chairman-*cum*-Managing Director/General Manager, etc., should be recruited through State Public Service Commission Selection Board. The selected candidates should be appointed on probation for a period of two years and should be given intensive training, both theoretical and practical, for one year. The officer should then be put in charge of sugar factories on posts for which they have been recruited and are qualified and their performance should be considered iu deciding upon their confirmation.

(Para 14, Page 161 Vol. I)

32. A Committee should work out details of pay and scales of pay for different levels of technical personnel which could be offered to the technical staff straightaway on taking over of factories, if possible. The technical and other qualifications should also be laid down.

(Para 17, Page 162 Vol. I)

33. While in the conditions existing at present, the scheme drawn up by the National Sugar Institute, Kanpur, for linking the prices of sugarcane supplied by a canegrower or a group of canegrowers to its quality cannot be enforced on an all-India basis or even on a regional basis it might be found workable in a few selected factories where favourable conditions exist. Such factories should be identified and, if necessary, special schemes suitable for them prepared, keeping in view the main objective of the scheme. The scheme or variations of it may be tried in the selected factories in consultation and agreement with the canegrowers and with full backing, moral and legal, of the Central Government and the State Government concerned so that it may be possible for these factories to pay cane prices to canegrowers on quality basis. The ultimate aim should be to pay to every individual canegrower a price which corresponds to the quality of his cane.

(Para 1.9, Page 168 Vol. I)

34. There is very limited room for an increase in the net cultivated area in the country. Even if the all-India present average yield of cane is increased by about 25 per cent by 1985-86, as a result of intensive cultivation, technological advancement, use of better seeds, adequate fertilizers and more irrigation, it will not be possible to increase the production of sugarcane to an estimated 236 million tonnes required by that time. The area under sugarcane will, therefore, have to be increased during the next 10-15 years. But for the next few years our efforts should be directed to get the most from the existing area. Extension of area need take place only when a level of yield per hectare is reached which leaves only a marginal room for further increase in yields and when there is no escape from extension in cane area.

(Para 1.19, Pages 171-172 Vol. I)

35. For meeting the increasing requirements of sugarcane in the years to come, there is need not only to intensify cane development to increase sugarcane yield but also to bring more area under sugarcane. It is, therefore, essential to fix a remunerative price for sugarcane, which has an edge over the parity prices for other competing crops.

(Para 1.20, Pages 172 Vol. I)

36. The statutory minimum cane price should be so fixed that the return from cane is better than from other alternative crops, in which technological break through has already been achieved, and should be varied from year to year in the future in proportion to the changes in the return from other competing crops.

(Para 1.23, Page 172 Vol. I)

37. The statutory minimum cane price should be so fixed that it fully covers the cost of cultivation in the major cane growing regions.

(Para 1.24, Page 172 Vol. I)

38. For purposes of fixing cane prices, the data on cost of cane cultivation and return from sugarcane and other alternative crops should be collected and kept up-to-date.

(Para 1.24, Page 172 Vol. I)

39. The basic level of recovery to which the minimum cane price is linked, should be fixed at 8.5 per cent.

(Para 1.34, Page 174 Vol. I)

40. In areas in which the average sugar recovery is below 8.5 per cent, special efforts should be made by the Government, the factories and canegrowers to improve the quality of cane.

(Para 1.34, Page 174 Vol. I)

41. The suggestion of Indian Sugar Mills Association for separate basic recoveries for the North and some of the southern States is not acceptable. The acceptance of the principle of having more than one basic recovery on an all-India basis will open the doors to demands from other States/regions for a basic recovery specially suitable for their areas.

(Para 1.35, Page 174 Vol. I)

42. The premium for every 0.1 per cent increase in recovery over the basic recovery should be calculated on proportionally basis. This will mean a marginal increase in price of cane and a consequential increase in the price of sugar. This aspect can, however, be kept in view while fixing the basic minimum price for cane.

(Para 1.48, Page 177 Vol. I)

43. The adoption of the principle of proportionality in fixing the sugarcane price for individual sugar factories will prove beneficial to the industry as a whole and will provide a further incentive to canegrowers to improve the quality of cane.

(Para 1.48, Page 177 Vol. I)

44. In calculating statutory minimum cane price for individual sugar factories on the basis of the average sugar recovery of the optimum period of the preceding season, the figures for sugar recovery is rounded up to the first place of decimal. This system of rounding is inequitable. The rounding may be done upto two decimal places. For this purpose, the recovery should be calculated upto three places and the figure at the second decimal place may be increased by one if the figure at the third decimal place is other than zero.

(Para 1.49, Page 177 Vol. I)

45. The average sugar recovery of the normal crushing period, instead of the average sugar recovery of the optimum periods, of the preceding season should be taken into consideration for the purposes of

fixing the statutory minimum cane price payable by individual sugar factories.

(Para 1.59, Page 179 Vol. I)

46. The Government of India may fix and announce the normal crushing period for different factories in the place of the optimum period after consultation with the experts, growers and processors.

(Para 1.59, Page 179 Vol. I)

47. The statutory minimum cane price for a crushing season should be announced by the Central Government before the sowing of cane that will be crushed in that season—latest by early September each year.

(Para 1.65, Page 179 Vol. I)

48. The erratic supply of cane to factories can be greatly stabilised if canegrowers could be held to their agreements for supply of cane in years of shortage and bonding of cane could be restricted to the requirements of factories in years of excess production of cane.

(Para 2.13, Pages 184-185 Vol. I)

49. Incentives should be provided to persuade canegrowers to enter into agreements and to fulfil their contracts, and disincentives to discourage canegrowers from committing breaches of contract. A monetary incentive will produce better results than coercive measures.

(Para 2.13, Pages 184-185 Vol. I)

50. Where canegrowers supply cane through a canegrowers' society, tripartite agreements for supply of cane should be executed to which the factory, the society and the individual canegrower concerned should be parties.

(Para 2.13, Pages 184-185 Vol. I)

51. A Scheme for stabilisation of cane supplies to sugar factories has been suggested.

(Para 2.14, Page 185 Vol. I)

52. Sugar factories should estimate the requirement of the cane on the basis of the normal crushing period and should enter into agreements with canegrowers or canegrowers' societies for supply of cane upto their full requirements.

(Para 2.18, Page 186 Vol. I)

53. Both bonded cane and unbonded cane will be paid the same prices before and during the normal crushing period, but after the normal period unbonded cane will be paid a lesser price than bonded cane.

(Para 2.19, Pages 186-187 Vol. I)

54. An additional price shall be paid to canegrowers who are entitled to it under the Scheme. The additional price payable to the canegrowers out of extra realisations should be announced in October so that it may influence sowings of cane and execution or agreements for supply of cane.

(Para 2.20, Page 187 Vol. I)

55. The amounts realised by a sugar factory from canegrowers and canegrowers' societies as penalty for breach of contracts for supply of cane will not go to the factory but will be merged with the canegrowers' share from extra realisations for payment as additional cane price.

(Para 2.25, Pages 187-188 Vol. I)

56. The principle of factories sharing extra realisations from sugar with canegrowers must be revived and re-introduced.

(Para 2.35, Page 189 Vol. I)

57. Extra realisations from sugar should be divided between a factory and the canegrower in the ratio of 50 : 50.

(Para 2.39, Page 189 Vol. I)

58. Every factory should issue to every canegrower supplying cane to it, a pass book containing information about area under cane with the canegrower, quantity of cane to be supplied by him, progressive supply of cane, payment of cane price, etc. In the case of a canegrowers' society, the society will issue a pass book to its members.

(Para 2.45, Page 190 Vol. I)

59. Clause 9 of the Scheme regarding the sharing of extra realisations by canegrowers and factories will not apply to factories which pay to canegrowers prices higher than laid down under the Scheme.

(Para 2.49, Pages 191-192 Vol. I)

60. Most of the future requirements of sugarcane have to be met by higher tonnage and sugar per hectare so that the need for expanding cane area is reduced to the minimum.

(Para 1.12, Page 217 Vol. II)

61. It is necessary to plan ahead for meeting the developing situation so that the country may have at any given time enough new cane varieties available to replace the comparatively inferior ones as well as to replace the deteriorated varieties and to meet the future large requirements of improved varieties of sugarcane. (Para 1.12, Page 783). For this purpose—

(a) The Pusa Institute in Bihar and the Padegaon Institute in Maharashtra should be strengthened ;

(Para 1.13, Page 217 Vol. II)

(b) Sugarcane Breeding Institute at Coimbatore should be enlarged and strengthened ;

(Para 1.14, Page 218 Vol. II)

(c) One more Central Sugarcane Breeding Institute should be established. The new institute should start as a branch of the Coimbatore institute as that will help considerably

in the initial stages of its organisation. Later, say, within 5 to 10 years, it should become an independent institute ; and

(Para 1.19, Page 218 Vol. II)

(d) It will be necessary to make a detailed study for deciding upon the location of the new breeding institute. The Government should set up an expert committee to go into this question and to give its views about the location of the institute. It should also plan a project for the establishment of the institute at an early date and for training the technical staff that will be required for the institute. The institute will take several years after its establishment to be in a position to make any significant impact on the availability of new varieties of sugarcane. In the circumstances, the earlier a project is planned and executed, the better it will be.

(Para 1.20, Page 218 Vol. II)

62. The conntry is so vast and the problems of sugarcane in the tropical and sub-tropical regions are in some respects so different that it is necessary to have a separate Sugarcane Research Institute located in the tropical region for closely attending to the problems of sugarcane in the tropical region. A Central Sugarcane Research Institute in the tropical region should be established on the same lines as the Indian Sugarcane Research Institute, Lucknow. In this case also, the new sngarcane research institute should start as a branch of the Lucknow Institute to develop later into an independent institute.

Para 1.22, Page 219 Vol. II)

63. The scope and facilities at the National Sugar Institute, Kanpur should be enlarged so that the Institute may undertake and discharge its various responsibilities connected with training, research, advisory and extension services satisfactorily in the context of the expanding production and the growing responsibilities it will have to shoulder.

(Para 1.25, Page 219 Vol. II)

64. Sugar Industry has been fast growing with increasing shift towards the South. Another sugar technological institute in the South should be set up on more or less the same lines as the Kanpur Institute.

(Para 1.25, Page 219 Vol. II)

65. Research on sugarcane breeding and cultural techniques and sugar manufacture has to be strengthened if the sugar industry has to play its expected role in the national economy. Sugarcane and sugar research has not received the attention that it deserved. Neither the sugar industry nor the Government has provided adequate resources for carrying out sugarcane research on the scale that is necessary. Allocation of funds for sugar and sugarcane research, which is at present very low, should be increased immediately at least to one per cent of the total revenue earned by the exchequer and should be progressively and steadily raised year by year so that within the next 10 to 15 years, it reaches about 2 per cent of the total revenue realised from sugar and sugarcane. Sugar industry should also contribute liberally to the organisation and execution of research programmes.

(Para 1.26, Pages 219-220 Vol. II)

66. At present, there is insufficient contact between the sugarcane research stations and the Sugar Institute at Kanpur. There is also very little coordination between the two wings of research—research on sugarcane and research on utilisation of sugarcane. The senior experts of one institute should visit the other institutes carrying on research in related fields. It is not only desirable but necessary that the experts carrying on research on utilisation of sugarcane should remain constantly in touch with the experts carrying out research in breeding and production of sugarcane. There should also be half-yearly or annual meetings of senior sugarcane and sugar experts of the Central and State research institutions and centres and the universities and of the national institutes for a joint study of the problems facing the canegrowers and the sugar industry.

(Para 1.28, Page 220 Vol. II)

67. Research work is impeded on account of considerable delays which occur in obtaining financial sanctions from higher administrative authorities for research programmes. There should be freedom for the research worker to work in his own way without undue outside constraints. There is need for greater autonomy to the research institutes and scientists, which should have far-reaching and beneficial effects on the progress and results of research.

(Para 1.29, Page 220 Vol. II)

68. Sugarcane crop competitions should be held both on the basis of quality and yield of cane, the criterion being the total sugar (tonnes brix) per hectare.

(Para 2.2, Page 221 Vol. II)

69. The very low and halting progress in cane yields and near-stagnation in sucrose content during the last 10 to 12 years is a matter for concern. For improving the cane yields and the sucrose content, adequate irrigation, good seed, sufficient and suitable fertilizers and drainage facilities, plant protection services, etc. are to be provided. These are basic and elementary measures which must be taken. It is here that factories and other organisations and agencies concerned with cane development can provide necessary help to canegrowers.

(Para 2.4, Pages 221-222 Vol. II)

70. Active and direct participation of factories in cane development will be an effective means for achieving rapid cane devlopment in the country. Factories should be given an effective voice in the cane devlopment couucils. A council should constitute of 7 members—3 members from the factories, 3 from canegrowers and 1 government official. Where canegrowers' unions exist, the representatives of canegrowers' unions shonld be members of the council concerned. Otherwise, they should be nominated by the

State Government or by a subordinate authority empowered to do so. A senior executive of the factory should be its Chairman. The Secretary of the council should be a regular employee of the council..

(Para 2.8, Page 223 Vol. II)

71. Competent and qualified agricultural experts should be employed and maintained by the factory for extension services.

(Para 2.8, Page 223 Vol. II)

72. The funds of the council should be augmented considerably. A factory should contribute to the funds of the council of its area at the rate of five paise per quintal of cane purchased by it. This amount should not form part of the sugar price but should qualify as development expenditure for the purposes of exemption from corporate/income tax. Canegrowers should contribute to the funds of the council at the rate of two paise per quintal of cane. The Central and the State Governments should each contribute at the rate of ten paise per quintal. In addition to the above, the council should receive, as at present, its share from the commission payable by a factory on cane purchased by it, which is seven paise per quintal.

(Para 2.9, Page 223 Vol. II)

73. Cane dvelopment councils should be established in those States also where they do not exist at present so that cane development work is carried out with active collaboration of the factories and the canegrowers.

(Para 2.11, Page 223 Vol. II)

74. There is need for a direct link between the factories and the canegrowers even in areas where canegrowers' unions exist. In the case of cooperative factories, however, there is no need for having separate canegrowers' unions.

(Para 2.12, Page 223 Vol. II)

75. Deterioration of varieties occurs primarily due to virus infection of which the major source is the diseased or infected cane setts used for planting. Heat treatment of cane setts eliminates or minimises the infection. This treatment technique should be adopted for which adequate facilities should be provided by research centres, factories, government departments, etc.

(Para 2.13, Page 224 Vol. II)

76. The problem of propagation of the seed of newly evolved varieties and multiplication of good quality of seeds of existing varieties requires an effective and urgent solution, if the life of the improved high-yielding varieties with high sucrose content is to be prolonged and the standard of sugarcane crop all over the country is to be raised. The best solution to this problem lies in the setting up of sugarcane farms by sugar factories for this specific purpose. Each sugar factory should maintain a farm or farms in its areas with a total acreage sufficient to produce seed to meet the requirements of its area under a scheme of seed propagation and multiplication. The total area of the farm or farms should be about 40 hectares, which is the minimum required. An exemption from the land ceiling laws should be granted in respect of factory farms:

(Paras 2.14, 2.15 & 2.18, Pages 224-225 Vol. II)

77. The factory farm will function as a primary nursery to produce sufficient healthy seed to serve the secondary nurseries to be maintained by progressive growers. The seed from the secondary nurseries should be supplied to cultivators at subsidized rates. The subsidy should come out of the funds of the development council. The cane development staff should ensure that the healthy and improved seed actually supplied goes for planting and that the farmer who can obtain healthy seed from or through the factory, does not use inferior and unhealthy seed.

(Para 2.16, Pages 224-225 Vol. II)

78. There should be a soil testing laboratory as an integral part of the farm where farmers may get their soils tested free of cost or on payment of a nominal fee and obtain advice regarding the kinds and doses of fertilizers to be used in their fields and on other relevant matters.

(Para 2.17, Page 225 Vol. II)

79. A small workshop for repairing agricultural implements commonly used in the area may also be set up as an adjunct to the factory farm.

(Para 2.17, Page 225 Vol. II)

80. Arrangements should be made for sale of fertilizers from depots located in the factory farm premises.

(Para 2.17, Page 225 Vol. II)

81. Various experiments on healthy cane cultivation should be conducted by a factory on its farm and demonstrated to the canegrowers.

(Para 2.17, Page 225 Vol. II)

82. Agricultural credit to canegrowers should be made available primarily by sugar factories and canegrowers' unions instead of through the village credit societies.

(Para 2.24, Page 226 Vol. II)

82a. One of the main reasons for slow progress in cane development has been the lack of adequate credit facilities to the canegrowers. Adequate agricultural credit must be made available to the growers for cane development. This is possible only if the factories which have adequate bank credit facilities are actively involved in this matter. Every factory should be under obligation to advance loans or arrange for loans (in cash or kind or both) for cane development to the canegrowers of its area when the canegrowers enter into tripartite or bipartite agreements, as the case may be. The amount or loan which a factory should advance or arrange for, should be not less than 40 per cent of the value of the cane agreed to be supplied.

(Paras 2.27 & 2.29, Pages 226-227 Vol. II)

83. It should be the responsibility of the factory to ensure that the canegrowers of its area get cane production loans. To facilitate factories granting loans to the canegrowers, it is necessary that they should be allowed and enabled to recover the loans through deduction from cane price.

(Para 2.29, Page 227 Vol. II)

84. The payment of cane price should invariably and in all cases be made by factories directly to canegrowers, even in respect of canegrowers who supply cane through canegrowers' unions.

(Para 2.29, Page 227 Vol. II)

85. Provision of adequate irrigation facilities is of the utmost importance for cane development. The Central and State Governments should extend and intensify the creation of irrigation potential by providing large tubewells, construction of canals, etc. to produce a significant impact on the irrigation situation in factory areas. Cane development councils and factories should launch minor irrigation schemes in their areas on a significant scale.

(Para 2.31, Page 227 Vol. II)

86. While establishing new factories, provision should invariably be made for developing minor irrigation facilities, within a radius of 10 to 15 kilometers of a factory.

(Para 2.32, Page 227 Vol. II)

87. In areas which are subject to floods and waterlogging, the provision of drainage facilities is necessary. Construction of tubewells and surface wells in such areas has helped in lowering the water level and in providing drainage. The Central and State Governments should attend to the drainage problem. To a small extent and in limited areas, the development councils should also help.

(Para 2.33, Pages 227-228 Vol. II)

88. Development councils and factories should evolve schemes for providing required quantities of balanced fertilizers to canegrowers at appropriate times and, if possible, at subsidised rates.

(Para 2.34, Page 228 Vol. II)

89. There is need for augmenting research on biological control of sugarcane pests. A section for research on biological control should be added at the Lucknow Sugarcane Research Institute.

(Para 2.35, Page 228 Vol. II)

90. Sugarcane should be included in the Endemic Area Schemes and Epidemic Area Schemes of the Central Government. More funds should be made available to the State Governments for plant protection of agricultural crops including sugarcane.

(Para 2.36, Page 228 Vol. II)

91. Development councils and factories should also participate actively in the control of pests and diseases in the sugarcane crop areas. Factories should maintain on their staff a qualified plant protection officer, whose duty should be to guide the canegrowers in maintaining their crop well. Suitable pesticides should be supplied to canegrowers at subsidised rates. Spraying equipment should be maintained by the development councils and factories and given to the canegrowers at nominal hire rates.

(Para 2.37, Page 228 Vol. II)

92. Harvesting and transport of cane by factories ensures fresh cane supplies to factories and leads to better sugar recovery. Where conditions are favourable, factories should endeavour harvesting and transport of cane, in consultation with and cooperation of canegrowers and canegrowers' unions of their areas.

(Paras 2.39 & 2.40, Pages 228-229 Vol. II)

93. The need for improvement of existing roads and the construction of new roads in factory areas is urgent. State Governments concerned should pay early attention to this problem.

(Para 2.47, Pages 229-230 Vol. II)

94. As the condition of roads is generally poor and transport of cane over longer distances by bullock-carts is difficult and time-consuming, no canegrower should have to transport his cane over a distance of more than 8 kilometers. More out-station centres should be established wherever necessary.

(Para 2.48, Page 230 Vol. II)

95. Canegrower is to be educated about the care and attention to be paid to the ratoon crop and about its advantages. Development councils and the factories should launch schemes to demonstrate in factory areas and in the fields of progressive farmers, how good ratoon crop can be obtained by adopting proper techniques.

(Para 2.52, Pages 230-231 Vol. II)

96. Factories and canegrowers' unions should adopt maturity-wise harvesting. Maturitywise harvesting schedules should be drawn up on the basis of the brix data of sugarcane crop in different fields.

(Para 2.53, Page 231 Vol. II)

97. To achieve the target of production of 2360 lakh tonnes of cane by 1985-86, the per hectare yield has to increase from 47.7 tonnes (1971-72) to 63 tonnes. The research institutes, the State Governments, the factories, cane development councils and the growers will have to make concerted and coordinated efforts to obtain this increase in yield. These efforts are specially called for in the sub-tropical regions where the yields are generally low and where a large potential for increase exists.

(Para 2.79, Page 236 Vol. II)

98. For reaching the target production of 95 lakh tonnes of sugar by 1985-86 large scale finance and detailed and careful planning both at the central and the state levels and close cooperation of all concerned—the industry, canegrowers, workers, government, etc.—are required.

(Para 3.1, Page 237 Vol. II)

99. To achieve sugar production target, the daily installed cane crushing capacity has to be increased from 3.16 lakh tonnes (1971-72) to 6.24 lakh tonnes by 1985-86. The emphasis should be on utilization of the installed machinery over a longer period.

(Para 3.21, Page 240 Vol. II)

100. The present policy of licensing expansions to all factories irrespective of the sector to which they belong and preference to cooperatives in the matter of new units should continue.

(Para 4.2, Page 241 Vol. II)

101. Dispersal and location of sugar factories all over the country in suitable areas will be in the interest of overall development of the rural economy and the mechanism of licensing should be utilised to this end.

(Para 4.2, Page 241 Vol. II)

102. While issuing licences to new sugar factories, the cane availability position should be very closely examined and licences should be issued for setting up of sugar factories in those areas only which have cane and which can grow more within a year or two of a factory coming into production. The setting up of new factories in areas where there is very little cane potential should be severely discouraged. A sugarcane expert should be associated in the study of this point and the screening committee may be strengthened by including a sugarcane expert.

(Para 4.3, Page 241 Vol. II)

103. Expansion is cheaper and quicker than the setting up of a new factory. All sugar factories should be exempted from the licensing restrictions in respect of expansion up to 2,000 tonnes of cane per day.

(Para 4.4, Page 241 Vol. II)

104. Licensing of additional capacity by way of new units has not been properly phased. Government should work out a long term plan and should issue licences in a phased manner.

(Para 4.5, Pages 241-242 Vol. II)

105. Most of the existing sugar factories will have to be expanded sooner or later, say, upto 3,000 to 4,000 tonnes. This aspect has to be kept in view while sanctioning new units in the vicinity of the existing factories. In the future a new sugar factory should not ordinarily be set up within 50 kilometers of any other factory.

(Para 4.6, Page 242 Vol. II)

106. Sugar factories should be established in all regions which have adequate potential for sugarcane production and not be limited to any particular region or regions on considerations of productivity alone.

(Para 4.7, Page 242 Vol. II)

107. Where potential for adequate supply of cane exists within a reasonable distance of an existing factory, the later should be expanded instead of a new factory being set up within a short distance of it.

(Para 4.8, Page 242 Vol. II)

108. The future annual requirements of sugar machinery have been estimated at more than 26 units. The persent capacity in the country is 20 plants per year. There is need for installing additional sugar machinery manufacturing capacity. The Government may take suitable action for setting up one or more sugar machinery manufacturing units.

(Para 5.12, Page 245 Vol. II)

109. The additional capacity may be given to entrepreneurs outside the existing sector with a view, *inter alia*, to providing healthy competition between the existing machinery manufacturers and the new manufacturers in respect of cost and quality. A part of the additional capacity can be obtained by expansion of the existing units.

(Para 5.13, Pages 245-246 Vol. II)

110. For a proper planning of production of sugar machinery by sugar machinery manufacturers, it is essential that there should be a regular and even flow of orders on the manufacturers. This will be facilitated if the grant of licences is evenly phased (of Recommendation 105) keeping in view the manufacturing installed capacity of the sugar industry and also the capacity of the sugar machinery manufacturers.

(Para 5.7, Page 244 Vol. II)

111. One of the reasons for the delay in the setting up of the cooperative sugar factories was due to difficulty in raising substantial amounts of money towards the share capital from canegrowers residing within a limited area. State Governments should contribute to the share capital to the maximum extent they can without waiting for a corresponding matching amount being colleced by canegrowers, towards the share capital of a cooperative factory. This will enable the cooperative factories to place orders for plant and machinery more quickly than has been the case so far. Apart from the contribution which the State Governments make to the share capital from the funds placed at their disposal by the National Cooperative Development Corporation, they should also find funds from their own resources.

(Para 5.9, Page 245 Vol. II)

112. To avoid delay in the manufacture of sugar plants, the required quantity of steel may be carmarked for manufacture of sugar machinery and placed at the disposal of the central organisation (NSA/NSC) which would make allotments to the sugar machinery manufacturers. In case sufficient steel cannot be allocated

from the indigenous production, the manufacturers should be allowed to import the required quantities of steel.

(Para 5.10, Page 245 Vol. II)

113. The cost of plant and equipment of a sugar factory has been going up rapidly. The Bureau of Industrial Costs and Prices may be asked to find out the cost of standard plant and major components.

(Para 5.15, Page 246 Vol. II)

114. If the requirements of the plant and equipment needed for the future development of the sugar industry are to be met, it is necessary that the entire sugar machinery manufacturing capacity should be available to and utilized for manufacture of sugar plants and machinery. It is necessary to exercise some supervision and control over the working of the sugar machinery manufacturers.

(Para 5.16, Page 246 Vol. II)

115. It is necessary to maintain a high standard of quality of production not only from the point of view of indigenous requirements but also from the point of view of export. The Technical Wing of the NSA/NSC should have the authority and the responsibility for supervision over sugar machinery manufacture and quality control of sugar machinery. Alternatively, the National Sugar Institute, Kanpur may be entrusted with the responsibility for quality control.

(Para 5.18, Page 246 Vol. II)

116. Intensive and continuous research on design of sugar machinery is called for. The facilities of the Design and Devlopment Section in the National Sugar Institute should be strengthened for this purpose.

(Para 5.19, Page 246 Vol. II)

117. Intensive research should be undertaken to design and manufacture a furnace which should be capable of working primarily on coal but could be run efficiently on bagasse also, should coal be not available

(Para 5.20, Page 246 Vol. II)

118. There is a good scope for earning foreign exchange by export of sugar and it will be in the interest of both the industry and the nation to increase export.

(Para 6.5, Page 248 Vol. II)

119. So far India's exports have fluctuated widely from year to year. Under such conditions it becomes difficult for the importing countries to rely on India for meeting their import requirements. If these conditions were to continue, it would greatly damage the prospects of expansion of sugar exports. For building up and sustaining our export market, it is necessary to evolve a definite long term policy.

(Para 6.7, Page 248 Vol. II)

120. The pattern of meeting export losses in India has been different from year to year. There is no fixed procedure for meeting the export losses. It is unfair to expect the industry only to bear the entire loss in transactions which are carried out to earn foreign exchange in the interest of the country as a whole. Government, therefore, should also share the losses. As a long term policy, the export under the preferential quota should be on the industries account and the export under the International Sugar Agreement quota, on the Central Government account. In regard to the sharing of profit or loss, the arrangement should be as follows. If profit is made under one quota and loss is incurred on exports under the other quota, the profit of the first should be utilized for off-setting the loss and only the balance of profit, if any, should be retained by the former.

(Para 6.7, Page 248 Vol. II)

121. If the entire sugar trade is taken over by the Government, a provision for export losses may be made in the sugar price and funded separately. The loss in exports, if any, may be met from this fund. Any savings in a year could be utilised for supporting export in other years.

(Para 6.7, Page 248 Vol. II)

122. When exports are made under the provisions of Sugar Export Promotion Act, the system of apportionment of sale proceeds from exports is not reasonable. Section 9 of the Act should be suitably amended so that the losses are distributed in such a way that the loss per tonne of sugar will be the same for all factories.

(Para 6.8, Pages 248-249 Vol. II)

123. Goverment should make use of the condition existing in the licences for expansion or setting up of new units issued after 1964-65 (the condition being that sugar factories, if required by Government, shall manufacture and supply raw sugar for export purposes) and ask selected factories to manufacture raw sugar for which payment may be made at the price not of white sugar but of raw sugar according to cost schedules which may be worked out from time to time. This would reduce the export losses to some extent.

(Para 6.9, Page 249 Vol. II)

124. A few factories of large capacity may be set up in the public sector in Gujarat in particular and also in Maharashtra, Tamil Nadu and Andhra Pradesh for producing sugar for export.

(Para 6.10, Page 249 Vol. II)

125. The Possibility of setting up and developing sugar industry in suitable areas of the Andaman Islands, for manufacture of sugar for export purposes should be fully explored.

(Para 6.11, Page 249 Vol. II)

126. Bagasse because of its high cellulosic content has great potential for use in the paper industry. There are several difficulties in setting up paper mills based on bagasse as primary raw material. A paper mill cannot possibly be run on the basis of 'saved' bagasse only. It will be necessary for a paper mill to secure

from a sugar factory or a group of factories suitably situated in relation to it, the whole or substantial part of the bagasse of the factory or factoires concerned. This will necessarily entail the conversion of bagasse furnace into coal furnace. To induce sugar factories to change over to coal firing with a view to diverting their bagasse to the paper industry, it will be necessary for the Government and the paper industry to give them adequate incentives.

(Paras 7.7 & 7.10, Pages 251-252 Vol. II)

127. As the national need for develoment of paper industry is immediate, the Central Government itself should initiate early action to set up a paper-cum-sugar factory complex in the public sector. It will be advisable to establish a sugar mill of about 5,000 tonnes capacity in an area having adequate cane potential. The boilers of the sugar factory should from the very beginning be based on coal and the entire production of bagasse should be utilised for paper.

(Para 7.11, Page 252 Vol. II)

128. The techniques and equipment required for fuel and steam economy resulting in savings of bagasse are available. Sugar factories should take recourse to these techniques and equipment and reduce the consumption of bagasse to the minimum. Bagasse saved by factories should be converted into paper pulp by installing suitable equipment and by transporting the pulp to a central paper factory. For this purpose, sugar factories should be given suitable incentives.

(Para 7.12, Page 252 Vol. II)

129. In the sugar-cum-paper project furfural should be manufactured from the pith separated from the bagasse before using the latter for paper manufacture.

(Para 7.13, Page 252 Vol. II)

130. In regard to the other uses of bagasse especially on sacharification, production of vanallin from lignin, etc. the available information is inadequate. Research on these uses of bagasse should be intensified.

(Para 7.14, Page 252 Vol. II)

131. There is a definite need for increasing the price of molasses. A substantial part of alcohol produced from molasses is utilised for manufacture of potable liquors. It should not be difficult to work out the quantity of molasses corresponding to potable liquors manufactured. The price of that quantity of molasses should be fixed at a much higher rate.

(Para 7.19, Page 254 Vol. II)

132. It is in the national interest to preserve the valuable bye-product molasses from deterioration and wastage. Factories not having adequate and suitable molasses storage tanks should be encouraged to instal them.

(Para 7.22, Page 254 Vol. II)

133. The cultivation of beet should be taken up with caution and only in areas where enough sugarcane of reasonable quantity cannot be grown and there is absolute certainty that the entire beet crop will be utilised for sugar production. To this end, it will be necessary to plan and regulate sugarcane production also. In addition to the Government schemes now in progress, research and development activities should, therefore, be oriented towards developing--

(a) coordinated programme for cane and beet cultivation ;

(b) procedures for reducing the fuel consumption in factories processing cane and beet; and

(c) procedures for proper utilisation of by-products, particularly beet pulp.

Work on the above aspects should be taken up at the National Sugar Institute, Kanpur in collaboration with the Indian Institute of Sugarcane Research, Lucknow and some sugar factories.

(Para 8.9, Page 256 Vol. II)

134. Firm and reliable data on production of gur and khandsari are not available. In all the important gur and khandsari producing States, data on production and other essential aspects of these sweetening agents should be collected and correlated regularly and maintained properly. Suitable agencies should be made responsible for this.

(Para 9.3, Page 258 Vol. II)

135. The production of gur and khandsari is inescapable and will have to continue as an important economic activity in the forseeable future.

(Para 9.5, Page 258 Vol. II)

136. There is paramount need for improving the techniques of gur production. Losses of sugar should be reduced and gur of better quality should be manufactured. Improved types of roller crushers, capable of giving 80 per cent extraction and increasing recovery of gur from 10 to 12 per cent should be popularised. Easily understandable literature, which even neo-literates may follow, on the subject showing the technical and economic advantages of the crusher should be brought out. Demonstrations in important gur producing areas should be organised. If canegrowers are convinced of its satisfactory performance—from technological as well as economic angles—it could be set up by village level cooperative societies for processing canegrowers' cane into gur.

(Para 9.9, Page 258 Vol. II)

137. Gur production in the vicinity of sugar factories through power crushers must be regulated and controlled as such crushers are generally used for production of gur for commercial purposes.

(Para 9.11, Page 259 Vol. II)

138. The demand of the sugar industry for keeping khandsari units outside the factory areas is a reasonable one. New khandsari units should not generally be allowed in factory areas. Inducements should be offered to khandsari units to shift away from the sugar factory areas.

(Para 9.13, Page 259 Vol. II)

139. As gur and khandsari industries must also continue and have cane for crushing, suitable arrangements should be made by legal and executive measures to coordinate cane supplies to them and to the sugar industry.

(Para 9.13, Page 259 Vol. II)

140. Gur prices can be maintained by building up and skilful manipulation of a buffer stock of sugar. Maintenance of gur prices at a reasonable level will in due course lead to a narrowing of the range of fluctuations in the area and production of cane and stabilisation of cane supplies to each of the sugar, the gur and the khandsari industries.

(Para 9.18, Page 260 Vol. II)

141. There is need for improving techniques of gur storage so that gur can be stored over comparatively long periods without loss in weight, quantity and colour. Research for the same should be intensified.

(Para 9.18, Page 260 Vol. II)

142. There should be a department or a directorate and the centre to initiate and coordinate policies and programmes for the proper development of gur and khandsari industries. The existing Directorate of Sugar & Vanaspati should be enlarged so as to deal with the gur and khandsari industries also. When the central organisation is set up, it will take over these responsibilities.

(Para 9.21, Page 260 Vol. II)

143. Factory should employ specialists, such as entomologists, agronomists, plant protection officers, etc., to attend to the special problems of cane cultivation in their areas.

(Para 10.2, Page 261 Vol. II)

144. Cane Development Officers may undergo short course in management in agriculture. Facilities available for such a course at the Indian Institute of Management, Ahmedabad or any other organisation may be utilised.

(Para 10.3, Page 262 Vol. II)

145. The Sugarcane Research Institute to be set up in the South should undertake the training of the cane development field staff.

(Para 10.4, Page 262 Vol. II)

146. The various State sugarcane research stations/centres should take up the training of field and extension staff of Government, factories and canegrowers' unions. State Government should provide funds and adequate facilities for this purpose at their research stations/centres.

(Para 10.4, Page 262 Vol. II)

147. The annual requirements of sugar technologists and sugar engineers will be of the order of 100 each. They should be trained according to a planned programme so that the needs of the new factories and the additional needs of the old factories after expansion could be met.

(Para 10.6, Page 263 Vol. II)

148. The proposed new sugar technological institute in the South should impart training in sugar technology. The facilities at the Kanpur Institute should be increased at an early date and utilised to the maximum.

(Para 10.7, Page 263 Vol. II)

149. Necessary steps should be taken immediately for augmenting training facilities for sugar engineers. This can be done in number of ways. First, the number of seats at the Kanpur Institute should be increased considerably. Secondly, the other technological institute to be established in the South should have larger facilities for such training. Further, some of the Indian institutes of technology in the country should be requested to start special courses in sugar engineering.

(Para 10.8, Page 263 Vol. II)

150. The engineering staff already working in the sugar factories and not possessing the required qualifications should be given preference in admission so and they also would get qualified quickly.

(Para 10.8, Page 263 Vol. II)

151. Regarding the under-graduate staff required for technology and engineering wings of the industry, the training facilities will have to be expanded on a large scale. State Governments of all major sugar producing States should select one or two polytechnics in their States and institute courses for training suitable number of technicians.

(Para 10.9, Page 263 Vol. II)

152. A majority of the existing managerial personnel of sugar factories need training and the purely technical staff should also be given some basic knowledge of scientific management. Arrangements may be made with the various management institutes in the country to organise short term courses. The facilities available for business management training to senior executives at the Hyderabad Staff College may also be utilised. The personnel at lower levels may be given training for a longer period.

(Paras 10.10 & 10.11, Page 263 Vol. II)

153. Officers promoted from lower to higher levels in the managerial cadre should be given orientation course to equip themselves for higher responsibilities, particularly when their duties change *i.e.*, from purely technical control to, say, man-management.

(Para 10.12, Pages 263-264 Vol. II)

154. Not only the managerial personnel at the policy level (such as Managing Director/General Managers, etc.) but also the technical personnel in key posts in a factory *e.g.*, Chief Chemist, Chief Engineer and Chief Accountant, should be given some training in modern management and techniques.

(Para 10.13, Page 264 Vol. II)

155. There should be provision for periodical refresher courses (including seminars, workshops, etc.) for both the technical and managerial personnel to enable them to keep abreast of the latest developments in their own respective fields of responsibility.

(Para 10.14, Page 264 Vol. II)

156. The annual *de novo* consideration and issue of reservation orders is a very disturbing factor. It will be advantageous to reserve areas for a period of at least five years with the stipulation that the reservation orders can be revised any time to meet special situations. The 'special situations' should also be clearly specified such as the establishment of a new factory in the neighbourhood, the expansion of the capacity of the factory, exceptionally high or low production of sugarcane in the reserved areas, and so on.

(Para 11.10, Page 266 Vol. II)

157. The law, the rules and the orders on the subject of reservation of areas should be amended so as to make it obligatory on the competent authority to pass orders for reservation of areas for a period of not less than five years. Even if such provision is not made in law the State Governments should, under the existing law, reserve areas to sugar factory for at least five years at a time.

(Para 11.11, Pages 266-267 Vol. II)

158. State Governments which do not at present pass statutory reservation orders under the provisions of any law should also fall in line and pass reservation orders under the Central Sugarcane (Control) Order till they have their own legislation in this regard.

(Para 11.12, Page 267 Vol. II)

159. Purchase of cane from free areas should be strictly regulated so that they do not unduly reduce cane purchases from the reserved areas at any time.

(Para 11.15, Page 267 Vol. II)

160. To ensure that the legal provisions and restrictions that may be made and imposed are not contravened, an effective inspectorate should be set up.

(Para 11.15, Page 267 Vol. II)

161. The absence of obligation on the canegrowers of the reserved areas of a factory to sell any part of their cane to the factory creates uncertainty in the working of the factory and results in wide fluctuations in cane supplies from year to year. A canegrower in the reserved areas of a factory should also be under obligation to supply cane to the factory. A pre-condition for this should be that the minimum price of cane intended for use in sugar factories should be notified by the Central Government well ahead of the cane sowing season every year.

(Para 11.18, Page 268 Vol. II)

162. State Governments should effectively use the legal powers which they already have under their own existing legislation or under the Sugarcane (Control) Order 1966 to require each canegrower of the reserved areas to supply a specified quantity or percentage of cane grown by him to the factory concerned directly or through the canegrowers' union; as the case may be.

(Para 11.18, Page 268 Vol. II)

163. To give effect to the scheme relating to the agreements for supply of cane by canegrowers to factories and to arrange for agricultural credit being made available by factories to the cultivator for cane production, it will be necessary to make suitable statutory provision either in State Acts or a Central Act. They must include the following :—

(i) Every factory shall enter into agreements with canegrowers of its area for supply of cane up to its full requirements for a normal crushing period;

(ii) Where canegrowers supply cane through a society, tripartite agreements for supply of cane should be executed to which the factory, the society and the individual canegrower concerned should be parties;

(iii) The agreement shall specify the quantity of cane to be supplied by the cultivator to the factory and the area and the particulars of the plot or plots the crop of which will be supplied to the factory;

(iv) On execution of the agreement for supply of cane by a cultivator to the factory, the factory shall be under obligation to advance loan in cash or in kind or both to the canegrower for the purpose of production of cane;

(v) The amount of loan shall not be less than forty per cent of the value of the cane agreed to be supplied, calculated at the minimum price for the cane fixed by the Government;

(vi) In the alternative to itself advancing the loan as mentioned in clause (iv), the factory shall arrange for the advance by a bank of the stipulated amount of loan to the canegrower by guaranteeing or/and underwriting such loan;

(vii) On execution of the agreement and payment of the loan the factory will be entitled to recover the loan and the interest thereon through deduction from the cane price payable to the canegrower concerned;

(viii) In case of a wilful default by the factory in arranging for the loan as stipulated in clause (vi), the agreement shall be voidable at the option of the cultivator; if the cultivator does not declare the agreement as void, he may apply to the appropriate authority for specific performance of this term and the said authority may require the factory to advance the stipulated amount to the canegrower. The order of the appropriate authority shall have the force of a decree of a court and shall be executable as such ;

(ix) The factory shall not charge interest at a rate higher than the rate charged by the bank for advances for sugarcane cultivation and shall not realize from the canegrower any part of the service charges incurred by it on the disbursement and recovery of the loan.

(Para 11.23, Pages 269-270 Vol. II)

164. Besides these changes in the laws, amendments will have to be made in the laws and agreements to incorporate the recommendations made in Chapter III, Part II. In addition, the following two terms should also be contained in each agreement:—

(i) On receipt of the loan granted (in cash or in kind or both), the cultivator shall utilize it exclusively and only for the purpose of cane production in the area and in the plots specified in the agreement ; and

(ii) In the case of breach of the above clause by the canegrower, he shall also be liable to pay penal interest at a rate not exceeding twice the rate of interest at which the loan has been given.

(Para 11.24, Page 270 Vol. II)

165. The penalty for deliberate default on the part of the canegrower should be equivalent to 50 per cent of the price of cane in deficit and on the part of a factory equivalent to the full price of the cane in deficit.

(Para 11.25, Page 270 Vol. II)

166. The form of offer to sell and form of agreement to sell and purchase cane should clearly indicate the plots whose cane will be supplied to the factory.

(Para 11.27, Page 270 Vol. II)

167. In fixing the credit limits for the sugar industry as a whole and for individual factories and in determining the margins for the purposes of advancing money against pledged stocks of sugar, due consideration should be given to the requirements of funds for payment of cane price and the need for its prompt payment.

(Para 11.30, Pages 270-271 Vol. II)

168. There should be uniformity in the laws and rules relating to the payment of cane price and also interest in default of payment of cane price within the prescribed period.

(Para 11.32, Page 271 Vol. II)

169. A factory should be under obligation to make payment of cane price immediately on demand and in any case not later than 24 hours of demand after delivery of cane, at the gate of the factory. For outstation purchasing centres the payment should be made not later than 72 hours of demand after delivery of the cane at the centre. State Government or an authority empowered to do so may extend the period of 72 hours in respect of outstation purchasing centres where he is satisfied that payment of cane price within this period is not feasible. The relevant provisions of the State Acts and Rules and the Central Sugarcane (Control) Order should be amended accordingly.

(Para 11.32, Page 271 Vol. II)

170. The only way in which prompt payment, even immediate payment, can be arranged is to make the factories responsible for payment of cane price directly to canegrowers irrespective of whether they are direct suppliers or suppliers through a canegrowers' union or society (*cf.* Recommendation 84). Provision should be made in the laws, rules and orders relating to the payment of cane price accordingly.

(Para 11.33, Page 271 Vol. II)

171. For expediting cane price payment, the pass books issued to canegrowers should contain, *inter alia*, all the relevant information about the canegrowers' ledger and account number, the amount of loan advanced, the number and amount of instalments in which it has to be recovered, the deductions made from time to time and so on.

(Para 11.35, Page 271 Vol. II)

172. Canegrowers should be encouraged to open their accounts with banks as that will facilitate the payment of their cane price into their account immediately it becomes due. Where a canegrower requests for payment of his cane price by cheque, the factories concerned should make arrangement for payment by cheque. This will encourage banking habit among canegrowers.

(Para 11.37, Page 272 Vol. II)

173. In the case of a cooperative factory, the constitution of the Development Council will be adjusted to the extent that canegrowers will be nominated by the Board of Directors of the cooperative factory and may be the directors of the Board.

(Para 11.37, Page 272 Vol. II)

174. A uniform set of functions should be prepared for development councils all over the country. A suitable provision should be made in the relevant States Acts, Rules and Orders and in Central Sugarcane (Control) Order.

(Para 11.38, Page 272 Vol. II)

175. Necessary provision should be made in the Central Sugarcane (Control) Order giving statutory sanction for sharing extra sales realisations between factories and the canegrowers. Provision should also be made in the said Order that only those canegrowers who enter into contract for supply of cane during a season and fulfil their contracts will be eligible for sharing the extra sales realisations with the factories. A suitable machinery should also be set up having adequate powers under the law to verify the extra sales realisations from sugar and to enforce the sharing of extra realisations between factories and canegrowers and their distribution among the eligible canegrowers. It should also be laid down that penalties realised from defaulting canegrowers will be proportionately distributed to canegrowers who fulfil their agreements to supply cane in each year. Provision should also be made for the submission by factories of fortnightly or monthly returns of sugar sales and the prices obtained by them and for their checking from time to time. Proper forms should be devised in consultation with financial experts.

(Para 11.39, Page 272 Vol. II)

176. Suitable provision should be made in the relevant Acts requiring managements of factories to have on their Boards of Managements/Directors at least one representative of labour who should be a worker-employee of the factory concerned. Factories other than cooperative factories should also provide for the inclusion of a canegrowers' representative on their Boards of Management. Pending formulation of rules and procedure for the election of the representatives of workers and canegrowers, they should be nominated by the State Governmeut concerned or by an authority empowered to do so.

(Para 11.41, Page 272 Vol. II)

177. The recommendations relating to the reservation of areas, obligation of canegrowers and factories to sell and purchase cane grown in the reserved areas, would not apply to cooperative sugar factories and the canegrowers of their areas, inasmuch as the areas of their operation are defined by their bye-laws and the relations between them and their shareholder-canegrowers in regard to production and supply of cane, payment of cane price, etc., are governed by their bye-laws.

(Para 11.42, Pages 272-273 Vol. II)

178. There should be a statutorily reserved area for every cooperative factory, generally co-extensive with its area of operation as defined in its bye-laws. The general law Precluding a factory from purchasing cane from the reserved areas of another factory should apply to cooperative factories also.

(Para 11.42, Pages 272-273 Vol. II)

179. The canegrowers of the areas of cooperative factories who cannot become members should have the right and the opportunity to sell their cane to other factories and the latter to purchase the cane.

(Para 11.44, Page 273 Vol. II)

180. The law and rules relating to immediate payment to cane price should apply to cooperative factories in the case of non-member canegrowers from whom they purchase cane. The cooperative factories should also be under obligation to grant agricultural credit facilities to all canegrowers with whom they enter into agreement for purchase of cane.

(Para 11.44, Page 273 Vol. II)

181. The bye-laws of the cooperative factories do not contain a clear indication of the objectives which a cooperative factory should have in view and should aim at—for instance, socio-economic development of its area and rendering services to the vulnerable and weaker sections of the community. The aims and objects of every cooperative factory should include the social objectives.

(Para 11.44, Page 273 Vol. II)

182. The bye-laws of cooperative factories should be revised where necessary with a view to broadening the base of the cooperative factories so that with every increase in the capacity of the factory, new members also should be enrolled from amongst cultivators who want to become members of the cooperative factories.

(Para 11.44, Page 273 Vol. II)

183. Sugar factories can play an important role in the socio-economic development and in helping to improve the lot of the weaker sections of the community in their areas. Sugar is the largest rural-based industry. Sugar factories should not confine themselves purely to production of sugar as they are in the best position to look after the socio-economic development of rural areas around them.

(Para 12.4, Pages 274-275 Vol. II)

APPENDICES

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APPENDIX A

NOTIFICATION—SETTING UP OF THE COMMISSION

APPENDIX A

MINISTRY OF FOOD, AGRICULTURE, COMMUNITY DEVELOPMENT AND COOPERATION (DEPARTMENT OF FOOD)

NOTIFICATION

New Delhi-1, the 6th Asvina, 1882/the 28th September, 1970

S.O. 318. WHEREAS the Central Government is of opinion that the working of the sugar industry, and the various problems relating thereto require a detailed and comprehensive examination, particularly in the context of the demand for nationalisation of the said industry ;

NOW, THEREFORE, in exercise of the powers conferred by Section 3 of the Commissions of Inquiry Act, 1952 (60 of 1952), the Central Government hereby appoints a Commission of Inquiry consisting of the following persons, namely :—

1. Shri V. Bhargava*, retired Judge of Supreme Court	Chairman
2. Shri J. C. Dikshit, General Secretary, Indian National Trade Union Congress, U.P. Branch	Member
3. Shri B. N. Khosla, Industrial Consultant, Greater Kailash, New Delhi	Member
4. Dr. V. S. Vyas, Member** Agricultural Prices Commission	Member
5. Director, National Sugar Institute, Kanpur	Member (ex- officio)
6. Shri P. S. Rajagopal Naidu,† Director of the National Federation of Co-operative Sugar Factories Ltd., New Delhi	Member
7. Shri Fazlur Rehman, M.L.C., Bihar	Member
8. Lala Bansi Dhar, Vice President, Indian Sugar Mills Association	Member
9. Shri A. C. Bose, Retired Joint Secretary to the Govt. of India, Department of Company Affairs	Member
10. Shri R. H. Chishti, IAS (Retired), 4, Secretariat Bungalow, Mall Avenue, Lucknow	Member-Secretary

2. The Chairman and the Secratary shall be whole-time members and the other members shall be part-time members of the Commission.

3. The terms of reference to the Commission shall be as follows :—

(i) to study the working of the sugar industry in India in all its aspects, with particular reference to its performance during the last ten years and the condition of the plant and machinery in different sugar mills ;

(ii) to indentify the inadequacies in the performance of the sugar industry and the causes thereof ;

(iii) to study in detail the causes for the existence of a large number of sick sugar mills ;

(iv) to study the progress and the working of sugar mills in the cooperative sector ;

(v) to make suggestions in the light of such studies, for a rational and efficient organisation of the sugar industry in different parts of the country, in order to improve its working and performance, and to suggest measures for solving the problems of sick sugar mills, in the context of the demand for nationalisation of the sugar industry ;

*Vice Shri D. N. Sinha *vide* Notification No. S.O. 3337 dt. 9-9-71.

**Vice Dr. Dharm Narain *vide* Notification No. S.O. 47(E) dt. 20-1-72.

†Vice Shri Vasant Rao Patil *vide* Notification No. S.O. 387 (E) dt. 30-5-72.

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(v) to make suggestions in the light of such studies, for a rational and efficient organisation of the sugar industry in different parts of the country, in order to improve its working and performance, and to suggest measures for solving the problems of sick sugar mills, in the context of the demand for nationalisation of the sugar industry ;

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*Vice Shri D. N. Sinha *vide* Notification No. S.O. 3337 dt. 9-9-71.

**Vice Dr. Dharm Narain *vide* Notification No. S.O. 47(E) dt. 20-1-72.

†Vice Shri Vasant Rao Patil *vide* Notification No. S.O. 387 (E) dt. 30-5-72.

(vi) to study the relationship between sugarcane suppliers and the owners of sugar mills, with particular reference to the supply of cane and the payment of cane price and to make suggestions for improvement in the present laws and practices in this behalf ;*

(vii) to study the problem of large fluctuations in sugarcane production and its processing into gur, khandsari and sugar and to make suggestions for securing stable conditions with a view to achieving a balanced development in these fields ; and

(viii) in the light of the foregoing studies, to suggest a blue-print for the development of the sugar and allied industries over a period of the next ten to fifteen years.

4. The Headquarters of the Commission shall be in New Delhi.

5. The Commission shall hold its inquiry and submit its report to the Central Government by the 28th February, 1974.* It may, if it deems fit, submit an iterim report(s) on any specific problem(s).

(No.F. 12-2/69-Sugar).

K. P. MATHRANI,
Secretary to the Government of India.

(*) As amended *vide* Notification No. S.O. 797-E dated 29-12-73.

APPENDIX B

TECHNICAL-CUM-FINANCIAL QUESTIONNAIRE

APPENDIX B

SUGAR INDUSTRY ENQUIRY COMMISSION
(GOVERNMENT OF INDIA)

Jamnagar House, New Delhi
(Tel. 382170/382912)

No. SIEC-8-17/71 dated 25th Vaisakha, 1893/15th May, 1971

Your reference No. which should be quoted in all correspondence with the Commission is.....

To

All Sugar Factories in India.

SUBJECT : *Submission of statistical data and information required under the provisions of the Commissions of Inquiry Act, 1952.*

Dear Sir,

I am directed to refer to this Commission letter No. SIEC-8-13/71 dated 4th March, 1971, requesting you to submit certain information and also copies of the Balance Sheets and Profit and Loss Accounts of your factory for each of the last ten years (1960-61 to 1969-70) and to say that if you have not complied yet with the request made in it, you should do so without further delay. A copy of the letter is enclosed for ready reference.

2. As indicated in para 2 of that letter, a Questionnaire relating to the plant and machinery and the performance, during the last ten years, of sugar factories has been prepared and is sent herewith. I am to request you to submit to the Commission six copies of the Questionnaire duly filled in and signed as early as possible, but not later than 30th June, 1971.

3. You may kindly take note of the following suggestions for careful compliance :—

(a) Ten copies of the Questionnaire are enclosed. You may retain four copies of the Questionnaire for your own use.

(b) It will be seen that adequate space has been provided in the Questionnaire against every item/ question for writing (typing) the information/answers to be given. If in any case the space provided is not sufficient, the reply may be given in a separate sheet. Every sheet should be given a serial number and indicate clearly the number of the item/question to which it relates.

(c) If any item/question does not apply to your factory, please indicate so in the space provided. (Do not delete any portion or page from the Questionnaire).

(d) The questionnaire has not been stitched or bound, purposely. The pages of the Questionnaire are serially numbered. This will facilitate taking out several copies on typing machines. After each page/ leaf has been filled in, the pages/leaves of the Questionnaire should be arranged serially and tagged.

(e) All the six copies of the Questionnaire containing replies should be returned to the Commission with all the pages intact.

4. The receipt of this letter may kindly be acknowledged.

Yours faithfully,
R. H. CHISHTI,
Member-Secretary

Copy (with 5 copies of the Questionnaire) forwarded for information to :

(i) State Governments.
(ii) The Indian Sugar Mills Association.
(iii) The National Federation of Co-operative Sugar Factories.

N. A. RAMAIAH,
Deputy Secretary

No. SIEC-8-13/71

GOVERNMENT OF INDIA
SUGAR INDUSTRY ENQUIRY COMMISSION
Room No. 120, Jamnagar House

New Delhi, 4 March, 1971

Your reference No. which should be quoted in all correspondence with the Commission is.....

To

All Sugar Factories in India.

SUBJECT : *Submission of statistical data and information by sugar factories.*

Dear Sir,

As you are aware, the Government of India, in the Ministry of Food, Agriculture, Community Development and Co-operation (Department of Food), have set up the Sugar Industry Inquiry Commission under Section 3 of the Commissions of Inquiry Act, 1952 (60 of 1952) to enquire into the working of the sugar industry in the country and to make recommendations for its improvement.

2. In this connection the Commission would require considerable information and statistical data. A questionnaire will be sent to all sugar factories in due course asking them to furnish the required information and statistical data.

3. In the meantime, you are requested to submit (in triplicate) the following by 25 March, 1971 :—

(i) Name and address of the factory.

(ii) (a) whether the factory was established before or on or after 1-1-1965 ;

(b) whether the major portion of the plant and machinery was installed before or on or after 1-1-1965.

(*iii*) Certified copies of your Balance sheets and Profit and Loss Accounts as audited by Chartered Accountants for each of the last ten years (1960-61 to 1969-70) along with copies of certificates of Chartered Accountants.

4. You have been assigned a reference number which has been given at the top of this letter. In all correspondence with the Commission in the future, you should quote this reference number.

Yours faithfully,
R. H. CHISTHI,
Member Secretar

SUGAR INDUSTRY ENQUIRY COMMISSION

(GOVERNMENT OF INDIA)

QUESTIONNAIRE

(For Sugar Factories Only)

NOTE.—This questionnaire is being issued under the provisions of the Commissions of Inquiry Act, 1952.

(Please furnish the information in the space provided against each question/item. If the space provided is not enough, the information may be given in a separate annexure giving a reference of the relevant question/item and indicating the serial number of the annexure against the question/item. Dimensional data may please be given in metric system).

PART A : GENERAL

1. Full name of your Factory/Mill .....

2. Location of your Factory :

   (*i*) Village/Town .....

   (*ii*) District .....

3. Name of the nearest railway station and the distance from the railway station. .....
   Kilometers

4. If your Head Office is located elsewhere, give :

   (*i*) Address .....

   (*ii*) Telegraphic Address .....

   (*iii*) Telephone Number .....

5. Year of establishment of the Factory .....

6. Name and country of the Supplier of the plant originally set up .....

7. Was your Plant purchased as a new or a second-hand plant? .....

   In case of second-hand plant, indicate the year of its manufacture, wherever possible. .....

8. Capacity :—

   (*i*) Registered/licensed capacity ..... Tonnes of cane/day.

   (*ii*) Actual capacity ..... Tonnes of cane/day.

9. Licensed expansion, if any, under implementation:—

   (*i*) Licence number and date

   (*ii*) Extent of expansion From ....tonnes to....tonnes

10. Is any ancillary industry attached to your Factory such as distillery, confectionery, cardboard factory, acetic acid and allied products manufacturing units, etc. If so, give the names of the ancillary industries. (*i*) .....
    (*ii*) .....
    (*iii*) .....
    (*iv*) .....

11. Apart from cane, do you use any other raw material like beet/gur-khandsari for the manufacture of sugar. .....

12. Is your factory Private Ltd./Partnership/Public Limited/Cooperative/ State-owned or State-controlled (Specify State or Central)? .....

13. Has there been a change in Management during the last 10 years? If so, give details. .....

14. Names and particulars of members of the Board of Directors/Management.
    (*a*) .....
    (*b*) .....
    (*c*) .....
    (*d*) .....
    (*e*) .....
    (*f*) .....
    (*g*) .....
    (*h*) .....

15. Name, address, designation and phone number of the officer of the factory who could be contacted to obtain clarifications, explanations, information, etc. in respect of this Questionnaire. .....

16. Is the Chief Executive/General Manager of your factory, a Government nominee? .....

Part B : Plant and Machinery

Name of Factory..... Code No.....

I. Type of plant (steam or semi-electric driven) as at present.

II. Process of juice clarification followed as at present.

III. Give the details of the plant and machinery of your factory as per the tabular form given below :

(If the space provided is inadequate, separate sheets may be attached.)

N.B.—Information in respect of columns 2, 3, 4 and 5 should be for the block period of 1960-61 to 1969-70.

Description of Horizontal Columns of the Table

Column :

(1) Description of the machinery.

(2) Specifications of machinery added or altered during the period 1960-61 to 1969-70.

(3) Installed cost of machinery in Col. 2 (Rs.)

(4) Details of major repairs carried out during 1960-61 to 1969-70 and years in which carried out (other than mentioned in Col. 2).

(5) Total amount spent on repairs mentioned in Col. 4 other than mentioned in Col. 3 (Rs.)

(6) Specifications of the present Machinery.

(7) Year of installation of each unit indicated in Column 6.

(8) Present Book value or items indicated in Column 6 (Rs.)

(9) Your assessment of the value of items indicated in Column 6 (Rs.)

(10) Present condition of machinery indicated in Col. 6 (Serviceable as such or requires heavy repairs/modifications).

(11) If replacement of machinery indicated in Col. 6 is proposed, is it for increasing the capacity or for modernisation or mere replacement of the old unit ?

(12) Broad specifications of the new units proposed to be installed as in Col. 11.

(13) Estimated installed cost of units as in Col. 12 (Rs.)

Description of Items of Machinery

Item

Cane Weighing Equipment

1. Number, type and capacity of weigh bridges for:

	No.	Capacity
(*a*) Rail Cane	.....	.....
(*b*) Lorry Cane	.....	.....
(*c*) Trailer Cane	.....	.....
(*d*) Cart Cane	.....	.....
(*e*) Boat Cane	.....	.....

Cane Unloading and Feeding Equipment

2. Name of equipment and details

Milling Plant

(Where the factory has more than one milling tandem, the particulars required under item 3 to 10 should be given for each tandem).

3. (*a*) Feeder Carrier or Auxiliary and Main Cane Carrier:—

(*i*) Width and length between centres and length of the horizontal part and feeding depth.

(*ii*) Drive (mention steam or electric), H.P. of drive and if electric, state type and range of variable speed.

(*b*) Cane Kicker—H.P. and type of drive, R.P.M. and number of arms.

4. Preparation of Cane :—

(*a*) Cane Knives—State number of sets, number and pitch of blades in each set and particulars of drive, specifying RPM and HP for each set; clearance between tips and carrier bed, location of knives (if two sets, mention centre to centre distance).

(*b*) Particulars of other cane preparatory equipment, if any.

5. Crushers—State type and number of crushers, and for each crusher the number of rollers, and the diameter length of each roller in mm. and if splitter type, the size of the groove.

6. Shredders—State type of shredder and mention :—

(*i*) Its size in cm.

(*ii*) Revolutions per minute.

(*iii*) H.P. of the drive and H.P. used per metric ton cane hour.

(*iv*) Its position in the mill train.

7. Mills—State number of mills and for each mill the diameter and length of rollers in mm. Also mention if mills have force-feed arrangements, their type and numbers.

Mention for each mill :

(*i*) Type and pitch of grooves in mm. (surface and juice grooves).

(*ii*) Mill settings in mm. (tip to tip).

(*iii*) Type and setting of trashplate.

(*iv*) Speed for rollers in metres per minute. Also R.P.M.

(*v*) Make and type of hydraulic system used. Diameter of hydraulic ram.

(*vi*) Total hydraulic load on top roller (in metric tons per sq. cm.) and hydraulic load in metric tons per metre length roller.

(*vii*) Length and diameter of roller journal in mm.

(*viii*) Type of housing, material of construction and condition.

(*ix*) Type of intermediate carrier.

(*x*) Whether the mill is high set or low set and condition of foundations.

8. (*i*) Bagasse Elevator—Type, length and H.P., and type of drive if separate drive is used.

(*ii*) Whether provision is made for installation of one or more mills.

9. Drive for crushers and mills :

(*a*) If steam engines used, state number and type of engines, number of crushers and mills driven by each engine, and for each engine the diameter of cylinder, stroke, rated R.P.M. and rated indicated H.P. Also state actual inlet pressure, temperature, R.P.M. and H.P. developed.

(*b*) If steam turbines are used, their H.P., R.P.M. and inlet and exhaust pressure. State number of mills driven by each turbine.

(*c*) If electric motors used, state number and type of motors, particulars of current, number of crushers and mills driven by each motor and horse-power developed at full load by each motor.

(*d*) Gearing arrangement—Type, reduction ratio and type of teeth. Give gearing diagram indicating material of construction of gears, whether machine cut teeth or not.

10. (*i*) State whether imbibition water used is hot or cold and arrangements provided for measuring or weighing. Also indicate pressure of water applied and method of application.

(*ii*) State the imbibition scheme followed,
Type of imbibition pump used.

(*iii*) Type of equipment used for screening juice.

11. Diffusion plant—State type of plant, total H. P. required; number of cane knives, and mills used for preparation of cane and number of mills used for de-watering and details of drives for the same.

12. Control instruments—Number and details.

Clarification Plant

13. Measurement or weighment of raw juice.

(*a*) Measuring equipment—State number, type and working capacities (in cubic metres or litres) of tanks and arrangements provided for recording number of tanks of juice measured. Material of construction of tanks.

(*b*) Weighing equipment—State number, type and weighing capacity per charge of each tanks in quintals and arrangements provided for recording quantity of juice weighed. Material of construction of tanks.

14. Juice heaters—State whether horizontal or vertical, number and heating surface (in sq. metre) of each whether working on vapours or steam and the purpose for which each is used.

15. Juice sulphuring tanks—State number, type, gross and working capacities (in cubic metre) of eacn together with circulation arrangement. Indicate whether continuous or batch type.

16. Eliminators—State number, type, working capacities (in cubic metre) and heating surface (in sq. metre) of each.

17. Settlers—State number, type, working capacities (in cubic metre) of each. In respect of continuous settlers mention the make, dia., number of compartments and juice holding capacity.

18. Sulphur gas plant :

(*a*) Sulphur furnaces—State type and number of furnaces and tray area (in sq. metre) for each furnace.

(*b*) Air compressors—State number, type and capacity (in cubic metre displacement per minute) of each, and delivery pressure.

19. Filtering plant :

(*a*) Filter presses—State number, type and filtering area (in sq. metre) of each and tightening device. (Juice and scum presses to be given separately. In carbonation factories first and second presses to be given separately).

(*b*) Rotary vacuum filter—Make, number and dia. and length of each and filtering area together with details of screens.

20. Lime kiln plant :

(*a*) Give details of country kiln—Size and capacity.

(*b*) Milk of lime plant—Give details of lime slaker, type, size, classification system, storage capacity, type and capacity of pump drives, etc.

21. Carbonation plant—(to be filled up only by the factories following carbonation process for clarification of juice).

(*a*) Carbonation tanks—State separately for each set the number of tanks and the working capacity (in cubic metre) and the heating surface (in sq. metre) of each tank, also gross capacity (*i. e.* overall dimensions).

(*b*) Lime Kiln:

(*i*) State number, type and capacity (in cubic metre).

(*ii*) Lifting arrangements.

(*iii*) Give particulars of apparatus, if any, provided for analysis of gas.

(*c*) Gas pump—State number and capacity (in cubic metre displacement per minute) of each and type—whether steam driven or electric driven, whether rotary or reciprocating and type of valves.

22. Alternative equipment—Give here particulars of equipment, if any, used in place of any of the preceding items.

23. Control instruments, number and details.

Evaporation and Boiling Plant

24. Evaporators (the vessels from which vapours are bled should be specified stating the use to which the bled vapours are put to).

(*a*) State number of evaporators and for each evaporator the number of vessels and the total heating surface (in sq. metre) of each vessel together with dimentions of tubes, dia. and height of body and size of vapour pipes of each body.

(*b*) Give particulars of apparatus, if any, provided for recording and for controlling.

(*i*) density of syrup and

(*ii*) vacuum in last body.

(*c*) State the heating surface of pre-evaporator, if any, provided.

(*d*) Details of save-all and juice catchers.

(*e*) Arrangements for drawing condensates from vessels.

25. Syrup treatment plant:

(*a*) Sulphuring tanks—State number and working capacities (in cubic metre) and gross capacities and whether continuous or intermittent.

(*b*) Filters—State type, number and filtering areas (in sq. metre).

26. Syrup Storage—State number of tanks and capacity (in cubic metre) of each.

27. Molasses storage (Process)—State number of tanks and capacity (in cubic metres) of each.

28. Vacuum Pans:

(*a*) State type and number of pans of each type (*e. g.* coil or *calandria* or coil and calandria) and for each pan, state the normal strike capacity (in hecta litres) and the total heating surface in sq. metres), Mechanical circulators, if any, (dia., pitch and r. p. m.) size of tubes or coils.

(*b*) Give particulars of apparatus, if any, provided.

(*i*) for recording vacuum

(*ii*) for controlling pan boiling

(*iii*) details of save-all and juice catchers and

(*iv*) details of booster, if any.

29. Condensation Plant:

(*a*) Condensers—State number, type, diameter and height (in cms.), also give particulars of pans and evaporators connected to each condenser, material of construction.

(*b*) Condenser water pump—State number, type and capacity (in litre per hour) and head for each.

(*c*) Air pumps—State number, type and capacity (in cubic metres displacement per minute) for each.

(*d*) Water Cooling System:

(*i*) Spray pump—State number, type and capacity (in litres per hour) and head for each, H. P. of driving unit.

(*ii*) Spray pond—State number and type of nozzles. Area of spray pond.

(*iii*) Cooling tower—State platform area (in sq. metre).

30. Control instruments—Number and details.

Cooling, Curing and Drying Plant

31. Crystallizers—State number of crystallizers of each type (open or closed and jacketed etc.) for each crystallizer give the normal massecuite capacity (in hecta litres), type of massecuite cooled, and the cooling surface (in sq. metres) of coils, if any, type of cooling coils.

vided

32. (*a*) Seed crystallizer—Mention number and size (in hecta litres) for each.

(*b*) Give details of reheating arrangement in pug mill.

33. Centrifugal machines—State type and number of machines used as fore-workers and after-workers separately for each type of massecuite and mention separately their basket diameter and height (in mm.) r. p. m. and type of drive (*e. g.* belt, water or electric). Give gravity factor and particulars of high speed machines, if any, such as size, cubic content, speed any number of cycles per hour for high grade and low grade massecuites. Particulars of liners and backings. Capacity and pressure of hydraulic pump for centrifugals. Number, type of continuous centrifugals.

34. Sugar drier—State number and type (*e. g.* granulator, grasshopper, cooling tower, etc). and total heating surface (in sq. metres).

35. Sugar melter—State number of melters and capacity of each and capacity of pump.

36. Sugar grader—State number of graders, type and capacity of each.

37. Sugar weighing machine—State number, type and capacity of each.

38. Bag stitching machine—State number, type and capacity of each.

39. Bag conveyor and stacking machine—State details of any such equipment existing.

40. Control Instruments—Number and details.

Steam and Power Plant

41. Boilers :

(*a*) Boilers—State number, type and make of boilers and for each boiler its working pressure (in kg. per sq. cm.), heating surface (Indian rating), steam generating capacity in kg. per hour, type of furnace, grate area for bagasse and coal (iu sq. metres), superheater-heating surface and degrees of superheat and details of soot blower.

(*b*) Feed water treatment.

Give particulars of arrangements, if any, for softening or otherwise treating the feed water entering boilers.

(*c*) Economizers and Feed water heaters—Give particulars stating type and heating surface.

(*d*) Number and type of boiler feed pumps with capacity of each. Feed water tank capacity and height of bottom above pump suction.

(*e*) Steam Accumulators—Number, type and capacity.

(*f*) Auxiliary Fuel—Give particulars of arrangements for burning auxiliary fuel, if any, (*e. g.* crude oil, molasses, coal, etc.).

(*g*) Chimney—State if chimney is of bricks or of steel and give diameter and height. Also type of draught (*e. g.* forced, induced or natural), capacity of induced and forced draught fans.

(*h*) Name of instruments installed and details of same.

42. Power Plant :

(*a*) State number of diesel generating sets and output of each.

(*b*) State number of prime-movers. For each indicate.

(*i*) The purpose for which used, its make and in case of steam engines state its cylinder diameter, stroke, r.p.m. and normal I.H.P. or B.H.P.

(*ii*) If any turbine is also used, state its make, type, number of stages and steam conditions of inlet and outlet.

(*c*) State number of electric generators.

43. Control instruments—Number and details.

Miscellaneous

44. Molasses weighing scale—State number, type and weighing capacity per charge and arrangements provided for recording. Also indicate the capacity of pump and distance from storage tank.

45. Final molasses storage tanks—State number, type diameter and capacity of each tank.

46. Equipment for effluent disposal—Give particulras of arrangements for disposal of factory effluents.

47. Laboratory equipment.

Total of column 3 .....

Total of column 5 .....

Total of column 8 .....

Total of column 9 .....

Total of column 13 .....

48. Please furnish the following details of the existing electric generators:—

(*i*) Number of generators

(*a*) A.C. .....

(*b*) D.C. .....

(*ii*) Voltage and Make .....

(*iii*) Output in kilowatts .....

(*iv*) Purpose for which used (lighting only or development of power in factory) .....

(*v*) If A.C.

(*a*) Power Factor .....

(*b*) Number of phases .....

(*c*) Frequency .....

(*vi*) Maximum demand in KW during the

(*a*) Season .....

(*b*) Off-season .....

(*vii*) KW hours generated during the season .....

(*viii*) KW hours supplied to ancillary industries during season and off-season .....

(*ix*) Power purchased from outside sources

(*a*) During season .....

(*b*) Off-season .....

(*c*) Mention the source .....

49. Please give the details of the work-shop machinery .....

PART C

Technical Results & Stores Consumption etc.

Name of the Factory .....

Code No. .....

Process followed .....

Description of Horizontal Columns of the Table

Columns

(1) S. No.

(2) Particulars

(3) 1960-61 Season

(4) 1961-62 Season

(5) 1962-63 Season

(6) 1963-64 Season

(7) 1964-65 Season

(8) 1965-66 Season

(9) 1966-67 Season

(10) 1967-68 Season

(11) 1968-69 Season

(12) 1969-70 Season

DESCRIPTION OF ITEMS

A. *Capacity*

1. Registered/licensed capacity (tonnes/day).
2. Actual average (tonnes/day).
3. Maximum fortnightly average capacity attained (tonnes/day).
4. Duration of season (days).

B. *Time Account*

1. Total hours available for working.
2. Total hours of actual working.
3. Hours lost due to mechanical troubles.
4. Hours lost due to low steam pressure or lack of fuel.
5. Hours lost due to process troubles.
6. Hours lost due to cane shortage.
7. Hours lost due to cleaning and holidays.
8. Hours lost due to failure of outside power supply, if any.
9. Hours lost due to labour troubles.
10. Hours lost due to growers troubles.
11. Hours lost due to other reasons.

C. *Cane Crushed*

1. Own farm Cane (tonnes).
2. Gate Cane (tonnes).
3. Rail Cane (tonnes).
4. Road Cane (tonnes).
5. Boat Cane (tonnes).
6. Total Cane (tonnes).

D. *Quality of Cane*

1. Sugar per cent cane.
2. Fibre per cent cane.

3. Brix per cent primary juice.
4. Purity of primary juice.
5. Imbibition per cent cane.
6. Lost juice per cent fibre.
7. Mixed juice.
   (*i*) Brix per cent.
   (*ii*) Pol per cent.
   (*iii*) Purity.

E. *Sugar Produced*

1. Total white sugar produced (tonnes).
2. I.S.S. Grade-wise sugar produced (in tonnes).

A–30	A–29	A–28	A–27
B–30	B–29	B–28	B–27
C–30	C–29	C–28	C–27
D–30	D–29	D–28	D–27
E–30	E–29	E–28	E–27

Below I.S.S. Grade.

3. *Raw Sugar*
   (*a*) Total raw sugar produced (tonnes).
   (*b*) Average Pol per cent.
   (*c*) Average moisture per cent.
   (*d*) Production of raw sugar equivalent to white sugar of 99.5 per cent Pol.
4. Percentage of raw sugar production on total sugar.
5. Total sugar produced (99.5 per cent Pol basis *i.e.* Col. 1 plus 3d).
6. Sugar recovery per cent cane.

F. *Final Molasses Produced*

1. Total final molasses produced (tonnes).
2. Molasses per cent cane.
3. Brix per cent molasses.
4. Sugar per cent molasses.
5. Purity of molasses.

G. *Bagasse Produced*

1. Total bagasse produced (tonnes—wet basis).
2. Bagasse per cent cane.
3. Sugar per cent bagasse.
4. Moisture per cent bagasse.
5. Fibre per cent bagasse.

H. *Juice and Syrup*

1. Clarification efficiency.
2. Brix per cent clear juice.
3. Brix per cent syrup.

I. *Press Mud Produced*

1. Total press mud produced (tonnes).
2. Press mud per cent cane.
3. Sugar per cent press mud.
4. Moisture per cent press mud.

J. *Efficiency*

1. Mill extraction.
2. Reduced mill extraction.
3. Boiling house recovery.
4. Reduced boiling house recovery (Noel Deerr's formula).
5. Overall recovery.
6. Reduced overall recovery.

K. *Sugar Balance* (Cane=100)

1. Sugar in cane.
2. Sugar in mixed juice.
3. Sugar in sugars.
4. Sugar in molasses.
5. Sugar in bagasse.
6. Sugar in press mud.
7. Sugar undetermined.
8. Total losses (in molasses, bagasse, press mud and undetermined).

L. *Stores Consumption*

1. Lime per cent cane.
2. Limestone per cent cane (for carbonation factory).
3. Coke per cent cane (for carbonation factory).
4. Sulphur per cent cane.
5. Lubricants (oils and greases) (kgs. per 100 quintals of sugarcane).
6. Filter cloth (sq. metres per 100 quintals of cane).
7. Gunny bags for packing sugar (No. per 100 quintals of cane).
8. Washing soda (kgs. per 100 quintals of cane).

9. Caustic soda (kgs. per 100 quintals of cane).

10. Triple super phosphate for clarification (kgs. per 100 quintals of cane).

11. Hydro sulphite of soda (kgs. per 100 quintals of cane).

12. Electrolytic chlorine (kgs. per 100 quintals of cane).

PART D

Consumption of Fuel

Name of Factory .....

Code No. .....

Process followed.

1. Fibre % cane.

2. Bagasse % cane produced (wet basis).

3. Bagasse % cane used as fuel.

4. Bagasse % cane saved.

5. Other Fuels

   (*a*) Firewood % cane.

   (*b*) Coal % cane.

   (*c*) Furnace oil % cane.

   (*d*) Total extra fuel % cane in terms of bagasse*.

6. Total fuel consumption % cane in terms of bagasse (3 plus 5d).

7. (*a*) Price of furnace oil per tonne (Ex-Depot).

   (*b*) Freight per tonne to the factory.

      (*i*) by road.

      (*ii*) by rail.

   (*c*) Total cost per tonne (a plus b)

8. (*a*) Grade of coal used.

   (*b*) Price per tonne (excluding freight).

   (*c*) Freight from colliery to factory per tonne.

      (*i*) by road.

      (*ii*) by rail.

9. (*a*) Price of firewood per tonne (excluding freight).

   (*b*) Freight to the factory per tonne.

      (*i*) by road.

      (*ii*) by rail.

*NOTE.—(*a*) Bagasse : Firewood = 1.3 : 1.0.

(*b*) Bagasse : Coal = 2.5 : 1.0.

(*c*) Bagasse : Furnace oil = 5.0 : 1.0.

Name

Code

Proces

1

2

3

4

5.

6.

1. Name

2. Code

Proces

1. Total

(a

(b

(c

PART E

By-Products Utilisation

Name of the Factory .....

Code No. .....

Process followed.

1. Cane crushed (tonnes).
2. Sugar produced (tonnes).
3. Sugar recovery % cane.
4. (*a*) Bagasse produced (tonnes—wet basis).
   (*b*) Bagasse used as fuel (tonnes).
   (*c*) Percentage of (*b*) on (*a*).
   (*d*) Bagasse saved (tonnes).
   (*e*) Bagasse sold to others (tonnes—50% moisture basis).
   (*f*) Price per tonne.
   (*g*) Value realised (Rs.)
5. (*a*) Opening stock of molasses as on 1st October.
   (*b*) Molasses produced (tonnes).
   (*c*) Molasses used in own distillery (tonnes).
   (*d*) Molasses sold to outside distillery (tonnes).
   (*e*) Value realised (Rs.)
   (*f*) Molasses sold for other purposes (tonnes).
   (*g*) Value realised (Rs.).
   (*h*) Molasses left over (tonnes).
   (*i*) Molasses storage capacity (tonnes).
6. (*a*) Press mud produced (tonnes).
   (*b*) Press mud given free as fertiliser (tonnes).
   (*c*) Press mud sold as fertiliser (tonnes).
   (*d*) Price per tonne.
   (*e*) Value realised (Rs.).
   (*f*) Press mud left over at the end of the season (tonnes).

PART F

Cane Data

1. Name of the Factory .....
2. Code No. .....

Process followed (Please furnish the following information in the tabular form given below) :—

1. Total cultivable land (in hectares) in :
   (a) Reserved area of the factory:
   (b) Assigned area@:
   (c) Free area*.

2. Total cultivated land (in hectares) in :

   (a) Reserved area of the factory

   (b) Assigned area@

   (c) Free area*.

3. Area under cane (in hectares) in :

   (a) Reserved area of the factory

   (b) Assigned area@

   (c) Free area*.

4. Area irrigated (in hectares) and number of irrigations (to be indicated within brackets below) for cane in :

   (a) Reserved area of the factory

   (b) Assigned area@

   (c) Free area*.

5. Estimated total production of cane (in thousand tonnes) in :

   (a) Reserved area of the factory

   (b) Assigned area@

   (c) Free area*.

6. Average yield of cane per hectare (tonnes) in :

   (a) Reserved area of the factory

   (b) Assigned area@

   (c) Free area*.

7. Average supply of cane per hectare from (in tonnes) :

   (a) Reserved area of the factory

   (b) Assigned area@

   (c) Free area*.

8. (i) Area under cane crop of duration of (in hectares) :

   (a) 9 months

   (b) 12 months

   (c) 18 months.

   (ii) Yield per hectare of cane crop of duration of (in tonnes) :

   (a) 9 months

   (b) 12 months

   (c) 18 months.

9. Average yield of cane per hectare reduced to 12 months crop (in tonnes).

10. Maximum yield of cane per hectare obtained in prize plots (tonnes).

@Wherever applicable.

*"Free area" means other than reserved area and assigned area, from which cane was obtained.

11. Quantity of cane crushed of different varieties (in thousand tonnes) :

(a)

(b)

(c)

(d) etc.

12. Total number of growers supplying cane :

(a) 20 tonnes and below

(b) Above 20 but below 50 tonnes

(c) Above 50 but below 100 tonnes

(d) Above 100 but below 500 tonnes

(e) Above 500 but below 1000 tonnes

(f) Above 1000 but below 2000 tonnes

(g) Above 2000 tonnes.

13. Quantity of cane contracted with (in tonnes) :

(a) Canegrowers

(b) Cooperative societies

(c) Others.

14. Cane actually supplied against item 13 by (in tonnes) :

(a) Canegrowers

(b) Cooperative Societies

(c) Others.

15. Total amount spent by the factory on cane development (Rs.).

16. (a) Total amount of loan advanced by the factory to canegrowers for cane development (Rs.)

(b) Rate of interest charged.

17. Cane purchased (tonnes) at :

(a) Factory gate

(b) Rail centres

(c) Road centres

(d) Own farm

(e) Total.

18. Percentage of driage and pilferage on :

(a) Rail Cane

(b) Road cane

(c) Total Cane purchased.

19. Minimum price of sugarcane fixed by Govt. for cane purchased at factory gate per quintal (Rs.).

20. (a) Average price per quintal of cane purchased excluding harvesting and transport charges paid by the factory (Rs.)

(b) Harvesting charges per quintal, if paid by the factory (Rs.)

(c) Transport charges per quintal, if paid by the factory (Rs.).

21. Total cane price for the season outstanding after the expiry of three months from the date of closure of the mill (Rs.).

22. Percentage of the arrears of cane price (as given in item 21 above) on the price of total cane purchased.

23. Transport charges incurred on total cane purchased (Rs.).

PART G

Financial

Name of the factory..... Code No.....

1. Furnish the following details in respect of the cost of your plant :

(i) Original cost of the plant when it was first installed . . . .

(ii) Original cost of the plant as at the end of 1969-70 . . . .

(iii) Written down values of the plant as at the end of 1969-70

(a) By applying income-tax rates of depreciation on the diminishing balance method. . . . .

(b) As per balance sheet (book values) . . . .

2. Indicate whether any factory/factories unconnected with the sugar factory and its by-products is/are corporate body/bodies of your Mills. If so, give details . . . .

3. Indicate the loans and advances made to :

(i) Subsidiary companies or ancillary activities during the past 10 years (*i.e.* from 1960-61 to 1969-70) . . . .

(ii) Receipts from them during the same period . . . .

4. Give the information relating to the cost of production of sugar for each of the 10 years from 1960-61 to 1969-70; use the attached sheets marked 'X' for each year separately.

'X'

Year 1960–61

(A) GENERAL :

(*i*) Total cane crushed . . . . Quintals

(*ii*) Total sugar produced . . . . Quintals

(*iii*) Recovery of sugar on cane . . . . %

(*iv*) Season days . . . . days (in terms of 22 hours per day)

Details	Total Quantity (Quintals)	Rate (Rs.)	Total amount (Rs.)	Cost per quintal of sugar (Rs.)
(B) COST OF PRODUCTION :				
1. Cane :				
(*a*) Gate Cane	.....	.....	.....	.....
(*b*) Rail Cane	.....	.....	.....	.....
(*c*) Road Cane	.....	.....	.....	.....
(*d*) Own Cane	.....	.....	.....	.....
TOTAL	.....	.....	.....	.....
2. Other raw materials processed *viz.* Gur, etc. . .	.....	.....	.....	.....

	Total amount (Rs.)	Cost per quintal of sugar (Rs.)
3. Other expenses on cane :		
(*i*) Commissions paid	.....	.....
(*ii*) Loading/unloading expenses	.....	.....
(*iii*) Transport charges (Net)	.....	.....
(*iv*) Harvesting expenses (Give details in separate Annexure)	.....	.....
(*v*) Salaries/Wages at cane centres	.....	.....
(*vi*) Stores used at cane centres	.....	.....
(*vii*) Supply/Development Staff salaries	.....	.....
(*viii*) Other expenses on development	.....	.....
4. Cane Cess	.....	.....
5. (*a*) Purchase Tax	.....	.....
(*b*) Other levies/taxes	.....	.....
6. Total cane cost (Items 1, 3, 4 and 5)		

		Total Quantity	Rate (Rs.)	Total amount (Rs.)	Cost per quintal of sugar (Rs.)
7. (*i*) Power :					
(*a*) Own	(Kwh)	.....	.....	.....	.....
(*b*) Purchased	(Kwh)	.....	.....	.....	.....
(*ii*) Steam :	(Tonnes)	.....	.....	.....	.....
(*iii*) Fuel :					
(*a*) Coal	(Tonnes)	.....	.....	.....	.....
(*b*) Firewood	(,,)	.....	.....	.....	.....
(*c*) Furnace Oil	(,,)	.....	.....	.....	.....
(*d*) Others	(,,)	.....	.....	.....	.....

	Total amount (Rs.)	Cost per quintal of sugar (Rs.)
8. Repairs and Maintenance of Stores :		
(*a*) Repair Stores :		
(*i*) Seasonal		
(*ii*) Off-seasonal		
(*iii*) Outside repairs		
(*b*) Stores :		
(*i*) Seasonal		
(*ii*) Off-seasonal		
9. Salaries & Wages :*		
(*i*) Seasonal		
(*ii*) Off-seasonal		
(*iii*) Provident Fund, E.S.I. gratuity, etc.		
10. Packing :		
(*a*) Bags		
(*b*) Other expenses		
11. Depreciation :		
At Income Tax rates †		
(*a*) Normal Shift		
(*b*) II & III shifts		
12. Overheads :		
(*a*) Common allocated overheads of Head Office/other activities*		
(*b*) Direct Overheads		
13. Total (1 to 12)		

	Total quantity (Quintals)	Rate (Rs.)	Total amount (Rs.)	Cost per quintal of sugar (Rs.)
14. Less credit for recoveries :				
(*a*) Molasses				
(*b*) Press mud**				
(*c*) Bagasse				
(*d*) Dunnage				
(*e*) Other misc. recoveries as per P & L a/c				
15. Net Total (13–14)				

*See

**See

NOTE :

@@ If th
to th

I h

Date....

Station..

	Total amount (Rs.)	Cost per quintal of sugar (Rs.)
16. Selling/Distribution :		
(*i*) Commissions paid	.....	.....
(*ii*) Freight/Transport	.....	.....
(*iii*) Godown rent etc.	.....	.....
(*iv*) Other expenses	.....	.....
17. Interest	.....	.....
18. Total cost (5 to 17)	.....	.....
19. Average sales realisation	.....	.....
20. Margin available (19 minus 18)	.....	.....

*See Note (iii) below. †See Note (iv) below.

**See Note (v) below.

NOTE :—(*i*) The figures in the above statement should tally with the figures in the audited Profit & Loss Accounts. The total expenses should exclude taxation, development rebate and expenses relating to earlier years. The excluded item may be separately shown in an annexure.

(*ii*) If the Profit & Loss Accounts cover more than one mill, kindly show the figures separately for each sugar mill.

(*iii*) (*a*) Salaries & Wages and overhaeds (Items 9 to 12) : Please furnish a break-up of salaries and wages and overheads as below :—

	Wages (Rs.)	Salaries (Rs.)	Overheads (Rs.)
Factory	.....	.....	.....
Works Office	.....	.....	.....
Head Office @@	.....	.....	.....
TOTAL	.....	.....	.....

(*b*) What would have been the incidence on the cost of sugar per quintal if the second Wage Board Award had been implemented fully in the year 1969–70.

Rs.....

(*iv*) Depreciation (Item 11) : Please also indicate here the book depreciation for each of the 10 years under the respective cost sheets.

(*v*) Press mud (Item 14-*b*) : Please indicate the expenses, if any, incurred on the disposal of press mud separately. The figures under item 14-*b* should be the net sum after adjustment for the expenses on the disposal of press mud.

(*a*) Gross Recoveries . . . . . Rs.....

(*b*) Less expenses on disposal . . . . . Rs.....

(*c*) Net Recoveries (*a* minus *b*) . . . . . Rs.....

(The sugar factories were requested to supply similar information in respect of the years 1961-62 to 1969-70)

@@ If the share is an allocated one covering several activities, then the proportion may be given based on the percentage allocated to the sugar mill.

I hereby declare that all the details in this return are true to the best of my knowledge and belief.

Signature of the owner or person authorised

Date..... *Designation*.....

Station..... *Address*.....

APPENDIX C

GENERAL QUESTIONNAIRE

APPENDIX C

SUGAR INDUSTRY ENQUIRY COMMISSION

GOVERNMENT OF INDIA

Room No. 120, Jamnagar House, New Delhi

Saka : 6, Bhadon, 1893/28th August, 1971

To

SUBJECT : *General Questionnaire.*

Sir,

I am directed to send herewith a questionnaire (in triplicate) on some aspects of the Indian sugar industry which are under the consideration of the Sugar Industry Enquiry Commission and to request you to assist the Commission in its enquiry by sending your considered views and suggestions on the various matters covered by the questionnaire. The terms of reference of the Commission are given overleaf.

2. As will be seen the questions have been grouped and placed under various subject headings. There are, however, some questions which concern more than one aspect of the industry and could be placed under more than one heading. But to avoid repetition such questions have been placed under one heading only. It would appear that some questions are such as need be addressed to only one or two parties; others are such as must be addressed to several parties. To enable you to find the questions which you are expected to reply, an index has been prepared showing the names of various parties and the serial number of the relevant questions. This, however, does not preclude you from replying to other questions if you so desire. In fact, all the questions are 'open' in the sense that any one can reply to any question. Such replies also would be welcome.

3. In case you wish to draw the attention of the Commission to any point, not covered by this Questionnaire, you may do so by sending a separate note on it (six copies) along with your replies to the questionnaire.

4. In some questions a request has been made to give reasons and facts and figures in support of the views expressed. This may be done in all cases even where a request to this effect has not been made in the question itself.

5. I am to request that six copies of your replies should be submitted so as to reach the Commission within six weeks of the date of issue of this letter.

6. The index referred to above and the instructions for the preparation and submission of the replies to the questionnaire have been given at the beginning of the questionnaire itself. I am to request that the instructions may be followed carefully.

Yours, faithfully,

R. H. CHISHTI,

Member-Secretary.

TERMS OF REFERENCE OF THE COMMISSION

1. To study the working of the sugar industry in India in all its aspects, with particular reference to its performance during the last ten years and the condition of the plant and machinery to different sugar mills.

2. To identify the inadequacies in the performance of the sugar industry and the causes thereof.

3. To study in detail the causes for the existence of a large number of sick sugar mills.

4. To study the progress and the working of sugar mills in the co-operative sector.

5. To make suggestions, in the light of such studies, for a rational and efficient organisation of the sugar industry in different parts of the country, in order to improve its working and performance, and to suggest measures for solving the problems of sick sugar mills, in the context of the demand for nationalisation of the sugar industry.

6. To study the relationship between sugarcane suppliers and the owners of sugar mills, with particular reference to the supply of cane and the payment of cane price and to make suggestions for improvement in the present laws and practices in this behalf.

7. To study the problem of large fluctuations in sugarcane production and its processing into gur, khandsari and sugar and to make suggestions for securing stable conditions with a view to achieving balanced develoment in these fields; and

8. In the light of the foregoing studies to suggest a blue-print for the development of the sugar and allied industries over a period of the next ten to fifteen years.

GENERAL QUESTIONNAIRE

INSTRUCTIONS

1. Please refer to the index given below, for the questions to be answered by you.

2. Please send six sets of replies to the questionnaire.

3. Please use paper of a uniform size (preferably 13″ × 8½″) for all replies and type replies on one side of the paper only with a two inch margin on the left.

4. Please give the serial number of the question in the left hand margin, and type out the question before the reply.

5. Please arrange the replies in the order of the serial number of the questions answered, number every sheets, then arrange all the sheets serially and tag or staple all the sheets.

INDEX

Name of the party or organisation	Serial number of the Questions to be answered
(1)	(2)
A. Central Government	126—131, 133, 135—142, 171, 178—187, 193—195, 198—201, 206, 210—222, 224, 226, 230—232, 236 and 252.
B. State Government	1(b), 10, 18, 19, 27, 29—33, 42—46, 52, 53, 59, 126—131, 133, 135—137, 139, 141, 142, 162, 167, 168, 170, 171, 180—187, 193, 194, 196, 202—206, 223—226, 229—232, 236 and 252.
C. All sugar factories (including cooperative factories)	1—41, 45, 47—60, 62—77, 81—84, 88—112, 114—117, 123, 128, 129, 132—135, 143, 144, 154, 155, 157, 191, 207, 228 and 237.

(1)		(2)
D.	Cooperative sugar factories	118—122, 124 and 125.
E.	Associations of sugar factories	1(b), 6, 10, 12, 13, 18, 19, 27, 29, 32, 33, 37, 38, 41, 46, 47, 52, 53, 59—61, 79, 80, 82, 83, 85—87, 103, 105—107, 113—115, 122, 124, 127, 129—131, 133, 135—149, 151—154, 155, 159, 163, 180—195, 197, 198, 201, 206, 208—222, 224—227, 231—236, 238 and 241—252.
F.	Associations of cooperative sugar factories	1(b), 6, 10, 12, 13, 18, 19, 29, 32, 33, 37, 38, 41, 46, 47, 52, 53, 59—61, 79, 80, 82, 83, 85—87, 106, 107, 113—115, 118—124, 130, 131, 133, 135—149, 151, 154, 155, 159, 163, 180—195, 197, 198—201, 206, 208—222, 224—227, 231—236, 238 and 241—252.
G.	Associations or Federations of canegrowers cooperative societies.	1(b), 6, 9—13, 15, 16, 18—27, 29—33, 35—41, 47, 49—61, 78, 79, 130, 131, 133, 135, 139, 160—163, 180—187, 193, 208, 223, 224, 227, 231, 234, 238, 246 and 248—252.
H.	Associations of canegrowers	1(b), 6, 9, 12, 13, 18—27, 29—33, 35—41, 47, 49—61, 78, 79, 118—120, 122, 123, 133, 135, 137, 139, 150—163, 172, 180—187, 198, 208, 223, 224, 227, 231, 234, 238, 246 and 248—252.
I.	Gur and Khandsari Manufacturers' Associations	9, 40, 46, 47 and 156—177.
J.	Sugar, Gur and Khandsari Merchants' Associations	169—171 and 201.
K.	Associations of Distillers	87.
L.	Assoeiations of Confectioners	80 and 81.
M.	Sugar machinery manufacturers	145—153.
N.	Labour organisations	116, 117, 171, 123, and 248—252.
O.	Chambers of commerce	194, 205, 208 and 229.
P.	Researeh institutions	16, 33, 80, 82, 86, 114, 115, 141, 142, 147, 154, 155, 164—168, 173—177, 186, 187, 198, 230, 231, 233—236, 238—244 and 247.
Q.	Export Promotion Corporation	209—217.
R.	Sugar technologists' associations	80, 82, 114, 115, 141, 142 and 247.
S.	Paper, cardboard and pulp industry associations	85 and 86.

QUESTIONS

I. Cane Development

1. (a) Is a cane development scheme in operation in your factory area ? If so, please state since when it has been in existence and who has been executing the scheme—your factory, or canegrowers' society, if any, of your factory, or a Government Department (State or Central) or any other agency ? Please furnish a note on the working of the scheme bringing out its achievements and failures and giving suggestions for its improvement.

(b) Which of the agencies mentioned above—factory, canegrowers' society, government department or other agency—is the most effective, and produces the best results in cane development ? Please give reasons and comparative facts and figures in support of your views.

2. If a cane development scheme is not in operation in your factory area, what are the existing arrangements and facilities for supplyiug seeds, fertilizers, pesticides, implements, etc. to canegrowers ?

3. What percentage of the total cane acreage in the reserved area of your factory is irrigated ? Are the available irrigation facilities adequate to give the optimum number of irrigations ? What measures have the State Government, factory and canegrowers' society taken to provide adequate and timely irrigation ?

4. Is production of early and mid varieties of cane in your factory area adequate for meeting your requirements ? If not, what measures should be taken to increase the proportion of early and mid varieties ?

5. Has the system of 'companion cropping', that is, inter-cropping of sugarcane and wheat or some other crop, been tried in your factory area? If so, with what results ?

6. What steps should be taken to induce canegrowers to grow sugarcane varieties with high sugar content ?

7. (a) In case your factory has not been getting sufficient supplies of cane over a number of years on account of inadequate area or yield of sugarcane, do you think that your factory area is suitable for intensive cane development and that it can produce sufficient quantities of cane to meet your full requirements within a reasonable period, say within five years ?

(b) Have any special measures been taken by your factory, canegrowers' society and State Government to improve cane production in your area so as to meet your requirements ? If so, please give details and the results obtained. By when do you think would cane production in your area become sufficient to meet your requirements ?

8. (a) Is there a Cane Development Council for your factory area ? If so, how is it constituted and what are its functions and financial resources ?

(b) How does the Council coordinate activities of the factory, canegrowers, canegrowers' societies, and other agency, if any, in respect of cane development ?

(c) Do you think that there is need for making the Cane Development Council more effective ? If so, how can this be done ?

9. Do gur and khandsari manufacturers provide any facilities to canegrowers for cane development in the areas in which they operate, particularly in the reserved areas of sugar factories ? If so, what are the facilities provided by them ?

10. Please give your suggestions for improvement of cane development schemes and their effective implementation.

II. Cane Harvesting

11. (a) Is any field-wise record kept by your factory or canegrowers' society, if any, of the varieties of cane sown and the dates of sowing ?

(b) Is any survey done before harvesting to determine the maturity of cane ? If so, who does this survey and what is the procedure adopted ?

(c) Is harvesting actually carried out according to the survey report ?

(d) If not, is harvesting done according to the dates of sowing or variety-wise ?

12. Is harvesting of sugarcane in your factory areas done by canegrowers themselves or canegrowers' society, if any, or the factory ? Do you think that harvesting of cane by factory or canegrowers' society, is more satisfactory than by an individual growers ? If so, for what reasons ?

13. (a) Is the cost of harvesting in your factory area borne by the factory or the canegrowers' society ? If so, how is the cost of harvesting calculated ?

(b) What are your views on sugar factories or canegrowers' societies bearing the cost of harvesting ?

III. Transport and Weighment of Cane

14. Are the present facilities available for transport of cane by road and rail to your factory adequate ? What are your suggestions for improving them ?

15. Have any feeder roads and tracks been constructed by your factory and canegrowers' society during the last ten years for facilitating transport of sugarcane ? Have Government contributed to the cost of construction and maintenance ? If so, to what extent ?

16. (a) What steps have been taken by your factory and canegrowers' society to minimise deterioration of cane during its transport ?

(b) Has any estimate been made of loss of sugar recovery in transport ? If so, what is the extent of loss ?

17. Do you have equipment for mechanical handling and unloading of cane ? If not, do yon propose to instal such equipment in the near fnture ?

18. Some factories pay cost of transport of sugarcane to canegrowers or directly bear it ; others do not. What are your views on these different practices ?

19. (a) At present a deduction of 2.5 paise per quintal per kilometre, subject to a maximum of 32 paise per quintal, is allowed from the statutory minimum (gate) price of cane delivered at out-station purchasing centres and transported to factories by road. What are your views about such deductions ?

(b) At present a deduction of 32 paise per quintal is allowed irrespective of distance from the statutory minimum (gate) price of cane purchased at out-station centres and transported to factories by rail. What are your views about such deductions ?

20. Are arrangements for weighment of cane at the gate and out-station centres satisfactory as regards :—

(i) Correctness of weighment ;

(ii) Promptness of weighment ;

(iii) Availability of weigh-bridges ;

(iv) Arrangements for checking of weigh-bridges ;

(v) Lighting arrangements, parking arrangements, etc.;

(vi) Supervision of weighments by canegrowers' representatives ; and

(vii) Issue of correct weighment slips ?

21. Do weighments of cane take plaee during day time only or around the clock ?

22. What is the average detention time for carts ?

23. Has the factory adequate arrangements and space for stacking of sugarcane ?

24. What measures should be taken to improve arrangements for weighment of cane ?

IV. Payment of Cane Price

25. What procedure is followed by your factory for payment of cane price to canegrowers supplying cane—(i) directly; (ii) through canegrowers' society; and (iii) through any other agency ?

26. (a) Is price of cane, purchased through canegrowers' society, paid by your factory directly to individual canegrowers under some arrangement with the society, or is it paid to the society for payment to its members ?

(b) Which of these systems is more effective for prompt payment of price of cane to canegrowers ?

(c) What is the time-lag between the receipt of the price of cane by the society and its disbursement to members ?

27. (a) What are the reasons for accumulation of arrears of sugarcane price and what are the difficulties in clearing off the arrears ?

(b) What financial and administrative measures should be taken to ensure prompt and regular payment of sugarcane price ?

28. Has your factory at any time during the last 10 years, diverted funds to other business before clearing off the dues of canegrowers ? If so, please give your reasons.

29. It has been suggested that the cane price dues should be made the first charge on the advance obtained by sugar factories against the stocks of sugar pledged with banks. Please give your views.

V. Cane Marketing and Supply

30. (a) Please explain the system of bonding of sugarcane by factories—(i) directly with the individual canegrowers ; (ii) with canegrowers' societies ; and (iii) with any other agency.

(b) Which system has secured the best results in the matter of supplies ?

31. (a) What is the system of requisitioning and indenting of cane from individual canegrowers—(i) by canegrowers' societies ; (ii) by sugar factories ; and (iii) by any other agency ?

(b) Is any weightage given to the small cultivator in requisitioning and indenting cane from individual canegrowers ? Please give details.

32. (a) Should contraets on a long term basis—say on a 3-yearly or 5-yearly basis—be entered into with individual canegrowers for (i) certain area and (ii) supplying a eertain quantity of cane ? Do you think that such a system is feasible and likely to stabilise supplies ?

(b) What incentives should be offered to canegrewers to show greater loyalty to their societies and factories in the matter of supply of cane ?

(c) What penalty should be imposed on canegrowers for not supplying bonded cane even when cane is available with them for supply ?

33. (a) During the years of surplus cane, factories purchase cane in excess of the contracted quantities. How does this affect the working of the factories ?

(b) What are your suggestions for solving the problem of surplus cane, keeping in view the overall interest of canegrowers and the industry ?

34. Has expansion in the capacity of a neighbouring factory or establishment of a new factory iu the neighbourhood affected your cane supplies ? Please furnish relevant data in support of your answer.

35. (a) Has your factory taken any action against direct suppliers for not supplying bonded cane ? If so, what action ; if not, why ?

(b) Have individual canegrowers, directly supplying cane, taken any action against your factory for not purchasing the bonded cane ? If so, what action ; if not, why ?

36. (a) Has your factory taken any action against canegrowers' societies for not supplying bonded cane ? If so, what action ; if not, why ?

(b) Have canegrowers' societies taken any action against your factory for not purchasing the bonded cane ? If so, what action ; if not, why ?

37. (a) What incentive have been offered by canegrowers' societies and sugar factories to canegrowers to prevent or discourage diversion, to gur and khandsari, of sugarcane contracted to sugar mills ?

(b) What are your suggestions for preventing or discouraging diversion of sugarcane to gur and khandsari units ?

VI. Agricultural Credit

38. (a) Loans to canegrowers are given by canegrowers' societies, factories, banks and other agencies. What is the method of assessing requirements of loan of a canegrower ?

(b) What is the system of advancing and recovery of the loans ?

39. (a) Does your factory give loans for cane development purposes to (i) canegrowers supplying cane directly, and (ii) canegrowers who supply cane through canegrowers' societies ?

(b) In the latter case (ii), are such loans given with or without the approval of the societies ?

(c) Is it necessary for sugar factories to obtain prior permission of Cane Commissioner or any other authority for giving loans to individual canegrowers who are members of canegrowers' societies to enable the factories to recover the loans through deductions from cane price ? If so, is such permission given or should be given freely or sparingly ? Please give your views.

40. Do gur and khandsari manufacturers give loans to canegrowers in factory areas ? What is the system of granting loans, and their recovery ?

41. What are your suggestions for improving credit facilities to canegrowers ?

VII. Reservation of Areas

42. Is there a system of reservation of areas in sugar factories in your State ?

43. What factors are taken into consideration for fixing reserved areas ?

44. (a) Are reserved areas of factories subject to changes every year ? If so, what are the reasons ?

(b) What are the difficulties in fixing reserved areas on a long-term basis ?

45. Is the reserved area of your factory compact ? Could it be made more compact without adversely affecting the supply position of your factory ?

46. (a) What measures have been taken by State Government to restrict the establishment of khandsari units and operation of power crushers in the reserved areas of sugar factories ? Have such measures been effective ? If not, please give reasons therefor.

(b) What are your views about shifting khandsari units from the reserved areas of sugar factories to outside those areas ?

47. Do you think that 'compacting' of reserved areas and reserving them exclusively for sugar factories would help reduce fluctuations in cane supply ?

VIII. Canegrowers' Societies

48. Has a canegrowers' society for marketing cane been organised in the reserved area of your factory ?

49. Is it compulsory in the reserved area of your factory for canegrowers to become members of the local canegrowers' society ? If so, what are your views about such a compulsion ?

50. Has the canegrowers' society of your factory fulfilled its contract for supply of cane in the years of cane shortage during the last 10 years ? If not, please give reasons.

51. Has the canegrowers' society of your factory taken any action against its members for not supplying bonded cane ? If so, what action ; if not, why ?

52. In some States, such as Uttar Pradesh and Bihar, practically the entire quantity of cane is supplied by canegrowers' societies. In some other States, such as Maharashtra, Andhra Pradesh and Mysore, factories generally purchase cane directly from canegrowers. It has been suggested that conegrowers' societies should be organised where they do not exist and factories should purchase cane through them. On the other hand, it has been suggested that factories should purchase cane directly from canegrowers even in areas where canegrowers' societies operate. What are your views on these suggestions ?

53. It has been suggested that the reserved area of a factory should be divided into two parts, one being allotted to the factory for direct dealing with canegrowers and the other allotted to a canegrowers' society. Do you think that such an arrangement is feasible and will promote healthy competition between the factory and the canegrowers' society for improving cane development and supplies ?

54. What percentage of commission earned by canegrowers' society of your factory is spent on :—

(i) cane development ;

(ii) organisation, marketing and supply of sugarcane ;

(iii) construction and maintenance of feeder roads ; and

(iv) other amenities to canegrowers ?

IX. Relation between Factories and Canegrowers

55. (a) What efforts have been made by your factory during the last ten years for developing cordial relations between your factory and canegrowers ?

(b) Has your factory provided to canegrowers any educational, medical, recreational and other facilities ? If so, please give details.

56. What is the arrangement in your factory for looking into the complaints and redressing of grievances of canegrowers ?

57. (a). Have relations between your factory and canegrowers been cordial during the last ten years ? If so, how has this been achieved ?

(b) If not, what are the main causes for lack of cordial relations ? What are your suggestions for removing them ?

58. Were there any strikes in supply of cane by canegrowers during the last ten years ? If so, when and for what periods and on what grounds ? What action was taken by your factory to persuade the canegrowers to withdraw the strikes ?

59. What should be done by the State Governments and factories and canegrowers' societies for developing cordial relations between sugar factories and canegrowers ?

60. Do you think that purchase of cane by sugar factories directly from canegrowers improves relations between them ?

61. What are your suggestions for improvement in the present laws, regulations and practices affecting the relationship between sugarcane suppliers and factories with particular reference to supply of cane and payment of cane price ?

X. Technical performance of Sugar Factories

62. (a) What was the average actual crushing capacity (24 hours working) of your factory for the last ten years ?

(b) If it was less than the registered/licensed capacity, was it due to any defect or imbalance in the plant and machinery or any other reason ? Please give details.

63. What were the reasons for the loss of available hours and what steps do you propose to take for reducing it ?

64. What was the maximum reduced mill extraction in your factory during the last ten years (1960-61 to 1969-70) and the year in which it was obtained ? Please explain why this efficiency was not achieved in the remaining years.

65. What was the lowest pol per cent in bagasse in your factory during the last ten years and the year in which it was obtained ? Please explain why the same percentage was not maintained in the remaining years.

66. What was the lowest pol per cent press mud obtained in your factory during the last ten years and in which year ? Please give reasons why it could not be maintained in other years.

67. What was the maximum clarification factor obtained in your factory during the last ten years and in which year ? Why was it not obtained in other years ?

68. What was the minimum loss of sugar in molasses during the last ten years and in which year ? Why was this not maintained in other years, allowing for loss arising from variations in the composition of cane ?

69. What was the minimum unknown loss per cent cane in your factory during the last ten years and in which year ? Why was this not maintained in other years ?

70. What was the maximum boiling house recovery (Noel Deerr) in your factory during the last ten years and in which year ? Why was this not achieved in other years ? What steps do you propose to improve it ?

71. What was the highest percentage of C-30 (I.S.S. grade) sugar of the total annual production during the last ten years and in which year ? Please explain why this percentage was not produced in other years.

72. What was the maximum boiler efficiency of your plant during the last ten years and in which year ? Why was it not obtained in other years ?

73. (a) What are your views on the adoption of milling-*cum*-diffusion process ?

(b) Has it been adopted in your factory ? If not, please give reasons.

(c) If the process has been adopted, has it resulted in any significant improvement in the recovery of sugar ? Please give comparative figures of recovery before and after its adoption.

74. Is there scope for reducing the total losses of sugar (in bagasse, molasses, press mud and unknown) in your factory ? What steps have been taken or are proposed to be taken in this direction ?

75. Did your factory use extra fuel (in addition to bagasse produced in the factory) in any of the years 1960-61 to 1969-70 ? if so, was it due to inefficient performance of furnaces/boilers, or any other reason? What steps were taken or are proposed to be taken to effect economy in fuel/steam consumption ?

76. Please state whether vapour bleeding is being followed in your factory ? If not, plaese give the reasons for the same.

XI. Statistical and Analytical data of Sugar Factories

77. What arrangements exist in your factory for ensuring the accuracy of the statistical and analytical data ?

78. Have there been any disputes regarding the correctness of the sugar recovery data of your factory during the last ten years? If so, how were they resolved?

79. What mechanism or procedure do you suggest to create confidence amongs the suppliers of sugarcane regarding the correctness of statistical and analytical data affecting their interests?

XII. Setting up Sugar-based Industries and utilisation of By-products.

80. (a) What industries can be established with sugar as base?

(b) Do you think that there is scope for establishment of such industries? Please give details.

(c) Do you think that any incentives and concessions are necessary to set up such units and to make them viable?

81. (a) Have you set up any sugar-based industry? If so, please give details.

(b) Have you any schemc for establishing any sugar based industry? If so, please furnish your scheme.

82. How are the by-products of sugar industry being utilised? Have you any scheme for their better utilisation? Please give an outline of your scheme.

83. Have you set up or made efforts to set up any ancillary industry based on by-products of the sugar industry? If so, please furnish details. If your efforts to set up ancillary industry have not been successful, please give reasons.

84. (a) Have you supplied surplus baggasse to the pulp/paper/card board industry during the last ten years? What was the maximum quantity of bagasse supplied in any year? Please give reasons why larger quantity of bagasse could not be supplied.

(b) What are the possibilities of your factory supplying bagasse/more bagasse to the pulp/paper/card board industry by making use of alternative fuels?

85. Could more bagasse be utilised by the pulp/paper/card board industry than has been used so far, by modification/alteration of its equipment/process? Has any research been carried out for modifying/altering the equipment/process to this end? If so, with what results?

86. What are your views on setting up of pulp/paper/card board industry based mainly or only on bagasse?

87. (a) Do you think that there is need or justification for increase in the price of molasses?

(b) What would be the effect of the increase in the price of molasses on the economics of molasses-based industries?

88. What percentage of press mud of your factory has been utilised by farmers as manure?

XIII. Storage of Sugar, Molasses and Bagasse

89. What is the system of transport of sugar bags from the packing house to the sugar godowns?

90. Do you have any mechanical means for handling and transport of sugar bags? If not, what are the reasons for not installing them?

91. Has your factory adequate storage accommodation for sugar in the factory permises or elsewhere? Has it hired any storage accommodation?

92. Has the factory any plans for construction of godown of its own for meeting its full requirements, present and future?

93. What is the system of storage of sugar in your factory godowns? Do you consider it to be satisfactory from the point of view of proper stacking and avoiding deterioration in the quality of sugar?

94. What are the existing facilities for storage of molasses in your factory? Is the storage capacity adequate? Please give total storage capacity separately of tanks, pucca tanks (covered and uncovered) and kuchha tanks.

95. What are your plans for improving the quality and the capacity of molasses storage?

96. What are the arrangements of bailing and storing bagasse?

97. Was there any fire accident in bagasse during the last ten years? What precautions have you taken to protect bagasse from fire?

XIV. Management and Finances of Sugar Factories

98. Please give the registered name of your company and the date of its registration.

99. Is the name of your company registered in investors' Year Book?

100. Has any change taken place in the constitution and management of your company since the date of enforcement of the Industries (Development & Regulation) Act, 1951 (65 of 1951)? If so, please give details.

101. Has any regrouping of companies affecting or involving your company taken place since May 1952? If so, please give details.

102. Did you have any managing agency during the last ten years? If so, what were the terms of remuneration?

103. Since the discontinuance of the system of managing agency, what alternative arrangements have been made to discharge the functions previously carried out by the agency? Have alternative arrangements been less expensive than the managing agency?

104. Do you adopt the income tax rates of depreciation on all your assets? If not what other rates are adopted?

105. How were the depreciation funds utilised during the last ten years?

106. Do you get adequate bank loans to finance your working capital, particularly in the context of accumulation of stocks of sugar? What are your suggestions for improving the position?

107. Considering the different rates of dividends on equity shares in other industries, what do you consider to be a reasonable rate of dividend on equity share capital in sugar industry?

XV. Technical and Administrative Personnel of Sugar Factories

108. What are the key posts (technical, managerial, administrative etc.) in your factory? Please give their designations and pay.

109. Have any qualifications been prescribed for the different key posts? If so, please state them.

110. Are your technical and other key posts held by persons who are qualified in their various fields?

111. Have there been frequent changes in the incumbents of the various key posts? How many persons have held each of the key posts during the last ten years?

112. Do you provide facilities to your personnel to participate in refresher and specialised courses and seminars? If so, how many of your personnel have participated in such refresher and specialised courses and seminars during the last three years?

113. Has the sugar industry any internal inspectorate or/and advisory services employed by the apex association(s) of the industry for inspecting sugar factories and giving technical and other advice for improving their performance? If not, what are your views about establishing such an inspectorate and advisory services?

114. Is any difficulty experienced in securing the services of suitably qualified sugar engineers, sugar technologists, managers, etc. for the key posts in your factory? If so, what are your proposals for improving the availability of technically and professionally qualified personnel?

115. What arrangements should be made for the training in industrial management, of personnel required for managing sugar factories taken over or managed by government?

XVI. Labour and Welfare Activities

116. (a) Have relations between your factory and labour been cordial? If so, how has this been achieved? If not, what are the main reasons therefor?

(b) What are your suggestions for improving the relations?

(c) Were there any strikes or lock-outs in your factory during the last ten years? If so, when and for what periods and on what grounds? How were the strikes and lock-outs resolved?

117. Does labour participate in the management of your factory? If so, in what manner and to what extent?

XVII. Cooperative Sugar Factories

118. Please explain how the capital of your cooperative factory has been formed, and give the latest position of the amounts collected from (i) grower-members (ii) non-grower-members and (iii) State Government.

119. (a) Is any compulsory deduction made by the factory cooperative society from the price payable to grower-members? If so, what is the justification for such a deduction? What is the basis for calculation of the amount deducted from the price of cane? What is the rate of interest paid on the amounts collected?

(b) How are the amounts collected through compulsory deductions, utilised?

120. (a) What are the provisions of the bye-laws of your factory cooperative society for allotting shares to (i) grower-members, and (ii) non-grower-members?

(b) Has the contribution of a member to the share capital any relation to the quantity of cane supplied by him?

121. (a) Do the by-laws of your factory cooperative society permit factory workers to become members of the cooperative society? Are any workers of your factory, members of the society?

(b) Is there a provision in the bye-laws of your factory cooperative society for workers to participate in the management of the factory? If so, please give the number of workers who are on the management of the factory.

122. (a) Do cooperative sugar factories purchase cane from individual canegrowers and/or through canegrowers' societies for marketing cane, if any?

(b) What are your views on organising separate canegrowers' societies for marketing cane in the reserved areas of the cooperative sugar factories in case such marketing societies do not exist?

123. How far have sugar factories in the cooperative sector been able to achieve their objectives particularly as regards the following :—

(i) Improvement in the socio-economic condition of the canegrowers;

(ii) Improvement in the socio-economic condition of the workers ;

(iii) Reduction in the cost of production of sugar ;

(iv) Higher working efficiency;

(v) Harmonisation of relations between factory and canegrowers and workers ; and

(vi) Generation of capital for modernisation, expansion and diversification ?

124. Has the rate of taxes on profits in cooperative sugar factories been lower than the rate of taxes on profits of other sugar factories in any period during the last ten years ? Is so, how has his financial advantage been utilised ?

125. Please supply a copy of the bye-laws of your factory cooperative society.

XVIII. Factories owned or managed by Government

126. Please give the names of sugar factories owned by Government.

127. Please give the names of sugar factories which were taken over by the Central or State Government during the last ten years and the dates of take-over. Please also give reasons for the take-over and the terms thereof.

128. (a) What were the arrears of cane price, purchase tax and commission of canegrowers' societies at the date of take-over and at end of the season 1969-70 or at the time of release from the Government management?

(b) Was any change made in the reserved areas of the factories after the take-over? If so, how did it affect the working of the factories?

(c) Were any additions to the plant and machinery made after the take-over? If so, please give the expenditure incurred; and the source(s) of finance.

129. Did any significant improvement take place in the performance of the factories after the take-over by the Government in the matter of profitability and plough-back of profit ? If so, how was this achieved ; if not, what were the reasons ?

XIX. Sick and Uneconomic Units.

130. What is your understanding of the expression 'sick mill'? What factors should be taken into consideration in deciding whether a unit is 'sick' ?

131. How far have Government policies helped uneconomic and sick units to become viable units ?

132. If your factory has become sick or uneconomic unit due to non-availability of cane, low recovery of sugar, inadequacy and inefficiency of the plant and equipment or any other reason, what steps have been taken or are proposed to be taken to improve the position ?

133. (a) Do you think that mismanagement has contributed to the sickness or uneconomic condition of certain factories? Please support your views by reference to cases of mismanagement.

(b) Do you think that non-utilisation of funds made available through income tax concessions on account of depreciation, development rebate, etc. for expansion and modernisation of plant and equipment has contributed to the sickness and uneconomic condition of certain units?

(c) In case you consider your factory to be a sick or uneconomic unit, please comment on (a) and (b) above, with special reference to your factory.

134. (a) Did your factory at any time during the last ten years, want to close down? If so, for what reasons?

(b) Please give reasons for not closing down.

135. (a) If a sick and uneconomic unit has to close down, what steps should be taken to protect the interests of the canegrowers and labour ?

(b) If a sick and uneconomic unit has to run in the interest of the canegrowers and labour what facilities and concessions should be given to such unit?

136. What is the policy of the Government regarding shifting of an uneconomic unit and merger of uneconomic unit with another unit to make it (them) viable ?

137. Do you think that cooperativisation of sick and uneconomic units would help solve their problems ? Please give reasons for your views.

XX. Licensing Policy.

138. (a) What has been Government's industrial licensing policy for the sugar industry?

(b) Has setting up of new units been preferred to expansion of existing units?

139. What are your views on the licensing policy giving preference to the setting up of sugar factories in the cooperative sector ?

140. What is the basis adopted by the Government for assessing the installed capacity of the sugar industry ? Has the basis been changed from time to time during the last ten years ?

141. (a) Do you consider a plant of 1250 tonnes per day capacity to be of economic size? If so, please give reasons for your views.

(b) If not, what in your opinion, is the economic size of a sugar plant? What will be the capital cost of putting up such a plant? Please give a broad break-up.

142. Under the industrial licensing policy recently announced by the Central Government, a plant costing upto Rs. 1 crore can be put up without a licence. What would be the probable capacity of a sugar plant costing Rs. 1 crore? Would such a plant be viable? Please give your views.

143. Please furnish a note on the utilisation and implementation of the licences granted by the Central Government for establishment of new sugar factories and for expansion of existing sugar factories.

144. What are the difficulties experienced in the establishment of new factories and the expansion of the existing factories? Please give your suggestions for resolving the difficulties.

XXI. Availability and Quality of Indigenous Sugar Machinery

145. Are manufacturers of indigenous sugar machinery in a position to supply machinery and equipment of the latest design and technology?

146. (a) Does the delivery period offered by manufacturers of indigenous sugar machinery meet the requirements of the sugar industry? If there are any items of which the deliveries are protracted, please indicate the items and the best delivery period possible.

(b) Is the delivery period in respect of items, such as boilers, turbines, mills and centrifugals reasonable? Can it be improved? If so, to what extent.

147. Do the sugar machinery manufacturers adhere to the exact specifications (within permissible limits of variation) of the machinery ordered?

148. (a) Do manufacturers provide any facilities for servicing and maintenance of the machinery and equipment? If so, are they adequate?

(b) In case such facilities are not provided, what are your suggestions for providing them?

149. Is it necessary to increase the capacity for manufacturing sugar machinery by way of increasing the capacity of the existing units and/or setting up of new manufacturing units? Please specify the items in respect of which more capacity is required.

150. (a) What percentage (in terms of cost) of the parts and components of machinery manufactured in India is imported?

(b) What efforts are being made for import substitution without affecting efficiency?

151. How does indigenous machinery compare with imported machinery as regards performance, efficiency, maintenance and repair cost?

152. Have sugar machinery manufacturers any research and development facilities for continuous improvement of designs?

153. Have indigenous sugar machinery manufacturers exported in the last ten years complete sugar plants or piece-meal sugar machinery? If so, please give details, such as year of export, country to which exported, equipment and machinery exported and foreign exchange earned.

XXII. Beet Cultivation and Beet Sugar Production

154. Do you think that sugar-beet can be cultivated in your factory area? If it has already been cultivated in your area, please furnish, *inter alia*, the following information :—

(i) Acreage sown;

(ii) Time of planting and harvesting;

(iii) Yield per hectare;

(iv) Sugar content of beet; and

(v) Manner of the disposal of beet and beet pulp.

155. In case you have grown beet or/and produced sugar from it, please furnish a note or the economics of beet cultivation or/and production of sugar from beet.

XXIII. Gur and khandsari

156. Do you experience any difficulty in obtaining plant and machinery for setting up of power crushers and khandsari units? If so, what are your suggestions for meeting the difficulties?

157. Is there any restriction on (i) setting up of power crushers/khandsari units in the reserved area(s) of sugar factories and (ii) on area(s) from which they (power crushers/khandsari units) can purchase cane?

158. Is any permit or licence required for setting up of power crushers and khandsari units?

159. What is your view about imposing on gur and khandsari industries, similar restrictions and regulations as are applicable to the sugar industry in matters such as payment of cane price, purchase and weighment of cane, organisation of canegrowers' societies and obligation of gur and khandsari units to purchase cane of members of the societies through the societies?

160. What is the system being followed by gur and khandsari units for payment of price of cane?

161. Should gur and khandsari units be required to pay the same minimum price of cane purchased by them as is fixed for sugarcane purchased by vacuum pan factories?

162. Are there any arrears of price of cane purchased by gur and khandsari units in your State ? If so, what steps have been taken for their payment ?

163. Have you any suggestions for an equitable and balanced distribution of sugarcane amongst sugar industry and gur and khandsari industries, both in years of shortage and excess of cane ?

164. Please describe briefly the method and technique for the manufacture of gur, especially mentioning the clarification and bleaching agents used.

165. What are your suggestion for improving the technique of clarification of cane juice for manufacture of gur ?

166. Have any experiments been done for production of gur, employing sulphitation or other improved techniques for clarification and vacuum technique for evaporation of juice ? If so, what are the results ?

167. What is the yield of gur per tonne of sugarcane ? What are your suggestions for reducing the losses of sugar in gur manufacture ?

168. How is gur stored and what is the extent of deterioration of gur during storage ? Has any work been done on the reduction of losses in storage ?

169. Are there difficulties in marketing gur? What are your suggestions for eliminating them ?

170. How does the control, partial control or decontrol of white sugar affect the gur and khandsari industries ?

171. During the last 10 years, what have been the restrictions on the movement of gur and khandsari (i) within the State of their production; and (ii) to other States ? How have these restrictions benefited or adversely affected the gur and khandsari industries ?

172. What is the average time-lag between the arrival of cane at the khandsari units and the crushing ? What are your suggestions for reducing this time-lag?

173. (a) What is the average percentage of extraction of sugar from cane in khandsari units ? What are your suggestions for improving the extraction ?

(b) Is any estimate available of losses of sugar in bagasse in kolhus and power driven crushers ?

174. What processes for clarification of juice are employed by khandsari units ? Which of the processes is most commonly employed ?

175. What is the average percentage of recovery of sugar from cane in khandsari units of your State ?

176. What equipment and techniques are necessary for improving the recovery of sugar from cane and the quality of khandsari in khandsari units ?

177. What is the molasses per cent cane in khandsari units ? How is the molasses of khandsari units utilised ?

XXIV. Price Policy for Sugarcane

178. What was the basis for calculating the sugarcane prices as recommended by the Agricultural Prices Commission and the prices as fixed by Government for each season during the last ten years and the reasons for the difference, if any, between the two prices?

179. What is the basis for fixing the period of 'optimum recovery' of a factory in a season, or purposes of calculating the average recovery to be used for determining the sugarcane price for the following year ?

180. (a) Since 1962-63, the minimum price of sugarcane has been fixed in relation to a certain percentage of recovery. At present, this recovery percentage is 9.4 and the price of cane on this recovery percentage is Rs. 7.37 per quintal at gate. A premium is allowed for every 0.1 per cent increase in recovery. How was the minimum cane price of Rs. 7.37 in relation to the recovery of 9.4 arrived at ?

(b) What are your views about this method of fixation of price of cane ?

(c) It has been suggested that there should also be a discount in the minimum cane price for every 0.1 per cent decrease in recovery. Please comment.

181. It has been suggested that the minimum price should be linked to a recovery lower than 9.4 per cent and that present minimum statutory price should be brought down proportionately. What are your views ?

182. (a) Should minimum cane price be fixed on ex-field basis ?

(b) In case cane price is fixed on ex-field basis, what should be the arrangements for payment of cost of transport of cane to the canegrowers or to the factories as the case may be ?

183. Should there be a uniform price of sugarcane througout the country or different sugarcane prices for different States/regions ? In the latter case, what should be the basis for fixation of sugarcane price for different States/regions ? Please give your views.

184. Have you any other suggestions for fixing minimum price of sugarcane ?

185. What are your views on the linking of price of cane with its sugar content (as distinguished from recovery) ?

186. What are your views about the feasibility of linking the price of sugarcane supplied by an individual, canegrower at a time, with the sugar content or recovery of the cane ?

187. If a scheme of the kind as envisaged in question No. 186 above, is not feasible or practicable, do you think that the price of cane should be linked with the sugar content or recovery of the cane supplied by a group of villages or group of canegrowers ? What organisation will be necessary, both in the field and at the factory, to arrange for the supply of sugarcane of a group of villages or group of canegrowers at the same time, and for sampling, testing and analysing the juice for sugar content or recovery ? What measures will be necessary to create confidence amongst canegrowers that the relevant analytical data are correct and reliable ?

XXV. Price Policy for sugar

(Note : Some of the questions here have been asked just in case price control on sugar is reintroduced in the future).

188. So far the country had been divided into number of zones for purposes of fixation of price of sugar. What are your views about the fixation of price on a zonal basis ?

189. (a) What should be the considerations for demarcating zones for fixation of price ?

(b) The Tariff Commission (1969) had recommended 15 zones. Do you consider that any change is required in the number or demarcation of these zones ?

190. Were any modifications necessary in the cost schedules used for the last ten years, for working out the levy sugar price of each zone ? Please give details.

191. Has the return allowed by the Government to the sugar industry in the fixation of sugar during the last ten years, been reasonable ? Please give reasons for your views.

192. During the period of control on sugar price, there was no provision for rehabilitation in the price structure of sugar. Would you advocate such a provision ? Please give reasons for your views.

193. What are the advantages and disadvantages of different regions for location of the industry, both natural (climatic, geographical, etc.) and man-made (e.g. controls, fiscal policies, etc.) ? How are these reflected in the cost structure of sugar ? Will it be desirable to compensate for them ?

194. What are your views on having a single pool price for a particular grade of sugar throughout the country ? Has such a system worked in the past ? If so, please give your views about its working.

195. Should a flexible provision be made in cost schedules for increase in sugar price, consequent on increase in wage bills, prices of raw materials, stores, etc. ?

196. What is the basis of fixing wholesale and retail prices of sugar in your State ? Please furnish the break-up.

197. Should the price of sugar be reduced by fixing higher prices for by-products ? If so, to what extent ?

198. (a) Certain incentives and concessions are given to sugar factories from time to time for starting early and continuing late in the season ;

(i) Are the incentives justified ?

(ii) Are they adequate ?

(b) what are your views on incorporating such incentives and concessions in the sugar price policy as a permanent feature ?

(c) What are the effects of starting early and continuing late on the efficiency and profitability of sugar factories ?

XXVI. Marketing and Distribution of Sugar

199. What are the principles adopted by Government for releasing monthly quotas of sugar from factories ?

200. Are the releases related to the total production or the stocks in hand at the time of releases ?

201. Do you think that the mechanism of monthly releases of sugar from the factories is an efficient instrument for regulating sugar prices in the market ?

202. What measures were taken by the State Governments to ensure that the quotas of sugar allotted to them were lifted promptly by their nominees ?

203. Is the State Government operating any pool price system for equalisation of retail price of sugar ? If so, please furnish, *inter alia,* the following information :—

(i) The amount collected per quintal towards 'equalisation fund' ;

(ii) The principle for fixing the amounts ;

(iii) Whether the amount is recovered from the wholesalers or retailers ;

(iv) Whether the equalisation amount collected varies from district to district ; and

(v) The loss or gain to State Government due to the system of equalisation.

204. What were the administrative charges (per quintal of sugar) realised by the State Government on levy sugar ?

205. What were the margins of profit and incidentals allowed by the State Government in respect of levy sugar, to —

(i) Importers of sugar to the State ;

(ii) Wholesale dealers ; and

(iii) Retail dealers ?

206. In case the system of 'levy' and 'free-sale' sugar has to be reintroduced in the future, what should be the basis of allotment of levy sugar to the States by the Central Government—population, per capita consumption or the quantity of the levy sugar actually lifted in the past ?

207. Is there any scheme in operation at your factory for sale of sugar at the gate, to factory workers/canegrowers ? If not, was such a scheme in force during the period of 'control' or 'partial control' ? Please give details of the scheme.

208. (a) For the last few years, various degrees of controls have been exercised by Government on the prices, releases, movement and sale of sugar. Recently, the control on the prices, movement and sale has been removed. Are you in favour of control, partial control or no control at all on the prices, movement and sale of sugar ? Please give your views.

(b) What are your views on control or decontrol on releases of sugar ?

XXVII. Export

209. For the last few years, India has been exporting two to four lakh tonnes of sugar to other countries. What are your suggestion for stepping up the exports ?

210. Have there been any complaints by importing countries about the quality of sugar exported from India ? If so, please offer your comments on the complaints and your suggestion for removing the causes of the complaints.

211. What are your suggestions for quality control of sugar for export ?

212. What is the extent of financial loss, if any, on export of sugar per tonne ? How should export losses be met ?

213. What are your suggestions for reducing the cost of Indian sugar to enable it to compete in the international market ?

214. What are your views on setting up of raw sugar factories in areas near the ports and in the Andamans and other Indian islands for producing sugar for export at competitive rates ?

215. What are your views on setting up of a refinery and exporting refined sugar to other countries ?

216. Did the system of allotting export quotas to various factories in the country provide equal opportunity to sugar factories in all regions to get fair quotas ? If not, what are your suggestions for improving the system ?

217. How do the various International and Commonwealth sugar agreements facilitate or restrict the export of Indian sugar ?

XXVIII. Buffer Stocks

218. What are your views on building up and maintaining buffer stocks of sugar ? Please give reasons for your views.

219. What factors should be taken into consideration in estimating the quantity of buffer stocks to be maintained ? What is your estimate of the quantity of buffer stocks ?

220. What should be the system for building up and maintaining the requisite quantity of buffer stocks and for their utilization ?

221. How should the buffer stocks be financed ?

222. How should the construction of additional godown capacity required for buffer stocks be financed ?

XXIX. Taxes, Excise duty, Commission, etc.

223. What portion, if any, of the purchase tax, cane cess or any other levy on cane collected by the State Government is being spent on cane development ?

224. What are your views on earmarking a certain percentage of the receipts from excise duty, purchase tax, cess and other levies on sugarcane and sugar, for the development of sugarcane and sugar industry ?

225. It has been suggested that purchase tax imposed by State Governments should be realised at the time of release of sugar from godowns in the same manner as excise duty. Please give your views.

226. Is the present system of taxation and levies oriented towards securing improvement in the efficiency of the sugar industry ? Please give reasons for your views.

227. What are your views about the commission paid to canegrowers' societies, on the cane purchased by sugar factories through them ?

228. Are there any municipal taxes, octroi, toll or other local taxes on sugarcane on its way from the field to your factory and/or out-station purchasing centre ? Please give details.

229. What is the incidence of octroi, terminal tax or any other duty levied on sugar in different important consuming centres, such as Bombay, Madras, Calcutta, Delhi, Kanpur, Ahmedabad, etc.

XXX. Research and Training

230. Please give a list of sugar and sugarcane research and training institutions set up by the Central Government or State Government, showing the total budget provisions for each of them for each of the last 3 years. Do you think the provisions to be adequate ?

231. Are the sugar industry and canegrowers represented on the managing or advisory boards of the institutions ? Is their representation adequate ?

232. What is the estimate of the annual requirements of trained personnel in different fields and at various levels for the sugar industry for the V and VI Plan periods ? What are your suggestions for meeting these requirements ?

233. Do you think that the facilities and procedures available for coordination of research amongst the various sugar and sugarcane research institutions are satisfactory ? If not, what are your suggestions for improving them ?

234. What are your views about the contacts and exchange of views between research institutions and canegrowers and sugar factories? How can these be improved?

235. What are your views on the demand for establishment of more sugar technological research institutions in the country?

236. What are your views on the sugar industry setting up a research institute of its own?

237. What research facilities do you have in your factory?

238. What new varieties of sugarcane giving high yield and/or high sugar content have been released to canegrowers in different regions during the last ten years? Please give details. Have results on the field come up to the expectations? If not, what are the reasons?

239. Are the existing research facilities adequate for evolution of new varieties of sugarcane suitable for different regions? If not, in what direction should they be improved?

240. Has any work been done on reducing the period for evolution of varieties of sugarcane? What success has been achieved in this respect?

241. Is any research being done to solve the technological and engineering problems arising out of the development of new varieties of sugarcane? Please mention briefly the research done and its results.

242. In which operational stations such as weighment, milling, clarification, evaporation, etc. can automation be applied? Would it improve the efficiency of the industry? If so, what research would be necessary for the introduction?

243. What is your assessment of the contribution of technological and engineering research in India to the improvement in the technical performance of the sugar industry?

244. Is there adequate exchange of views amongst sugar chemists and technologists of India and abroad? If not, how could this be achieved?

XXXI. Performance and Contribution of the Sugar Industry

245. What has been the contribution of the sugar industry to the overall economy of the country, particularly during the last 10 years?

246. What are your suggestions for future development of the industry?

247. How does the performance of the sugar industry in India compare with the performance of the sugar industry in other countries having similar conditions?

XXXII. Nationalisation

248. What is your concept of 'nationalisation of the sugar industry'?

249. What is the rationale behind the demand for nationalisation?

250. What in your opinion would be the probable effects of nationalisation on, *inter alia*, the technical efficiency and modernisation of sugar factories including sick mills payment of cane price, reduction in the cost of production of sugar, utilisation of by-products, export of sugar, amenities to canegrowers and labour?

251. The Central Government has from time to time taken over some factories under the provisions of the Industries (Development & Regulation) Act, 1951 (65 of 1951) and State Governments have appointed Receivers at a number of sugar factories. How far has Government management, control and supervision resulted in improvement of the condition of the factories, particularly as regards profitability, technical efficiency and payment of cane price.

252. In the event of nationalisation—

(a) Should nationalisation of the industry be effected at one time or in phases?

(b) Subject to the constitutional and legal provisions, should nationalisation be effected by the Central Government throughout the country or by each State within its own jurisdiction?

(c) Should nationalisation be effect of—

(i) the entire industry (including cooperative factories),

(ii) the joint stock sector only,

(iii) sick and uneconomic units only (both joint stock sector and cooperative sector), or

(iv) sick and uneconomic units of the joint sector only?

Please give reasons for your views.

(d) What should be the organisation and administrative measures for, *inter alia*—

(i) day-to-day working of the various sugar factories;

(ii) overall supervision on regional/all India basis;

(iii) recruitment and training of essential administrative managerial and technical personnel:

(iv) fixation of prices for sugarcane and sugar; and

(v) marketing of sugar?

(e) Should the entire nationalised industry be organised into one or more government companies or corporations for purposes of administration and control?

(f) What should be the programme for rehabilitation and modernisation of sugar factories and for securing new plant and machinery required for the purpose?

(g) What should be the extent and manner of the participation of canegrowers and labour in the management of nationalised factories?

APPENDIX D

PARTIES TO WHOM TECHNICAL AND GENERAL QUESTIONNAIRES WERE ISSUED AND WITH WHOM COMMISSION HELD DISCUSSIONS

LIST OF CENTRAL AND STATE GOVERNMENT DEPARTMENTS/OFFICERS, MEMBERS OF PARLIAMENT AND STATE LEGISLATURES, SUGAR FACTORIES AND THEIR ASSOCIATIONS AND OTHER ORGANISATIONS TO WHOM COMMISSION'S TECHNICAL AND GENERAL QUESTIONNAIRES WERE ISSUED AND THOSE WITH WHOM THE COMMISSION HAD DISCUSSIONS

£Indicates those who replied to the Technical Questionnaire.

*Indicates those who replied to the General Questionnaire.

@Indicates those with whom the Commission had discussions.

A. Central Government Departments/Officers

1. *Secretary to the Government of India,
   Ministry of Foreign Trade,
   Udyog Bhavan, New Delhi.

2. Secretary,
   Indian Council of Agricultural Research,
   Krishi Bhavan, New Delhi.

3. @Shri A. B. Bannerjee,
   Special Secretary to the Government of India,
   Ministry of Industrial Development,
   New Delhi.

4. @Shri S. C. Banerjee,
   Adviser (Engineering),
   Directorate General of Technical Development,
   Udyog Bhavan, New Delhi.

5. @Shri K. N. Ramaswamy,
   Industrial Adviser,
   Directorate General of Technical Development,
   Udyog Bhavan, New Delhi.

6. @Shri A. B. Malik,
   Development Officer (IM-I),
   Directorate General of Technical Development,
   Udyog Bhavan, New Delhi.

7. Development Officer,
   Directorate General of Technical Development,
   (Alcohol and Fermentation Industries),
   Udyog Bhavan, New Delhi.

8. *Deputy Secretary, (Reply received from
   Ministry of Labour, Central Labour
   Shram Shakit Bhavan, Institute, Bombay)
   New Delhi.

9. *Chief Director,
   Directorate of Sugar and Vanaspati,
   Krishi Bhavan, New Delhi.

10. *Deputy Secretary (Sugar),
    Department of Food,
    Ministry of Agriculture, Krishi Bhavan,
    New Delhi.

11. Under Secretary,
    Ministry of Petroleum and Chemicals,
    Shastri Bhavan, New Delhi.

12. Deputy Secretary,
    Department of Cooperation,
    Ministry of Agriculture,
    Krishi Bhavan, New Delhi.

13. Director,
    National Productivity Council,
    38, Golf Link, New Delhi.

14. Chief Economic Adviser,
    Government of India,
    Ministry of Finance,
    Department of Economic Affairs,
    New Delhi.

15. @Shri D. P. Anand,
    Chairman,
    Tariff Commission,
    Bombay.

16. @Shri Pramod Singh,
    Member,
    Traiff Commission,
    Bombay.

17. @Shri Palekar,
    Member,
    Traiff Commission,
    Bombay.

18. @Shri Gunishastry,
    Tariff Commission,
    Bombay.

19. @Shri M. S. Gill,
    Secretary,
    National Cooperative Development Corporation.,
    C-56, South Extension, Part II,
    New Delhi-49.

20. @Shri R. V. Gupta,
Joint Secretary,
National Cooperative Development Corporation,
C-56, South Extension, Part II,
New Delhi-49.

21. @Shri V. G. Puranik,
Director (Processing),
National Cooperative Development Corporation,
C-56, South Extension, Part II,
New Delhi.

22. @Shri B. S. Sharma,
Deputy Director (Sugar),
National Cooperative Development Corporation,
C-56, South Extension, Part II,
New Delhi.

23. @Shri P. S. Gill,
Director,
Directorate of Sugarcane Development,
19-20, Rothak Road,
New Delhi.

24. *Secretary,
Khadi and Village Industries Commission,
Irla Road, Villa Parle,
Bombay-56.

B. State Government Departments/Officers

Andhra Pradesh

25. Chief Secretary,
Government of Andhra Pradesn,
Hyderabad.

26. Deputy Secretary,
Government of Andhra Pradesh,
Industries and Commerce Department,
Hyderabad.

27. @Shri K. M. Ahmed,
Director of Sugar and Registrar,
Cooperative Societies,
Government of Andhra Pradesh,
Hyderabad.

28. @Shri P. S. Krishnan,
Deputy Secretary,
Government of Andhra Pradesh,
Industries Department.
Hyderabad.

29. @Shri B. N. Jayasimha,
Managing Director,
The Nizam Sugar Factory Ltd.,
Shakkarnagar, District Nizamabad.

Assam

30. Chief Secretary,
Government of Assam,
Shillong.

31. Secretary,
Government of Assam,
Cooperation Department,
Shillong.

32. @Shri M. K. Sharma,
Commercial Officer,
Assam Industrial Development Corporation Ltd.,
Gauhati.

**Bihar*

33. Chief Secretary,
Government of Bihar,
Patna.

34. Cane Commissioner,
Government of Bihar,
Patna.

35. @Shri Naval Kishore Narain Singh,
Cane Commissioner,
Government of Bihar, Patna.

36. @Shri J. N. Mishra,
Director of Agriculture,
Government of Bihar,
Patna.

37. @Shri Brahm Dev Ram,
Under Secretary,
Government of Bihar,
Supply Department,
Patna.

38. @Shri Lagan Dev Singh,
Deputy Secretary,
Government of Bihar,
Labour Department,
Patna.

39. @Shri R. R. Prasad,
Special Secretary,
Government of Bihar,
Sugarcane Department,
Patna.

40. @Shri D. B. Erkan Tigga,
Special Officer (Sugarcane),
Government of Bihar,
Patna.

41. @Shri R. N. Saran,
Deputy Registrar (Sugar),
Cooperative Societies,
Government of Bihar,
Patna.

**Gujarat*

42. Chief Secretary,
Government of Gujarat,
Ahmedabad.

43. Secretary,
Government of Gujarat,
Agriculture and Cooperation Department,
Sachivalaya, Gandhinagar,
(Ahmedabad).

poration

44. @Shri K. P. Bhat,
Joint Registrar (Sugar),
Cooperative Societies,
Government of Gujarat,
Gandhinagar,
(Ahmedabad).

45. @Shri S. V. Patel,
Joint Director of Agriculture,
Government of Gujarat,
Gandhinagar, (Ahmedabad).

46. @Dr. G. A. Patel,
Director of Agriculture,
Government of Gujarat,
Gandhinagar, (Ahmedabad).

**Karnataka*

47. Chief Secretary,
Government of Karnataka,
Bangalore.

48. Director of Industries and Commerce,
Government of Karnataka,
Vidhana Soudha,
Karnataka Government Secretariat,
Bangalore.

49. @Shri A. B. Datar,
Secretary,
Government of Karnataka,
Agriculture and Forest Department,
Bangalore.

50. @Shri B. S. Hanuman,
Director of Industries and Commerce,
Government of Karnataka,
Bangalore.

51. @Shri C. M. Ravanna,
Joint Director of Agriculture,
Government of Karnataka,
Bangalore.

52. @Shri S. Nanjundiah,
Managing Director,
The Mysore Sugar Co. Ltd.,
Bangalore.

53. @Shri N. K. Prabhakar Rao,
Director of Sugar, and Additional Registrar,
Cooperative Societies,
Government of Karnataka,
Bangalore.

**Kerala*

54. Chief Secretary,
Government of Kerala,
Trivandrum.

55. Secretary,
Government of Kerala,
Industries Department,
Trivandrum.

56. @Shri T. N. Kuriakos,
Officer on Special Duty,
Planning and Economic Affairs Department,
Government of Kerala,
Trivandrum.

57. @Shri K. Narayanan,
Special Secretary,
Government of Kerala,
Industries Department,
Trivandrum.

**Haryana*

58. Chief Secretary,
Government of Haryana,
Chandigarh.

59. Director,
Food and Supplies and Deputy Secretary,
Government of Haryana,
Chandigarh.

60. @Shri Vineet Nayar,
Secretary,
Government of Haryana,
Agriculture Department,
Chandigarh.

61. @Shri Kulwant Singh,
Deputy Secretary,
Government of Haryana,
Agriculture Department,
Chandigarh.

62. @Shri M. K. Puri,
Joint Registrar,
Cooperative Societies,
Government of Haryana,
Chandigarh.

63. @Shri Manmohan Singh Bajwa,
Deputy Director (General),
Government of Haryana,
Chandigarh.

64. @Shri Prayag Dutt,
Assistant Cane Commissioner,
Government of Haryana,
Chandigarh.

65. @Shri P. R. Palta,
Deputy Director (General),
Food & Supplies Department,
Government of Haryana,
Department of Cooperation,
Chandigarh.

66. @Shri G. L. Bailur,
Secretary,
Government of Haryana,
Department of Cooperation,
Chandigarh.

67. @Shri R. S. Verma,
Director of Agriculture,
Government of Haryana,
Chandigarh.

**Maharashtra*

68. Chief Secretary,
Government of Maharashtra,
Bombay.

69. Deputy Secretary,
Government of Maharashtra,
Agriculture and Cooperation Department,
Sachivalaya, Bombay-32.

70. Deputy Secretary,
Government of Maharashtra,
Industries Department,
Sachivalaya, Bombay-32.

71. @Shri K. Padmanabhiah,
Director of Sugar,
Directorate of Sugar,
Government of Maharashtra,
Poona.

72. @Dr. Nagpal,
Joint Director of Agriculture,
Government of Maharashtra,
Poona.

**Madhya Pradesh*

73. Chief Secretary,
Government of Madhya Pradesh,
Bhopal.

74. Special Secretary,
Government of Madhya Pradesh,
Agriculture Department, Vallabh Bhavan,
Bhopal.

75. @Shri R. P. Kapoor,
Director of Agriculture,
Government of Madhya Pradesh,
Bhopal.

76. @Shri J. N. Kaul,
Registrar, Cooperative Societies,
Government of Madhya Pradesh,
Bhopal.

77. @Shri P. C. Aggarwal,
Additional Director of Industries,
Government of Madhya Pradesh,
Bhopal.

78. @Shri I. N. Swamy,
Assistant Director of Food,
Government of Madhya Pradesh,
Bhopal.

79. @Shri Vinay Shankar,
Managing Director,
Morena Mandal Sahakari Sakhar Karkhana Ltd.,
Kailaras, District Morena.

80. @Dr. P. S. Parasai,
Additional Director of Agriculture,
and Cane Commissioner,
Government of Madhya Pradesh,
Bhopal.

81. @Shri S. R. Bahadur,
Joint Director of Industries,
Government of Madhya Pradesh,
Bhopal.

82. @Shri A. S. Bhatnagar,
Deputy Secretary,
Government of Madhya Pradesh,
Bhopal.

**Orissa*

83. Chief Secretary,
Government of Orissa,
Bhubaneswar.

84. Secretary,
Government of Orissa,
Agriculture and Cooperation Department,
Bhubaneswar.

85. @Shri G. C. Dass,
Assistant Director,
Industries Department,
Government of Orissa,
Bhubaneswar.

**Punjab*

86. Chief Secretary,
Government of Punjab,
Chandigarh.

87. Cane Commissioner,
Government of Punjab,
Chandigarh.

88. @Shri G. K. Bhatnagar,
Cane Commissioner,
Government of Punjab,
Chandigarh.

89. @Shri M. S. Sra,
Joint Director of Agriculture,
Government of Punjab,
Chandigarh.

90. @Shri H. S. Brar,
Joint Registrar,
Cooperative Sugar Mills, Chandigarh.

91. @Shri Chandan Singh,
Deputy Director of Food and Supplies,
Government of Punjab,
Chandigarh.

92. @Dr. R. S. Kanwar,
Sugarcane Specialist,
Government of Punjab,
Chandigarh.

93. @Shrimati Sarla Grewal,
Development Commissioner,
Government of Punjab,
Chandigarh.

94. @Shri O. G. Adya,
Chairman,
Punjab State Federation of Cooperative Sugar Mills Ltd.,
Chandigarh.

95. @Shri R. K. Singh,
Cane Commissioner,
Government of Punjab,
Chandigarh.

96. @Shri Pritam Singh,
Director of Agriculture,
Government of Punjab,
Chandigarh.

97. @Shri Kuldip Singh,
Joint Director of Industries,
Government of Punjab,
Chandigarh.

**Pondicherry*

98. Chief Secretary,
Government of Pondicherry,
Pondicherry.

99. Director of Agriculture,
Government of Pondicherry,
Pondicherry.

100. Shri N. Ramadoss,
Sugarcane Development Officer,
Government of Pondicherry,
Pondicherry.

Rajasthan

101. Chief Secretary,
Government of Rajasthan,
Jaipur.

102. Deputy Secretary,
Government of Rajasthan,
Industries Department,
Jaipur.

103. @Shri B. Hooja,
Special Secretary.
Agriculture Department,
Government of Rajasthan,
Jaipur.

104. @Dr. Ranbir Singh,
Director of Agriculture,
Government of Rajasthan,
Jaipur.

105. @Shri V. B. L. Mathur,
Commissioner,
State Enterprises,
Government of Rajasthan,
Jaipur.

106. @Shri V. S. Sood,
Managing Director,
Shri Keshoraipatan Sahakari Sugar Mills Ltd.,
Keshoraipatan, District Bundi.

107. @Shri I. S. Kavadia,
Chief Executive Officer,
Ganganagar Sugar Mills Ltd.,
Sri Ganganagar, Distt. Ganganagar.

108. @Shri L. N. Sharma,
Secretary,
Ganganagar Sugar Mills Ltd.,
Sri Ganganagar.

109. @Shri S. P. Goel,
Secretary (Accounts),
Ganganagar Sugar Mills Ltd.,
Sri Ganganagar.

110. @Shri C. L. Sharma,
Additional Accounts Officer,
Ganganagar Sugar Mills Ltd.,
Sri Ganganagar.

111. @Shri Jodh Singh,
Additional Director of Agriculture,
Department of Agriculture,
Government of Rajasthan,
Jaipur.

112. @Shri Sudarshan Singh,
Deputy Director (Sugar),
Department of Agriculture,
Government of Rajasthan,
Jaipur.

**Tamil Nadu*

113. Chief Secretary,
Government of Tamil Nadu,
Mt. St. Fort George,
Madras-2.

114. Secretary,
Government of Tamil Nadu,
Industries Department,
Secretariat, Madras-9.

115. Secretary,
Government of Tamil Nadu,
Department of Agriculture,
Madras-9.

116. @Thiru V. Karthikeyan,
Secretary,
Government of Tamil Nadu,
Industries Department,
Madras.

117. @Thiru A. S. Padmanabhan,
Director of Sugar and *Ex-officio* Deputy Secretary,
Government of Tamil Nadu,
Madras.

118. @Thiru V. Krishnamurthy,
State Sugarcane Development Officer,
Government of Tamil Nadu,
Madras.

119. @Thiru Veda Sundararaj,
Secretary to the Commission for Civil Supplies, Government of Tamil Nadu,
Department of Food,
Madras.

120. @Thiru Sridharan,
Director of Sugar,
Government of Tamil Nadu,
Madras.

**Uttar Pradesh*

121. Chief Secretary,
Government of Uttar Pradesh,
Lucknow.

122. Special Secretary,
Government of Uttar Pradesh,
Industries (C) Department,
Lucknow.

123. @Shri K. C. Joshi,
Secretary,
Government of Uttar Pradesh,
Food Department,
Lucknow.

124. @Shri Prem Kumar,
Special Secretary,
Government of Uttar Pradesh,
Industries Department,
Lucknow.

125. @Shri L. K. Nagar,
Cane Commissioner,
Government of Uttar Pradesh,
Lucknow.

126. @Shri G. P. Seth,
Joint Cane Commissioner,
Government of Uttar Pradesh,
Lucknow.

127. @Shri Chandan Singh,
Joint Cane Commissioner, on deputation as General Manager, Bagpat, Cooperative Sugar Mills Ltd., Bagpat, Distt. Meerut.

128. @Shri Y. N. Bali,
Assistant Sugar Commissioner,
Government of Uttar Pradesh,
Lucknow.

129. @Shri Agnihotri,
Deputy Cane Commissioner,
Government of Uttar Pradesh,
Meerut.

**West Bengal*

130. Chief Secretary,
Government of West Bengal,
Writers Building,
Calcutta.

131. Secretary,
Government of West Bengal,
Commerce and Industires Department,
Industries (Planning) Branch,
Writers Building,
Calcutta.

132. @Shri U. Chatterjee,
Director of Industries,
Government of West Bengal,
Calcutta.

C. Members of Parliament and State Legislatures

I. *Members of Parliament*

133. @Shri K. D. Malavia,
6, Khushak Road, New Delhi.

134. @Shri A. P. Jain,
4, Safdarjung Lane, New Delhi.

135. @Shri K. N. Tewari,
18, Gurdwara Rakabganj Road,
New Delhi.

136. @Shri Sitaram Jaipuria,
48, Sunder Nagar, New Delhi.

137. @Shri M. R. Lakshminarayanan,
136, South Avenue, New Delhi.

138. @Shri S. Radhakrishnan,
93, North Avenue, New Delhi.

139. @Shri Genda Singh,
123 and 125, North Avenue,
New Delhi.

140. @Dr. Bhai Mahavir,
12, Pandit Pant Marg,
New Delhi.

141. Shri Shibban Lal Sexena,
14-E, Ferozeshah Road,
New Delhi.

142. Shri D. D. Puri,
A-2, Greater Kailash,
New Delhi.

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143. @Shri Jyotirmoy Bosu,
2, Dr. Bashambar Dass Marg,
New Delhi.

144. @Shri H. M. Patel,
D-11/251, Vinay Marg,
New Delhi.

145. @Shri M. Ramgopal Reddy,
314, Vithalbhai Patel House,
New Delhi.

146. @Shri A. G. Kulkarni,
86, Shahjahan Road,
New Delhi.

147. @Shri Naval Kishore,
63, North Avenue,
New Delhi.

148. @Shri Narsingh Narain Pandey,
188, South Avenue, New Delhi.

149. @Shri Lakshmi Narain Pandey,
154, South Avenue,
New Delhi.

150. @Shri Bibhuti Mishra,
20, Gurdwara Road,
New Delhi.

151. @Prof. Madhu Dandawate,
507, Vithalbhai Patel House,
New Delhi.

152. @Shri K. Suryanarayana,
78, North Avenue,
New Delhi.

153. @Shri Shivajirao Deshmukh,
152, North Avenue,
New Delhi.

154. @Shri Atal Behari Vajpai,
1, Ferozeshah Road,
New Delhi.

155. @Shri N. G. Goray,
18, Windsor Place,
New Delhi.

156. @Shri Krishan Kant,
2, Telegraph Lane,
New Delhi.

157. @Shri R. G. Tewari,
33, Canning Lane,
New Delhi.

158. @Shri Naval Kishore Sinha,
31, Canning Lane,
New Delhi.

159. @Dr. Z. A. Ahmed,
210, Sitaram, Azamgarh,
58, South Avenue, New Delhi.

160. Shri Era Seshiyan,
12, Dr. Bashamber Dass Road,
New Delhi.

161. Shri Chandra Shekhar,
3, South Avenue,
New Delhi.

162. Shri Bhupesh Gupta,
5, Ferozeshah Road,
New Delhi.

163. Shri Inderjit Gupta,
48, Windsor Place,
New Delhi.

164. Shri M. V. Krishnappa,
7, Canning Lane,
New Delhi.

II. *Members of State Legislative Assemblies*

165. @Shri Suraj Narain Singh,
M.L.A. (Bihar),
4, Bir Chand Patel Path,
Patna-1.

166. Shri Virendra Verma,
M.L.A. (U.P.),
3-A, Family Suite,
Royal Hotel,
Lucknow.

D. Sugar Factories

Haryana

167. £*M/s. The Saraswati Sugar Mills,
P.O. Yamunanagar,
Distt. Ambala.

168. £*M/s. The Haryana Cooperative Sugar Mills Ltd., Rohtak, Distt. Rohtak.

169. £*M/s. The Panipat Cooperative Sugar Mills Ltd.,
Panipat, Distt. Karnal.

Punjab

170. £*M/s. The Morinda Cooperative Sugar Mills Ltd.,
Morinda, Distt. Rupar.

171. £*M/s. The Jagatjit Sugar Mills Co. Ltd.,
Phagwara, Distt. Kapurthala.

172. £* M/s. The Malwa Sugar Mills Co. Ltd.,
Dhuri, Distt. Sangrur.

173. £*M/s. The Janta Cooperative Sugar Mills Ltd., Bhogpur, Distt. Jullundur.

174. £*M/s. The Doaba Cooperative Sugar Mills Ltd., Nawanshahr, Distt. Jullundur.

175. £*M/s. The Batala Cooperative Sugar Mills Ltd., Batala, Distt. Gurdaspur.

Uttar Pradesh

176. £*M/s. The Modi Sugar Mills Ltd., Modinagar, Distt. Meerut.

177. £Deputy Administrator, U.P. State Sugar Corporation Ltd., Unit Mohiuddinpur, Distt. Meerut.

178. £*M/s. Jaswant Sugar Mills Ltd., Meerut City, Distt. Meerut.

179. £*M/s. Daurala Sugar Works, Daurala, Distt. Meerut.

180. £Deputy Administrator, U.P. State Sugar Corporation Ltd., Sakhoti Tanda, Distt. Meerut.

181. £*M/s. Mawana Sugar Works, Mawana, Distt. Meerut.

182. * M/s. The Bagpat Cooperative Sugar Mills Ltd., Bagpat, Distt. Meerut.

183. £*M/s. The Simbhaoli Sugar Mills, Private Ltd., Simbhaoli, Distt. Meerut.

184. £*M/s. The Upper India Sugar Mills Ltd., Khatauli, Distt. Muzaffarnagar.

185. £*M/s. Sir Shadilal Sugar & General Mills Ltd., Mansurpur, Distt. Muzaffarnagar.

186. £*M/s. The Amritsar Sugar Mills Co. Ltd., Rohanakalan, P.O. Rohana Mills, Distt. Muzaffarnagar.

187. £M/s. The Upper Doab Sugar Mills Ltd., Shamli, Distt. Muzaffarnagar.

188. £*M/s. The Pannijee Sugar & General Mills Co., Panninagar, Distt. Bulandshahr.

189. £*M/s. Shri Janki Sugar Mills & Co., Doiwala, Distt. Dehra Dun.

190. £*M/s. The Ganga Sugar Corporation Ltd., Deoband, Distt. Saharanpur.

191. £*M/s. The Lord Krishna Sugar Mills Ltd., Saharanpur, Distt. Saharanpur.

192. £*M/s. Kisan Cooperative Sugar Factory Ltd., Sarsawa, Distt. Saharanpur.

193. £*M/s. Rai Bahadur Narain Singh Sugar Mills (Private) Ltd., Lhaksar, Distt. Saharanpur.

194. £*M/s. The Mahalakshmi Sugar Mills Co. Ltd., Iqbalpur, Distt. Saharanpur.

195. *M/s. S. B. Sugar Mills Ltd., Bijnor, Distt. Bijnor.

196. £M/s. The Upper Ganges Sugar Mills Ltd., Seohara, Distt. Bijnor.

197. £M/s. The Dhampur Sugar Mills Ltd., Dhampur, Distt. Bijnor.

198. £*M/s. The Ajudhia Sugar Mills, Raja-ka-Sahaspur, Distt. Moradabad.

199. £*M/s. Kundan Sugar Mills, Amroha, Distt. Moradabad.

200. £*M/s. Raza Buland Sugar Co. Ltd., Rampur, Distt. Rampur.

201. £M/s. H. R. Sugar Factory Private Ltd., Bareilly, Distt. Bareilly.

202. £*M/s. The Kesar Sugar Works Ltd., Baheri, Distt. Bareilly.

203. £*M/s. Rosa Sugar Works of Carew & Co. Ltd., Rosa, Distt. Shahjahanpur.

204. £*M/s. L.H. Sugar Factories & Oil Mills Pvt. Ltd., Pilibhit.

205. £*M/s. The Kisan Cooperative Sugar Factory Ltd., Majhola, Distt. Pilibhit.

206. £M/s. L. H. Sugar Factories & Oil Mills Private Ltd., Kashipur, Distt. Nainital.

207. £*M/s. The Bazpur Cooperative Sugar Factory Ltd., Bazpur, Distt. Nainital.

208. £*M/s. The Neoli Sugar Factory, Neoli, Distt. Etah.

209. £*M/s. The Oudh Sugar Mills Ltd., Hargaon, Distt. Sitapur.

210. £*M/s. The Lakshmiji Sugar Mills (P) Ltd., Maholi, Distt. Sitapur.

211. £*M/s. The Seksaria Biswan Sugar Factory Private, Biswan, Distt. Sitapur.

212. £M/s. The Hindusthan Sugar Mills Ltd., Golagokarannath, Distt. Kheri.

213. £M/s. The Gobind Sugar Mills Ltd.,
P.O. Aira Estate, Distt. Kheri.

214. £*M/s. The Lakshmi Sugar & Oil Mills Ltd.,
Hardoi, Distt. Hardoi.

215. £*M/s. The United Provinces Sugar Co. Ltd.,
Seorahi, Distt. Deoria.

216. £*M/s. Shree Sitaram Sugar Co. Ltd.,
Baitalpur, Distt. Deoria.

217. £*M/s. Cawnpore Sugar Works Ltd.,
P.O. Gauribazar, Distt. Deoria.

218. £*M/s. Deoria Sugar Mills Ltd.,
Deoria, Distt. Deoria.

219. £M/s. The Shankar Sugar Mills Ltd.,
Captainganj, Distt. Deoria.

220. £Deputy Administrator,
U.P. State Sugar Corporation Ltd.,
Unit Khadda, P.O. Rajabazar, Distt. Deoria.

221. £M/s. Lakshmi Devi Sugar Mills (Pvt.) Ltd.,
Chhitauni, Distt. Deoria.

222. £*M/s. Ishwari Khetan Sugar Mills Ltd.,
Lakshmiganj, Distt. Deoria.

223. £*M/s. The Ramkola Sugar Mills Co. Ltd.,
Ramkola, Distt. Deoria.

224. £*M/s. M.K. Sugar Mills (P) Ltd.,
Ramkola, Distt. Deoria.

225. £*M/s. Cawnpore Sugar Works Ltd.,
Padrauna, Distt. Deoria.

226. £*M/s. Cawnpore Sugar Works Ltd.,
Kathkuiyan, Distt. Deoria.

227. £M/s. The Purtabpore Co. Ltd.,
Mairwa, Distt. Deoria.

228. £Deputy Administrator,
U.P. State Sugar Corporation Ltd.,
Unit Bhatni, Distt. Deoria.

229. £*M/s. Saraya Sugar Mills (P) Ltd.,
Sardarnagar, Distt. Gorakhpur.

230. £*M/s. Diamond Sugar Mills Ltd.,
Pipraich, Distt. Gorakhpur.

231. £M/s. The Punjab Sugar Mills Co. Ltd.,
Ghughli, Distt. Gorakhpur.

232. £M/s. Mahabir Sugar Mills (P) Ltd.,
Siswabazar, Distt. Gorakhpur.

233. £M/s. Swadeshi Mining and Manufacturing Co. Ltd.,
Anandnagar, Distt. Gorakhpur.

234. £M/s. M.M. Sugar Mills (P) Ltd.,
Munderwa, Distt. Basti.

235. £*M/s. The Basti Sugar Mills Co. Ltd.,
P.O. & Distt. Basti.

236. £M/s. The Basti Sugar Mills Co. Ltd.,
P.O. Walterganj, Distt. Basti.

237. £*M/s. Swadeshi Mining and Manufacturing Co. Ltd.,
Khalilabad, Distt. Basti.

238. M/s. The Seksaria Sugar Mills (P) Ltd.,
Babhnan, Distt. Gonda.

239. £*M/s. Nawabganj Sugar Mills Co. Ltd.,
Nawabganj, Distt. Gonda.

240. £M/s. Balrampur Sugar Co. Ltd.,
Balrampur, Distt. Gonda.

241. £*M/s. Tulsipur Sugar Co. Ltd.,
Tulsipur, Distt. Gonda.

242. £*M/s. R.B. Lachmandas Sugar & General Mills (P) Ltd.,
Jarwal Road, Distt. Bahraich.

243. £*M/s. The Burhwal Sugar Mills Co. Ltd.,
Burhwal, Distt. Barabanki.

244. £Deputy Administrator,
U.P. State Sugar Corporation Ltd.,
Unit Barabanki, Distt. Barabanki.

245. £*M/s. The Ratna Sugar Mills Co. Ltd.,
Shahganj, Distt. Jaunpur.

246. M/s. Kamlapat Motilal Motinagar Sugar Mills Branch,
Motinagar, Distt. Faizabad.

Bihar

247. M/s. Lohat Sugar Works of the Darbhanga Sugar Co. Ltd.,
Lohat, Distt. Darbhanga.

248. M/s. Sakri Sugar Works, the Darbhanga Sugar Co., Distt. Darbhanga.

249. £*M/s. New India Sugar Mills Ltd.,
Hassanpur Road,
P.O. Hassanpur Sugar Mills,
Distt. Darbhanga.

250. M/s. Ryam Sugar Co. Ltd.,
Ryam, Distt. Darbhanga.

251. £*M/s. Samastipur Central Sugar Co. Ltd.,
Samastipur, Distt. Darbhanga.

252. £*M/s. Belsund Sugar Co. Ltd.,
Righa, Distt. Muzaffarpur.

253. £M/s. The Motipur Sugar Factory (P) Ltd.,
Motipur, Distt. Muzaffarpur.

254. M/s. The Sitapore Sugar Works Ltd.,
Garaul, Distt. Muzaffarpur.

255. M/s. Shree Hanuman Sugar and Industries Ltd.,
Motihari, Distt. Champaran.

256. £*M/s. Motilal Padampat Sugar Mills Co. Ltd.,
Majhaulia, Distt. Champaran.

257. £*M/s. Champaran Sugar Co. Ltd.,
Chanpatia, Distt. Champaran.

258. £M/s. S.K.G. Sugar Ltd.,
Lauriya, Distt. Champaran.

259. £*M/s. North Bihar Sugar Mills Ltd.,
Bagaha, P.O. Naraipur,
Distt. Champaran.

260. £*M/s. The New Swadeshi Sugar Mills Ltd.,
Narkatiaganj, Distt. Champaran.

261. £*M/s. Harinagar Sugar Mills Ltd.,
Harinagar, Distt. Champaran.

262. £*M/s. The Sugauli Sugar Works (P) Ltd.,
Sugauli, Distt. Champaran.

263. £*M/s. Champaran Sugar Co. Ltd.,
P.O. Barachakia, Distt. Champaran.

264. £*M/s. New Savan Sugar Mills,
P.O. Siwan, Distt. Saran.

265. £*M/s. The Behar Sugar Works,
Pachrukhi, Distt. Saran.

266. £M/s. S.K.G. Sugar Ltd.,
Hathua,
P.O. Mirganj, Distt. Saran.

267. £M/s. Bharat Sugar Mills Ltd.,
Sidhwalia, Distt. Saran.

268. £*M/s. Cawnpore Sugar Works Ltd.,
Marhowrah, Distt. Saran.

269. £M/s. Sasa (Musa Sugar Works) (P) Ltd.,
Sasa Musa, Distt. Saran.

270. £*M/s. The Vishnu Sugar Mills Ltd.,
P.O. Vishnu Sugar Mills,
Gopalganj, Distt. Saran.

271. £M/s. Purnea Cooperative Sugar Factory Ltd.,
Banmankhi, Distt. Purnea.

272. £M/s. S.K.G. Sugar Ltd.,
P.O. Siwan. Distt. Saran.

273. £*M/s. Guraru Chini Mills,
P.O. Guraru Mills, Distt. Gaya.

274. M/s. Mohini Sugar Mills Ltd.,
Warisaliganj, Distt. Gaya.

275. £M/s. South Bihar Sugar Mills Ltd.,
Bihta, District Patna.

276. M/s. Rohtas Industries Ltd.,
P.O. Dalmianagar, Distt. Shahbad.

West Bengal

277. £*M/s Ramnuggar Cane & Sugar Co. Ltd.,
Plassey, Distt. Nadia.

278. M/s. The National Sugar Mills Ltd.,
Ahmedpur, Distt. Birbhum.

Assam

279. *M/s. The Assam Cooperative Sugar Mills Ltd.,
P.O. Baruabamungaon,
Sub-Division Golaghat, Distt. Sibsagar.

Orissa

280. £*M/s. Jeypore Sugar Co. Ltd.,
Rayagada, Distt. Koraput.

281. £M/s. The Aska Cooperative Sugar Industries Ltd.,
Aska, Distt. Ganjam.

Rajasthan

282. £*M/s. The Mewar Sugar Mills Ltd.,
Bhupalsagar, Distt. Udaipur.

283. £*M/s. The Ganganagar Sugar Mills Ltd.,
Sriganganagar, Distt. Sriganganagar.

284. £*M/s. Shri Keshoraipatan Sahakari Sugar Mills Ltd.,
Keshoraipatan, Distt. Bundi.

Madhya Pradesh

285. £*M/s. The Gwalior Sugar Co. Ltd.,
Dabra, Distt. Gwalior.

286. M/s. The Jaora Sugar Mills (P) Ltd.,
Jaora, Distt. Ratlam.

287. £*M/s. The Jiwaji Rao Sugar Co. Ltd.,
Dalauda, Distt. Mandsaur.

288. £*M/s. The Bhopal Sugar Industries Ltd.,
P.O. and Distt. Sehore.

289. *M/s. Seth Govindram Sugar Mills,
P.O. Mehidpur Road. Distt. Ujjain.

Maharashtra

290. £ M/s. Saswadmali Sugar Factory Ltd., Malinagar, Distt. Sholapur.

291. £*M/s. The Brihan Maharashtra Sugar Syndicate Ltd., Shreepur, Distt. Sholapur.

292. £ M/s. Yeshwant S.S.K. Ltd., Akluj, Distt. Sholapur.

293. £*M/s. The Ravalgaon Sugar Farm Ltd., Ravalgaon, Distt. Nasik.

294. £*M/s. Girna S.S.K. Ltd., P.O. Dabhadi, Tal. Malegaon, Distt. Nasik.

295. £*M/s. Niphad S.S.K. Ltd., P.O. Bhausahab Nagar, Distt. Nasik.

296. £ M/s. The Godavari Sugar Mills Ltd., Lakshmiwadi, Distt. Ahmednagar.

297. £ M/s. The Godavari Sugar Mills Ltd., Sakarwadi, Distt. Ahmednagar.

298. £*M/s. Shree Changdeo Sugar Mills Ltd., Changdeonagar, Distt. Ahmednagar.

299. £*M/s. The Maharashtra Sugar Mills Ltd., Tilaknagar, Distt. Ahmednagar.

300. £*M/s. The Kopargaon S.S.K. Ltd., Kolpewadi, Distt. Ahmednagar.

301. £*M/s. The Belapur Co. Ltd., Harigaon, Distt. Ahmednagar.

302. £*M/s. The Pravara S.S.K. Ltd., Pravaranagar, Distt. Ahmednagar.

303. £*M/s. Ashok S.S.K. Ltd., Ashoknagar, P.O. Shrirampur. Distt. Ahmednagar.

304. £*M/s. Ganesh S.S.K. Ltd., Ganeshnagar, P.O. Ranjangaon Khurd, Ahmednagar.

305. £*M/s. The Rahuri S.S.K. Ltd., Shrishivajinagar, P.O. Rahuri Factory Branch, Distt. Ahmednagar.

306. £*M/s. The Shrigonda S.S.K. Ltd., Shri-Gonda P.O., Belvandi, Distt. Ahmednagar.

307. * M/s. The Bhogawati S.S.K. Ltd, P.O. Shahunagar, Distt. Kolhapur.

308. £*M/s. The Kolhapur Sugar Mills Ltd., Kasaba Bavada, P.O. Kolhapur, Distt. Kolhapur.

309. £*M/s. Shree Panchganga S.S.K. Ltd., Ichalkaranji, Distt. Kolhapur.

310. £*M/s. Shree Warana S.S.K. Ltd., P.O. Warananagar, Distt. Kolhapur.

311. £*M/s. Kumbhi Kesari S.S.K. P.O. Kopardo., Distt. Kolhapur.

312. £ M/s. Dudhganga Vedganga S.S.K. Ltd., Bidri, P.O. Mohninagar, Distt. Kolhapur.

313. £*M/s. Walchandnagar Industries Ltd., Walchandnagar, Distt. Poona.

314. £*M/s. Shri Chhatrapati Shivaji S.S.K. Ltd., Bhavaninagar, Distt. Poona.

315. £ M/s. The Malegaon S.S.K. Ltd., Malegaon Bk., Distt. Poona.

316. £*M/s. Shree Someshwar S.S.K. Ltd., P.O. Nira, Distt. Poona.

317. £ M/s. Gangapur Sahakari Sakhar Karkhana Ltd., P.O. Raghunathnagar, Distt. Aurangabad.

318. £ M/s. Krishna S.S.K. Ltd., Rethare Budruk, P.O. Shivnagar, Distt. Satara.

319. £*M/s. Shriram S.S.K. Ltd., Phaltan, Distt. Satara.

320. £*M/s. The Phaltan Sugar Works Ltd., P.O. Sakharwadi, Distt. Satara.

321. £*M/s. Shetkari S.S.K. Ltd., P.O. and Distt. Sangli.

322. £ M/s. Sangamner Bhag Sahakari Sakhar Karkhana Ltd., Sangamner, Distt. Ahmednagar.

323. £*M/s. Terna Shetkari Sakhar Karkhana Ltd., Dhoki, Tal. and Distt. Osmanabad.

324. £ M/s. Kalambar Vibhag S.S.K. Ltd., Bhupalwadi near Kalambar, Distt. Nanded.

325. £ M/s. Shankar Sahakari Sakhar Karkhana Ltd., Sadashivnagar, Distt. Sholapur.

326. £*M/s. Panzarakan Sahakari Sakhar Karkhana Ltd., Sakri, Distt. Dhulia.

327. £ M/s. Yeshwant Sahakari Sakhar Karkhana Ltd., Chintamani Nagar, P.O. Theur, Taluka Haveli, Distt. Poona.

328. £*M/s. Walwa Taluk Sahakari Sakhar Karkhana Ltd., Islampur Post Borgaon, Taluk Walwa, Distt. Sangli.

329. £ M/s. Shri Datta Sahakari Gulwa Khandsari Sahakari Utpadak Sanstha Ltd., Panhala Asurle, Distt. Kolhapur.

Gujarat

330. £*M/s. Shri Khedut Sahakari Khand Udyog Mandli Ltd., Sardar Bag, Bardoli, Distt. Surat.

331. £ M/s. The Sahakari Khand Udyog Mandal Ltd., Gandevi, Via Bilmora, Distt. Bulsar.

332. £*M/s. Shree Bileshwar Khand Udyog Khedut Sahakari Mandli Ltd., Kodinar, Distt. Amreli.

333. £ M/s. Shree Una Taluka Sahakari Khand Udyog Mandli Ltd., Una (Sorath), Distt. Junagadh.

334. £*M/s. Shree Madhi Vibhag Khand Udyog Sahakari Mandli Ltd., Post Madhi, Distt. Surat.

Andhra Pradesh

335. £*M/s. The Kirampudi Sugar Mills Ltd., Pithapuram, Distt. East Godávari.

336. £*M/s. Sri Saryaraya Sugars Ltd., Chelluru, Via Ramochandrapuram, Distt. East Godavari.

337. £*M/s. The Deccan Sugar & Abkhari Co. Ltd., Samalkot, Distt. East Godavari.

338. £*M/s. The Andhra Sugars Ltd., Tanuku, Distt. West Godavari.

339. £*M/s. The Palakol Cooperative Agricultural and Industrial Society Ltd., Palakol, Distt. West Godavari.

340. £*M/s. V.V.S. Sugars (The Jeypore Sugar Co. Ltd.), P.O. Chagallu, Distt. West Godavari.

341. £*M/s. Sivakami Sugars Ltd., Tanuku, Distt. West Godavari.

342. £*M/s. The Chodavaram Cooperative Agricultural and Industrial Society Ltd., Chodavaram, Distt. Visakhapatnam.

343. £*M/s. Anakapalle Cooperative Agricultural & Industrial Society Ltd., Anakapalle.

344. £*M/s. The Etikoppaka Cooperative Agricultural and Industrial Society Ltd., Etikoppaka, Distt. Visakhapatnam.

345. £*M/s. The Thandava Cooperative Agricultural and Industrial Society Ltd., Payakaraopeta, Distt. Visakhapatnam.

346. £ M/s. Sri Rama Sugars & Industries Ltd., Bobbili, Distt. Srikakulam.

347. £ M/s. Sri Rama Sugars & Industries Ltd., Seethanagaram, Distt. Srikakulam.

348. *£M/s. Amadalavalasa Cooperative Agricultural and Industrial Society Ltd., Amadalayalasa. Distt. Srikakulam.

349. £*M/s. The K. G. P. Ltd., Vuyyuru, Distt. Krishna.

350. £ M/s. Challapalli Sugars Ltd., Challapalli, Distt. Krishna.

351. £*M/s. The Nizam Sugar Ltd., Shakarnagar, Distt. Nizamabad.

352. £*M/s. The Nizamabad Cooperative Sugar Factory Ltd., Nizamabad, Distt. Nizamabad.

353. £*M/s. The Chittoor Cooperative Sugars Ltd., Chittor, Distt. Chittoor.

Tamil Nadu

354. £*M/s. The Deccan Sugar & Abkahri Co. Ltd., P.O. Pugalur Sugar Factory, Distt. Tiruchirapalli.

355. £*M/s. Cauvery Sugars and Chemicals Ltd., Pettaivaytalai, Distt. Tiruchirapalli.

356. £*M/s. Kothari Sugars & Chemicals Ltd.,
Kattur, Railway Station Lalgudi,
Distt. Tiruchirapalli.

357. £*M/s. E. I. D. Parry Ltd.,
Nellikuppam, Distt. South Arcot.

358. £ M/s. The South Indian Steel and Sugars Ltd.,
Mundivampakkam, Villupuram Taluk,
Distt. South Arcot.

359. £*M/s. Aruna Sugars Ltd.,
Pennadam, Distt. South Arcot.

360. £*M/s. Kallakurichi Cooperative Sugars Mills Ltd.,
P.O. Moongilthuripatiu,
Taluk Kallakurichi, Distt. South Arcot.

361. £ M/s. The Madura Sugar & Allied Products Ltd.,
Pandiarajapuram, Distt. Madurai.

362. £*M/s. The National Cooperative Sugar Mills Ltd.,
A-2731, Alanganallur, Distt. Madurai.

363. £*M/s. The Thiru Arooran Sugars Ltd.,
Vadapathimangalam, Distt. Tanjore.

364. £*M/s. Amaravathi Cooperative Sugar Mills Ltd.,
A. K. Puthur, Via Kaniyar,
Distt. Coimbatore.

365. £*M/s. The Sakthi Sugars Ltd.,
Appakudal, Distt. Coimbatore.

366. £*M/s. North Arcot District Cooperative Sugar Ltd.,
Vadapudupet, Ambur,
Distt. North Arcot.

367. £*M/s. Palar Sugars Mills Ltd.,
Mailpatti, Distt. North Arcot.

368. £*M/s. The Madurantakam Cooperative Sugar Mills Ltd.,
Padalam, Distt. Chingleput.

369. £*M/s. The Salem Cooperative Sugar Mills Ltd.,
Mohapur, Via Karur (Nommakal Taluk),
Distt. Salem.

Karnataka

370. £ M/s. Pandavapura S.S.K. Ltd.,
Pandavapura, Distt. Mandya.

371. £*M/s. The India Sugars & Rofineries Ltd.,
Hospet, Distt. Bellary.

372. £ M/s. The Bellary Central Cooperative Stores Sugar Factory, Kampli,
Distt. Bellary.

373. £*M/s. The Salarjung Sugar Mills Ltd.,,
Munirabad, Distt. Raichur.

374. £*M/s. Ugar Sugar Works Ltd.,
Ugar Khurd, Distt. Belgaum.

375. £*M/s. Shri Hiranyakeshi S.S.K. Niyamit,
Sankeshwar, Distt. Belgaum.

376. £*M/s. Mukesh Textile Mills Ltd.,
P.O. & Distt. Shimoga.

377. £*M/s. Gauribidanur S.S.K. Ltd.,
Gauribidanur, Distt. Kolar.

378. £*M/s. Mysore Sugar Co. Ltd.,
Mandya, Distt. Mandya.

379. £*M/s. The Bidar Sahakara Sakhare Karkhane Ltd.,
Bidar, Distt. Bidar.

Kerala

380. £* M/s. The Travancore Sugars & Chemieals Ltd.,
Pamba River Factory, Tiruvalla, Distt. Quilon.

381. £*M/s. The Mannam Sugar Mills Cooperative Ltd.,
No. 4324, Pandalam, Distt. Alleppey.

382. £*M/s. The Cooperative Sugars Ltd.,
Chittur, Menonpara, Distt. Palghat.

Pondicherry

382A. £*M/s. New Horizon Sugar Mills Co. Ltd.,
Sacrur (Ariour) Pondicherry.

NOTE : Copies of Technical Questionnaire were also sent for information to both the Associations of the Sugar Factories and to all the sugar producing State Governments.

E. Associations of Sugar Mills

I. *Indian Sugar Mills Association and its Branches*

383. *Secretary General,
Indian Sugar Mills Association,
A-7, NDSE Cooperative Colony,
South Extension, Part I,
New Delhi-49.

384. @Shri M. L. Apte,
President,
Indian Sugar Mills Association,
New Delhi.

385. @Shri Pradeep Narang,
Indian Sugar Mills Association,
New Delhi.

386. @Shri K. K. Birla,
Indian Sugar Mills Associations,
New Delhi.

387. @Shri D. C. Kothari,
Indian Sugar Mills Association,
New Delhi.

388. @Shri R. P. Nevatia,
Indian Sugar Mills Association,
New Delhi.

389. @Shri D. D. Puri,
Indian Sugar Mills Association,
New Delhi.

390. @Shri P. Maruthai Pillai,
Indian Sugar Mills Association,
New Delhi.

391. @Shri S. K. Somaiya,
Indian Sugar Mills Association,
New Delhi.

392. @Shri M. N. Pittie,
Indian Sugar Mills Assoication,
New Delhi.

393. @Shri B. M. Thapar,
Indian Sugar Mills Association,
New Delhi.

394. @Shri V. L. Dutt,
Indian Sugar Mills Association,
New Delhi.

395. @Shri J. S. Mehta,
Secretary General,
Indian Sugar Mills Association,
New Delhi.

Branches

396. *Secretary,
U.P. Branch of Indian Sugar Mills Association,
47/2, Kabir Marg,
Lucknow (U.P.).

397. *Secretary,
East U.P. Branch of Indian Sugar Mills Association, Golhar,
Gorakhpur (U.P.).

398. Secretary,
West U.P. Branch of Indian Sugar Mills Association, A-7 NDSE Cooperative Colony,
South Extension, Part I,
New Delhi-49.

399. *Secretary,
Bihar Branch of Indian Sugar Mills Association, Exhibition Road,
Patna.

400. *Secretary,
Madhya Pradesh Sugar Mills Association,
134, Devi Ahilya Marg,
Indore-3.

401. Secretary,
South Indian Sugar mills Association,
1, North Beach Road,
Madras-1.

402. *Secretary,
Deccan Sugar Factories Association,
Stadium House,
Block No. 2, Veer Nariman Road,
Marine Lines,
Bombay-20.

II. *National Federation of Cooperative Sugar Factories Ltd. and its Branches*

403. *Secretary,
National Federation of Cooperative Sugar Factories Ltd., L-8, South Extension, part-II,
New Delhi.

404. @Shri R. L. Shukla,
President,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

405. @Dr. D. K. Patel,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

406. @Shri S. G. Kolhe,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

407. @Shri M. Ramgopal Reddy,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

408. @Shri K. S. Wagh,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

409. @Shri B. Chikkannaswamy,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

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410. @Shri R. Muthu Gounder,
National Federation fo Cooperative Sugar Factories Ltd.,
New Delhi.

411. @Shri O. G. Adya,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

412. @Shri M. S. Marathe,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

413. @Shri Balasaheb V. Patil,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

414. @Shri Gyan Chandra,
Secretary,
National Federation of Cooperative Sugar Factories Ltd.,
New Delhi.

Branches

415. *Secretary
The Andhra Pradesh State Federation of Cooperative Sugar Factories Ltd.,
3-5/822/6, First Floor,
Hyderguda,
Hyderabad.

416. Secretary,
Gujarat Rajya Sahakari Khand Udyog Sangh Ltd.,
Sardar Baug, Bardoli,
District Surat.

417. Secretary,
Harayana State Federation of Cooperative Sugar Factories Ltd.,
30, Bays Building,
3rd Floor, Sector 17,
Chandigarh.

418. *Secretary,
Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd., Ballard House,
Mangalore Street, Ballard Estate,
Bombay-1.

419. *Secretary,
The Tamil Nadu State Federation of Cooperative Sugar Factories Ltd.,
No. XNC-471, No. 2,
Maharaja Surya Rao Road,
Madras-18.

420. *Secretary,
The Mysore State Federation of Cooperative Sugar Factories Ltd.,
No. 37, Nehru Circle,
Seshadvipuram,
Bangalore-20.

421. * Secretary,
Punjab State Federation of Cooperative Sugar Factories Ltd.,
Kothi No. 1024,
Sector 21-B,
Chandigarh.

422. * Secretary,
U.P. Cooperative Sugar Factories Federation Ltd.,
9-A, Rana Pratap Marg,
Lucknow.

F. Individuals and Experts

423. @Dr. N. S. Maini,
Joint Agricultural Commissioner,
Department of Agriculture,
Government of India,
Krishi Bhavan,
New Delhi.

424. @Shri P. S. Mathur,
Deputy Agricultural Commissioner,
Department of Agriculture,
Krishi Bhavan, New Delhi.
(now Director, Directorate of Sugarcane Development, New Delhi).

425. @Dr. Ambika Singh,
Assistant Director General,
Indian Council of Agricultural Research,
Krishi Bhavan,
New Delhi.

426. @Dr. Dharam Narain,
Chairman,
Agricultural Prices Commission,
Government of India,
Krishi Bhavan,
New Delhi.

427. @Shri S. N. Gundu Rao,
Technical Director,
Cawnpore Sugar Works,
4/278-B, 'Chhayya',
Vishnupuri,
Kanpur (U.P.).

428. @Shri K. P. Jain,
Deputy Director General of Food (Retired),
C-II/132, Moti Bagh,
New Delhi.

429. @Dr. P. C. Joshi,
Deputy Economic Adviser,
Department of Economic Affairs,
Ministry of Finance,
New Delhi.

430. @Shri Jitendra Prasad,
Ex-Cane Commissioner'
Government of Bihar,
126, Patliputra Colony,
Patna.

431. @Shri Ram Saran,
Economic and Statistical Adviser,
Directorate of Economic & Statistics,
Krishi Bhavan,
New Delhi.

432. @Shri S. L. Kirloskar,
Chairman,
Kirloskar Oil Engineering Ltd.,
13, Elphita Road,
Kirkee,
Poona-3.

433. @Dr. Bharat Ram,
25, Sardar Patel Marg,
New Delhi.

434. @Prof. C. N. Vakil,
14, Kalpna,
96, Marine Drive,
Bombay.

435. @Shri N. Dandekar.
Retired I.C.S.,
'Southland',
177, Upper Kolabba,
Bombay—5.

436. @Shri Pran Prasad,
Calcutta.

437. @Shri M. S. Amvikar,
President,
Bharat Krishak Samaj,
A-1, Nizamuddin (West),
New Delhi.

438. @Dr. Thuljaram Rao,
Ex-Director,
Sugarcane Breeding Institute,
Coimbatore.
(At present U.N. Adviser on Sugarcane in U.A.R.).

439. @Dr. R. R. Panje,
Ex-Director,
Indian Institute of Sugarcane Research,
Lucknow.

(Sugarcane Adviser to M/s. Somaiya Sugar Works, Sameerwadi, Mudhol Tehsil,
District Bijapur (Karnataka).

440. @Shri S. V. Parthasarthy,
Ex-Sugarcane Specialist,
Anakapalle and now Adviser,
Kothari Sugars and Chemicals Ltd.,
Kattur, P.O. Lalgudi,
Distt. Tiruchirapalli,
(Tamil Nadu).

441. @Shri M. Lakshmikantham,
Ex-Sugarcane Specialist,
Anakapalle and now with Andhra Pradesh Federation of Cooperative Sugar Factories, Ltd.,
Gandhinagaram, Anakapalle,
Distt. Visakhapatnam.

442. @Dr. S. J. Ranadive,
Sugarcane Specialist,
Padegaon, Post Nira,
Distt. Poona (Maharashtra).

443. @Shri J. S. Bhargava,
Cane Liaison Officer,
The Ganganagar Sugar Mills Ltd.,
Sri Ganganagar,
Distt. Ganganagar (Rajasthan).

444. @Dr. Kirtikar,
Director,
Sugarcane Research Station,
Shahjahanpur (U.P.).

445. @Shri S. S. Raina,
Manager,
Indian Sugar Industry Export Corporation,
East of Kailash,
New Delhi.

446. @Dr. K. S. Krishnaswamy,
Principal Adviser,
Reserve Bank of India,
Bombay.

447. @Shri M. S. Ghosh,
Adviser,
Reserve Bank of India,
Bombay.

448. @Shri Buchas,
Joint Chief,
Department of Banking Operations,
Reserve Bank of India,
Bombay.

449. @Shri Murdeshwar,
Deputy Director,
Statistics Department,
Reserve Bank of India,
Bombay.

450. @Dr. (Miss) Meenakshi Thyagarajan,
Director,
Credit Planning & Banking Development Cell,
Reserve Bank of India,
Bombay.

451. @Dr. M. V. Hate,
Joint Chief Officer,
Agricultural Department,
Reserve Bank of India,
Bombay.

452. @Shri P. N. T. Charni.
Joint Chief Officer,
Agriculture Department,
Reserve Bank of India,
Bombay.

453. @Dr. S. N. Barmeda,
Director,
Economic Department,
Reserve Bank of India,
Bombay.

454. @Shri A. P. Kunari,
Director,
Economic Department,
Reserve Bank of India,
Bombay.

455. @Shri C. D. Khanna,
Chairman,
Industrial Finance Corporation of India,
New Delhi.

456. @Shri Baldev Pasricha,
General Manager,
Industrial Finance Corporation of India,
New Delhi.

457. @Shri M. S. Nagaratha,
Chief Accountant,
Industrial Finance Corporation of India,
New Delhi

458. @Shri R. K. Sharma,
Technical Officer,
Industrial Finance Corporation of India,
New Delhi.

459. @Dr. S. B. Mahabal,
Director,
Vaikunth Mehta National Institute on
Cooperative Management,
Poona.

460. @Prof. R. V. Nadkarni,
Vaikunth Mehta National Institute,
on Cooperative Management,
Poona.

461. @Dr. G. S. Kamath,
Vaikunth Mehta National Institute on
Cooperative Management,
Poona.

462. @Shri K. K. Taimni,
Vaikunth Mehta National Institute on
Cooperative Management,,
Poona.

G. Research Institutions (Including Regional Sugarcane Research stations)

463. @*Dr. S. S. Shah,
Director,
Sugarcane Breeding Institute,
Coimbatore-7.

464. @*Dr. Kishan Singh,
Director,
Indian Institute of Sugarcane Research,
Rae Bareilly Road,
P.O. Dilkusha,
Lucknow.

465. @*Dr. S. Mukherjee,
National Sugar Institute,
P.O. Kalyanpur,
Kanpur.

Haryana

466. Regional Sugarcane Sub-Station,
Karnal.

467. Sugarcane Sub-Station,
Jagadhri.

468. *Sugarcane Station,
Hissar.
(Reply received from Economic Botanist Sugarcane, Haryana Agricultural University, Hissar).

Punjab

469. Main Sugarcane Research Station,
Jullundur.

470. Sugarcane Sub-Station,
Kheri (Punjab).

471. Sugarcane Sub-Station,
Gurdaspur.

472. Sugarcane Sub-Station,
Ludhiana.

Rajasthan

473. Sugarcane Research Station,
Sri Ganganagar.

474. Sugarcane Research Station,
Kotah.

475. Sugarcane Research Station,
Udaipur.

Uttar Pradesh

476. *Sugarcane Research Station,
Shahjahanpur.

477. Sugarcane Research Sub-Station,
Muzaffarnagar.

478. Sugarcane Research Sub-Station,
Golagokarannath.

479. Tarai Sugarcane Research Station,
Pantnagar.

480. *Sugarcane Research Sub-Station,
Gorakhpur.

481. Bubhnauli Factory Farm,
Seorahi.

Bihar

482. Sugarcane Research Institute,
Pusa.

483. Regional Sugarcane Sub-Station, Motihari.

484. Regional Agricultural Research Station, Patna.

NOTE :—A note on research needs in Bih State was received from Shri S.C. Sharma, Superintending Technical and General Manager, Central Control Office, Cawnpore Sugar Works Ltd., Marhowrah, Distt. Saran.

Assam

485. Sugarcane Research-*cum*-Multiplication Station, Buraliksan.

West Bengal

486. Sugarcane Research Station, Burdwan.

Madhya Pradesh

487. Sugarcane Research Station, Sehore.

Maharashtra

488. Sugarcane Research Station, Padegaon.

489. Regional Sugarcane Research Station, Kolhapur.

490. Sugarcane Research Sub-Station, Akluj.

491. Sugarcane Research Sub-Station, Deolali.

492. Sugarcane Research Sub-Station, Lakshmipur.

493. Sugarcane Research Sub-Station, Kopargaon.

Gujarat

494. Sugarcane Research Station, Kodinar.

495. Agricultural Research Station, Vyara.

496. Agricultural Research Station, Jamnagar.

Andhra Pradesh

497. Sugarcane Research Station, Anakapalle.

498. *Sugarcane Research Station, Rudrur.

Karnataka

499. Main Sugarcane Research Station, Mandya.

500. *Regional Sugarcane Research Station, Sankeshwar.

501. Regional Sugarcane Research Station, Gangavati.

502. * Agricultural Research Station, Hebbal.

503. * University of Agricultural Sciences, XI Main, 16th Cross, Malleswaram, Bangalore-3.

Tamil Nadu

504. Central Sugarcane Research Station, Cuddalore, Distt. South Arcot.

505. * Sugarcane Research Sub-station, Sirugamani, Distt. Tiruchi.

506. * Sugarcane Research Station, Gudiyatham.

(Reply received from Assistant Agronomist, Sugarcane Research Sub-station, Mallalethur P.O., Distt. North Arcot).

Kerala

507. Indian Sugarcane Research Institute, Palaghat.

508. Indian Sugarcane Research Institute, Cannanore.

H. Associations/Federations of Canegrowers Co-operative Societies/Unions.

509. * Secretary, U.P. Cooperative Cane Union Federation, Lucknow (U.P.).

510. * Secretary, Bihar Cane Growers Cooperative Association, Patna (Bihar).

511. President, Bihar State Cane Growers' Association, Village Doomer, P.O. Bhorey, Distt. Saran (Bihar).

512. President, Andhra Sugarcane Growers' Association, Himayatnagar, Hyderabad (A.P.).

513. President, South Indian Sugarcane Growers' Association, 12, Avenue Road, Mungambakkam, Madras-6.

Haryana

514. The President,
The Ambala Cane Growers Cooperative Societies Ltd.,
Railway Station, Kesri P.O.,
Distt. Ambala.

515. President,
The Yamunanagar Cane Growers Cooperative Society Ltd.,
Yamunanagar, Distt. Ambala.

516. The President,
The Chhachhrauli Cane Growers Cooperative Society Ltd.,
Chhachhrauli, Distt. Ambala.

517. The President,
The Naharpur Cane Growers Cooperative Society Ltd.,
Naharpur P.O. Nagal, Tehsil Jagadhri,
Distt. Ambala.

518. The President,
The Mustafabad Cane Growers Cooperative Society Ltd.,
Mustafabad,
Distt. Ambala.

519. The President,
The Shahzadpur Cane Growers Cooperative Society Ltd.,
Shahzadpur, P.O. Buria,
Distt. Ambala.

520. The President,
The Radaur Cane Growers Society Ltd.,
Radaur.

521. The President,
The Indri Cane Growers Society Ltd.,
Indri, Distt. Karnal.

Gujarat

522. The President.
Khedut Sahakari Khand Udyog Mandali Ltd.,
Sardar Bag, Bardoli-2, Distt. Surat.

523. The President,
Bileshwar Khand Udyog Khedut Sahakari Mandali Ltd.,
Kodinar, Distt. Amreli.

524. The President,
Sahakari Khand Udyog Mandali Ltd.,
Gandevi, Distt. Bulsar.

525. The President,
Shri Una Taluka Sahakari Khand Udyog Mandli Ltd.,
Una, Distt. Surat.

526. The President,
Shri Madhi Vibhag Khand Udyog Sahakari Mandli Ltd.,
Mandhi, Distt. Surat.

527. The President,
Shri Chalthan Vibhag Khand Udyog Sahakari Mandli Ltd.,
Chalthan, Distt. Surat.

528. The President,
Shri Charotar Khand Udyog Mandli Ltd.,
Palaj, Taluk Petlad,
Distt. Kaira.

529. * The President,
Shri Amreli Sahakari Krishi Khand Udyog Ltd.,
Jubilee Sharmashala Building, Amreli.

530. The President,
Shri Sardar Vallabhbhai Patel Khand Udyog Sahakari Mandli Ltd.,
Dhoraji, Distt. Rajkot.

531. The President,
Shri Shetalganga Khand Udyog Sahakari Mandli Ltd.,
Talaja, Distt. Bhavnagar.

532. The President,
Shri Talala Taluka Khand Udyog Sahakari Mandali Ltd.,
Talala (Gir), Distt. Junagadh.

Uttar Pradesh

533. President,
The U.P. Cooperative Cane Unions Federation,
12, Rana Pratap Marg,
Lucknow.

534. President,
Ganna Utpadak Sangh,
Main Bazar Gorakhpur.

535. President,
The Farmers' Union,
Kashipur.

536. President,
Cooperative Cane Development Union Ltd.,
Bulandshahr, Distt. Bulandshahr.

537. President,
Cooperative Cane Development Union Ltd.,
Simbhaoli, Distt. Meerut.

538. President,
Cooperative Cane Development Union Ltd.,
Begamabad, Distt. Meerut.

539. President,
Cooperative Cane Development Union Ltd.,
Mohiuddinpur, Distt. Meerut.

540. President,
Cooperative Cane Development Union Ltd.,
Meerut.

541. President,
Cooperative Cane Development Union Ltd.,
Daurala, Distt. Meerut.

542. President,
Cooperative Cane Development Union Ltd.,
Maliana, Distt. Meerut.

543. President,
Cooperative Cane Development Union Ltd.,
Mawana, Distt. Meerut.

544. President,
Cooperative Cane Development Union Ltd.,
Sakhoti Tanda, Distt. Meerut.

545. President,
Cooperative Cane Development Union Ltd.,
Hapur, Distt. Meerut.

546. President,
Cooperative Cane Development Union Ltd.,
Khatauli, Distt. Muzaffarnagar.

547. President,
Cooperative Cane Development Union Ltd.,
Mansurpur, Distt. Muzaffarnagar.

548. President,
Cooperative Cane Development Union Ltd.,
Rohana Kalan, Distt. Muzaffarnagar.

549. President,
Cooperative Cane Development Union Ltd.,
Muzaffarnagar.

550. President,
Cooperative Cane Development Union Ltd.,
Shamli, Distt. Muzaffarnagar.

551. President,
Cooperative Cane Development Union Ltd.,
Ram Raj, Distt. Muzaffarnagar.

552. President,
Cooperative Cane Development Union Ltd.,
Deoband, Distt. Saharanpur.

553. President,
Cooperative Cane Development Union Ltd.,
Saharanpur, Distt. Saharanpur.

554. President,
Cooperative Cane Development Union Ltd.,
Iqbalpur, Distt. Saharanpur.

555. President,
Cooperative Cane Development Union Ltd.,
Sarsawa, Distt. Saharanpur.

556. President,
Cooperative Cane Development Union Ltd.,
Lhaksar, Distt. Saharanpur.

557. President,
Cooperative Cane Development Union Ltd.,
Doiwala, Distt. Dehra Dun.

558. President,
Cooperative Cane Development Union Ltd.,
Dehra Dun.

559. President,
Cooperative Cane Development Union Ltd.,
Seohara, Distt. Bijnor.

560. President.
Cooperative Cane Development Union Ltd.,
Dhampur, Distt. Bijnor.

561. President,
Cooperative Cane Development Union Ltd.,
Bijnor, Distt. Bijnor.

562. President,
Cooperative Cane Development Union Ltd.,
Nagina, Distt. Bijnor.

563. President,
Cooperative Cane Development Union Ltd.,
Chandpur, Distt. Bijnor.

564. President,
Cooperative Cane Development Union Ltd.,
Bilari, Distt. Moradabad.

565. President,
Cooperative Cane Development Union Ltd.,
Moradabad, Distt. Moradabad.

566. President,
Cooperative Cane Development Union Ltd.,
Amroha, Distt. Moradabad.

567. President,
Cooperative Cane Development Union Ltd.,
Rampur, Distt, Rampur.

568. President,
Cooperative Cane Development Union Ltd.,
Milak, Distt. Rampur.

569. President,
Cooperative Cane Development Union Ltd.,
Bareilly, Distt. Bareilly.

570. President,
Cooperative Cane Development Union Ltd.,
Baheri, Distt. Bereilly.

571. President.
Cooperative Cane Development Union Ltd.,
Bhojeepura, Distt. Bareilly.

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572. *President.
Cooperative Cane Development Union Ltd.,
Pilibhit,
Distt. Pilibhit.

573. President.
Cooperative Cane Development Union Ltd.,
Puranpur, Distt. Pilibhit.

574. President.
Cooperative Cane Development Union Ltd.,
Bisalpur, Distt. Pilibhit.

575. President,
Cooperative Cane Development Union Ltd.,
Badaun, Distt. Badaun.

576. President,
Cooperative Cane Development Union Ltd.,
Neoli, Distt. Etah.

577. President,
Cooperative Cane Development Union Ltd.,
Haldwani, Distt. Nainital.

578. President,
Cooperative Cane Development Union Ltd.,
Kashipur, Distt. Nainital.

579. President,
Cooperative Cane Development Union Ltd.,
Bazpur, Distt. Nainital.

580. President,
Cooperative Cane Development Union Ltd.,
Phoolbagh. Distt. Nainital.

581. President,
Cooperative Cane Development Union Ltd.,
Rosa, Distt. Shahjahanpur.

582. President,
Cooperative Cane Development Union Ltd.,
Shahjahanpur, Distt. Shahjahanpur.

583. President,
Cooperative Cane Development Union Ltd.,
Hardoi (Gate), Distt. Hordoi.

584. President,
Cooperative Cane Development Union Ltd.,
Hardoi (Growers), Distt. Hardoi.

585. President,
Cooperative Cane Development Union Ltd.,
Aishbagh, Lucknow.

586. President,
Cooperative Cane Development Union Ltd.,
Juggaur, Distt. Lucknow.

587. President,
Cooperative Cane Development Union Ltd.,
Baragaon, Distt. Barabanki.

588. President,
Cooperative Cane Development Union Ltd.,
Barabanki, Distt. Barabanki.

589. President.
Cooperative Cane Development Union Ltd.,
Burhwal, Distt. Barabanki.

590. President,
Cooperative Cane Development Union Ltd.,
Daryabad, Distt. Barabanki.

591. President.
Cooperative Cane Development Union Ltd.,
Gutaiya, Distt. Kanpur.

592. President,
Cooperative Cane Development Union Ltd.,
Golagokarannath, Distt. Kheri.

593. President,
Cooperative Cane Development Union Ltd.,
Phardhan, Distt. Kheri.

594. President,
Cooperative Cane Development Union Ltd.,
Aira, Distt. Kheri.

595. President.
Cooperative Cane Development Union Ltd.,
Jangbahadurganj, Distt. Kheri.

596. President,
Cooperative Cane Development Union Ltd.,
Lakhmipur Kheri, Distt. Kheri.

597. President,
Cooperative Cane Development Union Ltd.,
Arhikhana, Distt. Kheri.

598. President,
Cooperative Cane Development Union Ltd.,
Paliabhira, Distt. Kheri.

599. President,
Cooperative Cane Development Union Ltd.,
Hargaon, Distt. Sitapur.

600. President,
Cooperative Cane Development Union Ltd.,
Maholi, Distt. Sitapur.

601. President,
Cooperative Cane Development Union Ltd.,
Biswan, Distt. Sitapur.

602. President,
Cooperative Cane Development Union Ltd.,
Sitapur, Distt. Sitapur.

603. President.
Cooperative Cane Development Union Ltd.,
Faizabad, Distt. Faizabad.

604. President,
Cooperative Cane Development Union Ltd.,
Masodha, Distt. Faizabad.

605. President,
Cooperative Cane Development Union Ltd.,
Shahganj, Distt. Jaunpur.

606. President,
Cooperative Cane Development Union Ltd.,
Mohrawa, Distt. Jaunpur.

607. President,
Cooperative Cane Development Union Ltd.,
Nawabganj, Distt. Gonda.

608. President,
Cooperative Cane Development Union Ltd.,
Gonda, Distt. Gonda.

609. President,
Cooperative Cane Development Union Ltd.,
Balrampur, Distt. Gonda.

610. President,
Cooperative Cane Development Union Ltd.,
Tulsipur, Distt. Gonda.

611. President,
Cooperative Cane Development Union Ltd.,
Mankapur, Distt. Gonda.

612. President,
Cooperative Cane Development Union Ltd.,
Jarwal Road, Distt. Bahraich.

613. President,
Cooperative Cane Development Union Ltd.,
Babhnan, Distt. Basti.

614. President,
Cooperative Cane Development Union Ltd.,
Khalilabad, Distt. Basti.

615. President,
Cooperative Cane Development Union Ltd.,
Munderwa, Distt. Basti.

616. President,
Cooperative Cane Development Union Ltd.,
Basti, Distt. Basti.

617. President,
Cooperative Cane Development Union Ltd.,
Walterganj, Distt. Basti.

618. President,
Cooperative Cane Development Union Ltd.,
Tinich, Distt. Basti.

619. President,
Cooperative Cane Development Union Ltd.,
Gaur, Distt. Basti.

620. President,
Cooperative Cane Development Union Ltd.,
Pipraich, Distt. Gorakhpur.

621. President,
Cooperative Cane Development Union Ltd.,
Barhn, Distt. Basti.

622. President,
Cooperative Cane Development Union Ltd.,
Ghughli, Distt. Gorakhpur.

623. President,
Cooperative Cane Development Union Ltd.,
Siswa Bazar, Distt. Gorakhpur.

624. President,
Cooperative Cane Development Union Ltd.,
Sahjaanwa, Distt. Gorakhpur.

625. President,
Cooperative Cane Development Union Ltd.,
Sardarnagar, Distt. Gorakhpur.

626. President,
Cooperative Cane Development Union Ltd.,
Mani Ram, Distt. Gorakhpur.

627. President,
Cooperative Cane Development Union Ltd.,
Captainganj, Distt. Gorakhpur.

628. President,
Cooperative Cane Development Union Ltd.,
Pharenda, Distt. Gorakhpur.

629. President,
Cooperative Cane Development Union Ltd.,
Bridgamanganj, Distt. Deoria.

630. President,
Cooperative Cane Development Union Ltd.,
Kuraghat, Distt. Gorakhpur.

631. President,
Cooperative Cane Development Union Ltd.,
Laxmiganj, Distt. Deoria.

632. *President,
Cooperative Cane Development Union Ltd.,
Ramkola (P), Distt. Deoria.

633. President,
Cooperative Cane Development Union Ltd.,
Padrauna, Distt. Deoria.

634. President,
Cooperative Cane Development Union Ltd.,
Kathkuiyan, Distt. Deoria.

635. President,
Cooperative Cane Development Union Ltd.,
Dudhai, Distt. Deoria.

636. President,
Cooperative Cane Development Union Ltd.,
Bodarwar, Distt. Deoria.

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637. President,
Cooperative Cane Development Union Ltd.,
Chhitauni, Distt. Deoria.

638. President,
Cooperative Cane Development Union Ltd.,
Khadda, Distt. Deoria.

639. President,
Cooperative Cane Development Union Ltd.,
Captainganj, Distt. Deoria.

640. President,
Cooperative Cane Development Union Ltd.,
Seorahi, Distt. Deoria.

641. President.
Cooperative Cane Development Union Ltd.,
Taraiyasujan, Distt. Deoria.

642. President,
Cooperative Cane Development Union Ltd.,
Kasia, Distt. Deoria.

643. President,
Cooperative Cane Development Union Ltd.,
Deoria, Distt. Deoria.

644. President,
Cooperative Cane Development Union Ltd.,
Baitalpur, Distt. Deoria.

645. President,
Cooperative Cane Development Union Ltd.,
Noonkhar, Distt. Deoria.

646. President,
Cooperative Cane Development Union Ltd.,
Bhatni, Distt. Deoria.

647. President,
Cooperative Cane Development Union Ltd.,
Bhatpur Rani, Distt. Deoria.

648. President,
Cooperative Cane Development Union Ltd.,
Saleempur, Distt. Deoria.

649. President,
Cooperative Cane Development Union Ltd.,
Lar Road, Distt. Deoria.

650. President,
Cooperative Cane Development Union Ltd.,
Barhaj, Distt. Deoria.

651. President,
Cooperative Cane Development Union Ltd.,
Satraon, Distt. Deoria.

652. President,
Cooperative Cane Development Union Ltd.,
Hata, Distt. Deoria.

653. President,
Cooperative Cane Development Union Ltd.,
Pratabpur, Distt. Deoria.

654. President,
Cooperative Cane Development Union Ltd.,
Gauribazar, Distt. Deoria.

655. President,
Cooperative Cane Development Union Ltd.,
Sakadiha, Distt. Varanasi.

656. President,
Cooperative Cane Development Union Ltd.,
Varanasi.

657. President,
Cooperative Cane Development Union Ltd.,
Azamgarh, Distt. Azamgarh.

658. President,
Cooperative Cane Development Union Ltd.,
Belthra Road, Distt. Ballia.

659. President,
Cooperative Cane Development Union Ltd.,
Ramkola (K), Distt. Deoria.

660. President,
Sugarcane Purchase and Sale Cooperative.
Society Ltd.,
Bilaspur, Distt. Pilibhit.

661. President,
Sugarcane Purchase and Sale Cooperative
Society Ltd.,
Thosi, Distt. Azamgarh.

662. President,
Dobhi Sugarcane Cooperative Society Ltd.,
Bajrangnagar, Distt, Jaunpur.

663. President,
Naya Basera Bhatia Cooperative Processing
Society Ltd.,
Jugrunagar, Distt, Bareilly.

664. *Chairman,
Cooperative Cane Development Union Ltd.,
Majhola, Distt. Pilibhit.

Assam

The names of the societies were not received and 20 copies of the General Questionnaire were sent to:—

665. Registrar,
Cooperative Societies.
Government of Assam,
Shillong.

West Bengal

There is no cooperative society composed exclusively of Cane Growers in the State of West Bengal.

Madhya Pradesh

666. President,
Jawra Ganna Utpadak Sahakari Samiti, Maryadit,
Jawra Jilha Ratlam.

667. President,
Sugarcane Growers' Development Cooperative Union Ltd.,
Sehore, Distt. Sehore.

668. President,
Cane Growers' Cooperative Union, Jaora (near Government Hospital),
Distt. Ratlam.

669. Registrar,
Cooperative Societies,
Madhya Pradesh,
Bhopal.

Karnataka

670. President,
The Molwad Kushnal Pani Purvatha Mandali Ltd.,
Molwad, Taluk Athani, Distt. Belgaum.

671. President,
The Gundwad Sahakari Pani Purvatha Mandal Ltd.,
Gundwad, Taluk Rajbagh, Distt. Belgaum.

672. President,
Better Farming Society,
Jugul, Taluk Athaini, Distt. Belgaum.

673. President,
Ainapur Sugarcane Growers Association,
P. O. Ainapur,
Taluk Athani, Distt. Belgaum.

674. * President,
The Hampi Service Cooperative Society, Ltd.,
Kaddirampur, Hospet Taluk, Distt. Bellary.

675. President,
The Anathasayanagudi Service Cooperative Society Ltd., Ananthasayanagudi,
Taluk Hospet, Distt. Bellary.

676. President,
The Viswanatha Serivce Cooperative Society Ltd.,
Kondanayakanahalli,
Taluk Hospet, Distt, Bellary.

677. *President,
The Malapangudi Service Cooperative Society Ltd..
Nalapanagudi,
Taluk Hospet, Distt. Bellary.

678. *President,
Sree & Channabasakeswara Service Cooperative Society Ltd.,
Nagenahalli,
Taluk Hospet, Distt. Bellary.

679. *President,
Sree Krishnadevaraya Ryots' Service Cooperative Society Ltd.,
Hospet, Distt. Bellary.

680. President,
The Hospet Sugarcane Growers Cooperative Large Sized Society Ltd.,
Hospet, Distt. Bellary.

681. *President,
The Hospet Agricultural Large Sized Cooperative Society Ltd.,
Hospet, Distt. Bellary.

682. *President,
The Vijayanagara Large Sized Primary Agricultural Cooperative Credit Society Ltd.,
Kamlapur,
Taluk Hospet, Distt. Bellary.

683. President,
Sree Basaveswara Service Cooperative Society Ltd.,
Hospet, Distt. Bellary.

684. President,
The Ryots Sanga,
Hospet, Distt. Bellary.

685. President,
The Ryots Association, Kamlapur,
Taluk Hospet, Distt . Bellary.

686. President,
The Mandya District Sugarcane Growers Association,
Mandya, Distt, Mandya.

687. President,
The Sugarcane Growers Association of Munirabad Sugar Factory,
Hugi, Distt. Raichur.

688. President,
The Shimoga District Sugarcane Growers Association,
Shimoga, Distt. Shimoga.

689. President,
Nagareswara Sugarcane Growers, Cooperative Society Ltd.,
Siruguppa, Distt. Bellary.

690. President,
Kanakadasa Sugarcane Growers Cooperative Society,
Takkalakota,
Siruguppa, Taluk. Distt. Bellary.

691. President,
Talur Sugarcane Growers Cooperative Society,
Talur, Taluk Siruguppa, Distt. Bellary.

692. President,
Upparahosahalli Sugarcane Growers Cooperative Society. Upparahosahalli,
Taluk Siruguppa, Distt. Bellary.

693. President,
Kampli Sugarcane Growers Cooperative Society,
P. O. Kampli, Taluk Hospet. Distt. Bellary.

694. President,
Bukkasagara Sugarcane Growers Cooperative Society,
Bukkasagara, Hospet Taluk, Distt. Bellary.

695. President,
Hospet Sugarcane Growers Union, Hospet,
Distt. Bellary.

696. President,
Shimoga District Sugarcane Growers Soeiety Ltd.,
Shimoga, Distt. Shimoga.

697. President,
Belur Taluk Sugarcane Growers Cooperative Society Ltd.,
Belur, Distt. Hasan.

698. President,
Upper Sugarcane Growers Cooperative Society,
Upper Taluk,
Udipi, Distt. Canara.

699. President,
Udipi Sugarcane Growers Cooperative Society,
Udipi, Distt. Canara.

Punjab

700. President,
The Zamindara Sugarcane Cooperative Canegrowers Society Ltd.,
Dhuri, Distt. Sangrur.

701. President,
The Amargarh Sugarcane Growers Cooperative Society Ltd.,
Amargarh, Distt. Sangrur.

702. President,
The Phagwara Cane Growers Cooperative Society Ltd.,
Phagwara, Distt. Kapurthala.

703. President,
Manjki Cane Growers Cooperative Society Ltd.,
Lakhampal, P.O. Dhani Pind,
Tehsil Nawanshahr, Distt. Jullundur.

704. President,
The Bahram Cane Growers Cooperative Society Ltd.,
Bahram, Tehsil Nawanshahr, Distt. Jullundur.

705. President,
The Phillaur Cane Growers Cooperative Society Ltd.,
Phillaur, Distt. Jullundur.

706. President,
Garhshankar Cane Growers Cooperative Society Ltd.,
Village Kot Patuhi,
Tehsil Garhshankar, Distt. Hoshiarpur.

707. President,
The Jullundur Cane Growers Cooperative Society Ltd.,
Phagwara, Distt. Kapurthala.

Maharashtra

708. M/s. Satpuda Tapi Parisar S.S. K. Ltd.,
Lonekheda,
Taluk Sahada, Distt. Dhulia.

709. M/s. Purna S.S.K. Ltd.,
Pimpalgaonchorya.
Basmathnagar, Distt. Parbhani.

710. M/s. Ambejogai S.S.K. Ltd.,
Ambejogai, Distt. Bhir.

711. M/s. Balasaheb Desai S.S.K. Ltd.,
Taluk Patan, Distt. Satara.

712. M/s. Daulat S.S.K. Ltd.,
Yeshwantnagar, Turkewadi,
Taluk Chandgad, Distt. Kolhapur.

713. M/s. Syadri S.S.K. Ltd.,
Shirwadi Rly. Station,
C/o Karad Municipality,
Karad, Distt. Satara.

714. M/s. Biswas S.S.K. Ltd.,
Yeshwantnagar, Taluk Shirala,
Distt. Sangli.

715. M/s. Satara S.S.K. Ltd.,
Bhuinj.
Taluk Wai, Distt. Satara.

716. M/s. Data Shetkari S.S.K. Ltd.,
Shirol, Distt. Kolhapur,
C/o Deccan Cooperative Spinning Mills Ltd.,
Kolhapur, Distt. Kolhapur.

717. M/s. Sidheshwar, S.S.K. Ltd.,
145, Railway Lines,
Sholapur.

718. M/s. Shetkari S.S.K. Ltd.,
Killari Taluk,
Ausa, Distt. Osmanabad.

719. M/s. Vasant S.S.K. Ltd.,
Pusad, Distt. Yeotmal.

720. M/s. Marathwadi S.S.K. Ltd.,
Dongarakada,
Taluk Kalammri, Distt. Parbhani.

721. M/s. Jijamata S.S.K. Ltd.,
Dusarpid,
Taluk Mehkar, Distt. Buldana.

722. M/s. Vinayak S.S.K. Ltd.,
Vaijapur,
Taluk Vaijapur, Distt. Aurangabad.

723. M/s. Sidheswar S.S.K. Ltd.,
Sillod, Distt. Aurangabad.

724. M/s. Kannad S.S.K. Ltd.,
Nankatakdi,
Taluk Kannad, Distt. Aurangabad.

Tamil Nadu

Tamil Nadu Government who were requested by the Commission to send copies of the General Questionnaire to the Sugarcane Growers Association in Tamil Nadu informed that they had sent a copy of the General Questionnaire to the following Cane Growers Associations for sending direct replies to the Commission :—

725. Ambur Sugar Mills Cane Growers Association,
Sampalli, Gudiyatham Taluk.

726. Sugarcane Growers Association E.I.D. Parry and Sugar Factory Ltd.,
Nellikuppam, Pagandai, South Arcot Distt.

727. * Pannadam Cane Growers Association,
Pannadam, South Arcot Distt.

728. South India Steels and Sugars Ltd.,
Cane Growers Association, Mundiyambakkam,
Villupuram Taluk, Distt. South Arcot.

729. Vennar Division Cane Growers Association,
Nangangadi Village,
P.O. Koothanallur, Thanjavur Distt.

730. C.A. Canal Cane Growers Association
Okkanadu, Keexhaiyur Post,
Orathanadu Taluk, Tanjore Distt.

731. Ariyur Sugarcane Growers Association,
New Horizon Sugar Mills Private Ltd.,
Ariyur, Pondi State.

732. Kallakurichi Cooperative Sugar Mills Sugarcane Growers Association.
Moongilthuraipathu,
Kallakurichi Taluk, Distt. South Arcot.

733. *Pugalur Sugar Factory Cane Growers Cooperative Association,
Pugalur, Distt. Tiruchi.

734. Cauvery Sugars and Chemicals Ltd.,
Cane Growers Association,
Pettivaithalai, Tiruchi.

735. National Cane Growers Sangam,
Kulithalai, Tiruchi Distt.

736. Kothari Sugarcane Growers Association,
Kattur, Lalgudi, Tiruchi Distt.

737. Madura Sugarcane Growers Association,
Pandiarajapuram,
Nelakottar Taluk, Madurai Distt.

738. Thirammangalam and Usilampatti Taluk Cane Growers Association,
Thiramanagalam, Distt. Madurai.

739. Sakthi Sugarcane Growers Association,
Kilvani, Distt. Coimbatore.

740. Salem Cooperative Sugar Factory Cane Growers Association,
Mohanur, Distt. Salem.

741. Maduranthakam Sugar Mills Cane Growers Association,
Polambakkalam,
Post Office Maduranthankam, Chingleput Distt.

742. Thirupattur Division Cane Growers Association,
Tirupathur, Distt. North Arcot.

743. Cauvery Division CaneGrowers Association,
Perumpanaiyur,
P.O. (Via) Kodavasal, Distt. Tanjare.

I. Sugar, Gur and Khandsari Merchant's Associations

744. Secretary,
Bengal Sugar Merchant's Association,
2-C, Ramkumar Rakshit Lane,
Calcutta-7.

745. Secretary,
The Cawnpore Sugar Merchant's Association,
51-56, Nayaganj, Kanpur.

746. Secretary,
The Bombay Sugar Merchant's Association,
104-114, Frere Road, Bombay.

747. *Shri Hans Raj Wadhawan,
President,
Muzaffarnagar Sugar Merchant's Association,
103-B, New Mandi, Muzaffarnagar (U.P.).

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748. Shri Bhag Chand Jain.
Secretary,
Gur, Khandsari and Grain,
Merchant's Association,
17-B, New Delhi.
Muzaffarnagar (U.P.).

J. Association of Distillers

749. *Secretary,
All-India Distillers Association,
H-37, Connaught Circus,
New Delhi.

K. Association of Confectioners

750. *Secretary,
Confectioners Association,
A-7, South Extension, Part-I,
New Delhi-49.

L. Sugar Machinery Manufacturers

751. M/s. Port Engineering Works Ltd.,
8, Clive Row, Calcutta.

752. *M/s. Saran Engineering Co. Ltd.,
Marhowrah, Distt. Saran (Bihar).

753. *M/s. Textile Machinery Corporation Ltd.,
1 and 3 Braborne Road, Calcutta.

754. @Shri P.K. Pal,
Texmaco Textile Machinery Corporation Ltd.,
'Illaco House', Calcutta-1.

755. *M/s. Triveni Engineering Works Ltd.,
Naini, Distt. Allahabad (U.P.).

756. @Shri I. Saran,
Triveni Engineering Works Ltd.,
NSIC Building, Udyog Nagar,
Naini, Distt. Allahabad.

757. *M/s. Binny's Engineering Works Ltd.,
Meenambakkam, Madras.

758. @Shri G. V. Rao,
Binny Ltd., (Engineering Division Madras Works), Box No. 1111,
Meenambakkam, Madras-61.

759. *M/s. Buckau Wolf New India Engineering Works Ltd., 72, Meadows Street.
Bombay-1.

760. @Shri D. N. Dhamania,
Buckau Wolf New India Engineering Works Ltd.,
Pimpri, Poona-18.

761. @Shri V. J. Mehta,
Buckau Wolf New India Engineering Works Ltd.,
Pimpri, Poona-18.

762. M/s. K.C.P. Ltd.,
Ramakrishna Building,
38, Mount Road,
Madras-6.

763. @Shri V. Raman,
K.C.P. Ltd.,
38, Mount Road,
Madras-6.

764. *M/s. Walchandnagar Industries Ltd.,
Walchandnagar, Distt. Poona(Maharashtra).

765. @Shri K. N. Shukla,
Walchandnagar Industries, Ltd.,
Walchandnagar, Distt. Poona.

766. @Shri M. B. Bhide,
Walchandnagar Industries Ltd.,
Walchandnagar, Distt. Poona.

767. M/s. Bellis Asbestos and Engineering Private Ltd.,
24, Chittaranjan Avenue,
Calcutta-12.

768. *M/s. Bery Machinery Manufacturers Pvt. Ltd.,
135, Canning Street, Calcutta-1.

769. *M/s. Indian Sugar & General Engineering Corporation, Yamunanagar,
District Ambala (Haryana).

770. @Shri S. C. Jolly,
Indian Sugar & General Engineering Corporation Ltd.,
Yamunanagar, Distt. Ambala (Haryana).

771. M/s. Kirloskar Brothers Ltd.,
Kirloskarwadi, Distt. Sangli (Maharashtra).

772. M/s. Protes Engineering Co.(P) Ltd.,
173, Jamshedji Tata Road,
Churchgate, Bombay-1.

773. M/s. Ganga Engineering Works,
B-1/9, Rajouri Garden,
Najafgarh Road, New Delhi-13.

774. M/s. W. H. Brady and Co. Ltd.,
12/14, Veer Nariman Road,
Bombay-1.

775. *M/s. Tide Water Oil Co. (India) Ltd.,
8, Clive Row, Calcutta.
(Reply received from M/s. Andrew Yule & Co. Ltd.,
8, Clive Row, Calcutta).

776. M/s. Atlas Engineering Industries,
Batala, Distt. Gurdaspur (Punjab).

777. M/s. Kamani Tubes Private Ltd.,
Agra Road, Kurla, Bombay-70.

778. M/s. Ravalgaon Sugar Farm Ltd.,
Ravalgaon, Distt. Nasik (Maharashtra).

779. M/s. Toshniwal Instruments (Bombay),
Bombay.

780. *M/s. Dorr Oliver (India) Ltd.,
16, Queen's Road, Estate, Bombay-1.

781. M/s. Chemicals (India),
Maganlala Nagar, Bombay.

782. *M/s. Bharat Heavy Electricals Ltd.,
Ramachandrapuram, Hyderabad-32.

783. @Shri P. K. Gupta,
Bharat Heavy Electricals Ltd.,
15/16th Floor, Hindustan Times House,
Curzon Road, New Delhi.

784. M/s. PSG Industrial Institute,
Peelamodu, Coimbatore-4.

785. *M/s. Bellis and Morcom (India) Ltd.,
6, Little Russel Street, Calcutta-16.

786. @Shri S. P. Jain, Bellis & Morcom (India) Ltd.,
6, Little Russel Street,
Calcutta-16.

787. *M/s. Mahindra Engineering Co. Ltd.,
Hall Anderson Building,
Park Street, Calcutta.

(Reply received from Mahindra & Mahindra,
Instrumentation Division, Calcutta).

788. @Shri Jayendrasinh,
Stewards and Lyods (India) Ltd.,
11-A, Rouse Avenue Lane,
Lok Kalyan Bhavan,
New Delhi.

M. Labour Unions/Organisations

789. *Secretary,
United Trade Union Congress,
249, Bipin Bihari Gangoli Street,
Calcutta.

790. @Shri Jatin Chakravarty,
United Trade Union Congress,
249, Bipin Bihari Gangoli Street,
Calcutta.

791. @Shri Debsaran Ghosh,
United Trade Union Congress,
248, Bipin Bihari Gangoli Street,
Calcutta.

792. @Shri P. Chaudhuri,
United Trade Union Congress,
249, Bipin Bihari Gangoli Street,
Calcutta.

793. *Secretary,
Indian National Trade Union Congress,
17, Janpath, New Delhi.

794. @Shri L. D. Gandhi,
Indian National Trade Union Congress,
17, Janpath, New Delhi.

795. @Shri P. K. Sharma,
Indian National Trade Union Congress,
17, Janpath, New Delhi.

796. *Secretary,
Hind Mazdoor Sabha, Nagindas Chamber,
2nd Floor, 167, P D' Mellow Road, Bombay-1.

797. @Shri M. Desai,
Hind Mazdoor Sabha, Bombay.

798. @Shri Kishore Pawar,
Hind Mazdoor Sabha, Bombay.

799. @Shri G. J. Ogale,
Hind Mazdoor Sabha, Bombay.

800. @Shri Vimal Mehrotra,
Hind Mazdoor Sabha, Bombay.

801. @Shri Tara Chand Sethi,
Hind Mazdoor Sabha, Bombay.

802. @Shri Lok Nath Joshi,
Hind Mazdoor Sahba, Bombay.

803. @Shri R. C. Pradhan,
Hind Mazdoor Sabha, Bombay.

804. Secretary,
All India Trade Union Congress,
24, Canning Lane, New Delhi.

805. *Secretary,
Centre of Indian Trade Unions,
772, Lenin Sarani, Calcutta-12.

806. @Dr. M. K. Pandhe,
Centre of Indian Trade Unions,
Calcutta-12.

807. @Shri K. M. Bhatt,
Centre of Indian Trade Unions,
Calcutta-12.

808. @Shri G. S. Sinha,
Centre of Indian Trade Unions,
Calcutta-12.

N. Chambers of Commerce

809. *Secretary,
Federation of Indian Chambers of Commerce and Industry, Federation House,
Near Bengali Market, New Delhi.

810. Secretary,
Haryana Chambers of Commerce & Industry,
324-B, Model Town, Ambala City (Haryana).

811. *Secretary,
The Madura Ramnad Chamber of Commerce,
90—92, East Avanimoola Street,
Madurai-1.

O. Export Promotion Corporation

812. *Secretary,
Indian Sugar Industries Export Corporation,
28, Ring Road, Lajpat Nagar,
New Delhi-24.

(Present Address—East of Kailash, New Delhi.)

P. Sugar Technologists' Association

813. Hony. Secretary,
The Sugar Technologists Association of India, P. O. National Sugar Institute,
Kalyanpur, Kanpur (U.P.)

814. Secretary,
Deccan Sugar Technologists Association,
Deccan Gymkhana, Poona-4.

815. Secretary,
South Indian Sugar Technologists Association,
Dare House,
Parry Corner, Madras.

Q. Paper Association

816. *Dr. N. S. Nagpal,
Chief Chemist, Secretary, Indian Paper Technologists Association C/o West Coast Paper Mills, Bangurnagar.
Dandeli (Karnataka State).

APPENDIX E

LIST OF SUGAR FACTORIES VISITED BY COMMISSION AND ITS OFFICERS

APPENDIX E

LIST OF SUGAR FACTORIES VISITED BY THE SUGAR INDUSTRY ENQUIRY COMMISSION AND STUDY TEAMS OF VARIOUS OFFICERS OF THE COMMISSION

J.S. Joint Stock
Coop. Cooperative
S.G. State Government
U.P.S.S.C. U.P. State Sugar Corporation
H.O. Head Office

Sl. No.	Location of Factory	Sector	Date(s) of visit by				
			Commission	Technical Team	Financial Team	Labour Officer	Coop. Labour Team
1	2	3	4	5	6	7	8
Uttar Pradesh							
1.	Mansurpur	J.S.	26-11-71	..	..	..	..
2.	Mawana	J.S.	29-12-71	..	..	..	..
3.	Sarsawa	Coop.	30-12-71	..	20-12-72	31-1-73 & 1-2-73	..
4.	Barabanki	U.P.S.S.C.	1-2-72	..	..	..	..
5.	Biswan	J.S.	2-2-72	..	..	..	..
6.	Maholi	J.S.	3-2-72	14/15-3-73	..	..	..
7.	Neoli	J.S.	5-2-72	..	..	..	..
8.	Pilibhit	J.S.	7-2-72	..	..	20/21-12-72	..
9.	Majhola	Coop.	8-2-72	..	..	22/23-12-72	..
10.	Golagokarannath	J.S.	9-2-72	..	..	..	..
11.	Khalilabad	J.S.	5-12-72	19/20-12-72	5-9-71	..	..
12.	Khadda	U.P.S.S.C.	6-12-72	..	16-1-73	..	..
13.	Ramkola (P)	J.S.	7-12-72	..	..	..	..
14.	Ramkola (MK)	J.S.	7-12-72	14/15-12-72	22-1-73	..	..
15.	Deoria	J.S.	8-12-72	..	..	..	..
16.	Sardarnagar	J.S.	9-12-72	..	8-9-71	..	..
17.	Mohiuddinpur	U.P.S.S.C.	..	15/16-11-72	..	15/16-11-72	..
18.	Sakhoti Tanda	U.P.S.S.C.	..	17/18-11-72	..	17/18-11-72	..
19.	Bulandshahr	J.S.	..	27/28-11-72	..	..	..
20.	Amroha	J.S.	..	29/30-11-72	22-12-72	..	..
21.	Bijnor	J.S.	..	1/2-12-72	..	..	..
22.	Lakshmiganj	J.S.	..	13/14-12-72	..	..	..
23.	Padrauna	J.S.	..	16/17-12-72	25-1-73	..	..
24.	Kathkuiyan	J.S.	..	17/18-12-72	..	..	..
25.	Walterganj	J.S.	..	21/22-12-72	..	..	..
26.	Mairwa	J.S.	..	2/3-1-73	14-9-71 24-9-71 (HO)	..	..
27.	Modinagar	J.S.	..	7/8-1-73	..	..	..
28.	Shahganj	J.S.	..	12/14-2-73	..	..	..
29.	Bhatni	U.P.S.S.C.	..	15/16-2-73	..	..	..

1	2	3	4	5	6	7	8
30.	Saharanpur	J.S.	..	5/6-3-73	..	..	..
31.	Seohara	J.S.	..	7/8-3-73	..	..	..
32.	Kashipur	J.S.	..	8/9-3-73	..	..	..
33.	Hargaon	J.S.	..	12/13-3-73	..	..	..
34.	Munderwa	J.S.	..	16/17-3-73	..	..	..
35.	Baitalpur	J.S.	..	..	11-9-71 24-9-71 (HO)	..	..
36.	Gauribazar	J.S.	..	..	10-9-71 5-10-71 (HO)	..	..
37.	Rampur	J.S.	..	..	18-12-72	3/4-2-73	..
38.	Rohana Kalan	J.S.	..	..	23-12-72	..	..
39.	Chhitauni	J.S.	..	..	19-1-73	..	..
40.	Jarwal Road	J.S.	..	..	19-1-73	..	..
41.	Daurala	J.S.	..	..	..	29/30-1-73	..
42.	Khatauli	J.S.	..	..	..	..	20/22-10-73
Bihar							
43.	Harinagar	J.S.	4-4-72	..	..	..	..
44.	Majhaulia	J.S.	5-4-72	6/7-1-72	6-1-72 8-1-72 (HO)	..	..
45.	Barachakia	J.S.	6-4-72	18/19-2-73	..	..	..
46.	Banmankhi	Coop.	8-4-72	..	..	..	..
47.	Samastipur	S.G.	10-4-72	4/5-1-72	4-1-72	..	..
48.	Guraru	S.G.	11-12-72	..	25-1-73	..	..
49.	Bihta	J.S.	12-12-72	..	23-1-73	..	..
50.	Siwan (SKG)	J.S.	..	4/5-1-73	..	..	..
51.	New Savan-Siwan	J.S.	..	5/6-1-73	..	..	..
52.	Pachrukhi	J.S.	..	7/8-1-73	..	..	..
53.	Marhowrah	J.S.	..	9/10-1-73	..	..	..
54.	Gopalganj (Harkhua)	J.S.	..	10/11-1-73	18-9-71 1-10-71 (HO)	..	..
55.	Sagauli	J.S.	..	20/21-2-73	..	..	..
56.	Bagaha	J.S.	..	22/23-2-73	..	..	..
57.	Ryam	J.S.	..	24/25-2-73	..	..	..
	(Recently taken over by a Cooperative Society)						
58.	Sidhwalia	J.S.	..	..	21/9/71 1-10-71 (HO)	..	..
Punjab							
59.	Bhogpur	Coop.	24-3-72	..	..	11-12-72	..
60.	Phagwara	J.S.	25-3-72	13/14-12-72	..	13/14-12-72	..
61.	Dhuri	J.S.	..	15/16-12-72	..	..	..
62.	Morinda	Coop.	..	..	16-12-72	..	..
63.	Batala	Coop.	..	..	..	6/7-12-72	..
Haryana							
64.	Yamunanagar	J.S.	28-3-72	..	..	..	..
65.	Panipat	Coop.	29-3-72	..	..	..	..

1	2	3	4	5	6	7	8
Rajasthan							
66.	Bhupalsagar	J.S.	28-11-72	19/20-2-73	..	..	..
67.	Keshoraipatan	Coop.	7-11-72	..	..	..	..
68.	Sriganganagar	S.G.	..	..	14-12-72	..	..
Madhya Pradesh							
69.	Dabra	J.S.	8-2-73	..	15-1-73	..	..
70.	Sehore	J.S.	9-2-73	..	..	..	..
71.	Mehidpur Road	J.S.	..	3/4-1-73	..	3/4-1-73	..
72.	Jaora	J.S.	..	5/6-1-73	..	5/6-1-73	..
73.	Dalauda	J.S.	..	7/8-1-73	..	7/8-1-73	..
Gujarat							
74.	Bardoli	Coop.	12-11-72	..	..	13/14-2-73	23/24-1-74*
75.	Kodinar	Coop.	14-11-72	..	..	17/18-2-73	27/29-1-74*
76.	Chalthan	Coop.	..	..	..	15/16-2-73	..
Maharashtra							
77.	Phaltan Sakharwadi	J.S.	5-1-72	..	..	..	..
78.	Phaltan Shriram	Coop.	6-1-72	..	..	..	..
79.	Walchandnagar	J.S.	7-1-72	..	..	..	..
80.	Sangli	Coop.	21-4-72	..	..	..	22nd & 24-12-73*
81.	Ichalkaranji	Coop.	22-4-72	..	..	..	26th & 28-12-73*
82.	Warananagar	Coop.	24-4-72	..	..	..	1/2-11-73
83.	Kolhapur	J.S.	25-4-72	..	..	..	..
84.	Sakarwadi	J.S.	3-1-73	..	..	..	..
85.	Pravaranagar	Coop.	4-1-73	..	3-9-71	..	..
86.	Tilaknagar	J.S.	5-1-73	..	..	..	..
87.	Silod (new factory under establishment).	J.S.	6-1-73	..	..	..	..
88.	Changdeonagar	J.S.	..	..	2-9-71 10-9-71 (HO)	..	..
89.	Niphad-Bhausahebnagar	Coop.	..	..	7-9-71	..	9/10-10-73
90.	Lakshmiwadi	J.S.	..	..	..	..	1/12-10-73
91.	Bhuj	Coop.	..	..	..	..	3/5-11-73
Karnatak							
92.	Mandya	S.G.	6-12-71	6/7-9-71	6-9-71 25-2-72	..	..
93.	Ugar Khurd	J.S.	20-4-72	..	..	..	..
94.	Hospet	J.S.	19-10-72	..	..	..	7/9-11-73
95.	Kampli	Coop.	20-10-72	..	..	..	..
96.	Gauribidanur	Coop.	..	..	14-9-71	..	..
97.	Shimoga	J.S.	..	..	17-9-71 11-9-71 (HO)	..	..
98.	Pandavapura	Coop.	..	..	..	..	12/13-11-73

*Visited by Cooperative Officer.

1	2	3	4	5	6	7	8
	Tamil Nadu						
99.	Madurantakam	Coop.	16-2-72	..	9-9-71	..	..
100.	Nellikuppam	J.S.	17-2-72	..	29-2-72	..	..
101.	Pandiarajapuram	J.S.	19-2-72	..	9-3-72 (HO) 15-9-71	..	..
102.	Appakudal	J.S.	25-2-72	2/3-9-71	2-9-71 3-9-71 (HO)	..	..
103.	Ambur	Coop.	17/18-2-73	..	..	..	..
104.	Vadapathimangalam	J.S.	..	..	13-9-71	..	..
105.	Mundiyampakkam	J.S.	..	..	17-9-71 (HO) 31-1-72	..	..
106.	Pugalur	J.S.	..	..	6-3-72	..	..
107.	Pennadam	J.S.	..	..	..	..	19/20-11-73
108.	Kallakurichi	Coop.	..	..	..	..	21/22-11-73
	Pondicherry						
109.	Pondicherry (New Horizon)	J.S.	18-2-72	..	11-9-71	..	..
	Andhra Pradesh						
110.	Shakkarnagar	S.G.	28-4-72	..	..	..	..
111.	Nizamabad	Coop.	29-4-72	..	..	..	..
112.	Vuyyuru	J.S.	22-10-72	..	22-2-72	..	..
113.	Tanuku (Andhra)	J.S.	23-10-72	..	..	..	..
114.	Tanuku (Sivakami)	J.S.	23-10-72	..	..	..	..
115.	Anakapalle	Coop.	24-10-72	..	..	..	..
116.	Chittoor	Coop.	..	..	20-9-71	..	15/16-11-73
117.	Challapalli	J.S.	..	..	24-9-71	..	..
118.	Samalkot	J.S.	..	..	..	..	24/26-11-73
	Kerala						
119.	Pandalam (Mannam)	Coop.	22-2-72	..	31-8-71	..	..
120.	Tiruvalla	J.S.	23-2-72	..	4-3-72	..	..
121.	Chittur	Coop.	..	3/4-9-71	..	..	..
	Total number of factories visited		62	41	42	16	11

ABSTRACT

1. Number of factories visited by the Commission	62
2. Number of factories visisted by the Technical Teams	41
3. Number of factories visited by the Financial Teams	42
4. Number of factories visited by the Labour Officer	16
5. Number of factories visited by the Cooperative-Labour Team	11
6. Number of factories visited by the Cooperative Offieer	4

APPENDIX F

INTRODUCTION TO SECOND INTERIM REPORT

APPENDIX F

SECOND INTERIM REPORT

ON

RATIONAL AND EFFICIENT ORGANISATION OF SUGAR INDUSTRY

INTRODUCTION

The Terms of Reference of the Commission are as follows :—

(1) To study the working of the sugar industry in all its aspects, with particular reference to its performance during the last ten years and the condition of the plant and machinery in different sugar mills.

(2) To identify the inadequacies in the performance of the sugar industry and the causes thereof.

(3) To study in detail the causes for the existence of a large number of sick sugar mills.

(4) To study the progress and the working of sugar mills in the cooperative sector.

(5) To make suggestions, in the light of such studies for a rational and efficient organisation of the sugar industry in different parts of the country in order to improve its working and performance, and to suggest measures for solving the problem of sick sugar mills, in the context of the demand for nationalisation of the sugar industry.

(6) To study the relationship between sugarcane suppliers and the owners of sugar mills, with particular reference to the supply of cane and the payment of cane price and to make suggestions for improvement in the present laws and practices in this behalf.

(7) To study the problem of large fluctuations in sugarcane production and its processing into gur, khandsari and sugar and to make suggestions for securing stable conditions with a view to achieving a balanced development in these fields ;

(8) In the light of the foregoing studies to suggest a blue-print for the development of the sugar and allied industries over a period of the next ten to fifteen year.

2. In August, 1972, the Commission submitted an interim report on "Sugarcane Price Policy and Stabilisation of Cane Supplies to Sugar Factories". That report dealt with some of the aspects covered by terms 6 and 7. In the present interim report the Commission has mainly dealt with term 5, in the light of the studies made under terms 1 to 4. The aspects of the industry not covered by the first and the present interim reports will be dealt with in the final report along with term 8 which requires the Commission to prepare a blue-print for the development of the sugar and allied industries in the next 10 to 15 years.

3. The method followed by the Commission in its enquiry will be described in detail in the final report, but a brief mention of it must be made here also. As term 1 requires the Commission to study the working of the sugar industry in all its aspects, it became necessary to draw up a comprehensive list of the aspects of the sugar industry within the scope of its, terms, which the Commission may study. The Commission, therefore, circulated its terms of reference to the Governments of sugar producing States and the representative organisations of the sugar industry, canegrowers and labour asking them for their suggestions regarding the aspects which the Commission may study. A number of suggestions were made by the State Governments and the organisations of the sugar industry, canegrowers and labour and some departments of the Central Government.

4. In March, 1971, all the sugar factories then existing were asked to submit their balance sheets and profit and loss accounts for the 10 years 1960-61 to 1969-70. In May, 1971, a Technical-*cum*-financial Questionnaire was issued to all the factories for obtaining detailed information and data regarding the financial aud technical performance of the factories, the condition and specifications of their plant and machinery, and other matters. In August, 1971, a comprehensive General Questionnaire was issued to the departments concerned of the Central Government, the Governments of all sugar producing States, sugar factories, the organisations of canegrowers, associations and federations of the sugar industry, national organisations of labour, associations of sugar technologists, associations of gur and khandsari manufacturers, distillers, etc., and the individual experts in sugarcane and sugar development and research. The General Questionnaire was primarily intended to obtain the views and suggestions of the various Governments and organisations on matters of policy. Discussions were then held with the officers concerned of the State Governments on the condition of the sugar industry in their respective States and their suggestions for improving the working of the sugar industry in their State as well as elsewhere were

obtained. In addition, the Commission invited some Members of Parliament and State Legislatures for a discussion and the Commission had the benefit of the views on important matters of policy of such of them as found it convenient to meet the Commission.

5. The Commission also sent technical teams and financial teams of its experts to selected sugar factories to make on-the-spot studies to verify the data supplied by them and to collect such further information about the condition of the plant and machinery and other matters as only a local inspection can give. The Chairman and Members of the Commission themselves also visited a number of sugar factories. During these visits, they went round the factories and studied the systems of cane supplies, cane weighment, cane price payment, bagging and stacking of sugar, working of the factories at their various stations, etc. They also held discussions with cane growers, workers and the managements of factories separately and tried to obtain first-hand knowledge of the feelings and thinking of the canegrowers and labour about the past and present working of the factories and about their future functioning. The number of the factories visited by the Commission and its officers came to 114.

6. Of the 215 factories, 209 factories have submitted replies to the Technical-*cum*-financial Questionnaire and 153 to the General Questionnaire. All the State Governments, except three, replied to the General Questionnaire. Several organisations and associations of cane growers, labour and industry have also submitted their replies to the General Questionnaire.

7. For the purposes of this interim report on the future organisation of the industry, the Commission also held discussions with the Chief Ministers and other Ministers concerned of the major sugar producing States, the representatives of the Indian Sugar Mills' Association, the National Federation of Co-operative Sugar Factories and labour organisations. Some distinguished economists, cooperators, industrialists, other experts and cane growers were also interviewed in their personal capacity.

8. The scheme of this report is as follows. Chapter I outlines the general features of the sugar industry. Chapters II, III and IV deal respectively with the financial and technical performance of the sugar industry and the condition of the plant and machinery in factories. Chapter V concerns itself with the working of the cooperative sector of the sugar industry. Chapter VI contains the views and recommendations on Rational and Efficient Organisation of Sugar Industry by Shri V. Bhargava, Chairman, Dr. V. S. Vyas, Shri S. L. Saxena, Shri Bansi Dhar and Shri A. C. Bose, Members; and Chapter VII, of Shri J. C. Dikshit, Shri B. N. Khosla, Shri P. S. Rajagopal Naidu and Shri Fazlur Rahman, Members, and Shri R. H. Chishti, Member-Secretary. These chapters also deal with the inadequacies of sugar industries and the causes for the existence of sick sugar mills.

APPENDIX G

INTRODUCTION TO FIRST INTERIM REPORT

APPENDIX G

FIRST INTERIM REPORT

ON

SUGARCANE PRICE POLICY AND STABILISATION OF CANE SUPPLIES TO SUGAR FACTOREIS

I. INTRODUCTION

1.1 The Government of India in the late Ministry of Food, Agriculture, Community Development and Coopcration (Department of Food) by its Notification No. S.O. 3180, dated 28th September, 1970 appointed this Commission with the following terms of reference :—

(1) To study the working of the sugar industry in India in all its aspects, with particular reference to its performance during the last ten years and the condition of the plant and machinery in different sugar mills.

(2) To identify the inadequcies in the performance of the sugar industry and the causes thereof.

(3) To study in detail the causes for the existence of a large number of sick sugar mills.

(4) To study the progress and the working of sugar mills in the cooperative sector.

(5) To make suggestions, in the light of such studies, for a rational and efficient organisation of the sugar industry, in different parts of the country, in order to improve its working and performance, and to suggest measures for solving the problem of sick sugar mills, in the context of the demand for nationalisation of the sugar industry.

(6) To study the relationship between sugarcane suppliers and the owners of sugar mills, with particular reference to the supply of cane and the payment of cane price and to make suggestions for improvement in the present laws and practices in this behalf.

(7) To study the problem of large fluctuations in sugarcane production and its processing into gur khandsari and sugar and to make suggestions for sccuring stable conditions with a view to achieving a balanced development in these fields ; and

(8) In the light of the foregoing studies, to suggest a blue-print for the development of the sugar and allied industries over a period of the next ten to fifteen years.

(See Annexure I)

1.2 It will be seen from the above that the main questions, which have to be answered by the Commission relate to the re-organisation of the industry (*vide* term 5). The detailed studies required under the various terms—1 to 4, 6 & 7—will assist the Commission in coming to a conclusion and making recommendations about this central subject. These studies have not been completed yet and the Commission, therefore, not in a position to deal with the question of the future organisation of the industry. Also, a blue-print for the future development of the sugar and allied industries (*vide* term 8) cannot be prepared till the studies referred to above have been completed and decisions on major issues taken.

1.3 However, in view of para 5 of the notification suggesting that the Commission may submit an interim report on any specific problem, the Commission has decided to submit an interim report on the subjects of sugarcane pricing policy and stabilization of supply of sugarcane to factories. These aspects form part of terms 6 and 7. The other important aspects covered by these terms are—fluctuations in sugarcane production; improvement in yield and quality of cane; supply of agricultural credit of canegrowers; relations between canegrowers and factory-owners and improvement in the relevant laws and practices; arrangements for prompt payment of cane price; supply of canc to gur and khandsari industries; and rational development of sugar, gur and khandsari industries. These will be dealt with later in the main report. In this report, they have been touched only to the extent necessary for a proper understanding of the matters under consideration.

1.4 In selecting the subjects for the interim report and making recommendations about them, we have kept the following criteria in view—that the subject should be of sufficient importance and urgeney to merit and interim rcport; that it should be one on which some recommcndations could be made straightaway without first taking a dcfinite view about the re-organisation of the industry; that the principles underlying the recommendations on the subject should hold good in any likcly future organisation; and, lastly, that the recommendations should not land themselves to any inference about the possible views of the Commission regarding the future pattern of the industry.

1.5 The better course for the Commission would have been first to come to a conclusion about the future organisation of the industry—whether it should be nationalisation or conversion into cooperative or the maintenance of the *status quo* and then make recommendations on other aspects of the industry consistant with the organisation recommended and visualized by the Commission. But as indicated earlier, this will take time. We feel, however, that some recommendations can be made, within certain limits, even at this stage of our enquiry, whose acceptance and implementation will be in the interest of the sugar industry generally and the canegrowers particularly, consistent with the interest of the consumer.

1.6 The country is passing through a period of sugar shortage. The prospects for the next year are also not very bright. The main reason for this state of affairs is inadequate supply of cane to factories during the last two seasons. The sugar industry in the past has suffered more than once on account of shortage of cane. There is need, therefore, for a policy which should lead to increase in cane production and ensure adequate and steady supplies of cane to the sugar industry as also to the gur and Khandsari industries. On a long term view also, it is necessary to encourage production of sugarcane to meet the increasing requirements of cane for all the sweetening agents. This can be achieved by intensive cultivation of cane—higher yields and more sugar per hectare—and, if necessary, by extension of area. The price policy for sugarcane has a direct impact on cane production. It should, therefore, take into consideration both the immediate and the future requirements for cane. It is also necessary to create conditions in which cane growers will be encouraged to enter into agreements with factories for supply of cane and fulfil their contractual obligations. In this report, we have made certain recommendations regarding the price policy for sugarcane and stabilisation of cane supplies to sugar factories.

1.7 It seems to us that it will not be out of place here to give some indication of the approach of the Commission to the problems falling within the scope of our enquiry. We feel that solutions to the various problems must be found which are in harmony with the socio-economic objectives and targets which the nation has set before itself. Of these, the dominant objective is to improve the lot of the common man and the vulnerable and weaker sections of the community. In the context of the sugar industry, this objective means that the interests of the cane grower supplying cane to sugar factories and the labour employed by the factories should be protected and that conditions should be created for a closer cooperation among and better integration of the factory-owners, cane growers and workers. And this cooperation and integration should lead to a more efficient sugar industry capable of meeting, at a fair price, the sugar requirements of an increasing population with rising standards of living.

MGIPRRND—TSS I—S/4 DF/74—26-8-74—500.