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REPORT OF THE WORKING GROUP For The Formulation of Fourth Five Year Plan Proposals on DAIRY DEVELOPMENT

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Ministry of Food & Agriculture
Department of Agriculture
Government of India.

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SUMMARY OF THE REPORT OF THE COMMISSION ON THE WORKING GROUP ON DAIRY DEVELOPMENT IN THE STEERING COMMITTEE GROUP.

1.01. Proposals for removal of milch animals from Urban areas might be forwarded to the Ministry of Health for making appropriate provision of funds in the Plan. Concrete schemes should be drawn up conjointly by both Ministries and their practical implementation ensured.

1.02. Whilst all efforts to set up dairies in the Co-operative Sector should continue, where strong co-operative are not available; liquid milk and milk product factories should be set up in the Public Sector. However, the intention to establish a dairy in any place should be notified well in advance so as to give a chance for a strong Co-operative to be formed, if possible.

1.03. Indigenous dairy equipment manufacture should be given a high priority.

- (i) Ministry of Industry should exercise more stringent check on the programme of manufacture and allot adequate foreign exchange further, it should allow importation of raw material and components for dairy machinery duty free on the analogy of sugarcane machinery.
- (ii) States should be asked to prepare their consolidated demands for the Plan and call for tenders, payments to successful tenderers being made as deliveries are rendered.
- (iii) After discussion with the States, the Dairy Development Plan should reflect the details of the amount required for refrigerated rail transport which should also be communicated to the Railway Board.

1.04. Instead of large feed mixing plants, small capacity units in greater numbers should be set up using indigenous equipment as far as possible.

1.05. Economics of each kind of projects should be worked out and the "cost-benefit ratio" should form an important criterion for selection of different projects. In working out the economics, the combined economics of a grid of projects (interconnected schemes) should be kept in view and not necessarily of each individual unit. The ingredients of Dairy extension and Cattle Development should also be stated though, these factors may be regarded as developmental and not the essential features entering in profit and loss accounts.

1.06. Whilst all efforts to develop the cow may be made, the detailed operations of the dairies should be governed by economic considerations.

1.07. In planning future dairies both availability of milk, potentiality of its development, and the marketing possibilities, must be surveyed in detail.

1.08. As Experience has shown that unhealthy competition adversely affects the operation of the dairies that are being set up in the Plan, partly to act as a social service, milk marketing should be regulated through Milk Marketing Boards to be set up in the States.

1.09. The needs to adopt adequate quality control measures in the routine operations of Dairies should be highlighted in the IV Plan.

1.10. The country should become self sufficient in its needs of Dairy engineers in the IV Plan and steps to ensure this should be provided for.

1.11. The schemes and expenditure to be provided in the Plan should be suitably phased in the context of actual implementation possible, but training and appointment of key staff should be planned well in advance of the implementation of the schemes.

1.12. Continuance of subsidies for dairy, plants may have to be continued on grounds of social service, *i.e.* health, hygiene, holding price line, etc. However, long term loans should be preferred to large subsidies and whatever subsidy is needed on the basis of examination of the economics on different types of projects, it should be towards the capital cost and the same pattern of assistance should apply to both co-operatives as well as State projects.

PREFACE

2.01. *Introductory.*

The Sub Group on Dairy Development was constituted by the Ministry of Food & Agriculture (Department of Agriculture) as a result of the proposals made by the Planning Commission for setting up Working Groups for the formulation of the Fourth Five Year Plan.

2.02. *Terms of reference*

The terms of reference of the Sub-Group are broadly as under:—

- (a) to make a critical review of the progress of the programmes and schemes in the Third Plan period;
- (b) to assess, in the light of current trends and other available data, the position likely to be reached at the end of the Third Plan period; and
- (c) to formulate proposals for the Fourth Plan in the perspective of 10 year period—1966—1976.

2.03. *Membership of the Working Group*

The Sub-Group on Dairying consisted of the following members:

2.04. *Ministry of Food & Agriculture (Department of Agriculture)*

1. Shri I. J. Naidu, Joint Secretary and later
Shri Ameer Raza, Joint Secretary—*Chairman.*
2. Shri H. C. Verma, Dairy Development Adviser.
3. Dr. P. Bhattacharya, Livestock Development Adviser.
4. Shri T. Srinivasan, Deputy Secretary.
5. Shri S. N. Mohan, Deputy Dairy Development Adviser.—(*Convenor*).

I.C.A.R.

6. Shri L. Sahai, Animal Husbandry Commissioner.
7. Dr. V. G. Panse, Statistical Adviser.

Directorate of Economics and Statistics

8. Shri J. S. Sarma, Additional Economic & Statistical Adviser.

Planning Commission

9. Shri D. P. Singh, Joint Secretary.

Ministry of Community Development & Co-operation.

10. Shri S. S. Puri, Deputy Secretary.
11. Shri M. M. K. Wali, Deputy Secretary.

National Dairy Research Institute, Karnal.

12. Dr. K. K. Iya, Director.

Delhi Milk Scheme.

13. Dr. L. C. Sikka, Chairman.

Central Council of Gosamvardhana.

14. Shri Parnerkar.

15. Shri C. K. Nair.

2.05. Meeting of the Working Group.

The Groups held seven meetings at New Delhi, the first on the 13th August, second on the 2nd September, third on the 18th October, fourth on the 31st October, fifth on the 11th December, sixth on the 21st December, 1963 and the seventh on the 3rd January, 1964.

CHAPTER I

Present state of Dairying in India and the problems to be solved

3.01. In spite of a large cattle population, the *per capita* availability of milk is low and even the rate of increase in the latter lags well behind the rate of increase in human population. The units of milk production are small and scattered. There is wide disparity in different regions as to the intensity of milk production and the mere numbers of cattle present in a region are no index to availability of milk as there are sharp differences in agro-climatic conditions, resulting in variations in productivity of the cattle. There being no remunerative outlet for milk produced in rural areas the bulk of it is consumed by the producers themselves or is used for less remunerative products like ghee. There is a large difference in the rural milk prices and urban prices, thus the cities have become the abode of milkmen who keep milch cattle thereby accentuating the problems of hygiene, premature loss of the country's best cattle and their progeny, ~~evit~~ of adulteration actuated by higher cost of maintenance of cattle in the cities. In recent years with some improvement in the means of communications, some milk from rural areas in the immediate vicinity of cities is being brought in but passes through numerous functionaries, thus absorbing a lot of the consumers price in middleman's profit. Adulteration is rampant. Healthy and strong co-operatives are yet to be developed in many areas. The basic absence of an organised link between rural production and urban supply is responsible for cows being maintained in rural areas principally as producers of bullocks and the lack of mixed farming, not to speak of pastoral farming. Growth of urbanisation and industrialisation in India has increased the demand and the price of milk in the cities out of all proportion to the increase in the price of food-grains etc. There is also an increasing demand for milk products like milk powder, infant milk food, cheese, butter, ice-cream, etc. Owing to balance of payment difficulty, imports of these are not taking place and even machinery required for indigenous manufacture cannot be imported beyond a meagre limit.

Demand Projection

3.02. The country's milk production was estimated to be about 17 million tons in 1951 and 19 million tons in 1956. The provisional estimate for 1961 is 22 million tons and the production target for 1965-66 is 25 million tons. The *per capita* daily availability of milk has been estimated to have improved from 4.87 oz. in 1951 to 4.90 oz. in 1961 and is expected to increase to 5.1 oz. in 1965-66. The Nutrition Advisory Committee of the Indian Council of Medical Research has recommended *per capita* daily consumption of 10 oz. milk for balanced diet. In view of the long period required for attaining the required level of milk production, the Committee has suggested the desirability of attaining the target of 6 oz. in the near future. On the basis of 6 oz. per consumption unit its production needs to be raised to about app. 30 million tons against the 3rd Five Year Plan target of 25 million tons. The demand for fluid milk is largely urban in

character due to the concentration of population. In view of the increase in urbanisation and growth of industrial townships in recent years and improvement in the income levels, the market demand for milk in cities and towns has been rapidly increasing. However, due to lack of organised supply and want of tapping all available areas with a good potential for milk production except where planned dairy schemes have been successfully organised, milk prices are showing a sharp upward trend.

Objectives and approach in the First, Second and Third Plans.

3.03. The obvious solutions to the problems enumerated above are (i) a mixed farming approach, with emphasis on milk producing qualities in the cow and (ii) tapping of rural resources through better rural organisation, and development of dairy extension in milk supply schemes to urban areas and milk product manufacture, (iii) proper administrative set up.

3.04. In the First Five Year Plan, no specific provision was made in the Plan for Dairying. This was mainly due to the absence of dairy trained personnel in important senior positions. However, in a few States where there were such dairymen, there were sizeable programmes of dairy development for example, Rs. 600 lakhs were provided in Bombay for establishment of the Aarey Colony and Bombay Milk Scheme. A dairy factory for manufacture of milk products and supply of liquid milk to Bombay was established at Anand through foreign assistance and Greater Calcutta Milk Scheme including establishment of a colony at Haringhatta at a cost of Rs. 5 lakhs was initiated. The total amount incurred on these and some other small schemes was Rs. 7.81 crores. In the Second Five Year Plan, owing to the good work done in the First Plan by even the few schemes and personnel, an outlay of approximately Rs. 19 crores was approved for Central and State Schemes against which app. Rs. 15 crores were expended. The shortfall was mainly due to lack of dairy equipment and want of proper administrative set up in the States. Out of 36 schemes, 15 were completed during the Second Plan period.

3.05. In the Third Five Year Plan, an allocation of Rs. 35.85 crores has been made with the following targets, objectives and approach:—

(a) To develop dairy projects with greater emphasis on rural milk production and marketing of surplus milk and milk products in urban areas. 55 new milk supply schemes to be taken up in cities with population over 1 lakh each, in addition to completion of 21 such schemes that spilled over from the Second Plan, besides expansion of the existing dairies.

(b) To set up 8 rural creameries, 4 milk product factories and 2 cheese factories in order to utilize economically the milk available in certain pockets having no ready market for milk.

(c) To set up 4 cattle feed compounding factories in the close vicinity of large milk plants.

(d) To foster growth of producers' co-operative and to develop small dairy units in village run on co-operative lines.

(e) To strengthen and develop dairy research training and education programmes.

(f) To enhance the indigenous manufacture of dairy equipment.

(g) To create a separate Dairy Development Department in each State.

The progress made in the Third Plan and likely achievement at the end of the Plan.

3.06. Against an allocation of Rs. 35.85 crores a sum of Rs. 18.65 crores is likely to be utilized during the period 1961—64. During 1963-64, against a recommended provision by Ministry of Food and Agriculture of Rs. 11 crores, the Planning Commission/States have provided/budgeted only Rs. 6.97 crores. The progress towards the various targets is as under:—

(a) Milk Supply Schemes.

3.07. High priority has been accorded to the completion of spill-over schemes of the Second Plan during the current Plan period. Of these 7 have already been completed and 10 are under implementation; the remaining 4 are also being taken up during the current year. Thus all spill-over schemes are expected to be completed during the Plan period. Of the new milk supply schemes, 2 have been completed and 25 are either already under implementation or proposed to be taken up during 1963-64. The position in regard to some of the remaining 28 schemes is rather uncertain, mainly for want of sufficient allocation of funds by States and lack of timely availability of foreign exchange/credit for import of machinery. However, it is anticipated that by re-grouping of certain schemes, etc. within the resources of the States about 20 schemes may be taken up in the subsequent years of the Plan. App. 23 schemes are not expected to be quite complete and thus their completion would spill over to the Fourth Plan.

3.08. During the first three years of the Third Plan, dairies have been started at Trivandrum, Bhopal, Gaya, Worli (Bombay), Ahmedabad, Chandigarh, Coimbatore, Calcutta, Srinagar, Madras, Agra, Hisar, Amritsar, Cuttack, Aarey (Students dairy) and Lucknow. The dairies at Nellore, Patna, Visakhapatnam, Nanjinad, Bangalore, Jamnagar, Surendargar, Kohlapur, Nagpur, and Sholapur will be commissioned shortly. 15 Pilot milk schemes have been started as a prelude to main schemes at Sholapur, Kohlapur, Nagpur, Nasik, Aurangabad, Akola, Amravati, Dhulia, Hyderabad, Gauhati, Jabalpur, Indore, Mandi, Jaipur and Miraj.

(b) Creameries and Milk Product Factories

3.09. The creamery at Aligarh and milk product factories at Amritsar and Rajkot have been completed. It is doubtful if all the 8 rural creameries would be set up. There is every likelihood that some of these creameries might be merged in the composite scheme under the Milk Products factories either in the public or the private sector. It is also likely that due to increase in cost of schemes, funds allocated for rural creameries might be diverted. This is also in keeping with the present thinking of linking up milk pockets with the city milk supply schemes/milk factories.

3.10. An assessment was made in regard to the requirement of milk powder for the Defence forces in November, 1962. In the light of this, a decision was taken to establish six milk drying plants at Kaira, Mehsana in Gujrat, Dhulia in Maharashtra, Barauni in Bihar and Bikaner-Delhi under the Delhi Milk Scheme. Out of these arrangements have been made for the establishment of the plants at Kaira, Mehsana and Delhi (Bikaner).

Colombo Plan aid has been sanctioned by New Zealand for Dhulia. Every effort is being made to obtain foreign credit for the factories at Barauni and Miraj. Colombo Plan aid and Swedish Credit is being sought for a Composite Milk Scheme including a cheese factory in Kalimpong-Siliguri area. One cheese factory has started functioning at Anand and another in Delhi Milk Scheme is expected to come in production in 1964.

(c) *Cattle Food Compounding Factories*

3.11. One of these has started functioning at Anand with assistance from F.A.O. under F.F.H.C. Programme. Out of the remaining three, one in Andhra Pradesh is likely to get aid from the Freedom From Hunger Campaign during the current Plan. Similar aid is also being sought for a factory each at Ludhiana (Punjab), Calcutta and Madras.

(d) *Co-operatives*

3.12. Of the 55 milk supply schemes, States have been asked to take up 31 schemes under the Co-operative sector. Out of these 8 have already been commissioned and 13 are under implementation. 2 Milk Product Factories have been sanctioned to be set up by Co-operative Unions. A comprehensive Programme of Rural Dairy Extension Work including, *inter alia*, organisation of producers' co-operatives with guide estimates for assistance to these co-operatives even where the main dairy is not organised by a co-operative, has been provided to the States. The States were asked to provide app. Rs. 2 crores for this in 1963-64 but only a provision of app. 51 lakhs has been made. In consultation with the Planning Commission and the Ministry of Community Development, Panchayati Raj and Co-operation, model schemes and patterns of assistance for undertaking various dairy activities by co-operatives have been provided to the States. Reports from two States show that whilst these were considered and tentative schemes drawn up, for want of funds implementation has been postponed. The progress report from other States is awaited. A special Working Group has been set up to consider the question of co-operativisation of dairying. Its report is under consideration.

(e) *Research & Education.*

3.13. The National Dairy Research Institute, included first as a development project in the Second Five Year Plan, and started in 1957, has established its headquarters at Karnal and three regional stations at Bangalore, Bombay and Haringhatta. During the Second Plan period and the first two years of the Third Plan, considerable progress has been made. At Karnal, buildings for some research divisions and the Dairy Science College have been constructed and equipment and machinery installed. An active research programme has been initiated and training in dairying instituted at the diploma-graduate and post-graduate levels. A programme of extension work has also been started. The Southern Regional Station at Bangalore has been taken up for development while the Western Regional Station and the Eastern Regional Station of the Institute have been started at Bombay and Calcutta respectively.

3.14. During the remaining period of the Third Plan, further development of the Institute and the establishment of three regional stations will continue.

3.15. The construction of Students' Hostel at N.D.R.I. Karnal has been completed while that of the Southern Regional Station, Bangalore is in progress. A second hostel to accommodate 200 students additionally is being constructed at Karnal. Special courses in dairy engineering and in Dairy Extension have been started. Tutorial workshops for refresher training of teachers of I.D.D. Centres have been held. The Indian Dairy Diploma/Dairy Husbandry/Dairy Technology is now imparted at six centres, e.g., Anand, Bombay, Haringhatta, Karnal, Aarey and Allahabad. In plant training facilities in dairying are available at five centres with equipment provided under assistance of UNICEF. Two courses were held under the Inter-Regional dairy training programme, with the collaboration of Government of India/F.A.O. and the Royal Government of Denmark for the benefit of Asia and the Far East. This course will continue twice yearly until end of 1965.

(f) *Indigenous manufacture of dairy equipment.*

3.16. The success of dairying is directly related to the availability of dairy equipment and machinery. In view of this, a Dairy Machinery Committee was set up by the Ministry of Commerce and Industry to assess the requirements of the equipment, formulate programmes of production and assist the manufacturers in the execution of the programme. Four firms have been licensed so far. I.S.I. have laid down specifications for manufacturing several items of dairy equipment, utensils and laboratory apparatus and procedures. Satisfactory progress is being made in the manufacture of most items of dairy equipment particularly for fluid milk plants. The conversion of dairy plant and machinery to metric system has been completed.

(g) *Dairy Departments*

3.17. State Agricultural Ministers Conference held at Srinagar had recommended the creation of separate Dairy Departments in the States, but these Departments have been set up so far in the States of Maharashtra, West Bengal, Punjab, Madras, Andhra Pradesh and Kerala. In the States of U.P., Mysore and Bihar active proposals to set up a separate Dairy Department are under consideration.

Appraisal of the III Plan

3.18. It has not been possible to ensure that adequate provisions are made in the annual plans of the States within the total plan ceilings to take up programmes of dairy development advocated by the Centre, in a phased manner designed to achieve the targets by the end of the III Plan. Even the recommendations made to the Planning Commission in this regard have unfortunately not been accepted, despite the fact that it was an agreed decision that during the present emergency the progress of the Dairy Development Schemes should be accelerated in order to hold the price line in milk and milk products, the experience being that generally wherever dairy schemes have been started, the price line of milk had been held.

3.19. Some of the States, it is felt, should have their plan ceilings raised as far as dairy development programme is concerned, e.g., Punjab, Gujarat, Madras, and Kerala in consonance with the rapid progress achieved and the potentiality for future progress and development. In the case of Mysore

and Punjab, an increased ceiling is necessary. Delay in implementation of dairy schemes has resulted in even a still higher need for funds as prices for dairy equipment and building material and also transport, have risen.

3.20. Total expenditure in the first four years of the Plan is expected to be Rs. 25·80 crores against a total revised allocation of Rs. 36·66 crores or 70·3 per cent. Though the progress in expenditure may seem fairly satisfactory, the physical targets as already explained are not equally satisfactory owing to rise in prices.

3.21. *Foreign Exchange Assistance.*—Though it is well-known that the pace of improved dairy development programme included in the Plan is mostly conditioned by the availability of foreign exchange, it has not been possible to make a definite allocation of the latter to fit in with the requirements of the former. A large number of new schemes have been suggested for foreign aid. For want of adequate foreign exchange/aid and other factors, the actual completion in many cases is bound to spill over to the IV Plan, as was the experience at the end of the II Plan. Against the original anticipated foreign exchange of Rs. 474 lakhs (subsequently increased to app. Rs. 900 lakhs) needed to implement the Plan, Rs. 334 lakhs has been sanctioned as “aid”, Rs. 35 lakhs as foreign credit and a sum of Rs. 11 lakhs as free foreign exchange. Assistance to dairy projects confined to be obtained under Colombo Plan, UNICEF, US AID and by credits from Sweden, Denmark, Holland etc. in the shape of equipment and experts. Under World Food Programme milk powder and grain for Cattle Feed Factories under FFHC Programmes was obtained while research projects were assisted by PL 480 and DSI of the U.S. foreign Agriculture Service.

3.22. *Administrative machinery and use of properly trained personnel.*—The progress of the Dairy Development Schemes has so far been satisfactory mainly in the State where separate dairy departments have been created in pursuance of the policy decisions taken at the Agricultural Ministers' Conference held at Srinagar in 1957. The progress in the other States, has not been quite satisfactory, e.g. in Rajasthan, Orissa, Madhya Pradesh, and to some extent in Mysore, Uttar Pradesh and Bihar. The Plan outlay originally provided for dairy development in some of the States have been even reduced not realising that this would correspondingly reduce the incentive required for the success of the Animal Husbandry schemes themselves. Therefore, it is of the utmost and immediate importance that separate dairy departments should be created in all States. However in States where the work-load is small as in Assam, Orissa, Jammu and Kashmir, the work should be placed in charge of a Joint/Additional Director who should have the necessary dairy qualifications.

3.23. The States have been, from time to time, advised to utilise properly trained dairy personnel in the planning, execution and running of the Dairy schemes. Unfortunately, this has not been fully implemented in many cases. It is very necessary that the States should arrange training of sufficient personnel in Dairying and utilise the trained personnel (existing and those expected in future) in planning and executing the dairy schemes, instead of using inadequately trained personnel merely because the latter happen to be in the department and by virtue of more seniority can find promotion through employment in the dairy schemes. Unless this

is stopped forthwith, there will be no outlet for remunerative employment for the dairy trained personnel and the large dairy education and training programme launched at high cost would be infructuous. This consideration also demands the immediate setting up of separate Dairy departments in the States where this has not already been done.

3.24. For want of Management Committees/High Power Committee, empowered to take quick decisions about the requirements of departmental dairy projects, the progress sometimes lags behind the schedule. The setting up of such Committee/Departmental Boards and delegation of adequate financial and executive powers to the officers responsible for the project, very essential to the success of the projects under execution or those already running.

3.25. *Inadequate supply of milk.*—The main criterion for taking up milk supply schemes and dairy plants in towns is that the population should be more than a lakh or that there are growing industrial townships to be catered for. Many of such towns/townships do not fall within good milk producing zones. Consequently milk has to be transported in several cases over long distances, and the available supply is unable to feed the plants to its full capacity. Generally, unless specific programmes are undertaken to enhance milk production, supplies to plants located even in other areas, cannot be adequately ensured. Schemes prepared by the Ministry for intensive cattle development were dropped as additional funds were not forthcoming. Circulars were, however, sent to the States to take up comprehensive Rural Dairy Extension Programme and to link the same with the Key Village Scheme, and the States were advised that new Key Village Blocks should be opened only in milk sheds of dairy projects. The States have recently been advised that all existing veterinary dispensaries in the milk sheds should be entrusted with the task of cattle development also and as far as possible new dispensaries yet to be taken up should preferably be opened in milk collection areas of dairy projects and allotted the same function.

3.26. *Inadequate statistics.*—Available statistics pertaining to milk production and consumption are very sketchy and rather difficult to rely upon. Unless shifts in the pattern of consumption are known, it is difficult to prepare adequate plans for production which can take into account not only the economic forces but also the nutritional consideration. This lacuna exists particularly in the field of Animal Husbandry and Dairying to a greater extent as compared to agriculture. It is urgently necessary to set afoot schemes now which would enable reliable statistics being obtained at least by the time the IV Plan starts and later at 2½ yearly intervals to enable a realistic assessment of the progress made and programme to be chalked out for future.

CHAPTER II

APPROACH IN THE FOURTH AND SUBSEQUENT PLANS

4.01. *Criteria for starting new schemes.*—There is an increasing awareness in the country that overall *per capita* availability of milk is low; dictates of better nutrition demand more milk production for use both in urban and rural areas; increasing national income in certain areas has rapidly created an increased demand for foods like milk, eggs, meat (and their products), and consequently, there is a sharp increase in prices of these commodities and of the concomitant social evil of adulteration, both these having assumed significance of national importance.

4.02. During the past several decades, fairly intensive disease control, better breeding and lately (to a very small extent) better feeding programmes, aiming at increased milk production have been undertaken. However, it is being increasingly realized that without organised marketing, *i.e.*, milk supply schemes, the producers cannot react in a receptive manner towards the various schemes of cattle improvement.

4.03. It is also now felt that a thin dispersal of cattle improvement measures does not produce the best effect and that it is much better to devote concentrated attention to areas having basically a good potential for increased milk production, due to favourable agro-climatic factors. The example of several other countries is quite apt in this connection, *e.g.*, U.S.A., U.K., Australia, etc. where creation of "dairy belts" or "dairy zones" has been achieved within a reasonably short period, in areas, that have the best natural factors for dairy development.

4.04. Although an established demand for milk as a good incentive for increased production yet it cannot by itself obviate the need of good agro-climatic conditions for production.

4.05. The group having taken note of these basic facts recommends that the criteria for taking up new schemes in the IV and subsequent plans should be as follows:—

- (a) Zones or regions of the country that offer a good potential for a rapid production, large milk collection should be fully developed by setting up dairy plants at suitable locations. These plants should (i) supply liquid milk to reasonably accessible large and small towns and (ii) manufacture milk products. App. funds required for the factories envisaged in IV Plan are indicated in Annexure I. However, the locations are merely indicative and exact locations would have to be determined in consultation with the States. It should be ensured that whichever large cow milk areas can be tapped usefully should have milk factories located therein.

- (b) Efforts should also be made to organise supply of milk to urban areas as well as industrial townships either through procurement of milk from milk zones or by re-constitution/recombination of milk. It has been the experience both abroad and in India that with modern technological advancements in the treatment of milk in insulated refrigerated transport, etc., liquid milk could be transported without any difficulty over long distances. As far as possible, attempts should be made to organise long distance transport of milk. Where this is not feasible, reconstitution/recombination of milk should be resorted to.
- (c) In the III Plan, development of smaller dairy units and creameries in villages was also desired and in 1962, a pattern of such units with assistance available to co-operatives for undertaking such a venture was communicated to the States but without any encouraging response. The Group felt that this was due to lack of allocation of funds specifically for the purpose at the time of formulation of the Plan and therefore recommends that in the IV Plan, a separate allocation in the Dairy Development programme is necessary for the purpose. The Group feels that effective interweaving of dairy programme with the economy of surrounding villages could thus be brought about. It has been the experience of other countries that commercialisation/industrialisation of milk handling in rural areas leads to a rapid advancement of dairy development. In India, a bold attempt in the same direction should be made as early as possible. However in this country, there are certain difficulties, e.g., of high environmental temperature and certain peculiar milk products needed. Therefore, the method of advance or the equipment to be provided and the technique to be adopted in what the Group recommends that at least 300 units of Rural Dairy Centres should be established. A good beginning can be made in these centres/units, by equipping them with Farm Bulk Cooling Tanks, and providing simple though improved type of dairy appliances and utensils for hygienic and economical handling. The units can be of 3 different capacities in order to suit different requirements, i.e. handling, (i) 1,000 litres, (ii) 2,000 litres of milk per day. The supply of liquid milk can be made either to large dairy schemes or directly to small towns in the vicinity. The direct supply of liquid milk when undertaken can be both in bulk and retail, but it need not be necessary to undertake supply of pasteurised/bottled milk in such cases. This should be a gradual development only and that too in larger units.

4.06. The location of the three types of dairies mentioned at (a), (b), (c) and (i) and (ii) above will have to be determined after actual survey. The probable location of the dairy factories is, however, indicated in Annexure 1 which also gives the approximate cost.

4.07. As regards the dairies under (b) and (c) above, on a rough estimate their numbers will be as under. The app. cost is given in Annexure 2. The exact location will be decided in consultation with the States.

Capacity (in litres)	Liquid milk	Reconstituted/Recombined milk
	No.	No.
(b) (i)	10,000	30
(ii)	6,000	40
(iii)	4,000	100
(iv)	2,000	100
(c) (i)	2,000	50
(ii)	1,000	150
(iii)	500	100

4.08. *Spill over schemes and Extension schemes.*—(i) Naturally, the approved schemes that spill over from III Plan, *i.e.*, the completion of projects under implementation would have to be given the highest priority in the IV Plan. The app. funds required are given in Annexure 3.

(ii) It would be equally important to expand the existing dairy schemes that are now in function, or would be so by the end of the III Plan and beginning of IV. The expanding population has to be provided for. It is not enough to start a scheme with a limited capacity and leave it at that. In fact these schemes have an uphill task in competing against city gowalas and suburban supplies whose overhead costs are low and who resort to mal-practices, *e.g.*, of adulteration, due to ineffective enforcement of the Pure Food Act. One of the ways of eliminating this unhealthy competition is to try and aim at securing as large a coverage of the city as possible. Increased turnover helps to reduce overhead and a larger spread of the procurement programme enables a better grip on the prices in rural areas; similarly, a larger spread of distribution influences the price within the city, making it difficult for the city gowalas and suburban suppliers to continue to compete with the Dairy Schemes. Care will have to be taken to ensure that such expansion is made through development of milk zones referred to in para 1(a).

4.09. The question of removal of city cattle has been discussed later in this report.

4.10. On the foregoing basis, the app. amount required for expansion of schemes is given at Annexure 4.

4.11. *Manufacture of milk products.*—Milk produced in the country is generally utilised as liquid milk, ghee, Dahi, Chhana, Khoa, Paneer and other products like, Malai, Rabri, etc. Milk products of the Western varieties, *e.g.* milk powder, baby food, cheese, condensed milk, evaporated milk and malted milks, etc. had, by and large, been imported until the Second Plan, when a start was made towards their manufacture in the country. In the Third Plan, this programme is being advanced in the Public, Co-operative and Private Sectors. In the public and private sectors the licensed capacity of different milk products is as follows:—Skim milk powder—16,000 tons, whole milk powder—10,000 tons, infant milk foods—6,000 tons, condensed milk—8,300 tons, cheese—240 tons, malted milk foods—3,300 tons, sterilized cream—60 tons, butter milk powder—400 tons.

4.12. The Group having considered as to what kind of milk products (Indian or Western) should be taken up by Milk Supply Schemes, to be included in the 4th Plan, came to the conclusion that these schemes should not attempt manufacture at an industrial scale of products like channa, dahi, paneer, etc. but should confine themselves to the production of milk powder (whole and skim), infant milk food, cheese and incidentally, their by-products, *i.e.*, ghee, butter and casein. (As regards, evaporated milk, the Group was informed that the Defence Ministry was contemplating setting up a project for the manufacture of this product. It was pointed out by the Group that cow milk of very good quality would be very necessary for this).

4.13. Preference would have to be given to manufacture of cheese and infant milk food, where cow milk in large quantities is available and particularly for cheese where the price of milk is low. The Group also recommended that further research into manufacture of good quality sweetened condensed milk may be undertaken so that at one or more of the milk products factories to be set up in the 4th Plan, all the country's requirements of condensed milk may be obtained indigenously.

4.14. In the estimation of the Group, by 1971, the requirements of milk powder (whole and skim) may be app. 30,000 tons, baby food 9,000 tons, condensed/evaporated milk, 10,000 tons and cheese 1,500 tons. If all the factories recommended by the Group, are set up, the country should be self-sufficient in its needs of these products. A large quantity of surplus fat is obtained in the manufacture of these products. Whilst a part would be used as table butter, a part for sale as ghee for which there is a considerable demand, also a part for reconstitution with milk powder in milk deficit areas and also for evening out supplies in summer in large milk schemes, there is a case for starting experimental exports of ghee, especially, to countries where people of Indian origin reside.

4.15. Recently, a large demand of lactose has been indicated. However, as detailed information as to the grade of lactose required, the cost at which it is acceptable (the cost of manufacture of high grade lactose being very high), etc. is not at present available, the Group desired that the Dairy Development Adviser may examine this question in due course when all relevant information can be obtained.

4.16. As already mentioned, manufacture of the various Western type of milk products is undertaken by all the three sectors by various States. Lately, a trend towards an unhealthy and even a cut-throat competition in the disposal of these products amongst the various manufacturers has been noticed. During the present stage of low production of some of the products, there is also a tendency for some units to charge monopoly prices. Whilst some element of competition is essential in ensuring economical production and good quality and further, realisation of good prices is an encouragement to future units of production coming into existence, any extension of the present tendency may lead to certain units finding it difficult to continue or come into existence, although milk in the region concerned is available.

4.17. Hence there appears to be a strong case for an overall co-ordination and even control over the manufacture of various kinds of milk products and their distribution by the existing and future units of production. In

other advanced dairying countries, of course, such an overall control now exists for all milk produced and handled. In this country too, the policy of setting up statutory milk boards has been accepted.

4.18. *Dairy Extension.*—Attention has already been drawn in Chapter I to the need for undertaking intensive rural programmes for increasing production of milk both through breeding and disease control programme on the one hand and dairy extension programmes on the other, *viz.*, assisting formation and operation of Co-operative Societies; grant of substantial sums as loan for purchase of cattle (through a revolving fund) setting up feed supply units, and engagement of adequate trained dairy extension staff to help the farmers in increasing production and hygienic handling of milk through all possible means, etc. Unless the dairy schemes are supported by both these programmes, the main objective behind the dairy schemes under National Five Year Plans, *i.e.* of supplying modern dairy plants plentifully with milk obtained from rural producers, will not be fulfilled. The Group recommends that in the Fourth Plan, States should be requested to allot as high a priority in the allocation of funds to these programmes as to the dairy plants themselves.

4.19. The approximate amount envisaged for the Schemes in the Fourth Plan under this head is indicated in Annexure 5.

4.20. The approach in the Fourth Plan should be that every Chilling station or large farm bulk cooling tank and every large assembling centre, should have, in its close vicinity, a veterinary hospital/dispensary, an artificial insemination centre or facilities for keeping improved bulls for fodder demonstration and root/cutting supply plots.

4.21. In providing the various facilities for increased milk production, there should be a complete coordination between the Animal Husbandry and the Dairy Departments in order to obtain effective service from both these departments. Ultimately, of course, the aim must be that the use of Government departmental agencies in rendering these services should gradually disappear and all the functions enumerated above should be taken over by the cooperatives themselves.

4.22. *Cattle Feed Compounding Factories.*—In addition to completing the factories provided in the Third Plan, the Group recommends that some factories should be put up in conjunction with some more large dairy plants, in the Fourth Plan as indicated in Annexure 6.

4.23. It is essential to insist on the adoption of I.S.I. standards in the manufacture of cattle feeds. As regards the equipment required whilst efforts to obtain it from Aid Programme and Freedom From Hunger Campaign may be continued, the possibility of manufacturing it in India should also be explored.

4.24. *Removal of milch animals from urban areas.*—It is not necessary to re-emphasise the need for undertaking programmes for removal of milch cattle from urban areas. So far very little progress has been made except in Calcutta and Bombay. Even in Bombay, where approximately 15,000 cattle were removed and colonised, there are now estimated to be 45,000—50,000 cattle in Greater Bombay. In Madras the colony had provided for removal of 4,000 cattle. The ultimate solution is, of course, to rapidly

expand programmes of milk supply to the cities, to prevent further concentration and indirectly effect removal of the 'Raison de etre' of the present city 'Khatahs'. Similarly, legislation should be enforced whereby strict enforcement of checks to prevent adulteration is ensured. The fees for keeping milch cattle in the cities should be raised very much more than what it is at present and a high hygienic standard should be applied for housing, etc. of cattle in the cities, supplemented by licensing. No loans should be given for purchase of animals by city cattle keepers and octroi duty and other taxes on import of fodder into cities should be enhanced.

4.25. The above steps would help in applying a negative pressure towards achieving, the removal of milch animals from urban areas. However, the Group felt that such negative pressure may not be altogether effective and positive measures may also be necessary to prevent further concentration of animals in the urban areas and to effect their actual removal also. All possible measures towards achieving this should be taken and funds provided for by the Health Ministry in their plans. Some positive steps could be:—

- (i) Wherever land is available, to establish rural colonies for rehabilitating city cattle owners and their stocks.
- (ii) Granting loans to city Gwalas to arrange for the residence and housing for their cattle in rural areas.
- (iii) Enacting measures that would definitely prevent any new concentration of cattle into the cities by laying down the limits of stock-holding for existing cattle keepers and refusing permits to any new entries etc.

4.26. Funds required in the Fourth Plan for setting up rural colonies are indicated in Annexure 7. The Working Group on Town Planning and Health Programmes should include this provision in their estimates. Owing to limitation of funds and high cost of the scheme, it has been suggested that cattle colonization may be undertaken in connection with cities having a human population of approximately 4 lakhs, but the general aim should be that for every city, suitable lands in suburban and rural areas should be allotted for the purpose so that future concentration of cattle in the cities can be prevented.

4.27. *Indigenous manufacture of dairy equipment.*—It would be evident from the various recommendations made by the Group that a bold programme for dairy development has now to be launched. This will necessarily require dairy equipment and dairy appliances on a large scale. The difficulties of procuring equipment from abroad have already been highlighted in Chapter I of this Report. A comprehensive programme for indigenous manufacture of dairy equipment and appliances has, therefore, to be undertaken. Tentative details of the requirements based on the recommendations of the Group have already been supplied to the Working Group on Inter-relationship between Industry and Agriculture, for further discussions with the Ministry of Industry and for detailed programmes to be made by the Dairy Machinery Committee of that Ministry.

4.28. The Group considered the question whether or not large dairy schemes themselves should undertake manufacture of some dairy equipment, spare parts and accessories by utilising facilities now in the existing area or

by enlarging their machine workshops so that they can supply such requirements of smaller dairies in the particular region. The Group came to the conclusion that it would not be economical to do so. Firstly, at each of the large dairies so selected, the workshops would have to be expanded very considerably. Complete new foundries, metallurgical sections, machine drawing sections and highly qualified technical staff would have to be provided. Secondly, the Group visualized that with the rapid growth of small-scale industries, it should be possible to obtain small requirements of the dairies at more economical cost therefrom. Further more, the Group has already emphasised the necessity of making certain that the firms already licensed for manufacture of dairy equipment or others that may be in future licensed, should be provided adequate raw material and components to meet the requirements of dairy equipment.

Requirements of credit for milk producers and dairies.

4.29. The requirements of credit for Cooperative Societies/Unions and for milk producers for purchase of cattle as envisaged by the Working Group on Dairy Cooperatives is reproduced below :—

“The total capacity of all the new Schemes including the spill-over schemes will be of the order of about 22 lakh litres per day. Though, we have recommended that all the new schemes should be in the cooperative sector, it is likely that there will be places where it may not be possible for cooperatives to come up immediately for implementing the schemes. This may particularly be so in the case of Eastern States where the general development of Cooperative movement itself lags behind. It would be realistic to estimate that only about 2/3rd of the additional capacities to be set up will be effective in the cooperative sector by the end of the 4th Plan. Besides, this new additional capacity that will be created, we envisage that out of the existing capacity of nearly 12 lakh litres per day by the end of the 3rd Plan, 4 lakh litres would come into the cooperative sector. We have assumed the figure of 4 lakhs after taking into consideration that the large-scale schemes of Bombay, Delhi and Calcutta etc. will continue to be in the public sector. The total capital outlay for the creation of 16 lakh litres per day of additional capacity in the cooperative sector, is estimated to be of the order of Rs. 20 crores. The value of the existing units which will be taken over by the cooperatives will be of the order of another 4 crores. In other words, nearly Rs. 24 crores may have to be provided by way of loans and subsidy to the cooperatives during the 4th Plan to meet their block capital requirements. In addition, another sum of Rs. 3 crores will have to be provided for contribution to the share capital of these units to provide them a revolving fund for meeting their working capital requirements.”

4.30. By the end of the 4th Plan, the total capacity of all milk schemes in the public and cooperative sectors will be of the order of app. 40 lakh litres per day. By the end of the 4th Plan, we envisage that all these milk supply schemes including the public sector ones will draw their supply of milk through cooperatives only. Assistance has therefore, to be provided to these cooperatives to enable them to give loans to their members for purchase of milch animals. It is estimated that for every one lakh

litres capacity, assistance has to be given for purchase of milch animals to the extent of Rs. 15 lakhs annually. The total requirement of loans by the end of 4th Plan would be of the order of Rs. 6 crores.

4.31. *Agencies for implementation of dairy schemes in future Plans.*— The Group supports the view held by the Working Group on Dairy Co-operatives that the aim should be that all future dairy schemes be taken up under the Cooperative Sector, but realising that in all places cooperatives may not be strong enough to do so, the policy to be adopted should be as under:—

4.32. Provision for all dairy schemes as may be approved, should be made in the Plan. Wherever producers' cooperatives are strong enough to undertake these, the schemes should be entrusted to them (and financial assistance in the prescribed pattern should be passed on to the cooperatives). The magnitude of the schemes may, if necessary, be suitably phased in order to enable the cooperatives to take up the schemes and to help them to gradually develop. Where any schemes cannot be taken up by producers' cooperatives, the public sector, viz., Government Departments should implement these. Where neither of these 2 sectors can take up any of the approved Plan schemes, these may be entrusted to the private sector. Supply of milk should, however, be entrusted to cooperatives only. This should include management of milk assembling and chilling centres by cooperatives. As regards the existing Dairy schemes, as many as possible of these should be gradually transferred to cooperatives whenever feasible.

4.33. The above recommendation is not intended to exclude the private sector from undertaking any dairy schemes. However, it is felt that liquid milk schemes having the basic aim of public utility and social welfare, should at the present stage be entrusted either to cooperative sector or to the public sector. As explained later, these schemes are also intended to adopt procurement programmes and policies which may fit into the cattle development policy of the country. The Group felt that the private sector might not comply with these policies.

4.34. In the view of the Group there should be (apart from the Delhi Milk Scheme and its balancing plant at Bikaner) no more dairy scheme taken up to be administered directly by the Central Government. Even in the case of D. M. S., the chilling stations should be gradually placed under the charge of cooperatives as these can be developed. It is further recommended that such of the large dairy project as it is not considered possible to hand-over to a cooperative union/Federation should be placed under the charge of Statutory Bodies, e.g., Dairy Corporation in order to secure advantages of greater freedom of action, flexibility, etc. that are possible in this kind of set up and which are not available if the projects are administered by Government departments. Under a corporation, even more than one of the public sector dairies could be included.

4.35. The Central Ministry of Food and Agriculture should render much greater help and technical advice in the execution of the Dairy Schemes and coordinating their operation. In the light of the fact that at present technical know-how of the desired level in modern Dairying has not generally advanced in the country and it is necessary to make the best use of dairy equipment that can be obtained also to ensure correct planning and economical operation of the schemes it is essential that this

recommendation is fully implemented. To enable this being done, the technical staff should be further strengthened.

4.36. In all States where separate Dairy Development Departments have not yet been set up, efforts should be made to set up these well before the commencement of the 4th Plan. However, in States where the magnitude of dairy development programme is not very large yet, a property dairy trained and qualified Joint/Additional Director with sufficient administrative and financial powers should immediately be placed in charge of a separate Dairy Division.

4.37. The Group also recommends that the accepted policy of setting up Milk Boards as already agreed to during the First, Second and Third Plans, should be given effect to in the Fourth Plan as the stage has now been reached for such Boards to be set up. These Boards (one in each State) would be the statutory boards and their functions and powers would be somewhat as under:—

- (i) To encourage, organise, develop and regulate orderly development of dairies with a view to improving the production of and standards of quality of dairy products and adoption of methods and practices to promote greater efficiency in dairy industry.
- (ii) To take over all dairies owned and managed by Government.
- (iii) To start, encourage and assist financially or otherwise dairies or milk producing cooperative societies/unions and to carry on trade or business in dairy products and in matters incidental to such industry, trade or business.
- (iv) To enforce quality and price control of milk and milk products in areas that may be notified.
- (v) To direct local bodies, private dairies, cooperative dairies, etc. for promotion of dairying.
- (vi) To undertake diffusion of information on production of dairy products and for popularising the same.
- (vii) To prescribe definite market areas with respect to rural sources of milk and urban distribution of milk.
- (viii) To issue licences for running and/or starting of dairies and expanding the existing ones.
- (ix) To conduct surveys and investigations or matters affecting any or all phases of dairy development.

4.38. However, the Group realised that it would take considerable time for such Boards to be formed and operated successfully and that it would be necessary to continue and expand, as already recommended, the Dairy Development Departments in the States. The functions of these Departments would, of course, be gradually taken over by the Milk Boards as the latter progress. The Group recommended that a model constitution for the Statutory Milk Board, should be finalised and forwarded to the State Governments.

Research and Training.

Dairy Research

4.39. The main features in the 4th Plan would be expansion, consolidation and stabilisation of the research programmes and augmentation of extension activities. A certain amount of reorganisation in the activities of

different Division of the National Dairy Research institute will be inevitable based on the experience of the last 7 or 8 years. It is anticipated that the facilities and staff in different Divisions will have to be consolidated and stabilised so as to make them full-fledged research units with active research programmes having a direct bearing on and being intimately linked up with the requirements of the dairy projects in the public and private sectors. In respect of Dairy Husbandry Division, it is proposed to increase the strength of the dairy herd from 1000 to 1750, acquire additional land and augment the all-round facilities needed for the management of the increased herd. It is also proposed to strengthen the extension activity and undertake an intensive cattle breeding work in the Karnal district. Similar extension activities would also be undertaken at the Regional Stations. In regard to the latter stations, two of which have just started functioning and the third one having been established at Bangalore for many years. It will be necessary to provide in the 4th Plan for some construction of buildings, such as, laboratories and residential quarters and also for equipment and machinery in order that these Stations may be able to cater effectively to the requirements of the respective regions. The Regional Stations will work in close collaboration with counterpart departments of the State Governments in the region. Certain field research may also be undertaken through this collaboration either directly by the Regional Stations under their own resources or with the assistance of the I.C.A.R., etc.

4.40. The main feature in the 4th Plan would be expansion of facilities for dairy training. The programme will need to be strengthened to meet the anticipated shortfall during the current Plan as well as the demand for additional trained personnel during the 4th Plan. The training facilities required to meet the needs of trained personnel will have to be expanded considerably by augmenting the facilities at N.D.R.I. Karnal and at other centres. At Karnal, the hostel and laboratory accommodation will have to be increased, additional equipment and machinery purchased and a certain amount of reorientation made in the pattern of teaching. The post of the Principal of the college will need to be upgraded to that of a Joint Director who will be vested with sufficient powers to enable him to manage Dairy Science College with its expanded training programme effectively and independently. Some strengthening of research-cum-training staff will also be necessary and additional professors on full-time basis may have to be provided in different subjects to strengthen the teaching programme.

4.41. Further Dairy Training Centres at Allahabad, Haringhatta, Anand and Bombay will also have to be strengthened to take in larger number of trainees for the different courses.

4.42. According to the estimates of the Third Five Year Plan, approximately, 2,700 trained persons for different categories were required. The present annual output of such personnel from the six different centres in the country is about 200. Some of these centres have come into function only recently and thus the number turned over will gradually increase. However, the actual requirement has been affected by the comparatively smaller implementation of Dairy Development Programmes in the States due to

paucity of foreign exchange, etc. In some cases the projects did not employ all the technical staff that has been envisaged necessary for efficient management of the projects. In several cases, the projects have taken longer to come up to their targetted capacity that was previously anticipated. It would, therefore be necessary to pick up momentum of dairy training programme in the remaining years of the Third Five Year Plan and during the 4th Plan period. It is estimated that approximately 4,000 persons would have to be trained in various courses including the short-term courses. The statement given below would indicate that the present annual output have to be considerably increased and facilities required for this provided at all the centres of dairy training. The statement also gives the number of persons to be trained in each centre covering all categories.

Name of centre	Present annual output	Proposed annual output in the 4th Plan
Karnal	85	260
Bangalore	32	160
Bombay	23	30
Anand	40	60
Allahabad	20	45
Haringhatta . . . . .	..	30
Misc. Inservice-short-term . . . . .	..	585 × 5—2925
Training courses, in five years' . . . . .	..	1000
		3925

4.43. The total funds required for research and training during the 4th Plan would be app. Rs. 3 crores.

4.44. The Group discussed the question whether the present course at various centres leading to the grant of a Diploma of I.D.D. Dairy Husbandry, was necessary. It was considered that such a course at these centres was not only necessary to cater to the special requirements of the dairy projects and in particular, the field work connected with these projects, but also that in future even a larger number of persons with such training would be required than at present available. The States have been advised to step up the Dairy Extension Programme considerably and for this purpose proper technical trained persons would be needed.

4.45. *Dairy Surveys and Statistics.*—The need for objective and reliable statistics on production and utilisation of milk and its products for the purpose of planning and development requires no emphasis. The first step for arranging for the collection of such statistics is the establishment of competent statistical units in the Dairy Development Departments in the States. Such a unit will assist the Dairy Development Department in formulating plans for dairy development and assessing their progress. The statistician will plan and carry out sample surveys and carry out costing and other studies for the purpose. He will assist the research workers in planning and their experimental investigations and sampling programmes on sound lines with the help of methods based on the modern science of statistics. He will also train the research workers in properly analysing their data and drawing proper interpretations from experimental results.

He will compile whatever data are already available on various aspects of information likely to be of use and interest to the dairy development department. Based on the recommendations of the Agricultural Personnel Committee, although some of the States have established statistical units in the Animal Husbandry Departments, no Dairy Development Department has so far set up any such unit. To meet the objectives it is essential to have statistical units at least in those States where the Dairy Development Departments have been established. A sum of Rs. 1.5 lakhs will have to be earmarked for setting up one such unit for the period of 5 years. The total cost of setting up such units in the seven States of Maharashtra, West Bengal, Madras, Punjab, Andhra Pradesh, Bihar and Kerala will be approximately Rs. 11 lakhs. More units will be set up as separate Dairy Development Departments are created.

Surveys for estimation of cost of production of milk

4.46. The Institute of Agricultural Research Statistics carried out large scale random sampling enquiries for estimating the cost of production of milk in the urban and rural areas in Delhi State (1953—55), Madras (1957—59) and Calcutta (1960—62). As a result of these efforts a satisfactory technique for estimating the cost of production components and for studying the economics of milk production has been developed. It was recommended while formulating the Third Five Year Plan that such enquiries may be taken up in about 10 important centres, particularly these around important milk supply schemes during the Third Five Year Plan. It is only in Mysore State that a study of this type for estimating the availability and cost of milk production in the areas around Bangalore city has been initiated so far.

4.47. It would be useful if such enquiries were carried out in a few, say, ten important centres in the Fourth Five Year Plan. As will be evident from the reports on surveys already carried out by the I.A.R.S. these enquiries not only provide objective estimate of the cost of production but throw up a fund of information useful to the planner in promoting economic and efficient milk production. The CCG Seminar recently held at Bombay has also recommended such studies being taken up. The total cost of ten such schemes will amount to Rs. 30 lakhs.

Study of the Impact of Milk Supply Schemes on Rural Milk Collection Centres.

4.48. It is proposed to establish a number of milk supply schemes to supply milk to the urban population of the country. The milk for such schemes will be collected from suitable rural areas. Due to establishment of such schemes, the milk producers in these areas will receive an incentive for higher production of milk of superior quality and there is likely to be general improvement in the economic status of the producers. In order to assess this impact city milk schemes on rural collection areas, it is proposed to collect information on various aspects such as milk production, quantity and composition of feed given to animals, changes in number of milch animals, breed composition of animals and their age composition, changing in cropping pattern, attention paid to fodder production, assets and equipment connected with dairy, receptivity to adoption of milk both in producer and non-producer households, economic status of the producer etc.

4.49. The object of this investigation to be taken up by Institute of Agricultural Research Statistics will be to develop a suitable method for carrying out such studies and demonstrate its flexibility in a few concrete cases. Once the technique is developed, the study could be taken up as a routine, periodically in all the important milk supply schemes by the statistical sections to be established in the State Dairy Development Departments.

4.50. It is proposed to provide a field staff capable of handling the work of the enquiry either for one big milk supply scheme (with a capacity of handling 1500 mds, or more of milk per day) or simultaneously two schemes, one medium and one small (with capacities of 500 to 1500 mds. and upto 500 mds. of milk per day respectively) in a period of 14 to 15 months. Thus, in the Fourth Five Year Plan period, it will be possible to complete one round of eight schemes of medium and small type if large schemes are excluded.

4.51. Although the main schemes is proposed to be included in the Fourth Five Year Plan, it is proposed to start the study in one or two centres in the remaining two years of the Third Five Year Plan itself starting from 1st April, 1964 so as to gain experience in the planning and handling of the problems connected with the enquiry. The cost of the scheme for the last two years of the Third Five Year Plan will amount to Rs. 2.88 lakhs. The cost of the scheme in the Fourth Five Year Plan period will amount to Rs. 8 lakhs approximately.

4.52. **Role of Dairy Schemes in Cattle Development.**—The Group devoted a considerable part of its deliberations to this subjects.

4.53. The need for utilising dairy schemes towards increasing the milk production has already been detailed earlier in this report and it has been emphasised that in addition to City Milk Supply Schemes, milk processing plants should also be set up in areas of good milk potential wherein the Group was informed, would also be established Intensive Cattle Development Blocks. The part that the dairy schemes can play in the furtherance of the Cattle Development policies of the country cannot be underestimated.

4.54. The country has adopted the policy for encouraging the development of dual purpose animals. In the opinion of the Group the requirements of the country demanded that the definition of the dual purpose cow should be that cow which can produce the maximum possible quantity of milk whilst its male calf can also be accepted as a working animal, in the particular region, consistent with the future requirements of draught, the perspective for which was definitely changing and would change in future.

4.55. The Group, therefore, considered as to whether or not future dairy schemes, particularly, the milk product factories to be set up in areas having good potential for milk production, should be set up only to handle cow milk, so that the development of the dual purpose cow be accelerated. In this connection, the Group was seriously exercised over the following facts:—

- (a) There is a general complaint that the cow is progressively losing her place as a milk producer to the buffalo. The private trade and organised dairy schemes purchased milk on the basis of fat percentage and adopt a pricing policy inimical to the development of the cow. As a result of this the cow has come to be looked upon mainly as a producer of bullocks.

- (b) It is the general experience that if only a desired goal is indicated but a strict programme limited only to achieving this goal is not laid down, the desideratum merely assumes theoretical importance and the actual achievement is very meagre.
- (c) Although the Third Plan laid an emphasis on the development of the dual purpose cattle, the dairy schemes, in several cases did not adopt policies conducive to the national goal to be reached.
- (d) Unless the economy of the cow a producer of milk is rapidly established, the present trend of multiplication of both the cow and buffalo species would continue which has already resulted in over-stocking with the natural consequence of limited feed available for animals.

On the other hand, the Group was obliged to take note of the following:—

4.56. As regards the complaint that organised milk supply schemes do not handle much cow milk and adopt pricing policy deleterious to the development of the cow, the present position is as under:—

All the approximately 50 schemes are handling cow milk except a few which handle only buffalo milk, e.g., schemes of Maharashtra and Punjab, Gaya and Guntur. Some schemes handle only cow milk, e.g., Srinagar, Agartala and Nahan. A majority of the other schemes handle cow milk varying from 25 per cent to 90 per cent of the total intake. With regard to the purchase price, a few schemes pay higher price for cow milk, e.g., Nellore, Kurnool and Patna. More than a dozen schemes pay the same price as for buffalo milk. Lower price for cow milk than for buffalo milk is being paid by the schemes in Gujarat and Kerala and the Schemes of Nagpur; Madras and Calcutta (also Delhi to a slight extent as far as the net average price is concerned). The sale price of cow milk is higher than that of buffalo milk at Kurnool. Both cow and buffalo milk are sold at the same price at Hyderabad, Bhagalpur, Nellore, Bombay, Nasik, Delhi, Lucknow, Allahabad, Varanasi, Kanpur, Haldwani, Almora, Agra and Bhopal. Lower sale prices are charged for cow milk by the milk schemes in Gujarat and Kerala and the Nagpur scheme. (This encourages sale of cow milk).

4.57. Toned milk made from buffalo milk is sold in Ahmedabad, Rajkot, Madras, Poona, Nagpur, Aurangabad, Sholapur, Bhopal, Calcutta and Delhi at prices lower than those charged for cow milk.

4.58. Various schemes have thus adopted methods of procurement, pricing and handling of milk which they consider suitable to their local conditions and requirements consistent with the commercial success of the venture. Further these facts indicate that the complaint that these schemes adopt policies inimical to cow development is not quite applicable to a majority of them.

- (a) At the present stage of the development of the cow, the yield per animal is very low, unit of production is small, total availability in a given area is not very large and thus cost of procurement and handling is high where large quantities have to be

collected. Some studies have indicated that in certain areas cost of cow milk production may be higher than that of buffalo milk production. (A demand has recently been voiced that price paid by milk schemes should be related to cost of production. Further studies are to be made).

- (b) The present acreage devoted to fodder production is very meagre and practice of feeding balanced concentrates to milch animals is rare. As programmes to develop both these take shape, it would be natural for the animal owners to feed that species better which readily yields more milk.
- (c) Upgrading and cross-breeding programmes will take a long time to make their impact on production of a cow milk. Even in the predominant cow breeding tracts a major part of the cow milk must be used to nurse the male calf which is mainly looked for to be reared or sold as a bullock. Best milch cow breeding tracts have been lost to Pakistan at the time of Partition.
- (d) Both cows and buffaloes exist side by side in most areas and both would necessarily be developed in Animal Husbandry Programmes.
- (e) The buffaloes at present yield nearly 53 per cent of the total milk production of the country, though the number of female buffaloes is less than half of the cows.
- (f) It is necessary to increase fairly rapidly the per capita consumption of milk, the main protective food in the existing predominantly vegetarian diet of the populace.
- (g) It is essential to adopt urgent measures to check rise in prices all over the country. Taking up a large number of organised milk schemes is one such important measures.
- (h) It is difficult to ignore the importance placed by general public both in the urban and rural areas on buffalo milk which is preferred for ghee, khoa and dhai making and even in many States for drinking, (and for partial removal of fat for use in the households).
- (i) The organised dairy schemes have to be run on commercial lines and not as developmental projects which is the case with other Animal Husbandry Schemes.

4.59. Taking both aspects of the subject into consideration, therefore, the Group recommended that milk schemes may handle both cow and buffalo milk, (where the latter was also necessary), but should adopt the measures enumerated below in order to help implement the country's policy of cow development. The Planning Commission should also consider to what extent the availability of Central assistance for setting up new dairy projects can be made conditional to the adoption of these measures.

4.60. Intensive Dairy Extension work in association with Animal Husbandry Departments, in the milk sheds of the scheme to meet the cow milk requirements of the plants.

4.61. Provision of adequate loans to producers on favourable terms for the purchase of good milking cows within appropriate seasons.

4.62. Organisation of producers' cooperative within accessible areas of schemes where there may be predominance of better milking cows and providing necessary wherewithals to in this regard have already been detailed

in this report. It is further necessary to point out that it is essential to provide equipment to cooperatives to be able to collect and handle (and also test) cow milk separately from buffalo milk. Similarly, the dairy plants should arrange to receive and handle cow milk separately at large assembling or chilling centres and transport it to dairy plants for processing and marketing it separately. One of the objects of the Group's recommending a large number of small units of "Rural Dairying" is also to encourage cow development.

4.63. Rigid enforcement of the provision of the Prevention of Food Adulteration Act and Rules thereunder by the Municipalities to control the quality of the supplies of milk obtained and distributed by the private dairy trade in competition with organised dairy schemes. This trade tends to pass off adulterated buffalo milk as cow milk which fact militates against the cow development.

4.64. The "Hansa Test" for distinguishing cow milk from buffalo milk should be included in the Prevention of Food Adulteration Act, 1954 and the Rules made thereunder.

4.65. The Urban Milk Supply Schemes should purchase cow milk at the same rate as buffalo milk (except where a higher rate for cow milk is already in vogue) and in order to offset any economical disadvantage to the plant, through adoption of this system, the scale price of cow and buffalo milk should be pooled and the sale price of cow milk should be fixed somewhat lower. The aim should be that the entire quantity of cow milk which can be procured and offered is purchased and sold as such, the sale price being fixed to ensure the latter.

4.66. The continued import of skim milk powder for the preparation of the toned milk was proving inimical to the national interest in various ways. It is hampering the indigenous production of this product. Moreover, a number of urban milk supply schemes prefer to sell toned milk manufactured by using the cheaper imported skim powder in preference to cow milk which consequently is not finding a good market. Therefore the import and use of skim milk powder should be progressively reduced. However, the use of toned milk making use of indigenous powder instead might be continued to provide:—

- (i) Milk at low cost to the lower income groups.
- (ii) Even out supplies during seasons of shortage.

4.67. However, the standard of fat content of toned milk should not be less than 4 per cent fat or the percentage of fat in the cow milk in the area, whichever is more.

4.68. The adoption of the above measures should go a long way in encouraging cow development in a positive manner and the Group felt that at the present stage this might be regarded as a fairly satisfactory advance on the past when practically very little purposive programme was adopted.

4.69. The Group has also recommended the setting up of milk product factories in some of the areas where predominantly cow milk is available and can be processed and manufactured into certain products with advantage, to cow development. It is, with this view that the Group has proposed capacities of some of the milk product factories be lower than the capacities regarded as conventionally minimum necessary for a lucrative manufacture. Per animal production of cows being small, purchase of cow milk if effect in every large quantities from a very widely dispersed area, to feed the plants of higher capacity, may render the project quite un-economical.

Summary of Funds Required in IV Plan.

	(Rs. in lakhs)
Spill-over Schemes	183.00-
New Schemes	2190.00-
Milk Products Factories	852.00-
Cattle Feed Compounding Factories.	535.00
Expansion Schemes	628.00
Dairy Extension	1000.00
Dairy Development Staff & Milk Boards, etc.	300.00
Training & Research	300.00
Dairy Surveys and Statistics	50.00
Rural Dairying	150.00
Delhi Milk Scheme	200.00
TOTAL	<u>6388.00</u>

4.70. The element of foreign exchange/aid/credit would be approximately 10.00 crores taking into consideration that a larger programme than at present would be undertaken for indigenous manufacture of dairy equipment. The requirement of funds in the III Plan to implement some recommendations of the Group considered essential for ensuring proper implementation of the IV Plan from its very start are as under:—

	(Rs. in lakhs)
(i) New Dairy Dev. Department and strengthening of existing ones	10.00
(ii) Dairy Surveys & statistics	8.00
(iii) Training of Dairy personnel	8.00
TOTAL	<u>26.00</u>

Pattern of financial assistance

4.71. The pattern of financial assistance from the Centre to States in the III Plan for Dairy Development programme is as under:—

	Grant	Loan
1. Dairy Plants	25%	75%
2. Dairy Extension	50%	50%
3. Education & Training	75%—Non-recurring 25% Recurring.	

4.72. The Group recommends that for all dairy schemes the pattern of financial assistance should be 50 per cent grant and 50 per cent loan, because it has been found that there is a considerable loss in first few years of the setting up a project, during which overheads have to be incurred but the milk handling is well behind the targetted capacity. Pattern of assistance for Rural Dairying should be as already circulated to the State under Circular No. 1-5/61 dated 24th July, 1962.

Cement and Steel requirements.

These are indicated in Annexure 8.

CHAPTER III

SUMMARY OF THE OBJECTIVE AND TARGETS FOR DAIRY DEVELOPMENT IN THE IV PLAN

5.01. To increase milk availability to 6 oz. per capita per day.

5.02. To pay special attention to improving the milk qualities of cows to make them more productive and to adopt special measures and pricing/loan policy in the working of the dairy schemes which may ensure that these schemes help implement the country's policy of developing dual purpose cow that may yield the maximum quantity of milk and yet its male calf may be acceptable in the region concerned for the changing pattern of draught requirements. At the same time to develop the buffaloes where large quantities of buffaloes milk are available, by permitting schemes to handle buffalo milk also.

5.03. To develop dairying as an organised rural industry rapidly on co-operative lines. Sufficient quantity of milk should be retained in the villages for consumption and the surplus supplied to urban consuming centres and for manufacture of milk products:

- (i) Completing implementation of approximately 20 projects included during the III Five Year Plan but spilling over to the IV.
- (ii) Expansion of approximately 65 dairy schemes that would be completed by the beginning of the IV Plan to ensure larger coverage, preference being given to those schemes that lies close to good milk zones.
- (iii) Establishment of about 20 liquid milk-cum-product factories to encourage rapid cattle development in areas having a good potential for such development; liquid milk to be supplied to accessible cities and towns. For product manufacture as many factories as possible should be set up in areas where cow milk predominates and manufacture of infant milk food, cheese and condensed milk should be taken up preferably in these factories.
- (iv) Implementation of new milk supply schemes for about 290 cities that would have a population of over 50,000 in the IV Plan (including certain industrial towns with less than 50,000). These includes arrangements for preparing reconstituted/recombined milk in certain places having low availability of liquid milk.
- (v) Establishment of 300 Rural Dairying Centres, i.e., small units for improved milk production and handling.

5.04. To undertake dairy extension programme at a large scale in co-ordination with the cattle development programme.

5.05. To establish Dairy Corporations for large plants. Cooperative Union Federations, and separate Dairy Development Department where these do not exist at present, also to establish a Milk Products Board, further to strengthen the technical set up at the Centre.

5.06. To strengthen and coordinate research and training facilities at National Dairy Research Institute, its regional stations and other Dairy Training Centres.

5.07. To expand the programme for indigenous manufacture of dairy equipment in the private sector.

5.08. To establish more animal feed provender plants, location being decided in consultation with Animal Husbandry Department.

ANNEXURE I

List of Milk Products Factories to be taken up in the Fourth Plan.

State	Location.	Capacity (in litres)	Funds required (Rs. in lakhs)			Total
			Land & Bldg.	Equipment	Misc.	
Andhra Pradesh	1. Nizamabad	20,000	5.00	15.00	5.00	25.00
	2. Ramachandrapuram	20,000	5.00	15.00	5.00	25.00
Bihar	3. Shahbad (area)	75,000	20.00	25.00	15.00	60.00
	4. Muzzafarpur	60,000	15.00	25.00	10.00	50.00
	5. Dharbhanga	50,000	15.00	25.00	10.00	45.00
Kerala	6. Ambalalayal	20,000	6.00	15.00	5.00	26.00
	7. Moonar	20,000	6.00	15.00	5.00	26.00
Rajasthan	8. Bharatpur	20,000	5.00	15.00	5.00	25.00
	9. Ganga Nagar area	50,000	15.00	20.00	10.00	45.00
Punjab	10. Kaithal	100,000	20.00	40.00	15.00	75.00
	11. Jind	100,000	20.00	40.00	15.00	75.00
	12. Mohindergarh	100,000	20.00	40.00	15.00	75.00
	13. Sirsa (includes cheese)	100,000	20.00	40.00	15.00	75.00
Gujarat	14. Banni	20,000	5.00	15.00	5.00	25.00
Uttar Pradesh	15. Bijnor	50,000	15.00	25.00	10.00	50.00
	16. Muradabad	100,000	20.00	40.00	15.00	75.00
	17. Varanasi	50,000	15.00	20.00	10.00	45.00
Maharashtra	18. Miraj (spill-over)	100,000	2.00	10.00	3.00	15.00
	19. Dhulia (spill-over)	100,000	2.00	10.00	3.00	15.00
TOTAL						852.00

ANNEXURE II.

Statement showing funds required for milk schemes to supply urban areas and for other rural dairy centres.

		Capacity (in litres)	No.	Average cost (land, buildings equipment & miscellaneous	Total cost.
(a) Milk Schemes other than the dairy factories.					
				(Rs. in lakhs).	
	(i)	10,000	30	17.00	510
	(ii)	10,000	10	12.00	120
	(reconstituted/recombined milk).				
	(iii)	6,000	40	12.00	480
	(iv)	6,000	10	8.0	80
	(recombined/reconstituted)				
	(v)	4,000	100	7.0	700
	(vi)	2,000	100	3.00	300
					<u>2190</u>
(b) Rural Dairy Centres not connected either with	(i)	2,000	50	1.00	50
(a) above or with dairy factories.	(ii)	1,000	150	0.50	75
	(iii)	500	100	0.25	25
					<u>150</u>
	GRAND TOTAL				<u>2340</u>

ANNEXURE III

List of Spill-over Schemes to be taken up in the Fourth Plan.

Sl. No.	State	Location.	Capacity (in litres)	Funds required (Rs. in lakhs)			Total	
				Land & Buildings	Equipment	Miscellaneous.		
1.	Andhra	1. Rajamundri-Kakinada	10,000	2.00	6.00	1.00	9.00	
		2. Ellore	6,000	1.50	4.00	0.50	6.00	15.00
2.	Bihar	3. Arrah	6,000	1.50	4.00	0.50	6.00	6.00
3.	Jammu & Kashmir	4. Jammu	10,000	2.00	6.00	1.00	9.00	9.00
4.	Kerala	5. Kottayvam	6,000	1.50	4.00	0.50	6.00	
		6. Alleppy (Recombined milk plant)	20,000	4.00	15.00	3.00	22.00	28.00
5.	Madras	7. Salem	6,000	1.50	4.00	0.50	6.00	
		8. Vellore	6,000	1.50	4.00	0.50	6.00	12.00
6.	Madhya Pradesh	9. Dholpur-Morena	50,000	5.00	25.00	5.00	35.00	35.00
7.	Mysore	10. Belgaum	6,000	..	4.00	0.50	4.50	
		11. Gulbarga	6,000	..	4.00	0.50	4.50	
		12. Mangalore	6,000	1.50	4.00	0.50	6.00	
		13. Dawangri	6,000	..	4.00	0.50	4.50	19.50
8.	Orissa	14. Behrampur	6,000	..	4.00	0.50	4.50	4.50
9.	Punjab	15. Ambala	10,000	2.00	6.00	1.00	9.00	
		16. Patiala	10,000	2.00	6.00	1.00	9.00	18.00
10.	Rajasthan	17. Jodhpur	6,000	..	4.00	0.50	4.50	
		18. Ajmer	6,000	..	4.00	0.50	4.50	9.00
11.	Uttar Pradesh	19. Mathura	6,000	1.50	4.00	0.50	6.00	
		20. Gorakhpur	6,000	1.50	4.00	0.50	6.00	12.00
12.	West Bengal	21. Chittaranjan	10,000	2.00	6.00	1.00	9.00	9.00
13.	Himachal Pradesh	22. Nahan	6,000	1.50	4.00	0.50	6.00	6.00
		TOTAL	..	32.50	130.00	20.50	183.00	183.00

ANNEXURE IV

List of Schemes for which expansion is envisaged in the Fourth Plan.

State	Location	Capacity (Litres)	Expansion (Litres).	Amount (in lakhs)		Total
				Building	Equipment	
1	2	3	4	5	6	7
Andhra	1. Kurnool	2,000	6,000	2.00	7.00	9.00
	2. Vishakhapatnam	6,000	10,000	1.00	6.00	7.00
	3. Nellore	6,000	10,000	1.00	6.00	7.00
	4. Chittoor	6,000	10,000	1.00	6.00	7.00
	5. Rajamundri-Kakinada	20,000	50,000	1.00	6.00	7.00
	6. Ellore	6,000	10,000	1.00	6.00	7.00
						44.00
Assam	7. Gauhati	6,000	10,000	1.00	6.00	7.00
	8. Shillong	6,000	10,000	1.00	5.00	6.00
						13.00
Bihar	9. Gaya	6,000	10,000	1.00	6.00	7.00
	10. Bhagalpur	3,000	6,000	1.00	3.00	4.00
	11. Patna	10,000	20,000	3.00	12.00	15.00
	12. Barauni	10,000	50,000	15.00	35.00	50.00
	13. Ranchi	6,000	10,000	1.00	6.00	7.00
						83.00
Gujarat	14. Gondal	4,000	7,000	1.00	4.00	5.00
	15. Bhavnagar	4,000	10,000	2.00	10.00	12.00
	16. Jamnagar	6,000	10,000	2.00	8.00	10.00
	17. Surindernagar	6,000	10,000	1.00	6.00	7.00
	18. Ahmedabad	50,000	75,000	5.00	15.00	20.00
	19. Baroda	10,000	20,000	..	5.00	5.00
	20. Junagarh	..	..	..	6.00	6.00
21. Anand	400,000	500,000	..	10.00	10.00	
						75.00

ANNEXURE IV—contd.

I	2	3	4	5	6	7
Jammu & Kashmir	22. Jammu	6,000	10,000	1·00	6·00	7·00
Kerala	23. Trivandrum	6,000	10,000	1·00	6·00	7·00
	24. Calicut	6,000	10,000	1·00	6·00	7·00
	25. Ernakulam	10,000	20,000	3·00	10·00	13·00
Madras	26. Madras	40,000	60,000	4·00	12·00	16·00
	27. Coimbatore	10,000	15,000	2·00	7·00	9·00
	28. Kodikanal	3,000	6,000	1·00	3·00	4·00
	29. Nanjilnad	3,000	6,000	1·00	5·00	6·00
	30. Trichinapally	6,000	10,000	1·00	6·00	7·00
	31. Salem	6,000	10,000	1·00	6·00	7·00
	32. Nellore	6,000	10,000	1·00	6·00	7·00
Maharashtra	33. Aurangabad	10,000	15,000	2·00	6·00	8·00
	34. Kohlapur	15,000	25,000	3·00	12·00	15·00
	35. Nasik	15,000	25,000	3·00	12·00	15·00
	36. Sholapur	15,000	25,000	3·00	12·00	15·00
Mysore	37. Kudige	4,000	6,000	1·00	4·00	5·00
	38. Bangalore	50,000	75,000	2·00	15·00	17·00
	39. Mangalore	6,000	10,000	1·00	6·00	7·00
	40. Hubli Dharwar	6,000	10,000	1·00	6·00	7·00
	41. Bhadravati	6,000	10,000	1·00	6·00	7·00
Madhya Pradesh	42. Bhopal	10,000	20,000	3·00	7·00	10·00
	43. Indore	20,000	35,000	4·00	12·00	16·00
	44. Bhillai]	6,000	16,000	1·00	6·00	7·00
						33·00

ANNEXURE IV—contd.

1	2	3	4	5	6	7	
Orissa	45. Cuttack	6,000	10,000	2.00	6.00	8.00	
	46. Rurkela	6,000	10,000	2.00	6.00	8.00	
						<u>16.00</u>	
Punjab	47. Amritsar	100,000	125,000	5.00	15.00	20.00	
	48. Hissar	4,000	6,000	..	1.00	1.00	
	49. Chandigarh	10,000	20,000	2.00	6.00	8.00	
	50. Ludhiana	40,000	60,000	..	10.00	10.00	
						<u>39.00</u>	
Uttar Pradesh	51. Lucknow	40,000	75,000	5.00	20.00	25.00	
	52. Agra	6,000	10,000	2.00	5.00	7.00	
	53. Dehradun	10,000	20,000	2.00	6.00	8.00	
	54. Bareilly	6,000	10,000	2.00	6.00	8.00	
						<u>48.00</u>	
Rajasthan	55. Jaipur	10,000	20,000	3.00	7.00	10.00	
						<u>10.00</u>	
West Bengal	56. Greater Calcutta.	280,000	480,000	25.00	50.00	75.00	
						<u>75.00</u>	
Tripura	57. Agartala	4,000	10,000	2.00	4.00	6.00	
						<u>6.00</u>	
						<u>628.00</u>	
		GRAND TOTAL					

ANNEXURE VI

List of Cattle Feed Compounding Factorias to be set up in the Fourth Plan.

State	Location	Capacity (tons)	Funds required Rs. in lakhs	TOTAL Rs. in Lakhs
Andhra Pradesh.	1. Vijayawada (Spill-over)	10.00	30.00	30.00
Bihar	2. Patna	5.00	25.00	25.00
Gujarat	3. Ahmedabad	10.00	40.00	
	4. Rajkot	10.00	40.00	80.00
Kerala	5. Ernakulam	5.00	25.00	25.00
Madras	6. Madras	5.00	25.00	
	7. Madurai	10.00	40.00	65.00
Maharashtra	8. Dhulia	10.00	40.00	
	9. Miraj	10.00	40.00	
	10. Bombay (Spill-over)	10.00	30.00	110.00
Madhya Pradesh	11. Indore	5.00	25.00	
	12. Dholpur	5.00	25.00	50.00
Mysore	13. Bangalore	5.00	25.00	25.00
Punjab	14. Ludhiana (Spill-over).	10.00	30.00	30.00
Uttar Pradesh	15. Kanpur	10.00	40.00	40.00
West Bengal	16. Calcutta (Spill-over) .	10.00	30.00	30.00
	TOTAL			510.00

ANNEXURE VII

List of Cattle Colonization Schemes for which funds are required during the Fourth Five Year Plan

under the Dairy Development Deptts. or other Deptts.

(Rs. in lakhs)

State	Location	Funds required	TOTAL
Andhra Pradesh	1. Hyderabad.	40.00	40.00
Bihar	2. Patna	10.00	
	3. Jamshedpur	10.00	20.00
Gujarat	4. Ahmedabad	40.00	
	5. Surat	10.00	
	6. Baroda	10.00	60.00
Jammu & Kashmir	7. Srinagar	10.00	
	8. Jammu	10.00	20.00
Kerala	9. Trivandrum	10.00	
	10. Ernakulam	20.00	30.00
Madras	11. Madras (Spill-over)	50.00	
	12. Madurai	40.00	90.00
Maharashtra	13. Nagpur	40.00	
	14. Bombay (Spill-over)	60.00	
	15. Poona	40.00	140.00
Madhya Pradesh	16. Bhopal (Spill over)	20.00	
	17. Indore	20.00	
	18. Gwalior	20.00	60.00
Mysore	19. Bangalore	40.00	40.00
Punjab	20. Amritsar	20.00	
	21. Ludhiana	40.00	60.00
Rajasthan	22. Jaipur	20.00	20.00
Uttar Pradesh	23. Kanpur	40.00	
	24. Lucknow	40.00	
	25. Agra	20.00	100.00
West Bengal	26. Calcutta (Spill-over)	100.00	100.00
	TOTAL		780.00

ANNEXURE VIII

Cement and Iron requirement for dairy schemes during the Fourth Plan

ABSTRACT

	Cement in tons.	Iron in tons.
New Schemes, Spill-over Schemes, Expansion Schemes	27650	5481
Rural Dairying	11250	2250
Milk Product Factories	11400	1900
Feed factories	3200	800
Cattle Colonization	15600	2600
TOTAL	<u>69,100</u>	<u>13,031</u>
SAY	70,000	14,000

NOTE :—Much less quantity of Cement & Iron may be required in case prestressed beams and shell-roof are adopted.