

Bombay.

Report of the state dairy development
and coordination committee on the
improvement of dairying in the state of
Bombay.

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**REPORT OF THE STATE DAIRY DEVELOPMENT AND CO-ORDINATION
COMMITTEE ON THE IMPROVEMENT OF DAIRYING IN THE
STATE OF BOMBAY.**

CHAPTER I.

(1) Introduction.

On the 5th December, 1947, the Hon'ble Shri B. G. Kher, Chief Minister of Bombay, convened a meeting of the Hon'ble Minister, Civil Supplies, the Hon'ble Minister for Agriculture and officials of the above Departments to consider the steps that should be taken to improve the milk supply of the State. The Hon'ble Minister for Civil Supplies and the Hon'ble Minister for Agriculture explained the work that had already been done in their respective Departments. It was, however, felt that a co-ordinated State plan for achieving the object named by the Chief Minister was required. Thereafter a discussion took place during which the various aspects of the problem were considered. The Chief Minister summarised the discussion in the following terms :—

“The activities of the Milk Commissioner have hitherto been confined to the reorganization of the milk supply of the Bombay area only, i.e., to the proper collection, distribution and marketing of milk in that area. In time to come this position will have to change. The object of dairy development work in the districts should be to increase the basic production of milk in the rural areas so as to help, first, the villages themselves with milk, ghee, etc., then the local towns, and finally, when surplus milk was available, to make it available for organized distribution and marketing in the large towns and cities. Milch cattle cannot be maintained satisfactorily without adequate supplies of fodder (green and otherwise) and cattle-feeds, to provide which was the duty of the Agricultural Department. From the point of view of management of cattle and their care in health and disease the Animal Husbandry and Veterinary Science Department had an important part to play. For organising the small producers and even the consumers in some places the assistance of the Co-operative Department was necessary. Thus, if the milk problem of the State as a whole was to be satisfactorily dealt with, the talents and resources of all these Departments had to be harnessed and they had to work in close co-operation with one another. The assistance of non-official bodies was also necessary if lasting results were to be obtained. But unfortunately, hitherto, the various Departments have been pursuing their activities independently and there has been little or no attempt at co-ordination.”

In view of the above it was decided that a Provincial (State) Dairy Development and Co-ordination Committee should be appointed which should submit a report (a) indicating the broad lines on which development of dairying in the State as a whole should be pursued, and (b) suggesting ways and means of co-ordinating the activities of the various departments in relation to dairying.

The Committee met on a number of occasions and discussed various aspects of the problem. The draft paragraphs and chapters were revised a number of times. Almost the entire burden of collecting, collating and analysing the information and compiling it in the form of this report fell on Shri D. N. Khurody, Milk Commissioner, Bombay, who is the Secretary of the Committee. Due to his having been fully occupied with his own work and activities which have increased very substantially since the committee was appointed, he was not able to keep his several promises to complete the draft report until recently. However, pending the preparation of the Report, the Committee took the opportunity to examine several development schemes put up by the Dairy Development Officer and to

recommend their adoption and it is gratifying to note that some of them have been put into operation already. Hence, the Committee feel that the delay in submission of this report has not hampered the State dairy development work in any way.

(2) Government Resolution appointing the Committee.

Reproduced below is a copy of Government Resolution No. 776 dated the 2nd April 1948, that was issued on the subject of appointment of the Provincial (State) Dairy Development and Co-ordination Committee :—

*Provincial Dairy Development and Co-ordination
Committee.*

Appointment of —

GOVERNMENT OF BOMBAY.

AGRICULTURE AND RURAL DEVELOPMENT DEPARTMENT.

Resolution No. 776,

Bombay Castle, 2nd April, 1948.

RESOLUTION OF GOVERNMENT.

Government has appointed with effect from 5th December, 1947, a Provincial Dairy Development and Co-ordination Committee consisting of the following to indicate the broad outlines on which development of dairying should be pursued in the whole of Province and to suggest ways and means of maintaining co-ordination amongst all the Developments concerned :—

Chairman—

Shri D. N. Mahta, Secretary, Agriculture and Rural Development Department,
Bombay.

Members—

Official—

Shri D. N. Khurody, Milk Commissioner, Bombay (Secretary).

Dr. B. N. Uppal, Director of Agriculture, Bombay Province, Poona.

Shri Lakshmi Sahai, Director of Animal Husbandry and Veterinary Science,
Poona.

Shri B. P. Patel, I.C.S., Registrar of Co-operative Societies, Poona.

Shri G. S. Godbole, Dairy Development Officer, Poona.

Shri D. B. Kolhe, Livestock Expert to Government, Poona.

Shri D. K. Kunte, Parliamentary Secretary to the Hon'ble the Prime Minister,
Bombay.

Non-Official—

Rao Bahadur J. N. Mankar, Secretary, Bombay Humanitarian League, Bombay.
 Shri Jabir Ali, Amir Manzil, Deonar, Chembur, Bombay Suburban District.
 Shri Tribhuvandas Patel, Kaira District Co-operative Milk Producers'
 Union Ltd., Anand.

2. The Government of India have agreed that the Committee may seek advice from Dr. Zal R. Kothawala, Dairy Development Adviser to the Government of India, in its deliberations and in making its final recommendations to Government.

3. The Committee should examine witnesses connected with the Dairy trade and obtain in writing from them necessary information and comments pertaining to work connected with its deliberations.

4. The Committee should prepare and submit its report to Government by the end of June, 1948. The report should generally cover the points and aspects given in the attached synopsis.

5. The non-official members of the Committee should be granted travelling allowance admissible under the Bombay Civil Service Rules. The Secretary of the Committee should be the Controlling Officer for purposes of the Travelling Allowance Bills.

6. The charge should be debited to the head "40, Agriculture-N-Post War Reconstruction and Development Programme."

By order of the Governor of Bombay.

(Signed) D. N. MAHTA,
 Secretary to Government.

**Accompaniment to Government Resolution, Agriculture and Rural
 Development Department, No. 776 dated the 2nd April, 1948.**

*(3) Synopsis for the Report on Development of Dairying in Bombay
 Province.*

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CHAPTER II

PREVIOUS REPORTS—THEIR RECOMMENDATIONS

1. The Committee has come across the following reports, etc., wherein the problems of milk and cattle have been examined in the past :—

- (1) Dr. L. L. Joshi's book on the Problem of Milk Supply in Indian cities with special reference to the milk supply of Bombay, published 1916.
- (2) Article in "Agriculture" by Dr. Harold H. Mann on the improvement of milk supply in large towns of Bombay Presidency, published 1916

- (3) The Report of the Committee under the Chairmanship of Rao Bahadur G. K. Chitale to consider the question of the maintenance and improvement of the existing cattle herds of the Bombay Presidency—published 1923.
- (4) Palghar Dairy District Scheme by the Agricultural Department, 1928—not published.
- (5) The Report of the Expert Cattle Committee under Sir W. J. Jenkins—published 1940.
- (6) Departmental note by the late Mr. E. J. Bruen, Livestock Expert to the Government of Bombay, 1941—not published.
- (7) The Report of the Committee under Sir W. J. Jenkins on the Bombay Milk Supply, 1944—not published.
- (8) The Report of the Committee under Sir Ness Wadia, 1944—not published.

(1) *Dr. L. L. Joshi's book on "The Problem of Milk Supply in Indian cities with special reference to the Milk Supply of Bombay".*

2. Dr. Joshi's above book was published as far back as 1916 and describes the then existing conditions with regard to the trade of milk production and distribution in some of the big cities in India. The conditions have in no way improved since then, rather they have deteriorated to a considerable extent. The existing conditions in most of the cities are well known to everybody and as the same have been dealt with elsewhere in the body of the report it is considered unnecessary to refer to them here.

3. The book deals, besides the conditions connected with the trade, with the chemistry of milk, breeds of cattle, diseases of cattle, action of heat on milk, milk borne diseases, etc.

4. Dr. Joshi's recommendations can be summarised as under :—

- (i) Breeding of animals for dual purpose - milk and draught.
- (ii) Introduction of balanced feeding.
- (iii) Location of milch cattle in the country-side, particularly in suburban villages in proximity to railway stations.
- (iv) Proper care and maintenance of the animals, particularly with regard to housing, watering, grazing, exercise, etc.
- (v) Provision of ample quantities of green and dry fodder.
- (vi) Import of buffalo meat from the villages and salvage of dry cattle to grazing districts to save the undue slaughter of valuable animals.
- (vii) Proper rearing of young stock which can best be done if milch cattle are located in the country-side.

- (viii) Quick transport of milk to avoid losses due to curdling, etc.,
- (ix) Entrusting the distribution of milk to a few large firms with facilities for pasteurising and bottling it, if necessary, and not leaving it in the hands of innumerable petty dealers.
- (x) Organization of the milk producers and other traders in the milk business into co-operative units for purposes of production, collection and distribution of milk.
- (xi) Education of the consumers in the advantages of quality milk with a view to fostering a demand for better milk.
- (xii) Education of the producers and others in the milk trade in the hygienic production and handling of milk.

(2) *Article by Dr. Harold H. Mann on the Position of the Milk Supply in Large Cities in the Bombay Presidency, 1916.*

5. The article deals mainly with the milk problem of the 5 big cities, Ahmedabad, Surat, Poona, Hubli and Sholapur. Bombay has not been touched in detail in the report. Dr. Mann estimated that the first four cities drew 45, 72, 20, and 10 per cent., respectively, of their requirements from the surrounding rural areas. The amount imported from outside into Sholapur was negligible. A very large part of the milk was produced and handled under most insanitary conditions, much of it was dirty and most of it was adulterated. Apart from the milk being scarce, the price at which it was usually marketed was considered to be beyond the reach of the ordinary citizen.

6. From the then available data, Dr. Mann came to the conclusion that in the matter of milk production, irrespective of the quality of milk, the cow was more economical than the buffalo by 29 per cent. while in the matter of butter production the buffalo was 21 per cent. economical than the cow.

7. Dr. Mann further pointed out the defects of town dairying. They are—

(i) By keeping a large number of animals in a densely populated area the cattle owner's operations are in some cases inimical to the sanitary requirements of the locality and liable to lead to the contamination of the milk by pathogenic bacteria.

(ii) Being a commercial dairyman, pure and simple and not an agriculturist, he has to purchase all his fodder and concentrate requirements at enhanced rates prevalent in the towns and is seldom in a position to obtain any considerable amount of grazing, free or otherwise, for his cattle. Under the circumstances the cost of milk production, and hence the retail price of milk, cannot but be high. It is understood that the City dairyman is forced to feed his cattle on foul horse litter.

(iii) The animals are kept under unnatural conditions with accommodation which is often insufficient and inferior to that which is usually provided in rural parts. This is apt to react unfavourably on the animals, preventing their regular breeding and making it unprofitable for the owner to rear the calves born to his animals.

(iv) Much of the manure produced by the city herds fails to find its way back the fields where it is needed.

8. Dr. Mann emphasised the need of evacuating animals from the cities and locating them in the adjacent rural areas where proper processing arrangements should be made and facilities provided for the transport of milk to the cities ; only Certified milk conforming to a fixed standard was recommended to be allowed to be sold in cities.

9. Dr. Mann further suggested that with a view to dealing with these questions and the difficulties that were likely to arise and how they could be met, a single large city should be selected, the whole question of its milk supply investigated and the most suitable means of bringing about an improvement worked out at the cost of Government. The Municipality should then be approached and asked to take over the undertaking and work it on the lines that may be indicated by Government. Since such a trial would be largely experimental and would serve to clear the way for other municipalities to take up similar work, Dr. Mann suggested that Government should guarantee the Municipality against any loss in such a pioneering undertaking or by actually subsidising the venture.

(3) *The Report of the Chitale Cattle Committee.*

10. The Government of Bombay as per their Order No. 3252 of the 24th December, 1921, appointed a Committee consisting of official and non-official members with Rao Bahadur G. K. Chitale as Chairman. Mr. E. J. Bruen, the then Livestock Expert, was its Secretary. The Committee was asked to report upon the question of the maintenance, and improvement of the cattle breeds in the Presidency.

11. This appears to have been the first attempt at inquiring into this important question, and, as the name of the report indicates, it is mainly concerned with the development of cattle by proper breeding, feeding, etc. The Committee pointed out to the Government that on account of the dearth of grazing areas in the villages and also greater insistence being placed on the breeding of draught animals milch cattle were fast disappearing. The Committee, therefore, suggested that Government should establish cattle breeding farms for all the important breeds of cattle in the State and spend substantial sums on the development of the cattle consistently with their resources. The Committee recommended breeds for the different tracts, but was unable to make any specific recommendation regarding the Central Deccan Division, the breed for which, it suggested, should be determined by a proper scientific study of the problem in all its aspects.

12. The Committee deprecated the policy of the Agriculture and Veterinary Departments in breeding bulls for the sole purpose of improving the draught qualities of cattle and suggested that, as in the case of Danish cows which are the finest producers of milk, bullocks from the dairy animals might be used for agricultural purposes. In other words, a policy of "dual purpose" breeding was recommended.

13. In view of the fundamental importance of maintaining continuity of work in animal improvement, the Committee recommended to Government that a Board on a permanent basis consisting partly of officials and partly of non-officials should be set up to control and promote the cattle and dairy industry of the province.

(4) *Palghar Dairy District Scheme.*

14. The Scheme envisaged the giving of Government lands in the Palghar area at concessional rates to parties who were prepared to set up their own dairy farms at Palghar. In view of this recommendation Government had given out

land to three parties at concessional rates. Of the above three farms, two have been taken over by Government in the Civil Supplies Department and converted into drystock farms in connection with the salvage of dry cattle under the Bombay Milk Scheme.

(5) *The Report of the Expert Cattle Committee under Sir W. J. Jenkins.*

15. By Orders contained in Government Resolution, Revenue Department, No. 8409/33, dated the 14th April 1939, Government appointed a small expert committee under the Chairmanship of Sir W. J. Jenkins to give final shape to the schemes then under the consideration of Government for the improvement, as far as possible on co-operative lines, of the milch cattle in all parts of the State. The Committee was also instructed (1) to submit complete and detailed proposals for starting such breeding work in at least five centres of the State (2) to deal with the supply of milk and milk products to urban areas under the schemes, (3) to advise Government on the prevention of slaughter of milch animals and (4) to submit views on the skim milk powder industry.

16. The Committee examined the subject of breeding of milch cattle and the supply of milk and milk products to urban areas under the three main heads given below :—

- A.—Cattle Improvement and milk production in villages ;
- B.—Milk Collection and processing ;
- C.—Transport of milk and milk products to consuming areas and their distribution.

17. As regards (A), The Committee recommended the organization of groups of Co-operative Cattle Breeding and Milk Production Societies in suitable tracts in the State. Such co-operative societies were recommended to be based upon a single village as unit and it was suggested that each group should consist of not less than five villages within a radius of not more than 10 miles from a central collecting centre. Each group of villages selected was expected to produce a minimum of 3,000 lbs. of milk daily but to have potentialities for increasing this quantity to 6,000 lbs. daily ultimately.

18. As regards the duties of the village societies, they were laid down as :—

- (a) Breeding of improved milch cattle.
- (b) Production of milk on a co-operative basis.
- (c) Cultivation of suitable fodders and their conservation as silage, etc., and management of grass lands and grazing areas.

19. As regards (B), the Committee recommended that whenever a group of Village Co-operative Cattle Breeding and Milk Production Societies was established, it should be affiliated to a Central Co-operative Union for the purpose of collecting, processing (if and when necessary) and distributing the milk produced and supplied by the unit societies. In other words, the recommendation was that "Co-operative Rural Creameries" should be organised in conjunction with groups of village Co-operative Cattle Breeding and Milk Production Societies to be established throughout the districts. The Committee emphasised that the organization stated above, viz., a Central Co-operative Rural Creamery supported by a number of

primary Village Co-operative Cattle Breeding and Milk Production Societies was the only practical method whereby the village milk production could be linked up with urban milk consumption with profit to both producers and consumers. The Committee added that the same organization was the best method of encouraging the breeding of milch cattle by cultivators under village conditions. The Committee further recommended that the Co-operative Rural Creameries when established should be utilised as the main agencies for extending the distribution of butter milch cattle (cows) in the districts.

20. As regards (C), the Committee recommended that the Central Collecting organization, i.e., the Co-operative Rural Creamery, should install the necessary pasteurising, cooling and homogenizing plant on its own premises and after processing the milk transport it to the urban consuming centres in insulated railway wagons. They had no objection to the actual distribution, including retailing, of the milk in the urban consuming centres being entrusted to agents, who were expected to take over the milk on its arrival in the city from the Co-operative Rural Creamery.

21. To supervise and direct the work of the scheme at the different centres in the State where the organization proposed above might be established, the committee recommended the appointment of a Dairy Development Officer in the grade of Assistant Registrar, Co-operative Societies.

22. As regards the general policy of Government in regard to cattle breeding, the Committee recommended that Government should devote all its energy and resources to the improvement of the milking capacity of cows by (a) the introduction, where possible, of good milch breeds of cattle such as the Gir and Kankrej, (b) more systematic breeding of such breeds as the Nimar and Dangi to milk, and (c) affording encouragement and facilities for the grading up of village cattle by bulls of such milch breeds as had been evolved and as would thrive in the areas of operation. As regards the Konkan, where dual purpose cattle are not found in any great numbers due to unsuitable environmental conditions, the Committee recommended that the buffalo should be regarded as a dual-purpose animal and that it should receive the same encouragement from Government as the dual-purpose breeds of cattle in other areas until a suitable dual-purpose animal of the latter class had been found to replace it. The Committee agreed that the assistance given by Government to cattle breeding, using this term in its general sense, in the State should be diverted to the cow as opposed to the buffalo in all areas in the State except the Konkan.

23. As regards an organization for the milk produced in rural areas away from large urban milk consuming centres, the Committee recommended the setting up of Co-operative Ghee Manufacturing Societies receiving assistance from Government in the shape of interest-free loans towards the purchase and installation of equipment like separators, ghee boilers, etc. required for converting milk into ghee.

24. As regards non-official agencies like the Bombay Gorakshak Mandali, the Harijan Ashram, Sabarmati, the Gowshala at Dhulia, etc., the Committee held the view that in order to encourage them to develop their herds and release a longer number of pure-bred animals for use in the districts, the financial assistance given by Government should not be in the form of subsidy but in the shape of higher prices for male stock taken over by Government for distribution whether under the Premium Bull Scheme or otherwise.

25. As regards prevention of slaughter of milch animals, so far as the urban areas were concerned, the Committee recommended that legislation should be brought into force for the licensing of all slaughter houses or places where cattle were killed for commercial purposes in the State and that a condition should be attached to the issue of such licenses that each slaughter house would maintain a fully qualified veterinary officer, whose duty it would be to decide what animals could be permitted to be slaughtered in the light of the following alternative provisions to be made in the proposed legislation :—

(a) Prohibition of the slaughter of both female and male (entire) animals of certain scheduled breeds under the age of ten years, unless, by reason of deformity, injury etc., they were unfit for further breeding.

(b) Prohibition of slaughter of female cattle of any description under 10 years of age unless they were by reason of deformity, injury, etc. unfit for further breeding purposes.

26. The Committee did not consider it necessary to suggest measures to check or limit the slaughter of milch animals outside urban areas as such slaughter in their opinion, was not done to any appreciable extent outside towns.

27. As regards the skim milk powder industry, the Committee recommended the development of the industry, to begin with, in parts of Gujarat and subsidising it for a period of 3-5 years by grant of loans at a low rate of interest, or, in the case of co-operative organizations, by guaranteeing them against losses until the industry had got fully stabilised.

28. *Action taken.*—No specific orders seem to have been issued by Government on the recommendations of the Committee. However, as regards the recommendation in regard to the organization of Cattle Breeding and Milk Production Societies in suitable tracts and their affiliation to a Central Co-operative Rural Creamery, Government announced in the year 1946 that the two Post-War Reconstruction Schemes relating to dairy farming on a co-operative basis drawn up by the Co-operative Department and included in the Post-War Reconstruction Blue-Book, viz., (i) No. 62 relating to co-operative creameries and (ii) No. 63 relating to Milk Supply Unions had been approved subject to modifications, if any, to be suggested by the Dairy Development Officer.

29. The Livestock Expert to Government reports that appropriate action has been taken by Government (a) with regard to the increase in the annual grant for "Premium Bulls" with a view to distributing bulls of "dual-purpose" breeds in the villages under the "Premium Bull System," (b) with regard to the re-organization and expansion of the Government cattle breeding farms at Bankapur and Tegur, (c) with regard to the establishment of Government farms for the scientific development of the Dangi breed of cattle and (d) with regard to increase in the purchase price of bulls taken over from private institutions in the State.

30. As regards the recommendation of the Committee in regard to the future policy of Government in the matter of cattle breeding, particularly with regard to the question of the cow *versus* the buffalo, Government have passed orders that in view of the neglect of the cow preferential treatment in cattle breeding should be accorded to this animal.

(6) *Departmental Note by the Late Mr. E. J. Bruen.*

31. Mr. Bruen was the Livestock Expert to Government of Bombay and in a note he has given his views about the problem of milk supply in Bombay City. His recommendations were :—

- (i) Removal of the animals from the City to lands outside Bombay.
- (ii) State control of production and sale of milk.
- (iii) Setting up of a permanent " Milk Commission ".
- (iv) Controlled distribution with pasturisation, if necessary, of milk.
- (v) Enactment of legislation to confer powers on Government to appoint Government Inspectors.

32. As a short-term measure Mr. Bruen recommended that a company authorised in this behalf should be allowed to sell a "second class" milk made from fresh milk, skim-milk powder and water.

(7) *Report of the Committee under Sir W. J. Jenkins, 1944.*

33. The Committee recommended the establishment of a statutory Milk Control Board for Bombay with powers to license producers, control marketing and distribution, fix prices at various stages and prescribe standards of quality.

34. To undertake the collection, processing and distribution of milk and milk products, it recommended the establishment of one or more companies of which 51 per cent. of the share capital was to be subscribed by Government. It recommended that the Municipality should also take shares.

35. Establishment of milk processing centres in Bombay, each to handle 2 lakh lbs. of milk, was also recommended.

(8) *Report of the Committee under Sir Ness Wadia, 1944.*

36. This deals only with the milk trade of Bombay. Its main recommendation is to bifurcate the milk trade into two divisions; one to produce milk and another to procure and distribute it. Other recommendations are :—

- (i) Removal of stables from the Bombay area and fixation of the milk production target at 8 ozs. per adult and one lb. per child per day.
- (ii) The setting up of an organization to produce milk and another to distribute it. The former was to be called "The Bombay Dairies Ltd.", and the latter "The Milk marketing Board". The latter was to be set up for 25 years.
- (iii) Utilisation of the nearby waste lands for dairy farming by irrigating them with the tail waters of the Tata H-hydro-electric scheme.
- (iv) Establishment of milk processing plants in surplus areas for supplying milk to Bombay.
- (v) Encouragement to all sugar factories in the State to produce adequate quantities of milk which should be taken over by the Marketing Board.
- (vi) Purchase of milk on the basis of its fat content.
- (vii) Preparation of milk with 3.7 per cent fat content and its sale at a cheaper rate.
- (viii) Bottling of milk and its distribution and sale through authorised and licensed retailers.
- (ix) Limiting of the profit margin on capital.

37. The Committee recognised that as a result of its proposals there would be a small increase in the retail price of milk, but it considered it fully justified in view of the high quality of milk that was to be supplied. It, however, recommended that if in the early stages there was any deficit in supplying milk at a price within the reach of the poorer classes of consumers, adequate financial assistance from Government should be provided.

38. It may be stated that the Government's efforts towards reorganising Bombay's milk supply since 1947 have been more or less in line with some of the recommendations of the above Committee.

CHAPTER III.

PRESENT POSITION.

(1) *Number of Cattle, Cows, Buffaloes, Young stock, bulls, useless Cattle in Urban and rural areas.*

39. In practically all villages throughout the State cows and buffaloes are found in varying numbers. They constitute the main milk producing animals, although to a negligible extent goats are also kept for production of milk. According to the Special Cattle Census, 1947, *the cattle population of the Bombay State (excluding the States and merged areas) is as given in the statement below which also includes for comparison figures for 1939-40.

STATEMENT 1.

Showing the Bovine population in Bombay State (excluding States and merged areas) in 1947 and 1939-40.

Categories.	Oxn.		Percentage increase or decrease.	Buffaloes.		Percentage increase or decrease.	
	1939-40.	1947.		1939-40.	1947.		
Females over 3 years for breeding or production of milk.	19,74,739	17,28,361	-12.5	13,02,509	11,90,768	-8.6	
Females over three years for work only.	11,690	2,80,589	2,300	11,942	1,33,037	1,100	
Useless females neither used for work nor for breeding.	13,119	1,46,053	1,000	8,436	66,077	763	
Breeding bulls over 3 years	...	37,000	60,172	62.2	16,420	39,269	139
Working bullocks	...	30,93,006	31,63,161	2.3	1,68,644	1,67,294	-0.8
Useless bulls & bullocks	...	1,16,672	1,16,412	-27.2	11,072	20,171	82.2
Calves under 1 year:							
Males	...	4,85,592	4,70,945	-3.0	1,86,030	1,96,371	5.5
Females	...	4,94,232	4,87,764	-1.3	3,70,674	3,19,880	-1.3
Young stock:							
1 to 3 years—							
Males	...	5,18,810	5,48,579	5.8	81,268	1,15,834	42.5
Females—	...	4,61,152	4,97,573	8.0	3,28,053	3,13,850	-4.6
Total	...	72,49,111	74,99,609	3.5	24,85,048	25,65,551	3.1

*For purposes of this report figures for later years have not been taken into account as they include the cattle census figures for the merged areas, regarding the original population of which no exact statistics are available.

40. It will be seen from the above table that all told there are approximately one crore bovine animals in the State. Assuming that each useful cow, buffalo or working bullock costs about Rs. 200 only, the total value of the cattle in this State amounts to nearly Rs. 133 crores. In addition, if the 45½ lakhs of goats and sheep are also taken into account and valued at say, Rs. 5 per head only, this will add another rupees 2 crores to the figure. These figures show how important the livestock wealth is in the rural economy of this State.

41. From the census figures for 1940 and 1947 it is observed that there has been an overall increase of 3.5 per cent. in the population of cows, bullocks etc. and 3.1 per cent. in the case of buffaloes. Although statistics of human population for the same years are not available, it is certain that during the 7 years from 1940 to 1947 the percentage increase in the human population of the State was more than 3.5, not to speak of the large influx of refugees. Thus the increase in the number of cattle has not kept pace with the growth of human population, and this fact alone must have had an adverse effect on the supply position with regard to milk and milk products.

42. The number of female animals over 3 years kept for "work only" in 1947 shows an enormous increase as compared with that for 1939-40. Thus the working cows and buffaloes in 1947 increased to 2.8 and 3.1 lakhs respectively as against a population of only 12,000 each in 1939-40. Whether any special factors have contributed to this increase on the census figures are incorrectly reported, it is difficult to say.

43. Similarly the number of "useless" animals also went up very considerably in 1947. For the sake of convenience, the figures are repeated below:—

Category.	1939-40	1947.
<i>Useless females—</i>		
Cows	13,119	1,46,053
Buffaloes	8,436	69,077
<i>Useless males</i>		
Bullocks etc.	1,59,672	1,16,412
Buffaloes	11,072	20,172
Total useless	1,92,299	3,51,714

Or an increase of about 80 per cent. in 7 years.

44. It is significant that although the period under review covers the War years when there was heavy demand from the army for cattle for slaughter, the number of useless cattle actually increased. Castration of useless animals is one way of controlling the production of inferior stock which tends to promote useless cattle.

(2) *Bullocks and their relation to area under cultivation in different districts.*

45. According to the 1947 census there are about 16 lakh pairs of bullocks (oxen) and about 85,000 pairs of buffalo-bullocks in the State. Against that the total cultivated area in 1945-46 was 3.39 crore acres or about 20 acres of land per pair of bullocks. This can hardly be said to be sufficient for carrying out agricultural operations properly in addition to village transport and shows the need for improving the quality and increasing the number of draft animals. The statement below shows the total cultivated area and the acreage per pair of bullocks in each district.

STATEMENT 2.

Showing the cultivated area and the acreage per pair of bullocks in each district.

District.	Total cultivated area (1945-46)	Pairs of bullocks (1947)	Pairs of buffalo bullocks (1947)	Total pairs.	Acreage per pair.
<i>Gujrat.</i>					
Ahmedabad ...	18,87,974	47,564	183	47,747	39.5
Kaira ...	8,73,560	57,410	34	57,444	15.2
Broach ...	6,61,831	23,917	50	23,967	27.7
Panch Mahals ...	6,66,332	81,164	16	81,180	8.2
Surat ...	7,85,832	55,958	1,102	57,060	13.7
Total Gujarat ...	48,50,579	2,66,013	1,385	2,67,398	18.1
<i>Deccan.</i>					
West Khandesh ...	17,29,727	94,259	1,938	96,197	17.9
East Khandesh ...	20,75,546	99,919	907	1,00,826	20.5
Nasik ...	25,51,527	1,29,223	4,431	1,33,654	19.0
Ahmednagar ...	32,98,635	1,41,872	1,839	1,43,711	22.5
Poona ...	25,80,234	1,12,749	1,156	1,13,905	22.6
Sholapur ...	25,74,655	75,181	1,487	76,668	32.8
Satara ...	23,41,391	97,951	5,269	1,03,220	22.7
Total Deccan ...	1,71,51,757	7,51,154	17,027	7,68,181	22.3
<i>Karnatak.</i>					
Belgaum ...	22,01,560	95,116	9,810	1,04,926	20.9
Bijapur ...	32,45,797	78,492	974	79,466	40.8
Dharwar ...	24,39,127	98,828	3,869	1,00,697	24.2
Total Karanatak ...	78,86,484	2,70,436	14,653	2,85,089	27.6
<i>Konkan.</i>					
Thana ...	10,46,459	75,531	14,955	90,486	11.5
Bombay Suburban ...	17,516	4,025	124	4,149	4.2
Kolaba ...	8,03,956	53,441	14,861	68,302	11.7
Ratnagiri ...	18,18,847	1,18,831	12,230	1,31,061	1.41
Kanara ...	3,39,719	41,651	8,406	50,057	6.7
Total Konkan ...	40,26,498	2,93,479	50,576	3,44,055	11.7
Total Bombay State ...	3,39,45,336	15,81,580	83,647	16,65,227	20.4

(3) *Import of Cattle, Type, Sources and Value.*

46. The State has two very large cities which are also industrially important and where the demand for milk is consistent and heavy. They are Bombay and Ahmedabad. Ahmedabad is situated in the heart of the major milk producing area in the State and large quantities of milk are brought into that city from the surrounding villages. On the other hand, Bombay, due to its island position and the non-existence of any nearby milk pocket or surplus area and also to the absence of good milch cattle in the adjoining districts, has to depend for its milk supply mainly upon milch cattle brought from outside the State. The overhead expenses of keeping cattle in the Bombay City are very high compared to other cities and as such only high quality cattle with good milk yield prove remunerative. This is another reason why the Bombay City Producer has to depend upon better quality milch stock from outside the State.

47. Import of milch cattle from outside the State is, therefore, generally confined to the Greater Bombay area only for which the figures are as under.

Number of milch cattle imported into Bombay (mostly buffaloes).

		Fresh	Salvaged	Total
1948	...	29,248	14,111	43,359
1949	...	30,212	10,212	40,412

Type.—Buffalo milk being more or less the main type of milk in demand, the milch cattle consist mostly of freshly calved she-buffaloes. Very few cows are imported.

48. *Sources.*—Many years ago Kathiawar used to be the main source of supply of buffaloes required for the Bombay stables. With the restrictions imposed by various States on the export of cattle, the demand shifted to North India and during the past many years large numbers of buffaloes have been regularly imported into Bombay from the East Punjab, the Delhi area and parts of the U. P.

49. *Value.*—Before the War the cost of a reasonably good freshly calved buffalo in second or third lactation and yielding about 12 to 14 seers of milk per day was approximately Rs. 150. In fact, the sale price of animals depends upon the ruling market price of milk in Bombay. Every day animals are imported and unloaded at the Grant Road livestock siding. At present the price of a similar type of animal—and such animals are now extremely scarce—ranges from Rs. 750 to Rs. 1,000.

50. Considering that Bombay imports annually about 30,000 new buffaloes, and at an average price of, say, Rs. 800 per animal, the value of annual imports of milch cattle for the city milk supply amounts to Rs. 2½ crores. The value of salvaged animals imported is extra.

51. Next to Bombay the only other city which imports milch cattle from outside the State to any extent is Poona, where the annual import is estimated to be approximately 1,000 cattle. Conditions regarding sources and value are more or less akin to those in Bombay.

52. *Import of bullocks.*—In a previous section the unduly large acreage per pair of bullocks has already been commented upon. Even this ratio is possible only through the import of a large number of bullocks, in the north, from Kutch and Central India and, in the South, from Mysore. The total number of bullocks imported into this State annually from various outside sources is estimated at 50,000.

(4) *Fodder production—grass, Kadbi and other fodders.*

53. All cereals (rice, wheat and barley) and millets (jowar, bajri, ragi, maize Kodra) yield fodder for cattle in the form of dry stalks and chaff. To some extent sugarcane leaves, when cut green, also yield a certain amount of green fodder. A certain acreage is also earmarked each year exclusively for the production of fodder crops, but it is only about a sixth of the total area under cereals and it works out to even less if the area under oilseeds and cotton is taken into account.

54. In arriving at the quantity of fodder available for cattle, both these items, viz., the fodder by products of cereal and millet crops and the crops grown exclusively as fodder have been taken into account in the statement below :—

STATEMENT 3.

Showing the total bovine population and the quantity of fodder available (1945-46).

District.	Total bovine population.	Area under fodder crops (acreage).	Area under cereals and millets (acreage).	Estimated production of dry cattle fodder per annum in tons.	Quantity of dry fodder available per animal daily in lbs.
1	2	3	4	5	6
<i>Gujarat.</i>					
1. Ahmedabad ..	4,63,150	2,95,727	8,83,102	6,90,834	9.28
2. Kaira ..	4,01,828	1,55,293	4,62,394	3,62,023	5.6
3. Broach ..	1,23,860	84,247	3,72,979	2,64,551	1.3
4. Panohmahals ..	3,84,527	76,098	4,25,485	2,88,394	4.6
5. Surat ..	8,62,056	2,83,645	3,51,324	3,85,992	4.7
Total Gujarat ..	22,35,421	8,95,010	24,95,284	19,91,794	5.5
<i>Deccan</i>					
6. West Khandesh ..	6,27,509	21,847	9,92,925	5,68,717	5.6
7. East Khandesh ..	6,09,068	4,907	9,17,904	5,15,509	5.2
8. Nasik ..	7,07,205	3,02,680	14,24,834	9,97,796	8.7
9. Ahmednagar ..	7,78,295	1,01,915	24,27,578	14,22,922	11.0
10. Poona ..	6,57,198	5,41,479	19,83,260	14,69,327	13.9
11. Sholapur ..	4,75,511	1,38,448	18,10,525	11,03,048	14.4
12. Satara ..	6,81,683	5,00,464	10,79,357	9,37,452	8.5
Total Deccan ..	45,36,369	16,11,740	106,36,383	70,14,771	9.6
<i>Karnatak</i>					
13. Belgaum ..	6,60,317	1,17,858	10,01,997	6,38,073	6.0
14. Bijapur ..	4,29,976	4,467	21,28,240	11,90,625	17.2
15. Dharwar ..	5,76,977	96,905	10,61,959	6,67,211	7.2
Total Karnatak ..	16,67,270	2,19,230	41,92,196	24,95,909	9.3
<i>Konkan</i>					
16. Thana ..	5,07,661	2,04,901	4,13,154	3,67,765	4.5
17. Bombay area ..	58,967	5,998	2,947	5,661	.6
18. Kolaba ..	3,60,106	42,157	3,26,874	2,10,338	3.6
19. Ratnagiri ..	6,48,461	1,01,576	4,39,477	3,13,264	3.0
20. Kanara ..	2,93,468	28,970	1,62,638	1,10,157	2.3
Total Konkan ..	18,68,663	3,83,602	13,45,090	10,07,185	3.3
TOTAL BOMBAY STATE ..	103,07,723	31,09,582	186,68,953	125,09,659	5.8

Note.—The estimated fodder production in column 5 has been worked out on the basis that an acre yields on an average 1,500 lbs. of dry fodder crops and 1,250 lbs. of fodder by-products of cereals and millets. However, it is recognized that this standard can not be accepted as being universally applicable.

55. From the preceding statement it will be seen that on an average in the State as a whole there is approximately only 5.8 lbs. of dry fodder available per animal per day. This is on the basis of the total population which includes young stock and calves. Making allowance for these, the quantity available per adult animal would perhaps work out at about 7 lbs. or so per day. Working bullocks and milking animals need at least 20 lbs. of dry fodder per head per day. Animals which are able to graze to an adequate extent may need less for stall-feeding. But with scanty and overburdened grazing lands, the above figures of the available fodder supplies for stall-feeding would show that the State cattle do not generally get an adequate quantity of fodder either for healthy growth or for maintenance or for production of milk or for work, no matter from which feeding standard they are judged. Under actual conditions, however, probably the working bullocks and the milch cattle do get the required quantity of fodder for stall-feeding, but the rest of the cattle are presumed to be semi-starving all the time except perhaps during the few months of the monsoon.

(5) *Production of cattle-feeds—cottonseed, bran, oilcakes, ghuni, etc.*

56. With the overall shortage of food for human beings it is hardly possible that all State cattle receive enough concentrates for their requirements of work or milk. As in the case of fodder, it is perhaps only the milking and work animals that are given concentrate rations to some extent and the rest exist only on the scanty resources of fodder and grazing. Cattle feeds have invariably to be purchased even by the agriculturists, and these days they cost at least about 2 as. per lb. Unless, therefore, the animal is returning something to him in the shape of milk or work, the owner is inclined not to feed it with any concentrates at all.

(6) *Village grazing lands, Forest lands available for grazing and uncultivable wastes.*

57. In the State of Bombay there are roughly 14,697,488 acres which are classified as uncultivated and which include forest grazing areas, waste lands etc. All this area may not, however, be available for grazing, but even if it were, it would provide approximately for only one head of animal per acre, taking the cattle, goats and sheep together. This much area per animal may be considered as enough or even generous in countries with a favourable climate, where the pastures have been highly developed and the species of grass grown is nutritious. But in India where no attention has so far been paid to pasture development and where the grazing areas comprise mostly waste lands, *Nallas*, or hillocks, grow shrubs and weeds or grass which cattle do not eat, and are at times even unapproachable, one acre of land per animal should be considered as totally inadequate from the nutritional stand-point. The available grazing areas are at times concentrated, leaving no grazing for certain individual villages. Examples of Panch Mahals and Kaira District may be cited in this respect. Whereas there are large forest grazing areas in the Panchmahals District, there are practically no grazing lands in many villages of Kaira District.

58. Considering the necessity of feeding at least 20 lbs. of dry fodder per animal per day, it is evident that our fodder resources are extremely inadequate and it is necessary to take urgent steps to develop suitable pasture lands in the State and simultaneously to increase the total fodder production from the cultivated lands. Similarly, waste of fodder, if any should be prevented. Chaffing tends to reduce wastage in feeding.

(7) *Riverine tracts-their location, irrigation facilities, type of farms.*

59. In the Bombay State there are number of important rivers either near the towns or in the interior which can be utilised for dairy development purposes. The rivers, Sabarmati, Narmada and Krishna, have already contributed to the development of well established milch breeds. Near Poona there are as many as five rivers, *viz.*, Indrayani, Pavna, Bhima, Mula and Mutha, and the area served by them could be developed to produce large quantities of milk for the city of Poona and to provide an excellent subsidiary industry to the local agriculturists. Towns such as Belgaum in the south and Ahmedabad and Broach in the north are no exceptions to this, and therefore, it is suggested that these areas should be thoroughly surveyed both from the dairying and engineering points of view and steps taken to introduce dairy farming in them as a specialised industry. Government can do this either by setting up pumping plants of their own and charging the cultivators for the water supplied or encouraging the formation of co-operative societies on a large scale. But in any case in the-beginning or until such time as alternative arrangements can be made, Government should themselves undertake the work of collection, processing, despatch and marketing of milk.

60. The river Krishna running through the southern districts of Satara North, Satara South, Belgaum and Bijapur provides another and perhaps an ideal example of how an important river can contribute to the development of the dairy industry. This river which is noted for the luxuriant pastures on its banks has already contributed to the production of large quantities of butter, ghee, curd, etc. which are regularly exported to the larger towns. As this river is somewhat at a distance from the large towns where there is a demand for liquid milk, it is suggested that a chain of rural creameries, preferably run by Government in the beginning, should be established at suitable places so as to convert the milk produced in the area into cream, butter, etc. In course of time schemes for the supply of liquid milk to near by cities, for the improvement of grass land on the river banks and for the improvement of animals can be taken up in these areas on a large scale.

61. As the river Krishna is subject to heavy floods annually, the problem of setting up pumping plants is a formidable one, and hence the improvement of the dairy industry in that area should commence by organising the existing resources as proposed above.

62. The Committee feels that if all the riverine areas in the State are carefully surveyed, it will be found possible to utilise them for dairying purposes to a large extent. The Committee understands that the Dairy Development Section of the Animal Husbandry Department is already carrying out riverine surveys and this work which is so useful should continue. That Section should also undertake development work in suitable areas as soon as a survey indicating fair chances of success has been completed.

(8) *Area under walls, Tanks and canals.*

63. Of the total cultivable area in the Bombay State, canals, tanks and wells are responsible for irrigating only 1,207,666 acres, that is, approximately 3.5 per cent of the total area, which is perhaps the lowest in the country. Any State which depends for the growing of its food and fodder requirements to the extent of 96.5 per cent on vagaries of nature and climate cannot feel happy about the situation. Yet, as pointed out in the previous section, the waters of large rivers with limitless potentialities are allowed to run to waste unused. The necessity of harnessing these rivers for irrigation purposes is obvious.

64. Of the above area, canals contribute approximately 3,63,872 acres. The three biggest irrigation projects of the State, viz., the Nira, Pravara and Godavari in the Central Division, at present command nearly one and a half lakhs of acres in monsoon which area, although quite extensive, is not sufficient to meet a fraction of the State's requirements.

65. On examining the question of utilizing the canal tracts for dairy farming, the Committee feels that there is a great need of introducing the dairy industry in the canal areas, even if it means reduction in the area under food crops, sugarcane, etc. The largest single crop in the canal areas is sugarcane which requires irrigation throughout and unless this crop is rotated or even partially replaced by cultivation of fodder, particularly of the leguminous type, there is a clear danger of the soil suffering as a result of the heavy watering applied to the sugarcane. The Committee is conscious that it is not within its scope to examine the question of heavy manuring and watering as applied to sugarcane cultivation but it is necessary to stress the fact that if this practice is followed year after year it would ruin both the soil and agriculture. The Committee, therefore, recommends that in all canal irrigated areas dairying should be introduced forthwith and sugarcane rotated with fodder crops particularly of the leguminous type.

66. During the last 2 or 3 decades nearly a dozen sugar factories have been established in the canal areas and in the Committee's view Government should take steps to set up large scale cattle breeding and dairy farms either entirely Government-owned or run in co-operation with the sugar factory owners. This is desirable from another point of view and that is that the sugar industry being a protected one at present, it will be necessary for the sugar manufacturers to adopt a different system of farming once the tariff protection is withdrawn.

67. As regards other areas, the Committee feels that individual cultivators should be asked to set apart a portion of their land for growing perennial fodder crops such as lucerne, berseem, para grass, etc., which at present is not done either because of the tendency of the cultivator to grow only money crops or because the irrigation authorities refuse permission for the growing of fodder crops.

(9) *Extent of Veterinary Service and protection against cut break of disease.*

68. Before the merger of the Indian States there were 159 Veterinary Dispensaries in the State of Bombay, for looking after one crore cattle and 45½ lakhs of sheep and goats besides about 2 lakhs of other livestock and nearly 1½ crores of poultry. In other words, roughly, there was one Veterinary Dispensary per 1,00,000 head of cattle, goats and sheep, excluding poultry.

69. The merger has added to the charge of the Animal Husbandry Department another 91 dispensaries, but no exact information as to the livestock population in the merged areas is yet available. The total number of Veterinary Hospitals and Dispensaries in the State of Bombay is now 250.

The main duties of the dispensary staff are :—

- (1) To treat cases at the dispensaries and in the mofussil, and
- (2) To control epidemics. The main contagious diseases affecting cattle in this State are : Rinderpest, Haemorrhagic Septicaemia, Black Quarter and Anthrax.

A subsidiary additional duty is to castrate cattle in connection with livestock improvement work.

70. The following figures based on the averages for the last three years will indicate the work done at these dispensaries under each of the above three heads :—

(i) *Cases treated.*

Inpatients	...	...	3,625	
Outpatients	...	...	2,75,125	
Cases in the mofussil	...	...	27,175	contagious.
Cases supplied with medicines	...	...	45,011	non-contagious
			4,19,051	

(ii) *Inoculations against contagious diseases.*

Rinderpest	...	...	1,44,750
Haemorrhagic Septicaemia	...	...	1,92,700
Black Quarter	...	...	2,02,300
Anthrax	...	...	4,530
			5,44,280

(iii) *Castrations performed* 76,464

71. For the investigation of diseases the State has one Disease Investigation Officer (Cattle), one Assistant Disease Investigation Officer (Sheep and Goats), and one Assistant Disease Investigation Officer (Poultry). The Bacteriologist at the Bombay Veterinary College also does research work and a special research staff, has been sanctioned for that officer.

72. To make the State self-sufficient in the matter of biological products, Government have sanctioned the establishment of a Biological Products Institute. This has already started working on a small scale at Bombay pending transfer to Poona where land has been acquired for its permanent location.

73. For training Veterinarians there is a Veterinary College at Bombay, but the output from this institution during the last few years has been disappointingly small and not commensurate with the requirements of the Department despite the fact that Government provides practically free education. The following is the number of candidates belonging to the State of Bombay that have passed out from the Veterinary College during the last few years :—

1945	...	...	6
1946	...	...	1
1947	...	...	7
1948	...	...	3
1949	...	...	7
1950	...	...	20

74. The College has recently been affiliated to the Bombay University and the Diploma of G.B.V.C. which it originally used to give has been replaced by the degree of B.Sc. (Vet). The course is of four years' duration and Intermediates with Science (Medical Group) are admitted.

75. To meet the acute shortage of Veterinary Assistant Surgeons in the Department, and, especially for the control of contagious diseases, Government conducted until last year three Stockmen's Courses, one each at Dharwar, Poona (formerly conducted at Bombay) and Baroda (formerly conducted at Anand). The course was of one year's duration and students were given elementary theoretical training in Veterinary and Animal Husbandry subjects followed by three months' practical training at Veterinary Dispensaries. The total number of stockmen trained was 331, of whom 213 have been appointed in the Department.

76. The above is a very brief review of the organization of the Veterinary Section of the Animal Husbandry Department and its activities. It will be seen, considering the size of the animal population that has to be catered for, how inadequate that organization is and how far short of requirements is the work that is being done at present.

77. In view of the inadequacy of the Veterinary staffs in the States, the Royal Commission on Agriculture in India had recommended that if cattle diseases were to be properly controlled there should be at least one Veterinary Assistant Surgeon for every 25,000 heads of cattle. On the basis of this recommendation, at least 400 Veterinary Assistant Surgeons will be required for that part alone of the Bombay State which originally constituted the Bombay Province proper. At present there are only 177 Veterinary Assistant Surgeons and 213 stockmen (excluding those in the merged areas) in the Department and thus it will be seen that a good number is still to be recruited.

78. There are in all 250 Veterinary Dispensaries in the Bombay State, of which 53 are run by Government (22 opened by Government and 31 of which control has been assumed by Government), 106 by Local Bodies and 91 are in the merged areas. This number is quite inadequate compared to the vast area involved and the size of the livestock population that has to be catered for. To begin with, under the present Post-War Reconstruction Plan it is proposed to start one Veterinary Dispensary in each Taluka and Peta in the State. Before the merger of the Indian States there were 189 talukas and Petas in the Bombay State. With the merger of the States about 125 additional talukas have been added. Thus on the basis of one Veterinary Dispensary for each Taluka, at least 314 Veterinary Dispensaries are required. As stated above, there already exist 250 Veterinary Dispensaries and 65 more have to be opened in those talukas which have none at present. When the P.W.R. Plan was started, there were 52 talukas without a veterinary dispensary. Since then 22 Veterinary Dispensaries have been opened. The programme of opening more veterinary dispensaries has, however, been held up due to the present financial stringency.

79. One of the important duties of the Department as already explained is 'to take measures for the control of contagious diseases. Besides the inoculation work carried out by the Veterinary Assistant Surgeons and stockmen in the districts as a whole, the Department is running two special schemes for the mass immunization of cattle, one in the intensive cattle breeding zone of the Sholapur District, viz.,

Pandharpur and Sangola, and the other in the Bombay City area, but for lack of staff it is unable to take up this work so essential to the health of the livestock on a more intensive scale.

80. It is, therefore, absolutely necessary in order to enable it to discharge its functions efficiently that the Department should be adequately staffed, but, unfortunately, at the present moment, the actual state of affairs is the reverse. The Department has 305 posts of Veterinary Assistant Surgeons sanctioned by Government (excluding those in the merged states), but of these actually only 244 are filled and 61 are lying vacant for want of qualified men. If the deputation vacancies are also taken into account the total No. of posts lying vacant will be about 115.

81. The main reasons for the failure of the Bombay Veterinary College to attract sufficient number of students are the comparatively poor pay offered to Veterinarians under Government and the scanty prospects of future promotion. Unless, therefore, something is done urgently to remove these handicaps, the position in respect of the running of the Veterinary Section of the Animal Husbandry Department is not likely to improve.

82. Dairy animals have certain special diseases of their own besides those mentioned above such as Contagious Bovine Abortion, Mastitis, Tuberculosis, etc. There is evidence that these diseases are prevalent in practically all dairy herds in the State and their control and eradication present a difficult problem. Unless, therefore, sufficient trained personnel is provided to deal with these diseases any schemes of dairy development that may be drawn up will work under a serious handicap.

(10) Gowshalas and Panjrapoles—their Number money spent, review of activities.

83. There are about 80 Gowshalas and Panjrapoles in this State. The majority of these Institutions are maintained purely on humanitarian grounds with a view to housing and caring for the incapacitated, derelict and maimed cattle. If these institutions could be organised and managed on proper lines and the humanitarian section separated from the economic herd, they would be able to render valuable assistance and play an important part in the cattle improvement work. With this object in view the Government of Bombay have sanctioned a scheme for the development of Gowshalas and Panjrapoles for a period of five years in the first instance commencing from 1948-49.

The main features of the schemes are :—

(i) That the Gowshalas will maintain in their breeding sections the breed of cattle approved by the Gowshala Advisory Committee for breeding pedigreed cattle.

(ii) That Government will supply 10 cows and 1 bull to each Gowshala as its contribution towards the establishment of a foundation stock and that the Gowshala will acquire the same number of cattle as its quota.

(iii) That the Gowshala will make suitable arrangements to divide the institution into two sections, one for the breeding stock and the other for the unproductive cattle.

(iv) That the Gowshala shall appoint a qualified manager, and, if necessary, a trained stockman, for maintaining up-to-date breeding and feeding records.

(v) That the Government shall pay an annual grant of Rs. 2,000 to the Gowshala for meeting the increased expenditure.

(vi) That the Gowshala shall hand over a fixed number of male and female progeny from the breeding herd to Government for further distribution.

(vii) That the Government will assist the Gowshala in providing grazing lands, veterinary aid, concentrates, etc., if necessary.

(viii) That the Government will pay a sum of Rs. 1,000 annually to the Federation of Gowshalas and Panjrapoles to enable it to carry on propaganda on behalf of the Scheme.

84. With a view to guiding and controlling the breeding policy and deciding other problems connected with Gowshala Development work, Government have set up a Gowshala Advisory Committee consisting of the following :—

- (i) The Director of Animal Husbandry and Veterinary Science, Bombay State, (Chairman).
- (ii) The Livestock Expert to Government, Bombay State.
- (iii) The Dairy Development Officer, Bombay State.
- (iv) Two nominees of the Provincial Federation of Gowshalas and Panjrapoles.
- (v) Two non-officials nominated by Government.

85. In accordance with the objects of the scheme, Government have so far selected the 20 Gowshalas and Panjrapoles mentioned below and they have been allotted and supplied with animals of the breeds mentioned against them on the recommendation of the Gowshala Advisory Committee :—

1. Ahmedabad Panjrapole	...	...	...	Kankrej
2. Surat Panjrapole	...	...	...	Kankrej
3. Dombivli Gowshala	...	...	...	Gir
4. Dhulia Panjrapole	...	...	...	Gir
5. Yeola Panjrapole	...	...	...	Gir
6. Poona Panjrapole	...	...	...	Gir
7. Bijapur Gowshala	...	...	...	Krishna Valley
8. Bagalkot Panjrapole	...	...	...	Krishna Valley
9. Hubli Panjrapole	...	...	...	Kankrej
10. Gurlhosur Gowshala	...	...	...	Khillar
11. Panjrapole Sanstha, Unza	...	...	...	Kankrej
12. Adarsh Gowshala, Bochasan	...	...	...	Kankrej
13. Shree Krishna Gomandir, Halol	...	...	...	Kankrej
14. Panjrapole Sanstha, Jalgaon	...	...	...	Gir
15. Panchavati Panjrapole, Nasik	...	...	...	Gir
16. Panjrapole Gorakshan Sanstha, Panvel	...	...	...	Gir
17. Ahmednagar Panjrapole	...	...	...	Gir
18. Gorakshan Sanstha, Wai	...	...	...	Gir
19. Nipani Gowshala	...	...	...	Krishna Valley
20. Gorakshan Sanstha, Haliyal	...	...	...	Dangi.

(11) *Salvage of Cattle, extent necessary results obtained, limitations.*

86. Apart from Bombay (which is treated separately) in the 27 towns and cities of the State having a population of over 30,000 persons, it is estimated that about 17,500 cattle are available annually for salvage. This figure is arrived at thus. The 27 cities and towns in question have a human population of 27,36,000 and it is estimated that the consumption of liquid milk in them is 4 oz. per head per day—taking into account the milk produced within their own limits and that obtained from nearby villages. About 70,000 cattle are required to be in milk constantly, of which about half are sold away for slaughter or die a natural deaths; of the rest it is estimated that about 17,500 are available for salvage every year. Generally, these cattle are sent out to the surrounding villages for refreshing, but in order to cover them in time 200 good bulls are required to be kept all the time in the cities and towns mentioned above.

87. Arrangements need to be made urgently for removing the dry cattle from the cities to the neighbouring villages as proposed by the Dairy Development Officer in the scheme he has drawn up for the Poona City. This scheme envisages the granting of loans to cultivators to enable them to purchase the animals outright so that they become their property and they feed them properly. When the animal calves again, the cultivator can either return the animal to the original owner or maintain it himself. In case he wishes to sell it, the original owner is to have the first option.

88. *Results obtained.*—Properly recorded results regarding salvage are available only for the Bombay area. It is observed that due to the absence of adequate number of bulls in the city stables the animals when they go dry are not in calf, and, therefore, the period of their salvage is unduly prolonged. It is also observed that the large and heavy buffaloes of northern India kept under confined conditions in the Bombay stables during their lactation do not adapt themselves well to village conditions unless they are well fed. When such animals return after salvage, they do not yield the same quantity of milk as they did in the preceding lactation. On the other hand, it has been found that where the producers have made their own arrangements for salvage of their animals and have made proper arrangements for their feeding and upkeep, their performance after return from salvage is quite satisfactory.

89. In the Bombay area Government assisted the Bombay Humanitarian League in salvaging cattle and agreed to bear a certain part of the expenses. Transport charges were also paid and approximately 7,000 buffaloes were salvaged but the owners did not feel satisfied with the animals when they returned and the scheme had to be abandoned.

90. Government also purchased nearly 700 animals outright from the Bombay stables and the Military Dairy Farms in the Poona area and sent them to the Government farms at Palghar and Jamner. It was observed that the producers were not willing to sell any animal which was in an advanced state of pregnancy. In this scheme also, therefore, the duration of stay of the animals at the salvage farms was very long. When the animals refreshed and were returned to Bombay, it was noticed that the demand was mostly to purchase them on credit and if cash payment was insisted on Government realised only about two-thirds of the intrinsic value of the animal. The conditions at the Jamner Farm (East Khandesh) did not at all suit the heavy northern India buffaloes from the Bombay stables, and quite a number of them had to be shifted to Palghar for reconditioning before they could be sold at Bombay.

91. Since the experiment of outright purchase, refreshing and resale also proved uneconomical, the scheme was discontinued, and since June, 1948, Government have been taking animals for salvage at the Palghar Farm only as boarders, at a fee of annas 12 per head per day. The boarding fee has to be paid every month and the owner has to sign a bond that if he does not pay the fees for two months, the farm manager will have the right to auction the animal and recover the charges. Animals pregnant less than five months are not accepted under this scheme.

92. To a great extent the problem of salvage of dry cattle arises only in the case of animals kept under city conditions. Because there are usually no bulls in cities or because the animals are kept and fed wrongly, the majority of the dry animals are found to be non-pregnant when taken for salvage and their stay at salvage farms is unduly prolonged. Often for a lactation of 8 months, there is a dry period of 12 to 15 months, whereas, if the conditions were right from the very beginning, it should not be more than 3-4 months.

93. The aim should, therefore, be to reduce the number of cattle in the cities by every means possible and keep them under more natural conditions so that the the question of salvage may be avoided or eliminated altogether.

(12) *Nomadic Cattle-Keepers, Rabaris Bharwads, etc.*

94. The Rabaris and Bharwads of Gujerat, Kathiawar and Cutch are a class of graziers who live by breeding cows, sheep, goats, and sometimes, camels.

Their general habit is wandering (not strictly nomadic) and they have generally a fixed route which they follow each year. They graze their stock on harvested fields and leave behind the manure for which they are harboured by cultivators.

95. They sell their stock and their products on the way. These are cows, heifers, young castrated males, entire males, ghee, rams, wool, bucks and goat hair. Hence they have an established position in the agricultural life of the country.

96. In North Gujerat they are very numerous and are concentrated in a small area so that they and their livestock have created congestion. The cattle are at large day and night and often the communities engage in the objectionable habit of grazing cattle at night which is now forbidden by law. Usually the dry stock is sent out to far-off grazing areas to return when it refreshes. However, the grazing areas, waste lands, and birs (pastures) having got depleted and decreased in size, the Rabaris and Bharwads by their peculiar methods of animal husbandry have created a very difficult situation.

97. In Ahmedabad District there has been a slight change in the way of life of the community in-as-much as the average Rabari or Bharwad lives in a village or town, keeps cows as well as buffaloes, grazes the village cattle on receipt of payment in cash or kind, and sometimes also cultivates the land.

98. In Kaira District it is only in Matar and Mehmedabad Talukas that the above system of cattle keeping and milk production is followed. The other Talukas have intensive buffalo breeding which is mostly in the hands of cultivators and communities other than Rabaris and Bharwads.

99. Ahmedabad City proper presents a picture peculiar to itself and possibly not to be found in any other city in India. Living in a city surrounded on all sides by first class fertile soil growing good varieties of rice, wheat, cotton, etc., the Rabaris and Bharwads that reside in it and its environs breed and maintain first-class Kan-krej Cattle.

100. The presence of Rabari or Bharwad near a town or near cultivated areas is not favourably looked upon by the general public as he seldom tries to restrain his animals from trespassing other people's fields. But as against this, it may be stated that the fertility of the soil is perhaps also to a great extent due to the cattle and sheep of the Rabaris and Bharwads which graze on the aftermath of the harvested fields.

101. During famine years the Rabari or Bharwad marches off with his cattle often to other States in search of fodder, but this migration is often responsible for the spread of disease in cattle and mixed breeding of stock.

102. Attempts to settle the Rabaris and Bharwads on land have been made from time to time but to deal with the problem of colonization of these communities in a systematic manner, Government appointed in the year 1947 the Polutry Development Officer as Special Officer in charge of Rabari and Bharwad Colonization work in addition to his own duties. The Special Officer was assisted in his work by one Special Agricultural Officer and two Agricultural Assistants. The colonization staff surveyed waste lands in the Modasa and Prantij talukas of the Sabarkantha District, in the Daskroi, Dholka and Dhandhuka talukas of the Ahmedabad District and in the Matar taluka of Kaira District. The survey revealed that 33 villages in the above talukas are suitable for the colonization of Rabaries and Bharwads. The staff also helped the co-operative Societies formed by Rabaries and Bharwads in securing land for their use.

103. With the merger of the Baroda State, the two Rabari and Bharwad colonies at Pratapnagar and Bellasar and the 24 settlements in Mehsana District came under the control of the Department of Animal Husbandry and Veterinary Science. The work at these colonies and settlements is handled by one Agricultural Officer, two Agricultural Assistants, two Field Kamgars and some inferior staff. The colonies and settlements are being continued.

104. The colony at Bellasar occupies 1658 bighas of land, while the one at Pratapnagar has an area of 500 bighas. The 24 settlements together have an area of about 1200 bighas. At these colonies and settlements 390 families comprising more than 2000 persons have been settled. The total number of livestock maintained by them is 4800, of which 1550 are cows.

105. The following policy in regard to the organization of the colonization work in future has been laid down with the approval of Government :—

(1) High priority be given to Rabaries and Bharwads, while allotting lands for grazing or fodder production in the Districts of Banaskantha, Mehsana, Sabarkantha and parts of Ahmedabad and Kaira Districts, on their agreeing to form co-operative cattle breeding societies and abiding by the conditions laid down by the Department of Animal Husbandry and Veterinary Science.

(2) Government aid to such societies be restricted to the facilities at present extended by the different departments of Government in fostering rural development work.

(3) The Rabaries and Bharwads be granted assistance in securing fencing material, construction of wells, etc., provided they agree to form a permanent colony.

(4) In return the colonists should agree to rear and supply to Government breeding cattle for extension work.

106. The special staff for looking after the colonization work has now been absorbed in the Livestock Section as it has now been decided by Government that the work of colonization of Rabaries and Bharwads should form part of the normal activities of the Livestock Section.

(13) *Cattale Breeding Farms—Private and Government.*

107. There are five Government Cattle Breeding Farms in the State besides a number of subsidised farms and some special schemes for the production of breeding bulls. The details are given in the following statement :—

STATEMENT IV

Showing the Government and subsidised farms in the State.

	Total area in acres.	Breeds kept.	Annual production of bulls.	No. of bulls produced up to 31-3-1949.
5 Government Farms at Bankapur Tegur, Kopargaon, Igatpuri and Bakrol.	2,246	Amrit Mahal, Gir, Dangi, Kankrej and Surati	70	797
Subsidised Farms at Surat, Chharoni, Anand, Kandivli, Bategaon, Mulund, Pimple, Jamner, Sholapur, Sabarmati and Kankavli.	5,910	Kankrej, Gir, Nimar and Dangi.	108	1,246
Special Scheme for Dangi Cattle Breeding.		.....	50	107
Farms co-operating with Government and mixed farming project at Patilwadi and Yedaballi.	600	Nimar and Khillar.	16	68
Total	8,756		244	2,218

108. It will be seen that the annual production of bulls at Government and subsidised farms is 120 and 124 respectively, while both these agencies together had produced some 2,000 bulls upto the end of March, 1949. In addition to the above, breeding bulls are produced in certain concentrated zones selected for special breeding. The latter work is being carried on in co-operation with the cultivators and breeders and the Department of Animal Husbandry and Veterinary Science has so far established 60 supplementary breeding centres in various parts of the State during the last five years.

109. Attention seems mainly to have been concentrated on the production of animals of draft breeds, though at some of the Government farms established recently and at many subsidised farms milch or dual purpose animals such as the Gir or Kankrej are also being bred.

110. No systematic effort seems to have been made to improve the milk-producing quality of the buffalo.

(14) *Military Dairy Farms.*

111. There are six military dairy farms in the State of Bombay. Their particulars as obtained from the Military Farm Authorities are given below :—

STATEMENT V.

Showing the number of animals maintained at the different military farms, the amount of milk produced at each etc.

Name of Farm.	No. of cows		No. of buffaloes		No. of young stock.		Quantity milk purchased daily from outside in lbs.	Area of farms in acres.	
	In Milk.	Dry.	In Milk.	Dry.	Cows.	Buffaloes.		Govt.	leased.
1. Ahmednagar ..	41	12	176	103	59	124	540	7,075	2,864
2. Belgaum ..	41	7	50	25	91	27	1,300	863	114
3. Deolali ..	54	14	207	133	48	138	nil.	76	117
4. Kirkee ..	167	119	225	307	162	287	5,000	1,206	nil.
5. Kalyan ..	nil.	nil.	222	168	..	107	nil.	nil.	305
6. Pimpri ..	nil.	nil.	405	385	..	187	nil.	381	2,518
Total for above 6 Military Farms.	303	152	1,285	1,121	360	870	6,840	9,603	5,290

112. *Sale price of milk.*—All military farms standardise their milk to 3.7 per cent. fat and the price relates to this quality of milk. The price also is uniform at all the farms, and for the above six farms in question it is 5½ annas per lb. Cream and butter are sold at Rs. 2-12-0 per lb.

113. There is also a military farm depot at Colaba (Bombay) which does not possess any cattle, but gets milk from the military farm at Kalyan. The sale price of milk at Colaba is 8 annas per lb. and that of butter Rs. 3 per lb.

114. Military farms generally cater only to the requirements of hospitals, military officers, their families and troop canteens, but if there is any surplus milk available civilian consumers are also supplied. All sales, except to hospitals and troop kitchens, are either on cash or on coupons which are to be purchased in advance.

115. The question of the policy to be followed in regard to the Military Dairy Farms has been under the consideration of the Government of India for a number of years and it seems that the Military Authorities are now considering making suitable changes in the policy to make it fit in with that followed by the State in

which a particular farm is situated. The Government of India had requested the State Governments last year to suggest the breeds of cows and buffaloes in respect of the Military Farms situated in their respective States and the breeds suitable for the six military farms in this State have been suggested by the Director of Animal Husbandry and Veterinary Science. It is now learnt that the Military Authorities are trying to reorganise the various farms and arrangements are being made to keep the breeds recommended by the various State Government.

116. Previously the calves at the Military dairy farms were allowed to be slaughtered. Now the slaughter of such calves has been banned except on veterinary grounds. The Military authorities rear the female calves for replacement purposes at their own farms. So also the male calves of good pedigree are reared for use at the farms. The rest of the male calves are disposed of to the public free of charge while they are a few days old.

117. It is hoped that with the reorientation of their policy, the Military dairy farms with their enormous resources will play a very definite and important part in the livestock improvement work in the country.

(15) Post-War Reconstruction Schemes of cattle development sanctioned by Government and those under consideration.

118. The following Post-war Reconstruction Schemes in regard to cattle development have been sanctioned by Government—

1. P. W. R. Scheme No. 32—Extensive work in Livestock Improvement. It consists of the following parts—
 - (a) Organization of Supplementary Breeding Centres.
 - (b) Intensification of the Premium bull and Premium cow Schemes, Rearing of bull calves.
 - (c) Intensification and expansion of District work of the Livestock Section.
 - (d) Fodder cultivation and silage making—
 - (i) Construction of silo pits—Kacha and pucca Demonstration.
 - (ii) Distribution of seeds of improved fodder crops.
 - (e) Organization of Cattle Shows and Cattle Rallies.
2. P. W. R. Scheme No. 33 ... Establishment of Cattle Breeding Farms in Nasik and Ahmednagar Districts.
3. P. W. R. Scheme No. 253 ... Schemes for Intensification of Amrit Mahal Cattle Improvement Work.
4. P. W. R. Scheme No. 254 ... Scheme for improvement of milch buffaloes.
5. P. W. R. Scheme No. 264 ... Gir Cattle Improvement Scheme, Dhanduka Taluka, Ahmedabad District.
6. P. W. R. Scheme No. 265 ... Scheme for the Development of Gows shalas and Panjrapoles.

(16) *Annual expenditure by Government on the dairy and cattle industry in recent years.*

119. The Departments which are concerned directly with dairy and cattle development work are:—(1) The Animal Husbandry and Veterinary Science Department comprising the Veterinary Section, the Live stock Section, the Dair Development Section, the Sheep and Goat Development Section and the Poultr Development Section and (2) the Milk Commissioner's Department for Bomba area. The first is on a State basis. The annual expenditure on the Livestoc Section of the Animal Husbandry and Veterinary Department during the yea 1948-49 was Rs. 9,50,090 and that on the Dairy Development Section approximatel 3.6 lakhs. The Milk Commissioner's Department, Bombay, spends Rs. 7,58,00 per annum. The above figures represent the net expenditure which the Departmen spend on their livestock and dairy development activities.

(17) *Vanaspati, its effect on ghee, milk and cattle.*

120. The above question has been a subject matter of discussion in various Stat Assemblies and also in the Parliament of the Indian Union. The Government o India have set up a number of committees to go into the question and have institutec investigations into the nutritive value of Vanaspati. A large number of factorie have been set up, some during the war, to produce Vanaspati. From the genera information and also from the reports of the Public Analyst it is observed that ghee is generally adulterated with Vanaspati as the latter forms a very convenient, cheap and indistinguishable medium of adulteration. This, however, does not mean that ghee can not or is not being adulterated with other articles. The marketing of Vanaspati is well organised and it is easily available even in small towns and villages. It is an article which bears a close resemblance to ghee and it is difficult to distinguish between the two without a laboratory test. In fact, the manufacturers make a scientific attempt to copy all the characteristics of ghee such as flavour, colour, texture, melting point etc., as closely as possible. They at times even vary its consistency according to the seasonal variation found in the consistency of ghee or according to its consistency in the different areas. Their argument, of course, is that they want to supply to the consumer an article which is as near to ghee as possible and are not responsible for its use as an adulterant. In recent years quite a number of them have made efforts to put Vanaspati in small family packs of 1 lb. upwards. Even so, the margin between the price of Vanaspati packed in small containers and that of ghee is so great that it permits of adulteration being carried out profitably.

121. The question of colouring it very deeply has also been discussed by various committees set up by the Government of India, but as far as is known no final decision has been taken. The question of the complete stoppage of Vanaspati is also before the Indian Parliament and recently the Government of India have banned ghee flavour and colour from being incorporated in this product. The issue which this Committee has to consider is whether the production of Vanaspati has in any way affected the milk, ghee and other industries. In passing it may be mentioned that the Bombay State is the main source of Vanaspati production in the country, as this State has a large acreage under groundnut, and has nearby other important groundnut areas such as Hyderabad and Madras.

122. Even before the war the cattle owner rarely found ghee making to be paying and he preferred to make ghee only when he could not find a market for fluid milk. With the increase in urban population the demand for liquid milk has gone up and milk is being drawn in increasing quantities to towns and cities from the adjoining

villages, some of which in the past were converting the product into ghee. This has resulted in lesser production of products like ghee, unless, of course, the milk yielding capacity of the cattle has increased, which does not appear to be the case. The urban areas have always depended for their supply of ghee on villages but on account of the increased consumption of liquid milk without at the same time a corresponding increase in production, the urban areas are now unable to secure the required quantity of ghee. Since the beginning of the last war the urban population has also increased very considerably and the demand for milk as well as for ghee has remained unsatisfied. Apart from the increased cost of production, the scarcity of ghee has been largely responsible for the higher prices in urban areas, particularly since 1942 due to increased demand from the Defence Forces. As against a price of Re. 1 per seer before the war, the price of pure ghee these days in urban areas varies from Rs. 6 to 7 per seer and even then adequate quantities of high quality ghee are not easily available.

123. For the above reasons, Vanaspati has naturally assumed greater importance and popularity. There are large groups of population in all urban areas which to-day depend exclusively on Vanaspati as a medium for cooking. The use of ghee is restricted only to certain preparations and delicacies where it is necessary to use this medium to bring out their traditional favour. Otherwise for all general purposes the use of Vanaspati is not objected to.

124. So far as the cattle breeding industry is concerned, it is difficult to say how the introduction of Vanaspati has affected it one way or the other. In this State it would be difficult to find an instance where any group of cattle were kept or bred exclusively on the sale of ghee as a profitable concern. Even if it were so, the price of ghee has increased sufficiently to justify any such effort from being given up. In fact, compared to the pre-war prices, the price of ghee has increased 6 to 8 times whereas the price of milk has increased only 3 to 4 times. The prices of butter, mava and other products have also increased considerably.

125. If the prices of milk and milk products have been ruling high, this is due to the large demand for them on the one hand and the higher cost of production on the other and is in consonance with the general increase in prices of all commodities and it cannot be said that this is due to Vanaspati in any way. In all dairying countries, substitutes for butter are freely made and sold and all the industries, i.e., those connected with margarine production, butter production, and cattle breeding have developed to the fullest extent side by side. In this respect the position in Denmark is worth mentioning. That small country contributes to more than $\frac{1}{3}$ rd of the world's trade in butter. One would expect that the Danes themselves would be consuming large quantities of butter, but that is not so. They eat only a pound of butter for every 3 to 4 lbs. of margarine because of the higher price of the former product. In that country both the margarine and the dairy industries have developed side by side and on healthy lines. This is convincing evidence to discountenance any belief that the Vanaspati industry has been a canker to the dairy or cattle industry in this country.

126. On the other hand it has to be admitted that due to the use of Vanaspati as an adulterant, consumers have lost faith in the quality of genuine ghee. They believe that all ghee is now adulterated and are not prepared to pay the price of the pure article, which, incidentally, is also very high and beyond the reach of many. The question, therefore, is not only of controlling the distribution

of Vanaspati in such a manner that both ghee and Vanaspati are sold separately and on their own merits but also of taking very energetic action to improve the production and marketing of pure ghee. It is futile on the part of consumers or the ghee producers to believe that once Vanaspati is put out of the way a plentiful supply of pure ghee will be available or possible. This will certainly not be so and it is almost certain that it will be adulterated with other oils and fats, some of which may not be as wholesome as Vanaspati. Organised marketing of ghee alone will enable those, who want to purchase it at its own price which is about three times the price of Vanaspati, to get it in a pure form.

127. Since the Government of India are already considering this question at a high level, the Committee does not feel it necessary to go into the matter any further.

(18) *Position of cows and buffaloes with regard to the milk supply in urban areas. Their place in the Rural Economy and their importance from the point of view of the milk supply.*

128. In the milk supply arrangements of any city or large town, one thing stands out prominently, viz., the predominance of buffalo milk over cow milk in the market. The cow milk as such is sold only in very small quantities, usually most of it is mixed with buffalo milk before it is sold.

129. Various factors have contributed to this situation. Firstly, the milk yield of the buffalo under existing conditions is much higher than that of the cow. The milk producer, therefore, finds it more profitable to maintain buffaloes in urban areas. Secondly, the buffalo withstands the conditions of stable life and stall-feeding in the cities much better than do cows which thrive better under field conditions. The third and probably the most important reason is that buffalo milk is almost twice as rich in fat content as cow's milk. Consumers, therefore, prefer buffalo milk which is obtainable at almost the same price as cow milk. Better quality curd and butter milk are also obtained from this milk. Generally speaking, consumers purchase cow milk only for feeding infants or under medical advice.

130. The statement given below shows the position which the cow and the buffalo occupy in the milk supply of some of the important towns in this State.

STATEMENT VI.

Showing the position of the cow and the buffalo in the milk supply of certain towns.

Name of the City.	No. of buffaloes.	No. of cows.	Daily quantity of buffalo milk.	Daily quantity of cow milk.	Ratio of cow to buffalo milk.
1	2	3	4	5	6
			Seers.	Seers.	
1. Greater Bombay	.. 56,000	2,000	28,00,000	7,000	1:400
2. Ahmedabad	.. 6,723	7,553	39,704	30,142	1:1
3. Surat	.. 3,741	379	16,964	1,150	1:16
4. Poona	.. 4,085	1,524	28,595	4,242	1:7
5. Nasik	.. 1,355	615	9,794	1,214	1:8
6. Sholapur	.. 3,703	1,123	13,054	1,635	1:8
7. Belgaum	.. 2,441	918	11,424	1,328	1:8
8. Dharwar	.. 1,922	976	5,766	1,200	1:5
9. Hubli	.. 2,989	1,010	12,000	2,000	1:6
10. Bijapur	.. 2,564	1,089	9,163	1,523	1:6

131. The figures show that except in Ahmedabad the buffalo population exceeds that of cows in all the towns. But even in regard to this town, if the large quantity of buffalo milk that is brought daily from the Baroda and the Kaira areas is taken into account, the cow milk will dwindle into insignificance.

132. Looked at from the purely dairy point of view, the buffalo is easily the main producer of milk. But in a country like India, with its peculiar agricultural economy where small holdings are the order of the day and where mechanical farming is still largely impracticable the necessity of bullocks for agricultural and haulage operations continues. Here the cow scores over the buffalo as the male progeny of the latter is not very useful for draft purposes. The cow thus proves to be an indispensable animal to the Indian farmer, and, irrespective of the number of buffaloes he may have, he invariably keeps one or two cows also.

133. It has been observed that the burden of the milk supply in urban as well as rural areas largely rests on the buffalo and the cow is maintained only as a bullock-producing animal and the milk yielding aspect of that animal is rather lost sight of. If, therefore, the cow is to find a place in dairying also, efforts should be made to introduce high milking strains so that she can produce enough quantity of milk for sale apart from that required for the rearing of the male calf for agricultural operations. Bullocks from dairy breeds, although slow, would be better than male buffalo bulls for agricultural work. Care should, however, be taken while introducing milk into draught breeds such as the Knillar and the Amrit Mahal that their draft quantities are not materially impaired but the objective with other breeds should be to develop a commercial and dual-purpose animal.

134. In the early stages special efforts will also be needed to popularise cow milk by selling it at even subsidised rates, if necessary.

(19) *Present agricultural policy in the State.*

135. Strictly speaking, there is no compulsory or planned policy regarding the sowing or planting of crops in the State as it is in some of the other countries. The farmer is generally free to grow what he likes and considers the most paying. Only in the Kaira District there is restriction on the growing of tobacco beyond a certain proportion of the total cropping. The position in respect of the important crops is as under :—

Sugar Cane.—Acreage is fixed for each factory and only to that extent irrigation water is supplied.

Cotton.—Certain restrictions which had been in force since 1944 have now been removed. This might lead to an increase in the area under cotton by 15 to 20 per cent. and to the production of increased quantities of cotton seed which is used as cattle feed. The State is deficit in cotton-seed and has to import it from outside.

Jute.—Its cultivation is encouraged in areas where previously the wild variety was being grown. The target for the current year is to put 25,000 acres under this crop.

Groundnut.—The annual production of ground-nut cake is estimated at about 2,00,000 tons, of which 50,000 are reserved for use as cattle feed and the rest used as manure. Previously most of the ground-nut cake was exported, but now it is used within the State itself.

136. As it is beyond the scope of this Committee to suggest that there should be a planned agricultural programme, they do not make any recommendations in this respect. They, however, do feel that there is need for having some kind of a regulation that at least in the irrigated areas a certain proportion of the land shall be set apart for growing fodder crops for cattle feeding.

(20) *The Ulhas Valley and its possibilities from the point of view of Dairy Development.*

The selection of a suitable area for dairy development is always a difficult matter. The availability of water is an important consideration in planning, both because it is required by animals and also because it is required for irrigation purposes. The Committee have examined a stretch of land comprising some 15,000 to 25,000 acres 4 miles from Badlapur Railway Station (G. I. P.) and 30 miles from Bombay, which, they feel, affords good possibilities of being developed into a large dairy colony for the supply of milk to Bombay. The Ulhas River which originates from the tail waters of the Tata Hydroelectric Works at Khopoli flows through this area and both of its banks can be developed for producing fodder throughout the year. At present the lands grow only a monsoon crop of rice. There are very few cattle in the area, and such as exist are mostly work cattle belonging to the cultivators. The place is connected by a good road with Bombay, though many miles of internal roads throughout the area will have to be made.

138. Being agricultural land in the hands of cultivators, its wholesale acquisition might cause a certain amount of difficulty. It is possible, however, that the cultivators themselves might be induced to take to the production of milk, if they were assured of a market and were provided with the necessary facilities for the growing of fodder. Dairy cattle being expensive, they would also need financial assistance for the purchase of foundation stock.

139. Another line of action that suggests itself is that after the whole area has been surveyed, suitable plots of 10 acres each might be selected and acquired according to a definite plan prepared by Government. On these Government or a trading corporation might build farm units for renting out to the commercial milk producers from the Bombay area or any new enterprisers who might like to go into the dairy business. The existing cultivators should be induced to develop the area adjoining these farms for growing fodder crops throughout the year and the same should be purchased from them at pre-determined rates and delivered to the various units. Government or the trading corporation will have to make arrangements for irrigation water to be supplied to the fields of the cultivators. In this way (a) the area of land to be acquired will be reduced to the minimum, (b) the existing cultivators would be made to contribute substantially towards the scheme by making use of their own lands which will continue to remain in their possession, and (c) the dislodged cattle from Bombay Suburbs will be accommodated on this tract and the milk conveniently brought to Bombay.

140. The area has no doubt good potentialities of being developed into a milk and cattle breeding colony, as there is an enormous amount of water running through it throughout the year which is capable of irrigating 15,000 to 20,000 acres with ease. Being a discharge from the Hydroelectric Works the flow does not get reduced even in summer, when larger quantities of water are required for irrigation.

141. The Committee recommends that in view of the great potentialities of this area, a thorough survey of it should be carried out by a Special staff under the Milk Commissioner and a suitable scheme framed for developing it into a milk colony.

(21) *Co-operative Dairying and Cattle Breeding extent and progress.*

142. The Co-operative Planning Committee appointed by the Government of India in the year 1945 has observed in its report that the co-operative organization is the most suitable form of organization for bringing together the producers of milk in suitable groups so as to enable them to adopt improved methods of production which would ultimately result in increased production. The Committee has also stressed that there is considerable scope for a co-operative form of organization in the distribution of milk.

143. In the State of Bombay, as it stood before the merger of the States, there were 46 co-operative milk supply societies and unions on the 30th June, 1949, and they handled an aggregate of approximately 65 lac lbs. of milk during the preceding year. There were 21 co-operative cattle breeding societies with 972 members owning 1,069 breeding animals.

144. The Choryashi Taluka Co-operative Milk Sale Society Ltd., Surat, is one of the typical older Societies working as a Union. It was registered in the year, 1939, and has made considerable progress with the marketing of milk of its members. It had 454 members and a working capital of Rs. 29,183 in the year, 1948, and it handled 13.59 lakh lb. of milk during the year. Notable progress has been made by the Kaira District Co-operative Milk Producers' Union and the Bombay Co-operative Cattle Owners' Union and the Societies affiliated to them. These Unions work under the Government scheme of milk supply for Bombay City. The Kaira District Union was registered in 1946 with headquarters at Anand. In the beginning, it used to assemble and transport milk for delivery to a privately-owned Company, viz., Polsons, Ltd., for pasteurization. It used to supply cotton seed and other cattle feed to members of its affiliated societies. It commenced pasteurization in its own plant from the 1st June, 1948. The Union has a separate laboratory of its own, with requisite appliances for testing milk and its quality under the supervision of a qualified chemist. The affiliated societies purchase milk at prices prescribed by Government on the basis of fat percentage, the standard of acceptance being fixed at 6.2 per cent. The Union undertakes to transport milk from villages to the pasteurization plant in trucks maintained by it or on head loads from villages not served by roads. The Union has gained considerable popularity among the milk producers. The latter have come to realize the benefit accruing to them from the co-operative organization as against the private traders and companies, and there is demand for registration of more and more societies. It now supplies approximately 50,000 lbs. of milk daily in insulated railway vans after pasteurization. Its activities are growing and before long its supply is estimated to increase to 80,000 lbs. of milk daily. The Union has received the following assistance from the Government of Bombay :—

	Grant. Rs.	Loan. Rs.
1. A loan payable in 15 years at 3 1/2 percent interest ...	.....	,00,000
2. Milk cooling machinery comprising a generator and compressor ...	.....	52,500
3. Grant for sampling and testing of milk of village societies and their members.	2,000	.....
4. Special processing rate of Rs. 7 per maund of milk delivered in Bombay upto 30th September 1949.	.....	.....
5. Supply of two breeding bulls and cost of their maintenance. ...	6,240	
6. For undertaking the water supply and growing of fodder in 6 villages where milk Co-operatives are operating.	58,000	58,000
7. For preservation of green grass as silage, the Union has undertaken to construct six silo Towers at six villages.	8,700	8,700
8. For improving the sanitary conditions Government have approved the scheme of constructing 500 cement concrete cattle standings.	31,250	31,250

The Union in its turn is paid at a fixed price based on the fat percentage by Government so as to cover reasonably the overhead costs incurred by it. From the margin of difference between the price paid to the Union and that realized by sale in Bombay it has been possible for Government to lay by a handsome amount for assistance to producers of milk for the improvement of cattle and development of dairy industry.

146. The progress of the Bombay Cattle-owners Union has been relatively slow. Thirteen societies are affiliated to it. They, together, supply 7,068 lbs. of milk per day. They have 55 individuals and 19 societies as members and their working capital amounts to Rs. 4,30,544.

145. To promote co-operative organization and success of the Bombay's Milk Scheme, Government have appointed a special staff of Assistant Registrar for Co-operative Milk Societies and two Organizers—one each in Bombay and Anand and 1 Auditor. Being a special area scheme, this staff has been placed under the Milk Commissioner, Bombay, and assists the co-operative societies in maintenance of proper accounts and development of dairy industry.

147. As observed by the All-India Co-operative Planning Committee referred to above, a co-operative organization is best suited for bringing together the small and scattered cattle-owners and producers of milk under Indian conditions. Any endeavour to reach such a numerous class of producers directly through a departmental agency is bound to be costly and cumbersome. Besides, they are illiterate and simple folk who are inclined to hesitate in acting upon the advice directly tendered by Government officers and are likely to place greater reliance on it if tendered through their own lenders and organization. Keeping of cattle and production of milk are, as a rule, a subsidiary industry in the hands of cultivators. They have not enough capacity or time to obtain individually the benefit of Government schemes. Their individual credit is usually low. It is only by pooling of their credit, experience and leadership that they can hope to provide to themselves finance for the purchase of animals, marketing of milk, supply of cattle feeds, improvement of breed of cattle and knowledge and equipment for hygienic and profitable handling of milk. Various Provincial and All-India Authoritative Committees and organizations have taken due note of these circumstances and, to make a mention of a few, viz., the Dairy Development Sub-Committee of the Agricultural Policy Committee of the Government of India, the All-India Co-operative Planning Committee and the Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry (in its Lucknow Conference), have recommended the maximum utilization of co-operative societies and unions in the development of cattle breeding and dairy industry.

148. The producer of milk in India has been estimated to receive 60 to 65 per cent. price of the milk paid by the consumer. The remaining 35 to 40 per cent goes to middle-men who collect, transport and retail the milk. The producer is also a victim of middlemen's malpractices as to incorrect measurements and unwarranted deductions or late and defaulted payments for the milk sold by him. The Co-operative organization enables him on the one hand to eliminate exploitation by middlemen and, on the other to realize his responsibility for the development of the dairy industry, and improvement of quality standards on which alone he can ultimately base improvement in his own standard of living.

149. The Government of Bombay have recognised the need to promote co-operative organization in handling these activities and have sponsored special co-operative schemes under their Post-War Reconstruction programme for the promotion of

Co-operative Milk Societies and Unions and Co-operative Creameries. Pending the implementation of these schemes on a more comprehensive scale, Government have helped 15 co-operative organizations of producers by extending to them financial and technical assistance for purchase of dairy animals, transport, equipment, and utensils for the handling of milk, as also for meeting the cost of management. The assistance given to the following four Co-operative Societies illustrates the nature of assistance given by Government :—

STATEMENT VII.

Showing the names of Co-operative Societies and the Assistance given to them.

	Loan for purchase of dairy animals.	Loan for purchase of dairy equipment.	Subsidary for cost of management.
1. The Panoli Group Milk Producers Co-operative Society, District Broach.	Rs. 25,000 at 3½ to be repayable in five years.	Rs. 4,000 at 3½.	To the extent of deficit up to Rs. 2,000 for one year only.
2. The Chanvadeshwari Co-operative Dairy Society, Nagthana, District, Satara.	Rs. 6,500 ten half-yearly equated instalments at 3½ percent.	....	Rs. 240.
3. The Nevri Group Co-operative Dairy Society, Ltd., East Khandesh.	Rs. 15,000 loan for capital expenditure such as motor vans, cycles, etc. repayable in 10 years, Interest free for the three years and thereafter 3½ percent.	....	Rs. 1,000 subsidy for management expenses for 1st year and ½ and ¼ cost for the 2nd and 3rd years.
4. The People's Commonwealth Sahakari Society, Ltd.	Loan of Rs. 15,000 for financing the members of three multi-purpose Societies for purchase of animals at 3½ percent per annum repayable in five years.	.....	.....

(22) Post-War Reconstruction Schemes of the Co-operative Department.

150. The following two schemes have been sanctioned under the Co-operative Department.

(1) *Scheme No. 62 for the establishment of co-operative creameries.*—This scheme visualises the organisation of co-operative creameries in districts where there is an abundant quantity of surplus milk. The districts tentatively selected for this are Bijapur, Broach, Satara, East Khandesh and West Khandesh and arrangements are being made for a survey of these districts to be carried out by the survey staff employed under the Dairy Development Officer.

(2) *Scheme No. 63 for the establishment of milk supply unions.*—Government in the Development Department by their G. R. No. 791 dated the 29th December, 1949, have sanctioned a specific scheme which will operate, to start with, in the districts of Surat, Ahmednagar, Nasik and Belgaum. This scheme visualises the establishment of milk collecting centres which will be affiliated to Unions to be organized for collecting and processing milk. Under the scheme two Unions have to be organised in the 1st year and one each in the following two years. On an average 5 milk collecting centres will be affiliated to each union.

CHAPTER IV.

RE-ORGANIZATION OF BOMBAY'S MILK SUPPLY.

151. *Position in Bombay.*—Bombay for its milk supply depends very largely upon the milk drawn from some 60,000 milch cattle located either in the City or in the suburbs. These animals together supply some 7,000 maunds of milk daily which hardly suffices for the large human population of the area totalling nearly 3 million.

152. On an average Bombay imports some 30,000 fresh milch animals every year from Gujarath, Delhi and Punjab and some 10,000 salvaged animals return to the City every year. The conditions in regard to cattle keeping in this area are such that most of these animals are rendered wholly or partially unfit for further maintenance and as such have to find their way to the slaughter house not long after the lactation in Bombay is over. The calves brought along with the fresh imported animals are virtually starved to death, as there is neither room in the congested and insanitary stables for them, nor have the producers any incentive to rear them as the calf rearing costs in Bombay exceed the price of fresh animals.

153. Since no agricultural lands are attached to these stables, all the requirements of cattlefeeds and fodder have to be imported and it is estimated that some 1,000 train loads of grass and cattle-feeds and cattle themselves are brought annually into Bombay. However, the valuable cattle yard manure produced being of no use is thrown away only to endanger public health.

154. The veterinary aid for these 60,000 cattle is most inadequate and it is estimated that cattle worth 25 lakhs die every year through causes which to a great extent could be prevented.

155. As for the quality of milk produced, the less said the better. In the market it is almost impossible to find an unadulterated sample of milk. The added water is not necessarily clean and as such is a further source of contamination. The utensils used are not properly cleaned and the use of grass to prevent spilling in transit causes further deterioration in the quality.

156. The above facts are not exaggerated—indeed there are several other very unsatisfactory features about the present milk supply which are not referred to here—and this state of affairs has been going on now for over a quarter of a century. Unless a complete reorganization of this vital industry is attempted forthwith, conditions are likely to go from bad to worse.

157. *Measures taken.*—To deal with this unsatisfactory situation the Government of Bombay in 1945 sanctioned a plan called "The Bombay Milk Plan" for the re-organization of the Greater Bombay's milk supply. The salient features of this plan are:—

- (1) Organised procurement of milk from the Bombay City and suburbs.
- (2) Collection and processing of village milk in the Kaira area and its transport to Bombay.
- (3) Organised distribution of pasteurised and bottled milk in Bombay.

(4) Removal of city and suburban milch cattle stables, and colonising the animals at Government established milk colonies, a start to be made with the City.

(5) Rearing of calves, undertaking of arrangements for the salvage of cattle, breeding of stock and growing of fodder; provision of Veterinary aid, facilities for research and technical education; and cheapening the price of milk in the Bombay and Anand areas.

158. The above activities have been entrusted to the Office of the Milk Commissioner, Bombay, under the Civil Supplies Department.

159. The actual position with regard to the above measures is as follows :—

(1) *Procurement of milk for Bombay City and Suburbs.*

160. Contracts have been entered into with some of the bigger producers situated in this region for taking over a fixed quantity of milk daily ex-their stables. The smaller producers have been organised and grouped into co-operative societies. The individual members transport their share of milk to a collecting point wherefrom Government takes over their supplies. Before being taken over the milk is sampled. Duplicate samples are drawn for each lot, one of which is sent to the Government Milk Control Laboratory for analysis, and the other handed over to the producers concerned for further analysis in case of dispute.

161. The purchase price of milk is fixed by negotiation with the producers from time to time and the actual price paid is based on the fat content of the milk supplied.

162. Approximately 450 maunds of milk are purchased daily through this source.

(2) *Colony producers.*

163. Those who have shifted their cattle from the City to the Government Colony at Aarey have to sell their entire production to Government, and the daily output at the Colony is 850 maunds.

164. The Anand area has been known for its surplus milk for quite a long time. Three agencies have been developed as a temporary measure at Anand to collect, process and transport milk to Bombay on Government account. Together they supply nearly 900 maunds of pasteurised milk daily. The milk is procured from some 60 villages within a radius of 15 miles from Anand. The collection is usually done through village collectors who buy milk on cash according to the price fixed by the Milk Department. Co-operative societies of milk producers have also been organised in a number of villages, and collection of milk is done through them also, although about three-fourths of the milk is still being collected through private collectors.

165. The purchase price of milk is so fixed that the producers get approximately one anna per seer in excess of what he would have received, had he sold the milk to other buyers, e.g., cream or butter merchants. The price is declared every month in advance in terms of so many rupees and annas per seer of butter fat for milk containing not less than 6·2 per cent. of butter fat. The collectors and societies are paid approximately Rs. 1-8-0 per maund of milk to cover their profit and expenses in connection with the collection, transport and delivery to the respective processing units at Anand. Processors are not to make any profit or incur any loss on the processing of milk and have to charge at actuals to Government.

166. The processors are paid fixed processing charges inclusive of rail transport and delivery through a cold store at Bombay. Inclusive of profit, they get approximately Rs. 5-12-0 per maund for the quantity of milk accepted by Governments, ex-their cold store. The B. B. & C. I. Railway has constructed 14 insulated vans for the transport of this milk at a cost of Rs. 30,000 each. The cost has been paid by Government. All milk received in Bombay is taken to the respective cold stores and is handed over to Government which assumes all responsibility for its further disposal within 24 hours of the scheduled arrival time of the train.

167. The scheme of bringing long distance milk into Bombay having proved successful in every way, Government have now decided to terminate the temporary arrangements and set up a dairy at Anand with a much larger processing capacity. Land has also been acquired and a rail siding will soon be provided to facilitate the handling of milk on the railway. In order to get the extended Anand scheme examined fully in all its aspects, the services of a British and a Danish expert were engaged and they came out to Anand in July, 1950, and have, after thoroughly studying the conditions on the spot, submitted their reports and these are under the scrutiny of Government.

(3) *Organised Distribution of pasteurised and bottled milk in Bombay area.*

168. There are about 400 centres for distributing whole milk in the City and suburbs, the distribution being done both in the morning and evening. Any consumer wishing to take advantage of the Scheme has to obtain a milk card and obtain his requirements from a suitable centre on cash (14 annas per seer) upto three seers in the morning and three seers in the evening. About 2,00,000 consumers take advantage of the scheme daily.

169. Home delivery arrangements have been undertaken only as an experimental measure in one particular locality and the consumers are charged 2 annas extra for the additional service provided. About 700 consumers are served in this manner,

170. The distribution of toned milk, a product obtained by blending pure buffalo milk, water and skimmed milk powder in the proportion of 59.5 : 37 : 3.5, respectively, and containing 3.5 per cent. butter fat and 9 per cent. solids-not-fat, has been introduced for the benefit of the poorer classes. Toned milk is sold at 8 annas per seer. Approximately 500 maunds of toned milk are distributed daily from 120 centres and about 1 lakh consumers participate in the scheme.

171. Government have contracted to purchase milk from the producers in the Bombay area at 14 annas per seer and it is sold also at 14 annas per seer to the consuming public. On the other hand, the landed cost of Anand milk is in the neighbourhood of 11 annas per seer, but it is also sold at 14 annas per seer. The receipts accruing thereby cover in full the entire overheads of distribution of all milk at Bombay besides leaving a small credit balance.

172. The overhead expenses of distribution at Bombay approximate to 1 anna 5 pies per seer of milk, but when bottled milk is put on the market, the expenses are expected to be reduced.

(4) *Removal of City cattle and their colonization at the Government Milk Colony at Aarey.*

173. The removal of the filthy and unhealthy cattle stables in the City remained under the consideration of the Bombay Municipality for over 25 years, but for one reason or another nothing substantial could be done. Government,

therefore, took upon themselves the task of removing the animals from the City and for this purpose acquired some 3,500 acres of waste jungle land at Aarey 20 miles north of Bombay. There a Milk Colony is under construction. It will have 32 farm units and accommodate about 15,000 cattle. The expenditure on land, buildings, roads, dairy, veterinary hospital, staff quarters, water supply, electricity, etc., has been estimated at Rs. 350 lakhs.

174. Each farm unit at the Colony is self-contained and accommodates about 500 cattle. It has accommodation for milking cattle, dry cattle, calves, down-calvers, bulls, bullocks, carts, trucks, etc. All the operatives of such a unit are provided with proper residential accommodation. In the City they used to live in the same shed with the cattle. The work was started in January, 1948, and up to July, 1950, seventeen units had been completed, of which sixteen have been occupied to date with the removal of some 7,000 animals from the City. Fifteen more units are to be constructed with 2 special units for young calves.

175. Besides providing suitable accommodation for the cattle and the operatives, the Scheme supplies cattle-feeds and hay and green grass at reasonable rates, provides free veterinary aid, the services of Government bulls, technical assistance, etc.

176. For the occupation of the units, Government charges the cattle owners a licence fee of 8 annas per adult animal per week besides levying a charge 1 anna per seer of milk produced at the Colony with a fixed charge of 5 as per animal. All milk produced at the farms has to be sold to Government for distribution purposes at a predetermined price. Water and lighting charges are to be borne by the cattleowners at actuals. In the 16 units there are about 70 licensees, the smallest party holding a licence for only 2 animals.

177. The rent and other charges that are recovered are able to pay 3% per cent interest on the entire investment besides meeting depreciation charges, the cost of maintenance of roads and buildings and the cost of supervision. The scheme is, therefore, self-supporting and the users (producers) do not have to pay more than what they used to in the City for much poorer facilities and amenities.

(5) *Various other Schemes at the Colony.*

178. The various sub-schemes at the Colony which have been taken up or are proposed to be taken up in the near future are as follows:—

- (i) Maintenance and supervision of farm units, roads and central buildings.
- (ii) Veterinary aid and artificial insemination.
- (iii) Medical clinic and public health.
- (iv) Water supply.
- (v) Electric supply.
- (vi) Fodder production.
- (vii) Calf rearing.
- (viii) Cattle-feed supply.
- (ix) Research and Technical Education.
- (x) Banking facilities.

179. The following is a brief description of the various schemes.

180. (i) *Maintenance and supervision of farm units, etc.*—If the Colony farms are not to be reduced to the status of the stables in Bombay and if the project is to fulfil its purpose, it is of vital importance that the rules of business be properly observed by the occupants. The people in the trade having been used to certain wrong practices for a long time and being difficult to deal with, the Milk Commissioner's Department had to impose very, strict supervision and, therefore, at each unit one Government Farm Supervisor has been provided.

181. (ii) *Veterinary aid and artificial insemination.*—In Bombay City there are 1,000 animals kept per acre. At the Colony 15,000 cattle are to be kept on 3,500 acres or about 5 per acre. Even so, great care is necessary to safeguard the health of the livestock and to control the incidence of diseases and it had been accepted by Government that they would bear all the expenditure on the treatment of animals and also in connection with their breeding. A full-fledged veterinary hospital is being constructed with adequate staff, equipment, medicines, etc. Since there is an acute shortage of good breeding bulls, breeding by artificial insemination will be undertaken at the Colony so as to effect rapid improvement in the already degenerated stock.

182. Provision of veterinary aid and artificial insemination service will cost the Government something in the neighbourhood of Rs. 2 lakhs every year. Although no receipts are visualised from this section, yet quite an appreciable in direct benefit can be expected to be derived from the maintenance of the animals in health and their timely breeding, which would ultimately result in cheapening the cost of milk.

183. (iii) *Medical clinic and Public Health.*—Since the Colony will have a human population of about 2,500 persons, adequate attention to their health is necessary to induce them to stay on the spot which in its turn will contribute to the more efficient management of the Colony. The annual anticipated expenditure on this account is about Rs. 40,000.

184. (iv) *Water Supply.*—At present water is purchased from the Municipality in bulk for which a charge of 8 annas per 1,000 gallons is made. Besides this expenditure has also to be incurred on the maintenance of staff, pipe lines, fixtures, pumping of water, etc., besides depreciation on the pipe lines, pump house, reservoir, engine, etc. Whatever expenditure cannot be balanced from the receipts from water charges realised from the units is charged to the cultivation section for the production of green fodder.

185. (v) *Electric Supply.*—The whole colony will be electrified in time to come. The electricity is required not only for lighting purposes, but also in the dairy and in the field as well. The electric line has been already laid.

186. Except for road lighting, the rest of the electricity consumed at the Colony would be charged for at actuals as per consumption by the various consumers, plants, machines, etc.

187. (vi) *Fodder Production.*—This is one of the most important activities of the Colony and is intended to ensure the supply of adequate quantities of green fodder to milch animals throughout the year. It will facilitate breeding and

through reduced use of purchased fodder bring down the cost of milk. Approximately some 1,000 acres of land are to be brought under cultivation for which bulldozers and mechanical means will be required. All the urine and wash water from the sheds are taken to the lands attached to the units and a very high yielding perennial grass known as "Para" is grown. The actual expenditure on all the items of expenditure, viz., preparation of land, planting, irrigation, seeds and plants, establishment, interest and depreciation on capital, expenditure on land, development of water tank, water pipe line, tractors and ploughs, fencing, hutments, etc. will normally be covered by the receipts from the sale of grass to the licensees.

188. (vii) *Calf rearing*.—It is found that most of the licensees, even after coming to the Colony, do not pay enough attention to calves which are usually allowed to die of starvation and neglect. Cattle keepers of Bombay cannot be made to get themselves interested all of a sudden in such a time- and money-consuming activity. It has, therefore, been decided to take over suitable calves from the various licensees and rear them up to maturity at Government cost.

189. Initially the scheme may show certain losses, but eventually when the Colony is fully established it is certain that the receipts from sale of animals will balance the expenditure on the cost of rearing. All the stock reared would be of known pedigree and, as such, will ultimately fetch much more than the non-descript animals which the breeders have hitherto been purchasing in their 2nd and 3rd lactations. The bulls reared by this section would eventually be used in the larger interest of dairy development not only in the State but in the country as a whole.

190. A beginning has been made already with this rearing work and some 100 calves have been taken over. In due course 2 special units for the rearing of calves will be constructed.

191. (viii) *Supply of cattle-feed, hay, etc.*.—Since some 150 licensees will be colonised at Aarey, it is felt that if procurement and distribution of cattle-feeds is left to individual producers, numerous difficulties will arise, viz., the cost of cattle feeds would be higher and not uniform, the quality of cattle feeds would also differ, etc. This would eventually adversely affect the cost of milk. It has, therefore, been decided that the procurement and distribution of all fodder and cattle-feeds should be arranged centrally and they should then be sold after levying a small overhead.

192. The distribution of cattlefeeds through one central agency would also facilitate the feeding of balanced rations and eliminate overfeeding.

193. The expenditure and receipts from this section would ultimately balance each year and even leave a surplus margin to some extent which would go to form a "Reserve Fund" which could be utilised for forming an organization of the licensees themselves.

194. (ix) *Colony Costing Scheme*.—An officer has been specially trained in England in the science of milk costing and is collecting data about the production of milk and other aspects of the dairy industry from all the licensees. This information would prove to be of immense value in due course in effecting economy in various items of expenditure and also in fixing the purchase price of milk after allowing a reasonable margin of profit. Already, the figures show that it is cheaper to produce milk at the Colony than at the stables in Bombay.

195. (x) *Banking facilities.*—Few people realise that milk production needs a very high investment. For instance, in order to produce daily an average of 1 maund of milk valued at about Rs. 35, a person has to invest as much as Rs. 3,000 to Rs. 4,000 in purchase of animals and has to have ready cash all the time in order to be able to replace them when they go dry. The interest charges on money borrowed from individual financiers are very heavy and affect subsequently the cost of milk. At the Colony, apart from the credit facilities of 4 to 8 weeks which Government gives free of interest on supply of cattle-feeds, arrangements have also been made to open a branch of the Co-operative Bank at the Colony which can advance loans to the licensees against their cattle and share money at only 6 per cent.

196. (xi) *Research and Technical Education.*—As far as is known there is not one organization in the world which keeps under its charge a large number of cattle belonging to farmers or milk producers in one compact area and assists in its organisation and the production and distribution of milk from the beginning to the end. The Bombay scheme affords facilities second to none regarding feeding, breeding and management of stock, veterinary aid, and disease control, land clearance and fodder growing, testing of quality, processing and bottling, of milk, transport, distribution, accounting, etc., etc., in respect of a large herd of 15,000 highly commercialised cattle. It also offers considerable scope for the institution of various kinds of courses in dairying *viz.* a milkers course, Master's or Doctorate degree, etc. and the authorities of various teaching institutions have already begun to realize its importance and many students have visited the Colony already. In due course it should be possible to organise technical education and research at the Colony and the Committee recommends that full use of the facilities available should be made in the larger interest of the State and the country as a whole.

(6) *Additional Colonies.*

197. The Aarey Colony will only take care of the City cattle. There will still be left in the suburbs some 30,000 cattle and for them the Bombay Milk Plan envisages establishment of additional colonies, say, at Palghar or Talegaon. In view of the shortage of water at Palghar, the next colony for Bombay Suburban Cattle should be established either at Talegaon or the Ullhas Valley agree.

(7) *Salvage of dry cattle.*

198. In Bombay where no special care is taken to get the milch animals covered while they are in milk, the making of suitable arrangements for the salvaging or refreshing of such cattle in order to avoid the high incidence of 'replacement costs' is essential. For this purpose several schemes have been introduced.

199. The Bombay Humanitarian League, along with several other private agents, was authorised to salvage the City cattle. Government had to incur considerable expenditure in trying to induce producers to send their cattle for salvage instead of selling them to butchers. During the time salvaging was done with the help of these agents. Government had to spend Rs. 1,50,000 towards the transport of animals. The number of animals salvaged under the Scheme upto the 1st July 1948, was 6,405, after which the Bombay Humanitarian League gave up the undertaking.

200. Besides the above arrangements, Government had made their own salvage arrangements at Farms located at Palghar, Jamner and Kedgaon. As the sites at Jamner and Kedgaon were not found suitable for the salvaging of cattle, they were discontinued and only the two farms at Palghar were retained. Additional lands have been acquired at Palghar in order to expand the salvage activities to

cope with the large influx of dry cattle from Bombay. During the early stages, dry animals were purchased outright and were resold when about to calve or immediately after calving. This practice involved undue losses as prices varied very much from time to time and Government had to depend a lot on dalals who unduly profited from the Scheme. The main reasons for this was that the entire cattle is done on credit basis, whereas Government wanted to sell cattle strictly on cash, which resulted in obtaining reduced prices. Under this Scheme upto its termination on the 30th April 1949, 31,156 animals were salvaged involving an expenditure of Rs. 6,49,500.

201. On the 1st May 1949, this system was discontinued and now all dry animals are taken on 'Boarding Basis', under which the producer retains the ownership of his cattle and pays maintenance charges at twelve annas per animal per day for the period the animal remains on the farm. The transport expenses are met by the producer himself. There are at present 530 animals at Palghar under the new scheme. The fee of 12 annas per day covers only the cost of feeding, Government bearing the entire overheads amounting to about 3 to 4 annas per day per animal.

202. Under the scheme, besides the salvaged cattle, young calves belonging to producers in Bombay are also taken for being reared to maturity at the Palghar Farms. There are at present 80 calves taken over under the Scheme. The producers are charged for such calves as under :—

First year	...	...	<i>Nil.</i>
One to two years	...	...	Rs. 60
Two to three years	...	...	Rs. 100
Three years to calving	...	...	Rs. 140

203. Besides salvage and rearing of calves, fodder production has been undertaken at Palghar and for this purpose 3,500 acres of cultivable land have been acquired. Various schemes for the improvement of grass lands are under the consideration of the Government at present.

(8) *Statutory control over production, consumption conservation of supplies, distribution, prices and other matters regarding the cattle and milk industry in the Bombay and Anand area.*

204. With a view to conserving the available supplies of milk for essential domestic consumption in Bombay, Government has since 1944 restricted the use of fresh milk and milk products in the preparation of non-essential articles, etc. The restrictions in force are as under :—

Order No.	Date from which enforced.	Object.
1. No. 57(G)/IV-C	... 25th January 1945...	Prohibiting use of fresh milk in the preparation of tea and coffee in hotels and making use of skim milk powder only in tea and coffee. The milk powder is to be obtained from Government.
2. No. MC/M/186	... 26th June 1946 ...	Prohibiting use of fresh milk and milk products in non-essential articles for sale.

Order No.	Date from which enforced.	Object.
3. 57(G)/IV-C(a)	... 15th November 1945.	Prohibiting the movement, storage and sale of skimmed milk powder without a licence.
4. No. MC/M/5	... 24th January 1947.	Prohibiting the use of fresh milk and milk products in ice-cream and kulfi.
5. MC/M/4/B	... 4th October 1949.	Banning the export of fluid fresh milk out of the city without a licence.
6. No. MC/M/191/B	... 27th October 1949 ...	Banning the sale of hot milk without a licence. Only those shops which take surplus milk from the Government scheme are granted a licence.

205. The skim milk powder is imported by Government from abroad and distributed to hotels, tea shops, etc. There are about 5,000 permit holders using skim milk powder and they purchase about 300 tons of powder per month from Government. The Bombay hotels and restaurants need about 1,000 maunds of liquid milk daily, to produce which an additional 8,000 buffaloes would be needed, not to speak of the fodder and cattle-feed requirements and stalling space. The introduction of skim milk powder, therefore, not only conserves so much milk daily for essential domestic use but its sale through Government agency yields a substantial margin which can be used for doing permanent improvement work, as for instance, that envisaged under the Bombay Milk Scheme.

206. With a view to facilitating the regular collection of milk in the Anand area with a view to bringing it to Bombay, Government have taken certain administrative steps as follows :—

1. Government Order No. MC/DEV-749/D, dated 20th December 1946, prohibiting export of separated milk or curd prepared from separated milk out of Kaira District without a licence.
2. Government Order No. MC/DEV-325(a)/D, dated 20th December 1946, prohibiting (a) export of milk and milk products outside the Anand banned area, (b) use of milk in the preparation of non-essential articles in this area without a licence.
3. Government Order No. MC/DEV-749/D, dated 8th April 1947, prohibiting export of fluid milk from Kaira District without a licence

207. The cattle owners in Bombay are granted import permits for bringing new buffaloes from breeding areas like Ahmedabad, Kaira, Mehsana, etc. and the following orders are in force :—

1. No. MC/M-389/390/391/B, dated 10th November 1949, banning export of cattle from Baroda, Mehsana, Amreli without a licence.
2. No. 410/IV/B, dated 19th March 1944, and 633/IV/B, dated 19th April 1944, banning export of cattle from Ahmedabad and Kaira Districts without a licence.

208. The monthly quotas are distributed each month to the suppliers of milk under the Government Scheme on the basis of the quantity given by each.

(9) *Other Measures.*

209. An order under the Bombay Essential Commodities and Cattle Control Act has been prepared and it is proposed to enforce the same shortly in the "A" Ward of the City, to start with. The main features of the Government Order are that the licence itself lays down the quality standard of milk, and, if a vendor does not sell milk of such quality, his licence can be cancelled. To sell milk without a licence is an offence. Secondly, separate licences will be issued for buffalo milk and cow milk, and unless the vendor can prove satisfactorily that he sells cow milk he will not be given licence to sell this milk. He cannot, therefore, "water down" buffalo milk and call it "cow milk" at the time of giving a sample. After experience in "A" Ward, the control will be extended to other wards.

(10) *Toned Milk.*

210. During the war period there was acute scarcity of milk in the City and Government had under consideration several measures for augmenting the milk supply and undertaking its distribution to priority consumers. In July 1944, a committee of officials and non-officials with Shri Neville Wadia as Chairman was appointed to go specially into this question and to suggest short and long term measures for improvement of Bombay's milk supply. The Committee recommended among other things that Government should undertake to import sufficient quantity of skim milk powder along with the necessary machinery for reconstituting it into fresh milk so as to bring down the fat content to 3.7 per cent.

211. As an experimental measure a small quantity of skim milk was prepared at Anand in August 1946, for distribution and it proved very popular at the economic price of 8 annas at which it was sold by Government. A mixing vat was also ordered from Australia for reconstituting of toned milk and a small dairy was set up for the purpose. The product is made by mixing 59.5 per cent. of pure buffalo milk, 37 per cent. of water and 3.5 per cent. of skim milk powder. It has proved very popular and as against a sale of 10 maunds per day in the beginning, the dairy is now producing about 500 maunds of toned milk daily which is distributed through more than 125 centres in the limits of Greater Bombay.

212. Under Municipal laws the sale of milk to which anything is added including skim milk powder is not authorised and private bodies or institutions are, therefore, not allowed to prepare toned milk. The Municipality takes daily about 50 maunds of toned milk for feeding to undernourished school children at 8 annas per seer. Many hospitals also use this milk.

(11) *Licensing of Cattle.*

213. During the period of the war there was an acute shortage of milk in the City, and to some extent it was due to the fact that the exporting States in the north from which Bombay had till then always imported milch cattle put an embargo on their export. They allowed only a fixed number to be exported each month which was much less than the requirements of the trade. Several other difficulties had also prevented themselves. To deal with this, Government in October 1944, promulgated

an Order under the Defence of India Rules, called the She Cattle (Bovines) Maintenance Order, 1944, which enjoined upon the cattle-owners who were keeping cattle in the city and suburbs to take out licences from the Milk Commissioner's Office. The distribution of cattlefeeds under rationing which was subsequently undertaken was made easier by registration of such cattle. New cattle from the north were allowed to be imported only by those who sent dry cattle out for salvage. Transport subsidies were also given for sending out dry cattle. In October 1949, the above Order was replaced and in its place the Bombay Cattle Control Order, 1949, was issued under the provisions of the Bombay Essential Commodities and Cattle Control Act, 1946. Under this Order only those cattle-owners who keep cattle for business or trade are required to take out licences from the Milk Commissioner's Department and they have to keep them at places approved by Government. The Order also provides that certain sanitation rules in the keeping of animals must be observed. During the period of one year ending 14th October 1950, 2,078 licences for keeping 55,171 buffaloes and 1,506 cows were issued.

(12) *Proposed Legislation—The Bombay Milk and Dairies Improvement Order.*

214. It is understood that in due course Government will set up a statutory Board, the principal function of which will be to encourage and cheapen production and to ensure to the inhabitants of Greater Bombay an adequate supply of milk and milk products of standard quality at reasonable rates. It is further understood that a draft to provide for the control, production and collection of milk and milk products, fixation of their price and quality and for the setting up of a Milk Board has already been prepared. The main features of the draft are understood to be as follows.

215. THE BOARD WILL CONSIST OF REPRESENTATIVES OF MANUFACTURERS, RESTAURANT AND TEA SHOP TRADE, HAY AND CATTLEFEED TRADE, CO-OPERATIVE DAIRY SOCIETIES, CONSUMERS AND THE BOMBAY CORPORATION. THE BOARD WILL BE CALLED "THE BOMBAY MILK BOARD".

216. The principal function of the Board will be to encourage and cheapen production. The general powers of the Board will provide for the breeding of milch cattle, treatment of cattle, promotion of improved and sanitary methods of production and treatment and distribution of milk. It will have powers to regulate movement of milk by rail or road, prescribe regulations regarding the use of containers bottles and tins and promote production of green fodder. The Board will be able to borrow money or raise loan for the promotion of the above activities.

217. All liabilities, contracts, plant and machinery, lands, buildings, etc., that had been in existence and had been provided by the State Government for the reorganization of the Bombay's Milk supply before the inauguration of the Bombay Milk Board shall be taken over by the Board on terms that may be mutually agreed upon by the Government and the Board.

218. The State Government would assist the Board in the acquisition of land required for construction of additional buildings and in the procurement of machinery for the purposes of the Bombay Milk Dairies Improvement Order.

219. The Board would be a body corporate having perpetual succession and may sue or be sued in its corporate name. The Board would be competent to acquire and hold property, both movable and immovable.

(13) *Rearing of Calves, Salvage of Cattle, Breeding of Stock, Growing of Fodder, Veterinary Aid, Research and Technical Education and cheapening the cost of milk production in Bombay and Anand area.*

220. Mention has been made already of the rearing of calves at the Colony. For salvage, Government have set up two salvage farms at Palghar and account of this work has also been given in a previous chapter. At the Colony and also in the Anand area, the work of Artificial Insemination has been taken in hand and special staff appointed for the purpose.

THE ANAND-BOMBAY MILK SCHEME.

221. Anand is town in Kaira District approximately 266 miles north of Bombay. The farmers in the area keep one or two buffaloes each and in the past used to sell surplus milk to manufacturers of cream, butter, casein, etc. They rarely convert the milk themselves into products. Kaira District generally and the area around Anand in particular have always been a potential source of milk production, but selling of milk for manufacturing always fetches lower price than selling it for liquid consumption. This position exists in all other countries also. There are approximately 1,36,000 buffaloes in Kaira District, but not many cows. The area is a typical mixed farming area and the milk producers generally use home grown fodder for cattle and rarely purchase any.

222. Although small scale sporadic attempts had been made previously by some private individuals and firms to bring liquid milk from Anand to Bombay, a properly organised effort was made for the first time only by the Milk Commissioner under the Civil Supplies Department, in November 1945. The scheme started on an experimental basis with the bringing to Bombay of only about 3,500 lbs. of milk per day from Anand after pasteurising it there. This equalled the production of about 400 buffaloes. The resources of a butter manufacturer (Polson Ltd.) were used initially for the purpose. The milk was despatched on behalf of Government and at Bombay departmental arrangements were made for its distribution. In 1946, Polson Ltd. set up another pasteurising plant and started supplying an additional quantity of milk. As the demand for Anand milk increased in Bombay, more milk was collected and in the year, 1947, another processor, viz., Anand Milk Products Ltd. came in the field. In 1948 a producers' organization known as the Kaira District Co-operative Milk Producers' Union Ltd. established its own processing plant and started supplying milk to Government. This plant was set up on the premises of the Government of India Creamery which had been lying unused and was given to the Union on a five-year lease through the Bombay Government. Each year there has been an increase in the quantity of milk processed at Anand and despatched to Bombay, and during the last flush season approximately 80,000 lbs. of milk equal to the production of approximately 9,000 buffaloes was despatched daily.

(1) *Transport of Pasteurised milk.*

223. Milk cannot be transported over long distances without providing refrigerated or insulated vans to maintain it at low temperature and prolong its life. The B.B. & C.I. Railway were, therefore, requested to construct special insulated vans in which milk could be brought at a temperature of 40° F to 45° F. In all 14 such vans have been constructed by the Railway at the cost of Government. The net carrying capacity of each van is about 200 maunds of milk. The milk vans are attached to the trains at Anand between 10 p.m. and 12 midnight and reach Bombay the next morning between 7-30 and 9-30 a.m. On arrival the milk cans are removed to the cold stores of the processors, from where the milk is taken over by Government for distribution through some 400 centres in the City.

(2) *Collection of Milk.*

224. In November, 1945, when the milk was first collected on behalf of Government certain orders were issued under the Defence of India Rules to facilitate its collection with regularity. In order, however, that the producers may not suffer in case other dealers do not buy the milk, Government have fixed the purchase price of milk at a rate which is about $\frac{1}{4}$ to one anna per seer *higher* than the price prevailing in the adjoining area from which milk is purchased by others. Milk is collected from approximately 100 villages located within a distance of 10 to 15 miles from Anand.

225. It is observed that except for a few needy farmers who sell away all the milk they produce, the others keep behind a small quantity required for their domestic use and sell only the surplus. There are again a few who do not sell any milk at all and whatever is produced is utilised for their own use.

(3) *Organisation of Co-operative Societies.*

A tremendous amount of wastage of energy and time takes place when a large number of producers in a concentrated area try to manage every thing independently from production to distribution. At times they deal through middlemen, which is not always in the interest of the producers. In their own interest, therefore, it was considered essential to organise them into co-operative societies and during the course of the last three years 26 societies of milk producers have been organised and are functioning in the area. They are all affiliated to the Kaira District Co-operative Milk Producers' Union Ltd., and deliver milk to the Union daily for processing and despatch to Bombay. Although some of the producers in the villages where the societies are operating are still not handing over milk to the Societies, on the whole the Co-operative movement has been well established in the area and holds out promise of a useful and bright future. The organization of Co-operative Societies is being directed by the Milk Commissioner, Bombay, for which purpose certain staff of the Co-operative Department has been placed at his disposal.

(4) *Dairy Development work at Anand.*

227. By paying about an anna per seer more on the quantity of milk purchased by Government, it has been possible to pay so far a premium of approximately Rs. 12 lakhs extra to the producers in this area as a result of the Milk Scheme. This would not have been possible, had there been no Scheme on the scale and basis of the existing one. However, even after doing this, and after meeting the processing, transport and distribution expenses at Bombay, there remains a margin of about one anna per seer on the Anand milk handled by the scheme when it is sold in Bombay at 14 annas per seer. This price is to be maintained as the milk purchased in Bombay is sold at annas 14 per seer and the milk from the 2 sources cannot be sold at different rates. The margin on Anand milk, however, helps to cover most of the expenditure on the distribution of milk purchased in the Bombay area.

(5) *List of Schemes sanctioned in the Anand Area.*

228. Since Anand area offers enormous scope for developing dairy and animal husbandry work the Government Milk Department (under the Civil Supplies Department) has undertaken certain developmental schemes in the area and each year the work will be expanded in the light of experience gained.

229. The various schemes launched in the area and the amount of assistance given to the Societies and the Union are indicated in the statement below :—

Statement VIII showing the List of Schemes sanctioned so far in the Anand area through the Milk Department under the Civil Supplies Department.

Scheme.	Grant of	Loan on easy
	subsidy.	payment basis.
	Rs.	Rs.
1. Purchase of processing plant and machinery for the Union dairy.	....	1,00,000
2. Supply of a generating set for the dairy. ..	47,700	....
3. Purchase of tractors and implements for land improvement work in the villages.	65,000	....
4. Construction of 1,000 cement concrete cattle stand-ings in the villages to encourage clean milk produc-tion.	63,000	31,500
5. Provision of 15 pumping sets for fitting in villages for supply of water for cattle, human beings and for growing of green fodder.	1,48,000	58,000
6. Provision of one mobile veterinary dispensary, for treatment of village cattle.	30,000	....
7. Supply of milk testing machines, chemicals, etc. for determining the quality of milk in the villages.	19,680	....
8. Construction of centralised milking, sheds, manure collection arrangements, etc.	31,250	....
9. Construction of 6 silo towers, to conserve green fodder.	8,700	8,700
10. Provision of artificial insemination centres for cover-ing the need of about 4000 cattle in the first instance, (inclusive of Rs. 11,200 against an annual recurring grant).	49,300	....
11. For purchase and maintenance of 6 breeding bulls including Rs. 4,500 for maintenance).	10,200	....
12. Managements expenses given to the Societies	13,000	....
13. Prizes for efficient management of co-operative Societies and for doing the maximum amount of village welfare work.	15,000	....
14. Prizes for rearing of cattle	20,000	....
Total	Rs. ..	5,20,830
		1,98,200

230. A further application for a loan of Rs. 1,15,000 asked for by the Union is pending and is receiving attention of Government.

(6) *Construction of Roads.*

231. The area is generally not well served with all weather motorable roads. During the rains several villages get disconnected and the price of milk gets reduced considerably to the disadvantage of the farmers. Therefore, with the object of facilitating the collection of milk, and also to provide the much needed transport arrangements in the area, Government have sanctioned five important roads in the Anand area at a cost of Rs. 28 lakhs and the work on them will start shortly.

(7) *Central Dairy (Anand).*

232. The existing arrangements for the processing of milk at the different places are somewhat temporary. None of them has a rail-siding. This is essential for handling large quantities of milk economically. Except in one case, the plants are also not of modern type. The Anand-Bombay Scheme has shown that its introduction has been beneficial both to the area of production (Anand) and that of consumption (Bombay) and, therefore, Government have decided that a modern dairy of sufficiently large size should be set up at Anand at an early date. A suitable plot of land, where rail-siding can be had, has also been acquired. Prior to placing the contract for the plant and machinery, however, Government thought it expedient to seek the advice of one British and one Darish expert. These experts visited Anand in July 1950, and submitted their reports which are under the consideration of Government.

CHAPTER V.

THE POSITION OF MILK SUPPLY IN OTHER LARGE TOWNS AND CITIES.

233. The problem of milk supply in the other large towns and cities is as acute as in Bombay and requires urgent attention.

234. The towns get their supply of milk from two sources (i) from the surrounding rural areas and (ii) from cattle kept within the city limits. The system of town dairying originated from the desire of the consumers to have fresh and regular milk supply. The system continued with the growth of cities on account of transport difficulties and the absence of proper refrigeration facilities. But stable dairying has not been found useful. The stables existing in the heart of cities create insanitary conditions and have been potential sources of spread of disease. Due to the rapid growth of towns and cities shortage of residential accommodation is being keenly felt, and there is a feeling that the area occupied by stables is not being properly utilised. Due to the very costly living in urban areas, the *gavalis* find it very difficult to maintain milch animals in cities. They, therefore, resort to adulteration. It has, therefore, been observed that despite municipal regulations the menace of adulteration has not been checked. The matter does not end here. The *gavalis* find it quite uneconomical to maintain calves and dry animals within town limits. The calves are, therefore, wilfully neglected and most of them die soon after they are born. A considerable number of the dry animals also find their way to slaughter houses constituting a constant drain on the cattle wealth of the country.

235. The milk is produced in stables under unhygienic conditions. Dirt and dust, the chief carriers of pathogenic germs, gain access to milk through dirty and often unhealthy milkers and milking of dirty animals in dirty stables. Most of the towns, however, receive their major portion of milk requirements from the surrounding rural areas within a radius of 20 miles or so unless there are good roads, in which case milk may be brought-even from a distance of 30 miles. Headload, bullock carts, tongas, cycles, motor trucks and railway are employed in the transport of milk. It has been found from the surprise samples taken during the surveys of cities that the evil practice of adulteration exists everywhere and no town is an exception to it. Surprise samples taken and analysed by the Dairy Development Section indicate that milk is sometimes adulterated to the extent of 70 per cent. with the result that not only are the consumers robbed of genuine milk but they are also exposed to the danger of diseases since the water that is used for adulteration is usually of doubtful origin.

236. Scarcity of milk exists in all cities. There is only difference of degree. The results of surveys given in previous chapters bring out prominently the low consumption of milk in practically all cities.

237. The price of milk in common with that of other commodities has gone up considerably during the last few years. Consequently it has become almost impossible for the middle and poor class families to purchase sufficient quantity of milk. In short the problem falls under three heads *viz.*, (1) Insufficient supply, (2) Poor quality, and (3) High prices.

(1) *Government Milk Supply Scheme for Ahmedabad, Poona and Hubli.*

238. With a view to augmenting the milk supply of towns and encouraging the dairy industry in the rural areas Government have sanctioned a milk supply scheme for the towns of Ahmedabad, Poona and Hubli under the Dairy Development Section. Under the scheme it is proposed to organise the surrounding villages for the production of milk and to improve the dairy cattle of these villages. Government under this scheme has established milk collecting centres in the villages. The villagers are given a fair price for the quantity of milk delivered. Milk is tested for fat, specific gravity, acidity, etc., and after being bulked in ice chambered cans is transported to the above cities by special vans. Having arrived at the city it is pasteurised at a dairy or sent direct to the distribution depots for sale. Government have established depots in the towns where customers are required to go for their daily quota of milk both morning and evening. Under the scheme it is proposed to handle on an average 4,000 lbs. of milk per city and the scheme is to run entirely on "a no-profit and no-loss" basis.

239. At each of the three cities there is a General Manager to control the work and he is assisted by a Milk Procurement Officer who looks after the procurement of milk and a Milk Distribution Officer who manages the distribution side. Both these Officers have been provided with suitable staff to assist them in their work.

240. The scheme offers many advantages both to the producer and the consumer of milk. The producer is guaranteed a fair price for the milk and the customer gets pure quality milk at a very reasonable rate. The scheme have become extremely popular in all the three towns and if continued for a sufficiently long time will bring about an orderly development of the dairy trade. In course of time it is proposed to organise co-operative dairy societies in the villages for supply of

concentrates, providing loans for purchase of animals, etc. The Dairy trade in all the towns at present is in a chaotic condition and it is, therefore, felt that Government should organise it by schemes of this nature. Such schemes would bring about dairy development much more speedily and, therefore, in the beginning at least these should be sponsored by Government.

241. The Scheme has served as a valuable training ground for the staff and has given them an insight into commercial dairying. It has received good response from both the producers and the consumers and although the target is still to be reached, the progress has been quite satisfactory. Mere collection of milk from the villages and distributing it to the consumers, is, however, not good enough, specially when this is being done by a Government Department. The Department must, however, develop its activities in a more intensive manner, if both the producers and the consumers are to be benefited to any substantial extent. The scope in the areas where the Dairy Development Officer has started work is so great and the possibilities so many that they need to be considered more fully

242. At suitable places on both sides of the Poona Bombay Road, some 5 or 6 centres should be established through which the Department should arrange to supply regularly cheaper cattle feeds for the use of those who supply milk to the Scheme. But cheaper cattle-feeds is not meant that cattle feeds should be supplied at concessional or subsidised rates, but at their actual value which by reason of the work of procurement, transport and distribution being done by a Government agency thus eliminating the malpractices of middlemen is expected to be lower than the prevailing market rates.

243. Through the above centres arrangement should also be made for giving veterinary aid to the cattle of the producers. Failing this, mobile veterinary vans may be provided, which could go from village to village, according to a pre-determined programme and give veterinary aid in the villages themselves. A beginning in this connection has already been made by the Milk Department, Bombay, in the Anand area through the Co-operative Union there.

244. The above centres could also be used for collection of milk from the adjoining villages. Milk could also be tested there and if need be, cooled with ice before despatch to Poona. Later on, if the quantity justified it, a small boiler could be fitted for washing and sterilising the milk vessels of the producers before they were returned to them. Instead of using untined narrow mouthed brass vessels, it would be useful to introduce small-sized tinned steel milk cans.

245. The producers of the area could be organised into co-operative societies and they could be assisted by the installation of pumping sets for growing fodder for cattle. This will particularly apply to villages which are located along the banks of rivers. Silage making should also be encouraged whenever possible.

246. It is essential that the work of organizing the producers into co-operative societies should be done under the guidance and supervision of the Dairy Development Officer. This could best be achieved by getting an energetic and reliable officer from the Co-operative Department and placing him under the Dairy Development officer. In the case of Special area schemes he should be directly responsible to the Dairy Development Officer, but may send his monthly or quarterly reports to the co-operative Department to show to that Department what work

he is doing. This is how the organization of co-operative societies, both in the Bombay and Anand areas, has been successfully done by the Milk Department and the same system is recommended for the Poona area also. The effect of this recommendation will be that in the case of special area schemes the office of the Co-operative Department will be placed directly under the D. D. O. but Shri B. P. Patel maintained that he should continue to be under the Co-operative Department.

247. With the increase in the quantity of milk handled it will be necessary to set up a proper dairy at a suitable place in Poona and perhaps in the other two towns as well. It should be fitted with a regular pasteurising and bottling plant and also a cold store. Since, like the Talegaon area, there are other areas also on the southern side of Poona which could be developed, the dairy must be large enough to handle the milk from such areas also.

248. The accounting section of the milk scheme needs to be strengthened so that the Dairy Development Officer as well as the Animal Husbandry Department are able to get certain returns every day and some every month. This would enable them to keep a proper check on the financial and economic aspects of the scheme and any amendments or changes that may be required to be made to economise the work, could be introduced in good time.

249. In short, the scheme, if it is to be of value in the right sense to the producers as well as consumers, must be handled from a long-range point of view. That is the only way of extending it successfully, for in its present form it is doubtful if it will make any serious impression on the milk supply of the towns. There is also the danger that by doing the milk collection and distribution work on a small scale, the outside forces may prove too severe and the economics of the milk scheme may be seriously threatened. On the other hand, if it were worked on the lines indicated above with such modifications as may be necessary, it would in due course earn the support of the producers as well as the consumers and it would be very difficult for the private trade to upset Government's arrangements for the supply of pure and cheap milk to the public.

(2) Other schemes.

250. Besides the above schemes which are under operation at present, the following schemes have been or were submitted to Government :—

- (1) Scheme to organise a Co-operative Milk Supply Union at Poona.
- (2) Scheme to organise a Co-operative Milk Supply Union at Surat.
- (3) Scheme to organise a Co-operative Creamery and Milk Supply Union at Dharwar-Hubli.
- (4) Scheme for Salvage of Dry Buffaloes from Poona.
- (5) Scheme to establish a Pasteurizing Unit and Milk-cum-Bull Production Farm at Nasik.
- (6) Scheme to establish a Dry Stock Farm at Deolali South.
- (7) Scheme for rapid enquiry into fat, solids-not-fat and specific gravity of milk.

Schemes at serial Nos. 4 and 5, viz., Scheme for Salvage of dry buffaloes from Poona, and Scheme to establish a Pasteurising Unit and Milk-cum-Bull production Farm at Nasik, have been dropped for the present by Government due to financial stringency.

(3) *Schemes of dairy development sanctioned by Government in the State.*

251. Government under their Resolution, No. 776, Revenue Department, dated the 3rd September 1946, created a separate Dairy Development Section under the Animal Husbandry and Veterinary Science Department for developing the dairy industry in the State except the Bombay City proper and areas supplying milk to Bombay, for which the Milk Commissioner's Department had already been created in the previous year. The Dairy Development Officer with his headquarters at Poona was charged mainly with the responsibility of advising the public on dairy matters, surveying the existing conditions of dairying, suggesting to Government ways and means of developing the dairy industry and executing the schemes sanctioned by Government. Accordingly, the dairy survey of all the important towns was completed and data regarding production of milk, imports from outside, types of animals involved, etc., obtained. A similar survey was carried out in respect of the intensive dairy tracts and riverine areas which enabled the Dairy Development Officer to put up concrete schemes to Government. These schemes were largely based on the five-year plan proposed by the Dairy Development Adviser to the Government of India except for certain modifications to suit local conditions.

252. The Dairy Development Officer has at present two branches, one for advisory work and the other for survey work, under the Dairy Development Scheme sanctioned by Government. At each of the three centres, viz., Surat, Poona and Dharwar, there is one senior officer responsible for advisory work and another senior officer in charge of survey. The Survey Officer is assisted by one junior officer and four assistants who go from place to place carrying out detailed surveys of the areas under their charge. The Advisory Officer is useful in rendering technical advice to the public, dairymen, municipalities and other institutions in the area in his charge; besides, he controls and supervises the schemes launched by Government. Besides the above staff, there is also an officer for advisory work at Kolhapur for serving the Southern-Eastern and Konkan regions.

(4) *Scheme to help large-scale dairy farmers.*

253. From the beginning it was clearly realized that there was an urgent need to supplement Government efforts at producing dairy bulls for the concerted development of milk production in the villages. Accordingly, the Dairy Development Officer framed and submitted to Government a scheme of financial assistance to prospective farmers who wanted to establish the dairy business on a large scale in order to enable them to set up large dairy farms somewhat on the lines of the milk-cum-bull production farms suggested by the Dairy Development Adviser in his five-year plan which would serve not only to augment the supply of milk but produce bulls for the development of the milch animals in other areas. The importance of this work will be realized from the fact that many of the large towns and cities derive their milk supply from the various surrounding villages in which no proper arrangements for the breeding of animals exist. Taking the case of Poona, for example, it is found that this town derives its milk supply from nearly 200 villages situated at various distances which have hardly any breeding bulls of the required type or quality. To bring these 200 villages alone under controlled development at least sixty bulls would be required annually. It would be necessary, of course, to rotate these bulls in 200 villages every three years to avoid in-breeding but even on this basis the State would require a very large number of

bulls for its total requirements, even taking into account the possibility of Artificial Insemination being introduced on a large scale. To produce bulls, therefore, and also to supply milk Government, in accordance with the above scheme, have sanctioned loans to dairies, the condition being that the dairy work will be almost entirely controlled by Government. The loans bear interest at 4 per cent. and are returnable within ten years. The names of the persons and institutions which have been granted loans and the amount of the loans are shown below :—

	Rs.
1. Messrs. Govardhan Dairy Farms Ltd., Poona ...	50,000
2. Shri M. J. Patil, Asarwa, Ahmedabad ...	48,000
3. Shri B. D. Dangat, Shivane, District Poona ...	38,000
4. Shri R. K. Patil, Kundewadi, District Nasik ...	50,000
5. Shri C. M. Warad, Sholapur ...	50,000
6. Shri S. A. Hindalgekar, Hindalga, District Belgaum.	49,256
7. Messrs. Doddanavar Bros., Belgaum ...	50,000
8. Shri N. D. Wale, Hubli ...	43,000
9. Shri M. H. Khaire, Poona ...	41,000
10. Shri C. H. Phatak, Bhatgar ...	49,000
Total amount of loan paid ...	4,68,256

253A. Loans are granted only for specific purposes such as purchase of animals, construction of buildings, etc., and Government in addition helps the dairy farmers in procuring foodstuffs, building materials, etc. Each dairy is required to produce 500 lbs. of milk daily, either cow or buffalo, and maintain a herd of only a pure breed approved by Government. Each dairyman is also required to invest on his own account an amount equal to at least 50 per cent. of the capital cost. The technical and other aspects of the working of the dairy will be under the control of the various Government Departments.

(5) *Help to small-scale dairy farmers.*

254. In order to meet the demand of small-scale dairy farmers or cultivator-cum-producers of milk for short-term loans, Government have also sanctioned a scheme for the grant of loans to the extent of Rs. 1,000 per person at 1 per cent. interest. This scheme really meets the need of a vast area and, incidentally, enables Government to gain useful information on various aspects of dairying such as the suitability of the various breeds for different regions, the milk yield per animal, price of milk, conditions of agriculture, etc. Under this scheme loans have been granted to 81 dairy farmers in the State who were unable to get any assistance from other Government Schemes.

(6) *Position in villages.*

255. On studying the milk problem of rural areas, especially villages in the vicinity of towns and cities, one sees only a gloomy picture similar to the one seen in urban areas. The following are the main facts brought to light as a result of the surveys carried out by the Dairy Development Section in rural areas :—

- (1) Yield per animal, cow or buffalo, is low.
- (2) Milk is produced in only meagre quantities by the majority of milk producers.

(3) No proper breeding facilities exist, the number of bulls being very low in comparison to females. These bulls are also of inferior type, thus causing deterioration of stock from generation to generation.

(4) Cattle-feeds are not available in sufficient quantities and such as are available are sold at exorbitant prices, making it almost impossible for the ordinary farmer to feed his animals adequately.

(5) The grazing facilities are hardly satisfactory anywhere. Grazing areas are shrinking in size day by day and they are also in a neglected condition thus affecting the condition of the animals.

(6) Transport facilities in connection with the marketing of milk throughout the year are available only in a few cases.

(7) General rise in prices of commodities of every-day use has further caused the situation to deteriorate. The prices of milch animals have gone up very high. Thus due to lack of finance, farmers are not able to purchase more buffaloes or cows and this has been a serious obstacle to the development of the dairy industry.

(8) The lack of transport facilities and restrictions on the import of animals from outside discourage farmers from purchasing animals. The lack of a proper organisation of farmers is also a handicap.

(9) The farmers have not organised themselves, nor have they made any united effort to solve their common problems. Price cutting is rampant which ultimately adversely affects them all.

256. Milk production is a subsidiary occupation with most of the farmers. Only with some who reside in rural areas surrounding the cities and towns, it is a main occupation. Farmers keeping one or two animals use some quantity of milk for home consumption and sell the rest in the village itself. Only those farmers or breeders who have a large number of animals export milk to the urban areas. In the very remote areas, generally, the milk is converted into milk products. The price realised by the producer is much less than what is paid by the consumer. This is so because the so-called organised milk industry is being run by middlemen whose sole aim is to make profits. They are completely blind to the interests of the producer or those of the consumer. They are only interested in keeping as wide a margin as possible between purchase and sale price. This margin is further widened by having recourse to the practice of adulteration.

257. From the above description it will not be difficult to make out how sadly neglected the milk industry is. There are a large number of towns and villages and lakhs of producers to deal with. Each place has its own problems and no single scheme can fit in all localities and situations. The solution, therefore, lies in selecting the most suitable areas or villages for dairy development and developing them in an intensive manner.

(7) *Co-operative Dairying and Cattle Breeding.*

258. In 1944 India had in all 824 Co-operative Cattle Breeding Societies. Separate figures for Bombay for 1944 are not available, but in 1949 the State of Bombay had only 46 Co-operative Milk Producers' Societies and together they

handled 65 lakh lb. of milk. The objects of a typical society are: to improve the breeding and purchase of cattle, sell improved livestock, make available to members loans for the purchase of animals, maintain common grazing lands, preserve and supply fodder and cattle-feeds, and educate members in the breeding and keeping of cattle generally. There are 21 Co-operative cattle-breeding societies in the Bombay State with 972 members owning some 1,089 breeding animals.

259. Co-operative dairying in this State has received an impetus only under the scheme for the re-organization of Bombay's Milk Supply, i.e., in the Greater Bombay and Anand areas. Only in these areas have the Societies been working regularly and organizing and establishing themselves on proper lines. This work, however, has been done solely under the direction of the Bombay Milk Department through the help of a few trained officers obtained from the Co-operative Department. An account of the work done in these areas in regard to the establishment of co-operative societies have been given elsewhere in this report. As a result of their close contact with the staff of the Milk Department the Societies and the Unions handling milk have made rapid progress and it is considered that this method of active and day-to-day co-operation between the staff of the Milk and Co-operative Department is to be recommended for all areas where dairy work is to be organised on a co-operative basis.

(8) *Municipal Control on Quality of Milk.*

260. Milk is a very easily adulterable article and its adulterant, water, costs nothing. Dirty water can do a lot of harm in other directions. Proper control of the quality of milk is, therefore, of very great importance in encouraging production of pure milk and ensuring to the consumer a good quality product.

261. Under the Municipal Act there are special rules which the Municipality can adopt for the prevention of adulteration of articles of food. So far as Bombay is concerned, the Bombay Prevention of Adulteration Act, 1925, is applicable to the City of Bombay as constituted before 15th April 1950. Under this Act, the Municipal Commissioner is empowered to exercise control on the quality of milk distributed in the City. For this purpose and to regulate the sale of good quality milk, the Municipality has laid down the following standards:—

		Fat not less than.	Solids not fat Not less than.
Buffalo Milk	...	6 per cent.	9 per cent.
Cow Milk	...	3.5 per cent.	8.5 per cent.

262. The special staff appointed by the Bombay Municipality under the Executive Health Officer inspects the milk shops and where milk of a quality lower than the standard laid down is found to be sold, samples are taken and prosecution launched.

263. The above efforts are not considered adequate and adulteration of milk is generally practised on a large scale. There is, therefore, a proposal to take over this function from the Municipality; as, unless the quality standard is rigidly enforced, the production and distribution cannot be effectively organised and any scheme under which adulteration is not rigidly controlled cannot function properly.

264. The Bombay Prevention of Adulteration Act, besides being in force in Bombay City, has been extended to some other cities of the State also. The actual number of milk samples analysed and the samples found adulterated in various towns and cities is given below:—

STATEMENT IX.—*showing the No. of milk samples examined in various cities and the percentage found adulterated.*

Place.	No. of milk samples analysed by Municipalities.		No. of samples found to be adulterated.		per cent. of adulterated samples.	
	1945	1946	1945	1946	1945	1946
Bombay	6,748	18,927	1,537	3,490	23	18
Ahmedabad	2,900	2,210	1,176	912	76	41
Surat	...	1,231	...	602	...	49
Broach	68	99	47	91	69	92
Dhulia	10	52	...	37	90	71
Sholapur	210	140	110	94	52	67
Ahmednagar	178	155	139	137	78	88
Kurla	66	106	44	72	67	68
Amalner	36	65	30	54	83	83
Hubli	18	58	13	53	72	91
Kapadvanj	36	18	23	13	64	57
Thana	31	8	21	7	68	88
Nadiad	167	194	83	85	50	44
Poona	225	177	202	172	90	97
Pandharpur	252	181	160	157	64	87
Nasik	35	40	17	21	49	53
Belgaum	8	36	8	31	100	86
Ghatkopar	197	71	161	58	81	82
Ankleshwar	...	18	...	18	...	100
Parle-Andheri	98	132	61	53	62	40
Trimbak	21	8	9	6	43	75
Godhra	98	97	80	60	82	62
Bulsar	114	212	93	331	82	62
Barsi	73	50	56	41	77	82
Bhusaval	6	55	6	49	100	89
Dharwar	6	2	5	3	83	100

265. If the quality of milk that is consumed in the various towns and cities is considered, it would appear that the enforcement of the Act cannot be said to have had much effect on the quality of milk. For instance, in the Poona area, despite the large number of places where the milk is sold and the very considerable number of milk vendors, less than one sample per day has been taken on an average. What kind of protections such vigilance can give to the public who purchase the milk or to the honest dairyman against dishonest competitors need hardly be emphasised. The percentage of adulterated samples should also not be taken as a correct index of the actual position. For instance, of the total number of samples taken during the last two years in the City of Bombay, only 18 and 23 per cent. respectively proved adulterated. That would show that the bulk of the milk supply was pure which is far from truth.

266. So far as the Bombay area is concerned, it may be stated that the quality of milk distributed under the Government Milk Distribution Scheme is checked by Government themselves. No less than 700 samples of milk are taken daily (seven days of the week) which works out at over 2,55,000 samples per year for controlling the quality of a third of the milk of the City. As for the remaining two-thirds, the Municipality takes only 19,000 samples a year.

267. From the foregoing figures it is clear that the need for a stricter quality control on milk is not only essential but most urgently required. The various municipalities which have adopted the said Act are not in fact enforcing the same effectively and things are allowed to go on much as they have been doing until now.

(9) *Utilization of fluid milk, and butter, ghee and other products.*

268. The following figures obtained from the two reports on "The Marketing of Milk and Ghee in India" published by the Agricultural Marketing Department of the Government of India give the consumption of milk and milk products in India and the Bombay State.

STATEMENT X.—*showing the per capita consumption of milk and milk products in India and the Bombay State.*

Consumed as	India.		Bombay State.	
	Annual quantity (in thousand maunds).	Percentage of the total production.	Annual quantity (in thousand maunds).	Percentage of the total production.
Fluid	1,76,218	28·0	6,764	38·7
Ghee	3,58,914	57·0	9,374	53·7
Butter	10,756	1·7	995	5·7
<i>Khova, Cream and others</i> ..	52,236	8·3	105	0·7
Total ..	6,29,291	(100)	17,457	(100)

269. From the above figures it would appear that only 37 per cent. of the milk produced in this State is consumed in the liquid state, while the rest is converted into ghee, butter or other milk products. Ghee forms the major item among milk products consuming more than 50 per cent. of the total milk produced in this State. For the making of butter 5 per cent. of the milk produced in the State is utilised and this forms the most important product next to ghee.

(10) *Per capita production and Consumption of Milk.*

270. Figures of per capita consumption of milk for the various parts of the Bombay State are very variable. The consumption is highest in the case of the northern towns such as Ahmedabad and Surat and lowest in the Deccan. In Sholapur it is very low. Cities in Karnatak stand midway between the northern towns and the Deccan. Karnatak has good facilities for producing milk, but due to transport and other difficulties the milk does not reach the cities and towns and has to be turned into curd, butter, etc.

271. According to the nutritional authorities, the minimum consumption of milk per head per day should be 8 ozs. in the liquid form and 8 ozs. in the form of milk products. This would mean increasing the present production three times, which is neither easy nor capable of quick accomplishment. Under far more favourable conditions and much greater sustained and intensive efforts, it has taken some of the other countries 30 to 60 years to increase their output to nearly three times the original production.

STATEMENT XI.—*showing the per capita consumption of milk and milk products in various towns in this State.*

Per capita daily consumption of milk.						
				Milk in liquid form (in ozs.)	Milk in form of products. (ozs.)	Total Ozs.
Bombay	..	..	..	....	....	....
Ahmedabad	..	..	..	4.18	0.60	4.78
Surat	..	..	..	4.70	4.30	9.00
Nasik	..	..	..	2.60	Figures not available.	
Poona	..	..	..	2.40	0.60	3.00
Sholapur	..	..	..	1.30	0.69	1.99
Belgaum	..	..	..	3.04	Figures not available.	
Dharwar	..	..	..	3.10	Do.	
Hubli	..	..	..	2.20	Do.	

272. The above figures cannot, however, be taken to represent pure milk. They are for "market milk" and it would be in order to assume that they are high by about 25 per cent. on account of the added water.

273. The consumption of milk is thus not only far below the average considered essential, but the article having been adulterated with water from questionable sources it is a potent source of danger to the health of the public. No detailed bacteriological surveys have yet been carried out in regard to market milk except for a short study at Anand which showed that about 80 per cent. of the milk received there was such that it would have been unacceptable in England or Denmark for consumption in the liquid form but was suitable only for being converted into milk products.

274. One important point affecting the consumption of milk is the high cost of the commodity. No other factor influences consumption of milk so much as this. Milk has always been a luxury to people in this country and the poor people who need it most are unable to afford it even for the use of their children. If the consumption is to be increased it is important that the cost should be brought down and here introduction of "Toned Milk" both as a short-term and long-term measure requires special consideration.

CHAPTER VI.

LINES OF FUTURE DEVELOPMENT.

275. From the preceding pages it will be realized how great and complex and time-and money-consuming the problem of milk supply is. The Milk Colony at Aarey shows that to organize a Colony of about 15,000 cattle, to make arrangements for the handling of their milk in a proper manner, to organize the collection of milk from an equal number of village cattle located in another area (Anand) etc. a period of three to four years is needed and about Rs. 4 crores require to be invested. Much needs to be done on the executive side as well and the scheme requires the full-time energy of a special Department. Yet, financially a scheme like that is practicable and Government can realise from it about 3 per cent. interest on their investments apart from gains in other directions which cannot be measured in terms of money.

(1) *Scope.*

276. There are approximately 22,000 villages in the State exclusive of those in the merged areas. The Committee considers that in order not to attempt too much at once, to start with, only 4,000 villages should be taken up. These should be round about the taluka towns at the rate of, say, 10-20 per town. The Committee feels that the development of the small towns where milk is very scarce should, primarily, be the responsibility of the State. In the opinion of the Committee whatever is done in the small towns will serve as a guide to the surrounding villages and will effect rapid and permanent improvement in the conditions of dairying in those villages. In the opinion of the Committee, the question of the reorganisation of the Milk Supply in larger towns and cities with a population of over 30,000 and—there are 30 such towns and cities in this State—should be largely the responsibility of the Municipalities concerned. In any State sponsored scheme of dairy development, the smaller towns should be given the first priority.

(2) *Target.*

277. Proposals to increase the supply to 2 or 3 times should be viewed with caution and reservation. The proposal boils down to making a cow or a buffalo give 2 or 3 times more milk than at present and the Committee feels that this can only remain an ideal for many years to come. It would be an achievement if in the 4,000 villages, say in 7 years from start, (Two generations of cattle), the existing supply were increased by 25 per cent. The Committee lays down this as the possible target.

(3) *Lines of Development.*

278. In considering the lines of future dairy development generally, the Committee wishes to follow the indications contained in the Government of India Five-Year Plan prepared by Dr. Zal R. Kothawala, the Dairy Development Adviser, Ministry of Agriculture. The plan consists of eight projects which are described below and which the Committee recommends for adoption with such modifications as may be necessary to suit local circumstances.

(i) *Milk-cum Bull Production Farms.*

279. In order to improve the village dairy cattle it is absolutely necessary, in the first instance, to breed bulls from approved sires and dams (both cows and buffaloes). In order to meet the needs of about 4,000 villages only—and the Committee recommends only this number for development in the first instance it will be necessary to produce about 4,000 bulls and thereafter, about 1,300 bulls each year on the assumption that one bull will be kept in one village for three years only and that, thereafter, it will be transferred to another village to avoid inbreeding.

280. Assuming that a large-scale dairy farm will produce about 2,000 to 4,000 lb. of milk and also breed about 10 to 20 bulls annually, it will be necessary to establish about 30 such dairy farms in the 30 important taluka towns of the State. The farms should be so located that each District will have at least one seed farms. The Dairy Development Section has already established seven such dairy farms in the State and it is felt that further work in this direction would be most helpful in meeting the bull requirements of the villages.

281. Apart from the above, the Committee recommends that full use of the Aarey Milk Colony which is already existing should be made to breed and rear bulls from approved buffaloes and cows. Thousands of high yielding cattle of several breeds are kept at the Colony and it is estimated that in about four years from now the Colony will be able to supply about 1,500 pedigreed bulls bred under direct Government supervision each year.

(ii) *Small Holder Milk Production Farms.*

282. These are intended to increase milk production on the holdings of the private cultivators in order to provide them with more milk for domestic consumption as also to make available an adequate quantity for sale to urban areas. Ultimately, the intention is that the producers should be organized on a Co-operative basis. Each farm is expected to produce on an average about 200 lbs. of milk daily which under the existing conditions would be suitable target to aim at. A number of

such farms could be organized in the area of operation of the Taluka town and the 20 villages roundabout. Such farms should be encouraged to grow green fodder. It is recommended that in the beginning Government should organize such farms at every Taluka Headquarters and gain experience of its working.

(iii) *Artificial Insemination.*

283. The method of artificially inseminating cattle has recently found much favour in most of the dairy countries of the world on account of the fact that it enables rapid improvement of dairy cattle with minimum expenses. It also helps in utilising the services of one good bull for inseminating a large number of dairy cattle. The Government of Bombay have already started work in this direction by establishing an Artificial Insemination Section under the Animal Husbandry and Veterinary Science Department and similar work is also being carried out separately at Aarey Colony under the Milk Commissioner as well as in the Anand area under the Agricultural Institute at Anand. After sufficient experience of the work has been gained, it will be necessary to extend this work throughout this State and especially in the rural areas roundabout the taluka towns and cities which are to be developed for production of milk. On the establishment of the Milk-cum-Bull Production Farms, referred to earlier, it will be possible to procure the necessary number of bulls for Artificial Insemination work in the State. Since the selection of bulls is of very great importance, the question of producing better bulls either through private agencies or at Government farms should be given special consideration.

(iv) *Colonies of dislodged City Cattle.*

284. In most of the Indian cities the conditions of dairying are very backward and the dairyman has resorted to the system of town dairying. This consists in maintaining dairy animals in the cities and selling fresh milk to the consumer. Such a system, although it has existed for so long, should not be allowed to continue any further and efforts should be made to remove all the cattle from cities and towns as early as possible. This would not only help in the production of cheaper milk outside city limits but also improve the sanitation of the towns. An experiment on these lines has already been undertaken at Bombay with the establishment of the Milk Colony at Aarey, miles from city proper. It is suggested that Government should urge upon local bodies to take early steps to remove the cattle from at least the four larger cities, viz. Poona, Ahmedabad, Sholapur, and Hubli.

285. The experiment at Aarey has shown that the cattle colonization scheme can be self-sufficient and can pay back interest at 3 per cent. after meeting all charges. Such colonization schemes should, therefore, be undertaken by Co-operations and Municipalities to prevent waste on the one hand and to organize an important public utility industry on the other.

(v) *Cross-breeding of animals.*

286. The animals found in the hilly tracts of this Country are of a very poor type and their production is very low. Cross-breeding of these animals in certain tracts with some of the foreign breeds is stated to have yielded encouraging results in that even in the first generation there was a considerable improvement in the milk yield and in successive generations it was more. The Dairy Development Adviser has, therefore, proposed that the animals in the hill tracts where the climatic conditions are generally suitable for foreign animals should be crossed with bulls of selected foreign breeds. Typically hill cattle such as are found in the

sub-montane Himalayan regions, Assam, East Bengal, etc., are not found in this State. Besides, sufficient data regarding the effects of cross-breeding of hill type animals with foreign breeds are not available. The Committee, therefore, recommends that as an experimental measure hill type of animals met with in this State such as those in Mahabaleshwar, Matheran and Porandar areas might be, crossed with foreign breeds, and, if the results obtained proved encouraging, the work might be taken up in a systematic manner. It may be pointed out, that high yielding plains breeds of cattle do not thrive well in the hilly tracts. So far as the breeding of the general mass of cattle in this State is concerned, the policy should be to grade them up with superior dairy bulls as suggested above either by artificial insemination or by stationing premium bulls under the scheme already in operation under the Livestock Section of the Animal Husbandry and Veterinary Science Department. Under the Premium Bull Scheme operated by the Livestock Experiment Station to Government a bull is given to the cultivator at half the cost, or, alternatively maintenance charges are provided as subsidy. As this Scheme is very useful in improving the village cattle through superior bulls it is suggested that this should be further continued in all the four thousand villages taken up for development.

287. The Committee observes that so far little or no efforts have been made to introduce the dairy or milk producing character in the animals, emphasis having been laid up to now on producing either purely draught or dual purpose animals. As it is felt that there is a great necessity of introducing the dairy quality, especially in the cow, if she is to survive and compete with the buffalo, it is recommended that in all the non-descript animals which do not belong purely to the draught breeds milk should be introduced forthwith.

(vi) *Co-operative Milk Union.*

288. In the State of Bombay it is possible to establish about 30 potential Co-operative Milk Supply Unions for about 30 towns and cities. It is, however, suggested that this work should be taken up by the Municipalities concerned on lines similar to those sanctioned for the cities of Ahmedabad, Poona and Hubli. The operation of these schemes will suggest areas where Primary Co-operative Dairy Societies could be organized; these could then federate into Unions as envisaged in the five-year Plan. The functions of the Primary Societies and the Union once established would be to breed dairy cattle in accordance with the policy laid down by Government and also supply milk to the nearest towns. As the work is of a highly specialised nature requiring the application of technical knowledge such as pasteurisation, processing, distribution, quality control, etc., it is suggested that Government should offer the Municipalities the necessary assistance in this respect, but the assistance to be given, should not in any way be a drain on the State Programme of dairy development in the Taluka Towns and the area roundabout.

(vii) *Co-operative Rural Creameries.*

289. There are certain areas in Bombay State where considerable quantities of milk are produced but there is no nearby market for disposing of the same. In order to provide the necessary incentive to the production of milk it is suggested that rural creameries and factories should be established in villages for manufacturing butter, Ghee, Khova, cream, etc. In this connection it should be realised that the primary need of the public is for liquid milk, it is, therefore, suggested that in view of the already acute shortage of milk, efforts should be made to provide transport, refrigeration and pasteurisation facilities, etc., so that there may be no need to convert the milk into products beyond requirements.

290. In the above connection, the Committee considers that butter should be made at or near the place of production of milk or cream and not many miles away from it. For instance, the manufacture of large quantities of butter at Bombay from cream imported from Kaira and Ahmedabad is wasteful, undersirable and uneconomical and should be discouraged.

(viii) Production of Green Fodder and Silage.

291. In order to produce sufficient green fodder in the State it is estimated that there should be at least 2·4 lakh acres of land under green fodder cultivation either for feeding the green fodder as such, or for converting it into silage and preserving it until required. In all the irrigated areas of the State, therefore, and especially in the canal tracts where the tendency uptil now has been to grow cash crops such as sugar-cane, etc., year after year, Government should make it compulsory on the part of the cultivators to put a certain acreage under green fodder production and to maintain dairy animals. This would enable the soil conditions to be revitalised and result in the production of more milk so badly required by the State. In areas where there are poor facilities for the production of green fodder Government should undertake extensive propaganda in favour of silo pits and also construct same on its own account so that the grass and fodder grown in the monsoon may be preserved for use in time of scarcity. A scheme for silage-making is at present operated by the Livestock Expert to Government and it is the view of the Committee that this should be extended throughout the State and particularly to the concentrated areas marked for Dairy Development.

292. For the above purpose, the Committee recommends the pattern that has been followed by the Milk Department in Kaira District. Grants and subsidies should be given to co-operative societies for setting up pumping sets on existing wells or for digging new wells for growing of green fodder for the use of the member-producers throughout the year. Each such unit will cost about Rs. 10,000 without a well and Rs. 20,000 inclusive of a new well. 50 per cent of this should be given as a loan and the balance as a subsidy. The Co-operative milk societies should be built around this activity, as it will provide water to cattle and human beings and enable cheap fodder to be grown all the year round. Lands could be taken on lease. The next stage would be to provide one or more silo towers for conserving monsoon fodders for use during the summer season.

293. Conservation of manure and urine by providing better cattle standings in the villages on the lines of those built in Kaira District is also recommended.

(4) Local organization required at each place of development, viz., 170 Taluka and towns.

294. In groups of suitable taluka towns and up cities and towns selected for development a responsible, progressive and resourceful officer should be placed. Such officers are not easily available but suitable, qualified and experienced men should be appointed and they should be trained at Bombay, Kaira, Ahmedabad, Poona or any other place where milk and cattle improvement schemes are being operated. These officers should be assisted by local advisory bodies of 2 or 3 persons only and should be placed under Regional Dairy Development Officers whose work should be co-ordinated by the Dairy Development Officer.

(5) *Improvement of grass lands and conservation of fodder and grass.*

295. The right type of fodder and in abundant quantity is a fundamental requirement of cattle if these are to be kept in good condition of health and performance. The Committee observes that there is no separate organisation nor any special officer in any of the Government Departments to attend to this important question of fodder supplies. Experiments in Palghar area have shown that there is considerable scope for increasing the yield and improving the quality of fodder grasses grown there. The Committee, therefore, recommends that this aspect of animal husbandry should receive the earliest attention of Government in the Agriculture and Forests and Revenue Departments and they should go into the question of production of more and better fodders for cattle and their proper conservation.

296. The Committee feels that there is need for even compulsion to be used for a certain proportion of the holding to be reserved for growing fodder crops so that the cattle are not neglected due to the desire of the cultivator to produce more money-crops. A typical instance of this is observed in Kaira District, where, although the district has to maintain a large number of heavy milk producing animals, due to the high price of a money crop like tobacco, which does not yield any fodder at all and is also a heavy feeder on manure and water, large areas are covered by this crop year after year while some of the cattle remain under-fed. In other words, in the view of the Committee there is need for having a crop programme for each district according to its own needs and that of the State as a whole. In the crop plan or programme the basic needs of cattle for food should find their rightful place, for, if the cattle are neglected, neither can agriculture progress nor can human beings have more milk. With agriculture suffering, even production of foodgrains will be affected. Thus the need for producing adequate fodder for cattle cannot be stressed too strongly by the Committee.

297. The Committee considers that there is need for regulating the village grazing areas or the so-called "gurucharan" lands. The problem is no doubt difficult, but with a little organised effort on the part of the local people, the lands can be given rest by stages so as to allow grass to take root and grow before cattle are let loose on it to graze.

298. Making of silage from grass or from any non-poisonous weed or vegetable growth should also be encouraged in order to provide fodder in a green form during the summer months.

299. In suitable areas the Committee favours giving grants for digging wells or for fencing the lands to improve the fodder resources of the State. The grass development Officer and his organization should also advise the villagers on the growing and conservation of fodder. In this connection the co-operation of Village Panchayats should be taken.

300. Certain talukas of the Thana District are very important from the point of view of the production of grass for supply to Bombay. In fact, this is the only district which can supply fodder to Bombay cattle. In recent years the grass prices have gone very high and bear no relation at all to the actual cost of production. The amount of return per acre to the person who owns the lands or has them on lease is many times more than what it was before the war. Yet it is observed that the owners or lessees have done nothing to improve the grass lands. It is even possible that, due to the extraordinarily high returns which the owners get, there has been

even less anxiety to pay them even normal attention. The Committee strongly recommends that action should be taken by the appropriate department of Government to see that the owners or lessees are made to spend each year some money on the improvement of the grass lands such as removal of jungle growth, drainage of low-lying areas where necessary, manuring, propagation of better varieties of grasses where such will grow, etc.

(6) *Grading of Grass.*

301. There are 4 or 5 district varieties of grasses obtained from the Palghar area and the difference in price between them is quite appreciable. This leads to the grass merchants mixing the varieties or passing the inferior grasses for the better ones by keeping the inferior ones in the centre of the bales and the better ones on the outside. The annual value of the grass which comes to Bombay alone is estimated at about Rs. 2 crores, and it is necessary that before they are baled the grasses should be properly sorted according to a statutory grade designation. This would be in the interest of the producer as also facilitate regulation of prices. The Agricultural Marketing Department of the Government of India has already been requested to study this problem and to devise ways and means of improving the marketing of the grass and the Committee considers that this work must be pursued in order to encourage the growth of better varieties of grasses and for making available to the consumers the different varieties in an unmixed form.

(7) *Notification of Areas.*

302. In order that the work of development may be carried on with full intensity, the Committee considers that an area covering some 20 villages around each of the Taluka towns to be covered in the first instance should be "notified", if necessary under special legislation. The idea is that the State should consider all the cattle which represent well-defined breeds in the notified area as national assets, and preserve and develop them intensively somewhat on the lines of the Cotton Improvement Scheme. All the scrub or non-descript animals in the notified area, should be bought over at a nominal price and driven out on foot to adjoining areas and re-sold or the owners should be asked to dispose of them outside the area within a period of 6 months. They should then, if possible, be replaced by better and identical animals from adjoining areas representing the type and breed officially recognised for the notified area. Thereafter the migration of cattle in and out must be strictly controlled. Approved bulls in adequate numbers must be maintained in the notified area. Such male progeny as is considered to be not suitable for propagation should either be castrated and prevented from breeding or transferred to other areas. The required number of Government farms should be started in the notified area for breeding pedigree bulls. In such notified areas attempts should be made to grow green fodder and provide silo towers or pits.

303. Having got the area rid of all non-descript cattle, the problem of cattle improvement must be tackled in its entirety. All cattle must be marked and registered. More and better fodder must be provided for them. Adequate veterinary aid must be given. Records of milk yield and other basic data must be maintained. Expert advice and guidance should be made available to the farmer or cattle breeder near at hand to assist him and direct him at every stage of cattle improvement work. Manure must be well conserved and returned to the soil. Finally, the produce of the cattle, namely, the milk and its products, must be marketed efficiently

so as to bring proper returns to the cattle owner. It is difficult to overemphasise this aspect, as the cattle owner is not likely to listen to any advice if he does not obtain better returns through the sale of milk, milk products or calves to compensate him for his added expenditure and labour.

304. Under this plan each farmer's home in the 20 villages near each of the taluka towns should become a breeding and cattle improvement unit irrespective of its size, location and ownership. Under the plan only the programme and work will be directed by Government while the cattle will continue to remain the property of the villager.

(8) *Breeding policy to be followed in the "Notified" areas.*

305. The main recommendations of the Indian Council of Agricultural Research, as made by the Joint Committee on Livestock and Milk, are appropriate to the above purpose and are reproduced below for general guidance :—

(i) In view of the fact that a large percentage of the cattle population of this country consists of non-descript animals, it is essential, in the interest of producing a general utility animal, that it should combine in itself draught and milk qualities to the optimum extent—in other words, if in non-descript cattle these two qualities are combined to an average degree to start with, the purpose will be served.

(ii) In areas where specific types (as distinct from well defined breeds) exist the policy should be to effect improvement by selective breeding with a view to improving both the milk and work qualities.

(iii) In the case of well defined draught breeds, the objective should be to put in as much milk in them as possible without materially impairing their work qualities.

(iv) In the case of well-defined milch breeds, which have considerably decreased in numbers due to partition, the Committee is of the considered view that it will be in the larger interests of the country as a whole to develop their milking capacity to the maximum extent by selective breeding and to utilise them principally for the development of cattle in under-developed areas.

(9) *Transport arrangements need to be improved.*

306. It is obvious that if milk from the rural areas is to reach near-by or distant consuming centres, proper facilities for transport by road or rail must be provided. The essentials of milk transport are regularity, speed, refrigerated condition, low freight (milk contains 86 per cent. water) and return of empty cans.

307. In connection with the Anand-Bombay Government Milk Scheme the B. B. & O. I Railway have constructed 14 four-wheeler insulated vans, the conversion charges in respect of which approximating to Rs. 32,000 per van have been met by Government.

308. The carrying capacity of each van is 11 tons and with the fittings inside the van and the tare of the cans, ice, etc., only about 18,000 lbs, or 8 tons of milk is actually carried. Freight is charged at the rate of 6 annas 6 pies per mile both ways plus a terminal charge of As. 10 per van. According to these charges the freight per maund of milk works out at Rs. 1-1-0 inclusive of the return charges for carriage of empty cans.

309. From the fact that Government had to pay for these vans, it would appear that the railways have not yet recognised transport of milk in special vans as their normal responsibility. The Committee strongly recommends that the Railway Board should examine the position very carefully and arrange for the G. I. P., B. B. & C. I. and M. & S. M. Railways to provide insulated vans for transport of milk brought to urban areas and towns. Unless this is done, there are few changes of the trade developing on the right lines and on a large scale.

310. Apart from the provision of insulated vans, the Committee considers that the railways should consider sympathetically any request which may be made to them to adjust train timings suitably in order to pick up loads of milk *en-route* to consuming centres. In some cases it may even be necessary to stop through fast trains at small stations to pick up milk wagons.

311. Apart from facilities that are required for the transport of milk, the Committee considers that better arrangements should also be made for the transport of valuable milch cattle by rail. For instance, at Sabarmati which is an important transshipment centre for cattle coming into this State from other areas, the facilities provided for the housing, watering, etc., of the animals during transport are very poor. Undue delays also occur in getting the broad gauge wagons. It is reported that these complaints have been registered with the railways on many occasions in the past but to no effect.

312. The cattle wagons themselves also need to be improved by providing in them a water tank of suitable capacity and seeing that it is properly filled at the main junctions *en-route*. The cattle and attendants are put to a great deal of inconvenience and expense because of the lack of proper watering arrangements.

313. At the unloading stations where a large number of animals arrives daily such as the Grant Road in Bombay City, etc., there is not even a shed to give protection to cattle in inclement weather or in the hot sun after they have been unloaded from the wagons and before they are taken to the respective stables. The Committee recommends that, as neglect of valuable animals in transit can affect their utility and performance during their entire lactation, the railways should give their special attention to this problem. Cattle traffic must be looked upon as quite different from the normal deadstock traffic.

(10) *Better distribution arrangements needed.*

314. The Committee is convinced that no scheme of dairy development can ever progress if the distribution end of it is neglected or inadequately controlled. In the distribution arrangements there is no room for half measures. The Committee has examined the arrangements that have been made by Government in the Bombay area. It is of the opinion that if the milk distribution scheme is ultimately to succeed, it must cover and embrace the entire distribution in the City and suburbs whether it be for direct domestic consumption or for whole users of milk such as hotels, restaurants, mills, etc., or for the large number of private milk shops. In the early Stages it may not be possible for it to handle all the milk, but the distribution scheme must keep an account of the entire quantity distributed and consumed in the area under its charge. All the vendors of milk and all concerns which deal in milk must be registered and all such concerns must be responsible for the actions of their employees,

315. It has been reported that in the urban areas one of the difficulties which the Municipal staff experiences is that if a sample of milk taken from a vendor is found to be adulterated, it is found invariably difficult to trace the vendor and to serve him with summons. Giving of false addresses or changing of names is not uncommon. The Committee, therefore, recommends that all vendors in an area must not only be registered but also wear conspicuously an armlet or a badge indicating their name and the registration number somewhat like the registered porters at railway stations. No one should be allowed to distribute milk if he does not possess the badge and legislation should authorise the police to arrest such a man and put him in the lock-up till he is bailed out. If a person wearing the badge has been found to sell adulterated milk, apart from whatever fine may be imposed, his licence and badge must be confiscated. The remedy may appear to be drastic, but it seems to be the only way of improving the quality of milk and restoring public confidence which has, unfortunately, been lost at present. When conditions are so bad that it is more an exception than a rule to come across pure milk, it is obvious that no ordinary measure will meet the situation. The honest dairyman or vendor should have nothing to fear and the Committee feels that if in a few instances deterrent punishment including arrest, lock-up, etc., is inflicted on the dishonest section of the trade, improvement would be effected in a surprisingly short space of time.

316. Under the milk distribution arrangements proper enforcement of the rules relating to the hygienic conditions of buildings, drainage arrangements, utensils, equipment, bottles, personnel, etc., is equally important and the Committee considers that mere insistence on the purity of milk will not go a long way unless the hygienic aspect of milk production is given equal attention. The Committee recommends that all persons handling milk should possess a medical certificate and should be periodically examined. The importance of this will be realised from the fact that at a recent examination of the men employed under the Milk Distribution Scheme at Bombay 30 were found to be affected with infectious diseases and their services had to be dispensed with by the authorities.

(11) *Technical education to be provided for.*

317. At the present moment no exclusive dairy training is imparted in the State. The Degree course in Agriculture at the three Colleges in the State, *viz.* Poona, Anand and Dharwar, does include training in dairying as part of the curriculum. The Committee considers that there is urgent need to enlighten the man in the trade in the correct method of handling milk and everything connected with it. There is also need for instituting a diploma course in Dairying at the various Agricultural Colleges in the State on the lines of the one at Bangalore and Allahabad. This would enable young men to take up full training in Dairy Husbandry and Technology and enter the dairy industry fully equipped for dealing with all aspects of the trade. As regards field education, this can be best given by arranging demonstrations, magic lantern shows, etc., and by showing educational films, especially made to suit Indian conditions. The Department concerned with the development of dairying should have special staff, apparatus, films, etc., and should arrange daily shows and demonstrations for the benefit of the persons engaged in the industry. An advance party should visit the place and arrange for publicity and for demonstrations so that there is good attendance. Even if a hundred persons connected with the trade could be made to see these demonstrations and listen to the lectures on essentials for one hour a day, in the course of, say, even 200 days in a year, about 20,000 persons could be demonstrated improved

methods of dairying. The Committee feels that the money spent on such an activity would be well spent and that a very large number of persons who are in the trade and who are not fully conversant with proper methods of dairying would be benefited.

318. In the opinion of the Committee, the Government Milk Colony at Aarey offers considerable facilities for imparting training in Animal Husbandry, Veterinary Science, dairying, etc., and it recommends that the question of locating teaching institutions connected with these subjects at Aarey should be examined.

(12) *Need for conserving fresh milk supply for essential uses.*

319. The Committee realises that there is an acute scarcity of milk in some of the cities and towns of this State. In order therefore, to release greater quantities of milk for domestic consumption the Committee suggests that if there is a demand from the local bodies for the reservation of liquid milk for domestic consumption only, it should be made compulsory for the hotel-keepers, eating establishments, restaurants, etc., to use only milk powder in their preparations instead of fresh liquid milk which is at present being used. It is understood that there is a demand from many a town and city in this State for the imposition of a ban on the consumption of liquid milk in such places, but in the beginning it is suggested that the ban should be introduced only at Ahmedabad, Poona and Hubli where Government have started milk supply schemes. The necessary quantity of powder to hotels, restaurants, etc., should be supplied through skim milk powder depots as is being done in Bombay.

320. The profits which may accrue from the use of skim milk powder in any particular area should be used for dairy development work in that area only.

(13) *Policy regarding export of butter.*

321. The Bombay State has long been noted for making and exporting butter to various parts of India. Cream production and butter manufacture is concentrated mainly in Kaira and Ahmedabad Districts, but there are many dairies in Bombay City itself which obtain cream from the above districts and convert it into tinned or packet-butter. The total production of the State is estimated at 11, 340 lbs. per day or 1,825 tons per year, of which roughly 25 per cent. or about 460 tons per year is exported to places outside the State.

322. Production of country butter, which is made from curd as opposed to creamery butter which is made from cream, is extra and is confined mostly to the Belgaum District and to East and West Khandesh. No information as to the actual output is available but this butter is mostly used for domestic consumption or making into ghee and there is very little export of this commodity outside this State.

323. The amount of butter exported by various dairies which hold export permits during the period, March to August, 1950, was as follows :—

Name of the Dairy.	Quantity Exported in Lbs.
1. Polson Ltd., Bombay-Anand ..	1,80,117
2. Lord's Dairy Farm, Ahmedabad ..	74,761
3. British Express Dairy, Bombay ..	62,787
4. Pollock Dairy Farm, Ahmedabad ...	11,575

Name of the Dairy.	Quantity Exported in Lbs.
5. Prince of Wales Dairy Co., Ahmedabad ..	29,088
6. Reliance Dairy, Ahmedabad ..	26,190
7. Champion Dairy Co., Bombay ..	10,000
8. Supreme Dairy Farm, Ahmedabad ..	9,840
9. Star Dairy Co., Ahmedabad ..	9,462
10. Overland Dairy Farm, Mehmedabad, District Kaira ..	8,730
11. Anglo Indian Dairy, Ahmedabad ..	7,764
12. S. Morton & Co., Bombay ..	4,101
13. Raja Dairy Farm, Ahmedabad ..	4,274
14. Dhulia Dairy Farm, Ahmedaaaad ..	1,184
15. Carlisle Dairy Co., Bombay ..	3,458
16. Acame Dairy, Nadiad, District Kaira ..	2,742
17. Continental Cremery and Dairy Farm, Bombay ..	1,178
	4,47,251

324. Compared to some of the other States, Bombay State as a whole is deficient in milk and therefore, in milk, fat. During the war Government decided to conserve the State's resources of butter for its own use by controlling the export of butter to other areas. The butter export trade of individual butter manufacturers in the year 1939, was taken into account in fixing the future quotas. The proportion has varied from time to time, but in September, 1950, 34 per cent of the 1939 exports were allowed to be exported.

325. It has been reported to the Committee that the butter trade, representing some 20 butter manufacturers, has represented to Government through its Associations that the restrictions on the export of butter may be withdrawn and that free export of butter may be allowed.

326. The Committee has examined the question of butter export and while realising that two of the districts have in all-India trade in tinned butter, to which extent the position is advantageous, it cannot over look the fact that the State as a whole is short of butter-fat and, therefore, it do not think that it will be equitable to permit free export of butter. The Committee considers that if the butter manufacturers make proper efforts and conduct a proper marketing campaign, it should not be difficult for them to find a market or the entire quantity produced by them in the State itself. Indeed, if they find it difficult they should convert the butter into ghee, for it is even more difficult to obtain pure ghee, and the buying public would welcome such a Move. The Committee makes a special appeal to the butter manufacturers that they should make efforts to put on the market "pure ghee" of good quality packed in small containers at reasonable prices.

327. The Committee in any case looks with disfavour upon the system of making butter in the Bombay City from cream which has been imported from long distances. The right course for the industry would be to establish butter factories in the cream producing areas themselves so that the extra 25 or 30 per cent. moisture which cream contains need not be transported every day to Bombay.

328. There is considerable scope for organizing the butter trade and for opening a number of large butter and ghee manufacturing factories in Kaira, Ahmedabad, South Satara, Beglaum and Bijapur districts to handle cream from outlying places from where milk cannot be transported for liquid consumption.

329. The Committee considers that the marketing of butter and ghee should be done on an organised basis somewhat on the lines of what the manufacturers of Vanaspati are doing. It is only when the consumer is able to get a standard and guaranteed product in factory-sealed containers and in fresh condition at reasonable prices that he will re-take to its use and the industry will flourish. This is the only hope of achieving any progress in this direction, particularly since ghee has to sell in opposition to a much cheaper vegetable product, namely, Vanaspati.

(14) *Advisory work needs expansion.*

330. Dairying in tropical countries presents special problems unknown to the west. The trade is in the hands of people of small means who are not in a position to employ any trained personnel. The trade, therefore, needs technical guidance and assistance from Government Departments. It needs assistance regarding the feeding and rearing of animals, regarding the handling, transport and processing of milk, regarding bottling and distribution, etc. As the various schemes develop, there will be an increasing demand for this type of assistance. The Committee, therefore, considers that the Dairy Development Officer should have an efficient section which can render advice to the trade on all these and other matters connected with the day to day work. It should also have one or two trained engineers and erectors who should go round and assist the trade in setting up dairies, farms, etc., and in training their personnel.

(15) *Legislation and its enforcement.*

331. The Committee realises that more important than having new legislation is to see that the existing laws and regulations governing production and sale of milk are properly enforced and observed. It realises, however, that there is no legislation today existing in the State which deals with the systematic control or development of the milk or dairy industry. On many occasions and in connection with many matters administrators as well as the progressive section of the trade have felt helpless because they had no legislative backing. For instance, in the cities and large towns thousands of calves are killed through starvation or neglect and there is nothing that can be done to stop it. Grass lands are neglected and while there is acute scarcity of fodder, one finds oneself helpless in trying to do anything in the matter. Milk and certain other dairy products are handled in a most filthy manner dangerous to public health and yet little can be done to improve matters. Defective, unclean and utterly unsuitable containers are used for transport of milk, cream, curd and other products, and yet nothing can be done to prevent their use. This is so because up till now to a large extent the trade has remained in the hands of the illiterate, ignorant and unenterprising section of the community. In

England and most of the other countries if a farmer does not produce sufficient turnover of food crops from his land, or milk from his cattle, or he is not mindful of the quality of his products, and if the Agricultural Executive Committee is satisfied that the farmer has neglected his holding and stock, there is legislation to put such a farmer out of business and Government can take over his farm and property and get it run by others.

332. The Committee considers that a comprehensive legislation on the lines of the Bombay Dairies Improvement Bill to improve conditions of the trade and dairying in general is long overdue and should be adopted at the earliest opportunity by Government. Its adoption in other areas should be done as soon as there is a local demand for the same or where the Department concerned feels that the time for its application is ripe.

333. The object of the legislation should be :—

To take charge of organising, helping and controlling of permanent basis the milk and dairy business and other allied businesses, e.g., those connected with the growing and management of grass, supply of cattlefeeds, etc., in any area, notified for the purpose. Further it should assume full responsibility for ensuring to the consumers a plentiful supply of clean, safe and pure quality milk and dairy products at reasonable prices.

334. The legislation should set up a suitable body, say, a Board and vest it with the necessary powers to successfully discharge its obligations in connection with the above objects. It should have the following statutory powers :—

(i) To raise and operate loans and provide cheap finance to producers, co-operatives, processors, transport agencies, grass and cattlefeed trade, etc., and to finance its own schemes.

(ii) To levy a cess on milk, dairy products, hay, cattle-feeds, cattle, etc., handled in the area of operation.

(iii) To fix prices of milk, milk products and other allied articles at all stages and define their standards of quality after taking into account the available date.

(iv) To promote production, processing and distribution of milk and milk products, to promote trade in other allied articles, to give premium for quality and to promote and breed milch cattle.

(v) To control the movement, manufacture, sale and distribution of milk and milk products in the area of operation.

(vi) To issue licences to all sections of the trade and to put out of business any milk producer, distributor or concern by refusing to grant licence if in its opinion its activities are not conducive to the well being of the trade as a whole, or for the achievement of the objects for which it has been set up.

(vii) To purchase or to take on lease and operate grass and agricultural lands or other property, to have its own farms, processing and manufacturing depots, milk centres, cold stores, transport fleet and arrangements, artificial insemination centres, hay and cattle-feeds, distribution and processing centres and to import, supply and trade in dairy machinery and dairy products, etc.

(viii) To promote research and technical educational by propaganda amongst the trade.

(ix) To have its own rules of business and appoint its technical, executive and administrative staff to look after its activities and functions.

(x) To undertake such activities as in the opinion of the Board may be necessary from time to time for the betterment of the milk and dairy industry and for the achievements of its objectives in the area of its operation or outside it.

335. It would not be out of place to quote here the example of the Milk Marketing Board in England which has now been running for the last 15 years. Many major events have taken place in England during the past 15 years including changes in Government and the 1939-45 World War, in which England was so heavily involved. But the Milk Board has followed a set policy as determined by Parliament and has immensely consolidated the position of milk producers in England to the national advantage of the country. It is, therefore, essential to see that the implementation of any milk scheme such as the one operating now in Bombay is not affected by changes of Government, financial considerations, high or low commodity prices, etc.

336. The Committee, therefore, strongly recommends that steps should be taken at an early date to ensure continuity of what is being done at present, if the money spent so far is not to be largely wasted. It should not be difficult to realise that the Milk Colony at Aarey cannot flourish if there is no hold or control on the rest of the milk that is produced and distributed in the Bombay area. The same may be the fate of the Anand Scheme. This position of uncertainty in respect of an important commodity like milk is not desirable either from the producer's or consumer's or Government point of view and the sooner the position is clarified the better. The main advantage of a Board will be that it can be made self-sufficient in a few years and the responsibility of Government would, therefore, be very much lessened, and at the same time continuity and consistency of this important work will be ensured.

337. The success of the Board will depend largely upon the choice of the Chairman and the most suitable person available from any part of the country must be made to accept the responsibility for the first term of 5 years. The post is so important that it would be worthwhile paying a suitable person a salary to any sum in order to lay the foundation of the first venture of its kind on right lines. The members should also give as far as possible their full time to the Board and should receive a monthly salary or fees whenever they attend the meetings of the Board.

338. The day to day working of the various schemes should be under the General Manager as is the case in England, who should be assisted by technical personnel in the various branches. A very strong and capable accounts section will be necessary to manage the large annual turnover of the Board.

339. The Committee recommends to Government to consider the transfer of all the assets and liabilities of the present Milk Department including the Milk Colony property to the Board on such conditions as may be laid down by them. The Milk staff should be taken over by the Board on its own conditions and terms. When the Board comes into operation, the post of Milk Commissioner should be abolished. For financing the Board Government should make a suitable annual grant or give special loan for the first 10 years or so. Needless to say, the Board should be constituted under special legislation passed by the State Legislature.

(16) *Financial and other assistance to be given in the areas of development.*

340. The exact amount of financial assistance which will be required in connection with the different Dairy Development Schemes cannot be clearly stated at this stage, but for each and every town or city a separate scheme will have to be prepared and the actual financial requirements submitted for Government's approval. However, the different lines on which the Government's assistance would be required, as indicated by the Dairy Development Adviser, Government of India, are stated below :—

1. *Milk-cum-Bull Production Farms.*(i) *Non-recurring—*

- (a) Purchase of land.
- (b) Land development including levelling, fencing, road-making, etc.
- (c) Purchase of milch cattle.
- (d) Purchase of bulls and bullocks.
- (e) Buildings and unforeseen charges.
- (f) Equipment
- (g) Water supply, electrification, freight and erection charges on equipment.

(ii) *Recurring—*

Technical staff.

Note.—In the case of breeding bulls to be obtained from the Government Milk Colony, Aarey, a firm order for the required number of animals should be placed.

2. *"Smallholder" milk production units—*

Same as shown under (1) above on the non-recurring side only.

3. *Colonies of dislodged city cattle.—*

Same as shown under (1) above.

4. *Artificial Insemination of cattle.—*

Centres for artificial insemination may be started and maintained by Government.

5. *Crossbreeding of inferior milch stock in hilly regions—*

Same as shown under (4) above.

6. *Co-operative Milk Supply Unions—*(i) *Non-recurring.—*

For producing and assembling centres—

- (a) Purchase of land for constructing milking sheds, milk rooms, wells, water troughs and cleaning platforms, etc.
- (b) Building-making sheds, milk rooms, wells, water troughs, cleaning platforms, septic tanks, wallows, footbaths, etc.
- (c) Equipment including freight and erection charges and lighting arrangements.

For procurement and transport—

(a) Transport vehicles—Bicycles, motor cycles, tongas, motor vans, trucks, etc.

(b) Other equipment including transport cans, tanks, etc.

For processing and distribution—

(a) Purchase of land for construction of dairy building and sales depots.

(b) Cost of dairy building.

(c) Equipment including plant and machinery, utensils, etc., water supply, electrification, freight and erection charges on equipment.

Working capital—

(a) Purchase cost of milk for 1½ months.

(b) Unforeseen charges.

(ii) *Recurring—*

(a) Technical staff for field organisation.

(b) Technical staff for quality control work.

(c) Chemicals for quality control work.

(d) Technical staff for the guidance, supervision and management of producing and assembling centres, procurement and transport, processing centres and distribution.

7. *Co-operative Rural Creameries—*

Same as shown under (6) above.

8. *Dairies and manufacturing centres—*

(i) *Non-recurring—*

Land, building, equipment, water supply arrangements and electrification.

Recurring—

Technical staff.

9. *Production of green fodder, silage and hay—*

i) *Non-recurring—*

For production of green fodder—

Construction of implement shed and wells and purchase of bullocks and implements.

For production of silage—

(a) Purchase of chaffing machines and other equipment.

(b) Construction of silos, sheds, etc.

(ii) *Recurring—*

(a) Technical staff.

(b) Manures, seeds, etc.

10. *Procurement and supply of green fodder and concentrates including salt and minerals.*(i) *Non-recurring—*

Equipment for packing, transport, weighing and distribution.

(ii) *Recurring—*

(a) Technical staff.

(b) Packing, procurement, transport, storage and distribution.

(c) Losses in the handling of fodder and concentrates.

11. *Appointment of technical staff for dairy development work—*

(a) Dairy Development Officer and other technical staff under him.

(b) Technical and other staff carrying out dairy surveys.

12. *Milk Boards—*

(a) Technical and other staff.

(b) Premia for increasing the production of milk and milk product and improving their quality, demonstration, propaganda and milk publicity, etc.

13. *Training of technicians and field workers for various activities connected with dairy development.*(i) *Non-recurring—*

Equipment.

(ii) *Recurring—*

Technical staff.

14. *Dairy refrigeration and cold storage.*(i) *Non-recurring.—°*

Land, refrigeration machinery and other equipment and refrigerating vehicles and buildings and cold-stores.

(ii) *Recurring—*

Technical staff employed for looking after refrigeration plants, cold-stores, and refrigerated vehicles.

15. *Production, procurement and sale of dairy equipment—*

(a) Specialist personnel employed on manufacture of equipment.

(b) Staff and other items for the procurement and disposal of equipment.

(c) Losses on sale of equipment.

CHAPTER VII

(1) *Recommendations.*

341. The Committee in this chapter summarises the recommendations it has made in the earlier part of this report and trusts that in view of the fact that the question of improvement of milch cattle and of milk supply to the people is of vital importance and has been neglected for so long, they will receive the favourable consideration of Government and Government will set apart every year an adequate sum for giving effect to them. In connection with dairy development work, as, indeed, in connection with all animal husbandry work in general, the vital importance of continuity should not be ignored. Dairy Development Schemes take a long time to reach fruition and to produce results and, therefore, the Committee hopes that plans for dairy development will be drawn up on a long-range basis and their continuous application until the desired results have been obtained, ensured by all possible means. Also, the Committee hopes that the subject of dairy and cattle development will occupy an appropriate place in all the "Grow More Food" schemes and campaigns, as cattle not only occupy an important place in the rural and agricultural economy of the country but also contribute towards producing human food in the shape of milk which has a very high protective and growth promoting value a very important point in view of the vast majority of the people in this country being vegetarians.

342. The recommendations are necessarily given in brief having been discussed in detail elsewhere in the report. The paragraph numbers given against each give a direct clue to them and a reference to them will indicate the background leading to the recommendations. The recommendations as approved by Government are as follows:—

1. The breeding policy in the case of cows should be—

(a) to breed a dual purpose animal for milk and draught for the use of rural areas, and ^{4(i) 12,} _{22.}

(b) to breed a dairy animal purely for milk for use in cities. The breed requirements of each area should be studied and breeding farms for each breed should be established on an area or district basis, both for cows and buffaloes.

2. Cattle breeding work should be undertaken where suitable conditions exist, with the help of co-operative schemes.

3. Slaughter of young animals and adults which are likely to be useful or are still economical to maintain should be prohibited throughout the State. The orders already passed by Government in this connection should be rigorously enforced and the penalty and punishment for infringement of the law should be made even more stringent. ^{4 (vi)} _{24, 44, 55, 56.}

The neglect and starvation to death of suckling calves in all urban and city areas is strongly deprecated by the Committee, since this results in loss of the progeny of the best cattle of the country. Steps should, therefore, be taken to prevent the cause and to prohibit the keeping of cattle, within 300 yards of either side of any road, in cities having a population of above one lakh.

4. Cattle from the cities should be removed to suitable places in distant suburbs or rural areas. Mere removal, however, is not enough. All aspects of cattle keeping, such as, growing of fodder, rearing of calves, veterinary aid, supply of cheap concentrates and fodder, cheap finance, collection and distribution of milk and cheapening of its cost should be attended to. ^{5, 7(i)} _{(ii) (iii) (iv) (v) (vi) (vii).}

Municipalities which are anxious to take such development work for their cities or areas, should be assisted with loans on easy terms, by Government.

5. Distribution of milk should be done in an organised manner in cities and towns by Government or Municipalities in the first instance, in order to build up a sound system. ^{4(ix), 36(ii)}
 6. Statutory Bodies, such as Milk Boards, should be set up in suitable cities and areas to attend to the problems of production, distribution, quality control, processing, price control and other matters connected with the milk industry. ^{13, 34, 36(ii), 31.}
 7. Sugar factories in the State should be encouraged and, if need be, compelled to produce adequate quantities of milk on their estates for the use of the staff and the settlement in the surrounding area. Data regarding this should be collected at an early date and factories should be persuaded to develop this aspect as soon as possible. ^{36(v), 65, 66.}
 8. Preparation of toned milk with 3.7 to 4 per cent. fat and 9 per cent. solids-not-fat should be done under controlled conditions and its distribution and sale at economic price should be taken in hand to cheapen the cost for those who cannot afford to purchase whole milk, wherever milk schemes are in operation. ^{32, 36(vii), 210.}
 9. In all dairy schemes, in which the question of fixation of price is involved, the trade may be allowed a profit margin of 7 to 10 per cent. inclusive of income tax and interest, depending upon the turnover. ^{36(ix)}
 10. There is a general shortage of bullocks in the State and many of the existing bullocks are not suitable for heavy work. Breeding to improve the quality of bullocks is recommended. ^{45, 52.}
 11. Production of fodder should be encouraged and the present output increased. Improvement of grass lands, particularly in Thana and Panch Mahals districts, is strongly recommended. Irrigation authorities should not discourage the production of fodder *vis-a-vis* growing of money crops. ^{57, 58, 67.}
 12. In all riverine tracts there are immense possibilities of developing dairying and improving the breeds of cattle. Special attention to these areas is recommended. Assistance of every kind should be given to achieve the above objects. Priority should be given in the matter of Government assistance for the development of such projects. ^{59, 61, 62, 65.}
 13. In suitable areas the growing of green fodder for cattle should be insisted upon, wherever possible. ^{291.}
 14. There is dearth of veterinary hospitals and dispensaries in the State. As against approximately 400 that are required, there are only about 250 dispensaries at present. Opening of more veterinary hospitals and dispensaries is recommended. The scales of pay of veterinary staff are low and they do not attract the right type of person either for training or for manning the available posts. The scales should be adequately revised. ^{76, 77, 78, 79, 80, 81, 82.}
- The veterinary course should be revised so as to admit matriculates. The degree course should extend over a period of four years inclusive of six months' practical training. Scholarships should be given to make the course attractive.

15. Some of the Gowshalas and Panjrapoles in the State on which the public spends an enormous amount of money every year do useful work and constitute potential units where cattle improvement and commercial dairying can be encouraged and developed. These institutes should take up cattle improvement and dairying as an important part of their activities and Government should encourage them by purchasing from them at remunerative prices, approved bulls for cattle improvement work elsewhere.

16. The problem of 'cattle salvage' is the direct result of wrong and unscientific practice of keeping dairy animals in cities. While interim measures to salvage dry cattle should continue, the aim should be to remove the causes which give rise to this problem, through the adoption of better methods of animal husbandry.

17. The Rabaris and Bharwads are essentially professional cattle breeders and should be allowed full scope and facilities to pursue their trade and profession, care being taken to see that their activities do not harm the settled agriculturists in the areas where they operate. The Collectors should be empowered to help these breeders, in every way possible, to settle and keep better stock.

18. Consumers prefer buffalo milk because of its higher fat content. The yield per animal is also on the average higher than in the case of the cow. For these reasons the buffalo has become, so to speak, the dairy animal of the State. Cows are, however, indispensable for producing bullocks but to keep cows only for this purpose is uneconomical. They should, therefore, be bred for draught and milk for the requirements of the rural areas, and for milk alone for the requirements of the cities. There is national need to improve and develop both the cow and the buffalo, but preference should be given to the cow in view of the important role it plays in the national economy of the country and because, for some reason or the other, it appears to have been neglected more.

19. In order to provide an average of 8 ozs. of milk per day per person in the State, the present production of milk will have to be increased three-fold. It is not possible to achieve this target within a reasonable time, not even in 25 years, unless many crores of rupees are spent annually and the entire agriculture programme is radically altered. This is no overstatement of facts.

The price of milk is a deciding factor in its consumption. With increase in the per capita yield of animals, the price should go down. The marketing of milk should be taken in hand simultaneously with increased production. The success of milk production and marketing schemes is more assured in areas, adjacent to towns and cities.

20. No scheme of regulated production, collection and distribution of milk can succeed, or even be launched satisfactorily, without recourse to certain legislative measures. Such measures had to be adopted in the Bombay City and Anand area, where large-scale developments are in hand. In the interest of the industry and to ensure its regulated development, such measures should be enacted and enforced, even though they might affect certain existing industries.

21. The colonisation scheme which aims at removal of the cattle to Aarey should be completed as early as possible, so that, thereafter, the question of removal of the cattle from the suburbs may be taken up.

In this connection, the suitability of the Pej-Ulhas Valley lying between Kalyan and Karjat Vis-a-vis Palghar area should be carefully examined for selection of the site for the second colony for the Bombay Suburban cattle.

22. Even if milk is available in the village, it cannot be brought to the urban areas in good condition due to inadequacy of road transport facilities. This to some extent necessitated the adoption of wrong and wasteful method of keeping cattle in or near the cities. Rail transport for milk also needs to be developed much more than is the case at present and the authorities should provide all possible refrigeration and other facilities for the development of this vital trade.

23. Co-operative organisation is recommended for bringing together the small and scattered cattle owners and milk producers if they are to find a better market for their produce and improve the quality and quantity of their production. In order that co-operative dairying may be organised with ease and rapidity in special cases, it is recommended that experienced members of the staff of the Co-operative Department, such as, organisers, auditors or even Assistant Registrars, should be placed, in the early stages, on special duty under the Dairy Development Officer or the Milk Commissioner, as the case may be, and they should work hand in hand with the staff of the Dairy and Milk Departments.

24. Proper enforcements of the Prevention of the Food Adulteration Act is the only means of protecting the honest dairy man on the one hand and the consumer on the other against the evil doings, for quick turnover at any cost, of the unscrupulous dairy man and the dishonest dealer. Adulteration of milk, which is often done by adding dirty water, needs particularly to be checked as it endangers health of the public. Of all commodities, milk perhaps is adulterated on a more widespread scale in all the towns and cities, irrespective of whether the Act has been adopted or not. The Committee, therefore, recommends its adoption and rigid enforcement. Unless the honest dairy man gets protection of the law in this respect, the trade will remain in the hands of unscrupulous persons and no large scale organised distribution of clear and pure milk can be expected to be achieved.

25. Marketing of milk in fluid form gives the highest return to the producer, but only 38.7 per cent. of the production in the State is consumed in this manner. The rest is converted into products, mainly ghee. Milk in liquid form has to be collected, processed, transported and distributed in the shortest possible time and with clock-like regularity. This is not the case with its products. Hence, both from the producers' point of view and that of organising the industry, greater efforts should be made to increase the consumption of fluid milk. Introduction of milk distribution in schools is specially recommended whenever possible.

26. The per capita consumption of milk is very low in the State. This is particularly so in the southern districts because of the poor quality of cattle. High price is also responsible for lower consumption. Introduction of 'toned milk' wherever possible is specially recommended with a view to increasing the bulk in a wholesale manner and reducing the price. As far as possible milk powder of Indian make should be used.

27. The type of development work undertaken in the Anand area is on the right lines and it should be extended to all the areas where organised dairying is to be introduced and developed.

28. The decision to start a new dairy at Anand, large enough to deal with the 227 milk required for Bombay, is in the right direction and early action should be 231 taken to start and complete the project.

29. Dairy development work is necessarily slow and complicated, involving, as it does, large outlay of expenditure and a well-thought-out plan for the solution of a number of allied problems which must be tackled simultaneously, such 275 as, cattle breeding, calf rearing, production of fodder, extension of irrigation facilities, transport, disease control, sanitation, enforcement of quality standards, etc. A start should therefore be made in suitable areas, as early as possible.

30. In view of the large sums that are needed for dairy development schemes and paucity of trained personnel, the Committee recommends that, as a first step, not more than 170 suitable taluka towns (of less than 30,000 population) with an average connecting ring of 10 to 20 villages should be selected. This would cover nearly, 4,000 villages out of the 35,000 villages there are in the State. In the above areas, a target should be laid down to increase the existing milk supply by 25 per cent. in about 7 years, or, say, two generations of cattle. The Committee does not consider anything beyond this is feasible; nor should more be attempted in the first instance. As a second step, the 30 big towns and cities with 70 villages attached to each should be covered, if they have not already been covered by the local corporation or the municipality.

31. As regards the plan of development work, each town or area will have to be dealt with on its merits and a scheme framed to suit it, taking into consideration its requirements and the local conditions. However, generally speaking the Committee recommends the adoption of the 5-Year Plan prepared by Dr. Z. R. 278 Kothawala of the Ministry of Agriculture, Government of India, the main points 279 of which are :— 282 284 286 288 289 291

- (1) Establishment of milk-cum-bull producing farms.
- (2) Establishment of small holder milk production farms.
- (3) Adoption of artificial insemination.
- (4) Establishment of colonies for displaced city cattle.
- (5) Cross-breeding of animals.
- (6) Establishment of Co-operative milk unions.
- (7) Establishment of Co-operative rural creameries.
- (8) Production of green fodder, silage making etc.

32. The Committee recommends the appointment of local advisory bodies to assist the dairy organisers in the selected taluka towns and the large towns and 294 cities to be taken up for development. There should be Regional Dairy Development Officers whose work should be Co-ordinated by the Dairy Development Officer.

33. The Committee considers that the commercial grass lands and the village 295 grazing lands are neglected. There is, therefore, need for their proper regulation 296 and development. Grading of grass is recommended as a means to improve the 297 quality of grass lands, and of the produce put on the market. The Agricultural 298 Department should attend to the improvement of grass-lands and the quality of 299 the herbage produced by them. 300 301

Propaganda by Agricultural Officers and establishment of suitable demonstration farms should be taken in hand for the improvement of grass lands. Where village Panchayats show interest in their development, the grass lands should be transferred to them.

The railway administrations in the State should be approached to allow green grass to be harvested from the fenced area along side the railway lines for the use of nearby villages. If necessary, assistance of the Railway Board, Government of India, should be invoked regarding this.

34. The Committee considers that the areas where the dairy development work is to be carried out should be suitably 'notified' under legislation suggested in paragraph No. 20, to enable intensive measures to be taken with regard to the entire programme of work.

35. Transport of milk and cattle needs special attention of the railways. The annual freight earned from this source amounts to several lakhs of rupees but the Committee considers that even the bare requirements in respect of this have not been provided. The Committee, therefore, recommends that the railway administration should give their urgent attention to this matter.

36. The distributors and vendors of milk in all large cities and towns where organised development work is taken in hand, should be registered and the sale of milk by unregistered persons made an offence. The vendors and distributors of milk should be medically examined periodically. Such a registration should be tried out first in the Bombay Area.

37. The dairy trade is in the hands of backward persons and their employees are even more so. The Committee recommends that intensive propaganda by magic lantern slides, films, etc. should be undertaken to educate them in the correct methods of dairying.

38. Fresh milk should be conserved for essential domestic purposes and use of skim milk powder should be introduced in hotels and restaurants in the larger towns and cities. Profits from skim milk powder should be earmarked for development work in the areas concerned.

39. Since the State of Bombay is short of milk, the Committee recommends that the export of all dairy products should be restricted and the present system of allowing butter to be exported only under permit, should be continued,

40. The making of butter at Bombay from cream imported from Kaira and Ahmedabad should be discouraged. Butter should be made where the cream is produced.

41. Government should maintain necessary staff for advising dairy farmers in matters such as the preparation of schemes, plans estimates etc. and the erection of machinery. It is important that the advisory staff has the necessary experience to guide the public on the right lines.

42. Comprehensive and special legislation to deal with the existing malpractices and the wrong and wasteful methods adopted by the trade should be introduced in the State. In this connection the Draft Bombay Dairies Bill, prepared by

the Office of the Milk Commissioner should be examined and introduced at an early date. The legislation will also enable the trade to be put on a sound footing. So far as the Bombay Milk Supply Scheme is concerned the Committee recommends that a Milk Board should be set up as early as possible to maintain the continuity of the existing work and to complete the entire scheme.

43. In respect of all dairy development schemes the Committee considers that financial and other assistance from Government will be required without which progress will be difficult. Loans should be given at low rates of interest and for the first 3 to 5 years no interest should be charged at all. Subsidies should be given to co-operative organisations only when the members themselves are prepared to contribute 50 per cent. of the cost of any scheme. Staff to guide, supervise, manage and audit certain schemes should be provided free of cost by Government. The Committee considers that each year Government should set apart a certain sum for spending on this nation-building activity.

(2) *Organisation required for carrying out Dairy Development work in the State.*

343. This report would show the amount of work that is to be done in order to increase the production of milk, organise its distribution and reduce its price. It may be safely said that except in a few instances and places where an organised effort has been made in recent years, in the rest of the State it has been nobody's business or concern to attend to dairy matters. There is evidence to show that as a result of this indifference, conditions are going from bad to worse.

344. The dairy work being done in the Bombay and Anand areas due to special circumstances is being pursued by the Milk Commissioner under the Civil Supplies Department. It is imperative that this work must pass on before long in the hands of a statutory trading concern, viz., a Milk Board, and it is difficult for the Committee to say at this stage as to which Department will watch its working. So far as dairy development work in other cities, e.g. Poona, Ahmedabad, etc. is concerned, it is being pursued by the Dairy Development Officer, who is under the Director of Animal Husbandry and Veterinary Science placed in the Department of Agriculture and Forests.

345. In the various schemes that have just begun under the above auspices there is a lot to be done yet to make an impression of their existence in the cities where they are working.

346. In these circumstances the Committee considers that once the future organisation of the Bombay Milk Scheme is settled, the entire dairy development work in the State should lie with the Department of Agriculture and Forests which may involve the revision of the status of the Dairy Development Officer commensurate with the funds available and the schemes that are sanctioned.

347. In the meanwhile the Committee recommends that Government should set up at an early date a permanent body called a "State Dairy Development Committee" with the Honourable Minister for Agriculture and Forests as its Chairman and the Secretary, Agriculture and Forests Department, as its member-Secretary. The other members should be the Secretary, Civil Supplies Department, the Milk Commissioner, Bombay, the Director of Animal Husbandry and Veterinary Science, the Registrar of Co-operative Societies, the Dairy Development Officer

and three non-officials to be nominated by Government of whom one should be a producers' representative and 2 should have commercial back-ground. These non-officials should be changed every two years in order to bring in new outside ideas.

348. The Committee should have a small staff, clerical and other, and one or two technical men.

349. Its main function should be not only to scrutinise all dairy schemes before they are put up to Government, but to suggest new schemes in the light of the recommendations made in this report and to see that they are sanctioned and taken in hand expeditiously.

350. The above recommendation regarding the formation of a permanent dairy development committee has been considered by Government but it is thought that for the present there is no need to set up a State Dairy Development Committee. The Development Boards in the State should study the recommendations made by the Committee and see to what extent they can assist in their implementation.

(3) Concluding Remarks.

351. In submitting this Report to Government the Committee would like to emphasise that even though there is financial stringency at present, ways and means should be found to spare funds each year for the promotion of dairy development work on a state-wide basis. The Committee considers that there can be no better investment from the national point of view than to improve the quality, increase the supply and cheapen the price of milk for the people inhabiting this State. A milk scheme directly and indirectly uplifts, on the one hand, the general standard of agriculture, cattle keeping and milk handling, and, on the other, it provides an essential article of food - MILK - which is so much in short supply and at present only a luxury for a few. The advantages of both these aspects of dairy development cannot be measured in terms of money. The Committee, therefore, recommends that in the beginning the State Government should set apart at least Rs. 50 lakhs each year for the work of the type proposed in the Report.

352. Finally, the Committee wishes to place on record the valuable assistance rendered by Dr. Zal R. Kothawala, Dairy Development Advisor to the Government of India, who attended a number of its meetings and placed at the disposal of the Committee his Five-Year Plan of Dairy Development in India on which the Committee has drawn freely in compiling this report.

30th April 1951.

D. N. MAHTA (*Chairman*).

B. N. UPPAL.

L. SAHAI.

B. P. PATEL.

G. S. GODBOLE,

D. B. KOLHE.

D. K. KUNTE.

J. N. MANKAR.

JABIR ALI.

TRIBHUVANDAS PATEL.

D. N. KHURODY (*Secretary*).

**MINUTE OF DISSENT ON THE REPORT OF THE DAIRY
DEVELOPMENT AND CO-ORDINATION COMMITTEE.**

For many weighty reasons, I am unable to agree with some of the recommendation embodied in the report. Instead of discussing them in details, I only deal hereunder in brief the salient points with regard to which I have honest differences of opinion.

(1) I find that the object of the Committee seems to have by-passed in the draft report and instead prominence is given to urban milk supply on the Bombay Milk Scheme pattern without suggesting methods of increasing the milk supply cheapening the cost, improvement of dairy animals, salvaging of all dry cattle rearing of calves and increasing fodder production. Even in urban areas, with all the achievements of Bombay Milk Plan, I believe that various problems with which city milk supply is always faced are inherent in the Bombay Milk Plan as its development is not linked up with such areas in the State which are being exploited in matters of fodder, concentrates, milch cattle and milk. This, I believe, is bound to react unfavourably on the cycle of agronomy and agriculture and cattle breeding. I am therefore of opinion that the Aarey Milk Plan should only be restricted to Bombay, with a second unit at Ulhas Pej Valley and further units from Palghar onwards up to Surat on the B. B. & C. I. Railway, with necessary changes to ward off the present inherent evils in the Aarey Colony plan.

(2) The dairy development work in other cities and towns except Bombay should be carried on according to the plan of Dairy Development Department on co-operative basis even including the colonisation of the City Milk producers so as to keep up public initiative, maintain the solidarity of the industry and prompt independent development of the trade.

(3) It is disappointing to note that the Committee meant for suggesting ways and means of increasing basic production of milk at economic cost recommends the use of scientifically adulterated toned milk by importing skim milk powder from foreign countries. I am of opinion that this is against national aspirations of making the country self-sufficient in food including milk and other bare necessities of life for which the Father of the Nation, Mahatma Gandhi, fought lifelong. I believe that if the problem of dairy development is tackled from the rural point of view, under a plan of mixed farming and cattle breeding, with generous encouragement to and full protection of the industry and adequate measures for transport, marketing and distribution of dairy products in towns and cities, enough milk and milk products can be produced in the State. Therefore, imports of skim milk powder from foreign countries should be stopped and efforts be made to manufacture the same in rural areas in the interior where milk may be surplus, and utilise such home made powder in areas deficit in milk.

(4) All plans for dairy development should begin in the villages which are deficit in milk by encouraging mixed farming and cattle breeding and organising marketing of surplus milk, first in Taluka towns and then in cities.

(5) The conclusion drawn in the report with regard to hydrogenated vegetable oils, and wedged in the recommendations, is unwarranted by evidence before the Committee and is un-supported by facts. I am of opinion that the hydrogenated vegetable oils, being deceptive in form, are harmful to the cottage industries of butter and ghee as well as cattle breeding. Therefore, with a view to encourage the cottage industries of butter and ghee, and with a view to check effectively

the adulteration of ghee with hydrogenated vegetable oils, hydrogenation of such oils should be stopped. Until this is achieved, along with other measures taken by Government, colouring of hydrogenated vegetable oils must be made compulsory with harmless unbleachable non-repulsive colour so that it can be detected by naked eye in any degree of adulteration, as recommended by the National Planning Committee.

(6) Steps should be taken for preservation and development of cattle according to the undermentioned recommendations of the Cattle Preservation and Development Committee of the Government of India :—

(a) The Committee is of opinion that slaughter of cattle is not desirable in India under any circumstances whatsoever and that its prohibition shall be enforced by law. The prosperity of India to a very large extent depends on her cattle and the soul of the country can feel satisfied only if cattle slaughter is banned completely and simultaneous steps are taken to improve the cattle which are in a deplorable condition at present. In order to achieve these ends the Committee suggests that the following recommendations should be given effect to :

The first stage which has to be given effect to immediately should cover the total prohibition of slaughter of all useful cattle other than indicate below :

(i) Animals over 14 years of age and unfit for work and breeding.

(ii) Animals of any age permanently unable to work or breed owing to age, injury or deformity.

Unlicensed and unauthorised slaughter of cattle should be prohibited immediately and it should be made a cognisable offence under law.

(iii) The law for prohibiting slaughter of cattle totally should be enforced as early as possible but in any case within 2 years of enactment of the Act during which period following necessary arrangements should be made for the maintenance and care of unserviceable and unproductive animals.

A survey of the country should be conducted to find out the areas where Gosadans should be established and all details with regard to expenditure etc. should be worked out and arrangements therefor made.

Necessary legislation for the raising of funds required should be enacted as follows :

(i) Gaushala cess such as laga, Biti Katauti, Dharmada should be equalised and their collection regulated for the utilisation in the improvement of Goshalas and Gosadans.

(ii) In addition to (i) above a cess should be levied in such a way then it should be equitable, easy to collect and that no extra expenditure in its collection should be incurred i.e. the existing machinery should be utilised.

(7) As there is shortage of fodder in the country and as the need for bullocks for agriculture is paramount, maintaining separate species of animals for different purposes such as milk, draft and manure is uneconomic. Buffaloes may only

be utilised especially in such rural areas where there is sufficiency of fodder, for ghee and butter industry and milk supply to major cities like Bombay, until cow is fully developed as a dual purpose animal to replace the buffalo. In all Government plans for cattle breeding and dairying, cow only should be developed.

(8) The problem of production of adequate nourishing and other fodder for the maintenance and improvement of cattle is a basic problem and should be tackled on a State-wide basis. Along with measures for improvement of grass areas, hay making on commercial and scientific basis in the areas not utilised for the purpose should be undertaken departmentally or otherwise and facilities for its transport and marketing in towns and cities and in deficit rural areas should be made at economic rates. I also believe that economic methods of feed in hay and Kadbi should be introduced by popularising the use of grass-cutters for which loans should be granted by Government and demonstration of economic methods of feeding should be held during Cattle Shows. This will evidently save the wastage of at least 25 to 35 per cent of fodder caused by wasteful methods of feeding. There should be statutory provision to grow green fodder on a part of the cultivator's holdings wherever irrigation facilities are provided.

(9) A ten-year plan on State-wide basis should be made to organise and utilise the nomadic breeders in the State by settling and rehabilitating them as mixed breeders and cultivators on all available land in the State useful for this purpose, on co-operative basis, ultimately giving them the same rights and privileges as enjoyed by the cultivators.

(10) With regard to co-ordination, I am of opinion that the entire question of Animal Husbandry and Dairying should be tackled with undaunted firmness and co-ordinated efforts, as an independent subject claiming high priority and forming an independent portfolio under a separate Minister. There should be a permanent Board with three units i.e. (a) Animal Husbandry Wing including Veterinary Science (b) Dairy Development (c) Fodder and Grazing, with experts and representatives of the trade and consumers on it. The present staff of Agriculture, Animal Husbandry and Veterinary Departments acting as Divisional and District Officers should be co-ordinated to Supervise and carry out the plan under each branch with additional staff where necessary. The Collector in the District should be the co-ordinating Officer and Chairman of District Committees to be formed to carry out the plans through district staff of each branch as received from the provincial heads of each branch.

Subject to the above Minute of Dissent, I am in agreement where it is not repugnant to the observations made above. I am in agreement with the remaining part of the report.

J. N. MANKAR,
Member Dairy Development and
Co-ordination Committee.