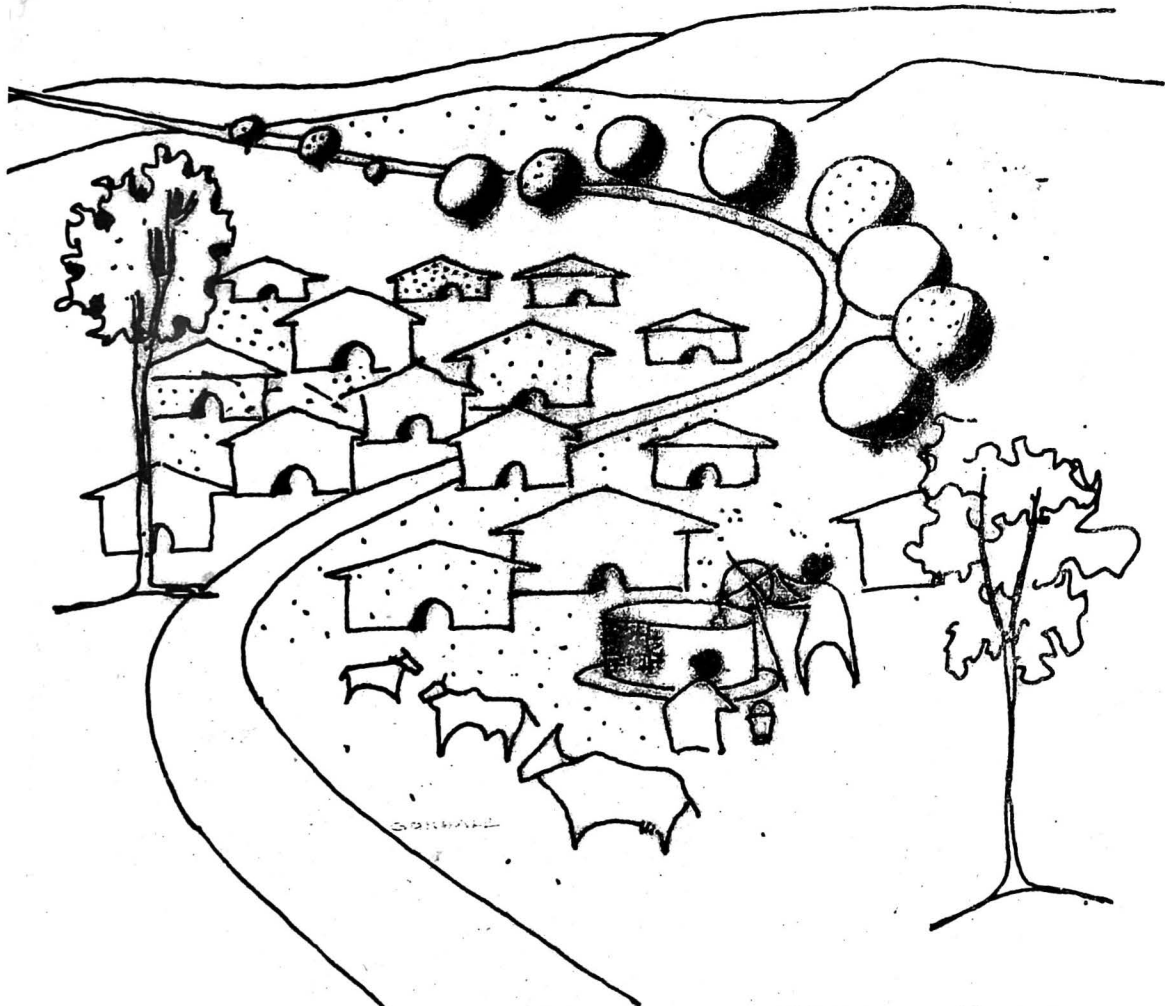


BOMBAY METROPOLITAN REGIONAL PLANNING BOARD



**REPORT OF
THE STUDY
GROUP ON
URAL PLANNING**

REPORT OF THE STUDY GROUP ON
RURAL PLANNING

C O N T E N T S

<u>Chapter No.</u>	<u>Name of Chapter</u>	<u>Page No.</u>
I.	Introduction	1
II.	Social and Economic Background of the Region.	4
III.	Problems and Approach	12
IV.	Agriculture	19
V.	Fisheries	27
VI.	Dairy, Animal Husbandry, Poultry and Piggery.	36
VII.	Forests	45
VIII.	Industrial Development and Economic Transformation.	50
IX.	Electricity	5
X.	Tourism	59
XI.	Organisation for Village Development	64
XII.	Conclusion	79
XIII.	Summary of Findings & Recommendations ..	88
	Appendix I	95
	Appendix II	96
	Appendix III.	97

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I.

CHAPTER 1

Introduction

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1.1. The Bombay Metropolitan Region in its third meeting held in Bombay on 14th November 1967, decided to constitute a Study Group to study specifically the vast countryside of the region in order to secure its development along with its rapidly developing urban areas.

1.2. Accordingly this Study Group on Rural Planning was formed with nine members namely:

1. Shri S.V.Desai, Chairman.
2. Shri J.G.Koskar, Member Secretary.
3. Shri T.H.Wajekar, President, Kolaba Zilla Parishad, Alibag.
4. Shri P.S.Deshmukh, President, Thana Zilla Parishad, Thana.
5. Dr. C.H.Shah, Department of Economics, University of Bombay, Bombay.
6. Shri D.V.Khistry, Conservator of Forests, Thana Circle, Thana.
7. Shri S.S.Vartak, District Agricultural Officer, Thana.
8. Shri D.D.Patil, Zilla Parishad, Development Agricultural Officer, Thana.
9. Shri C.M.Doyal (from 20.11.68)
9. Shri N.Y.Lande, Regional Deputy Director of Animal Husbandry, Thana.

Shri V.S.Chaphekar (from 20.11.68)

The first meeting of the Study Group was held on 18th March 1968 from which date the Study Group actually started functioning.

1.3. Later, as and when the need was felt the following additional five members were co-opted.

1. Shri A.G.Kalawar, Deputy Director of Fisheries.
2. Shri D.S.Shukla, Superintending Engineer, Maharashtra State Electricity Board, Bombay.
3. Deputy Director of Industries, Bombay Region
Dr.V.V.Kale (Up to 18.1.69)
Shri S.Y.Tipnis (from 18.1.69)
4. Dr. V.M.Patil, Deputy Dairy Development Commissioner, Bombay.
5. Representative of the Maharashtra Small Scale Industries Corporation.

Since most of the members of the Study Group happened to be officials, the Study Group co-opted four non-official members two each from the Thana and Kolaba Districts, in order to get the

benefit of their views and experience of the socio-economic aspects of the Region.

Accordingly the following four members were co-opted from 12th July 1968.

1. Shri Z.M.Kalantri, M.L.C. Bhiwandi.
2. Shri S.T.Kadam, Thana.
3. Shri S.M.Arekar, Karjat.
4. Shri H.P.Mumbaikar, Uran.

The Study Group highly benefitted by the experience and knowledge of the following experts who were invited for meetings from time to time.

1. Dr. R.M.Patil, Poultry Development Officer, Maharashtra State, Kirkee (Poona)
2. Shri M.H.Bachuwar, Divisional Soil Conservation Officer, Thana.
3. Shri T.R.Atalatti, Executive Engineer, Konkan Irrigation Division, Panvel.
4. Shri S.G.Katdare, Deputy Director of Agriculture, (Food Crops) Konkan Division.
5. Shri Gaikwad, Divisional Soil Conservation Officer, Alibag.

1.4. Terms of reference :

The following terms of reference were given to the Group by the Board.

- a) Rural urban relationship and measures to avoid polarisation of communities.
- b) Measures to lift up the rural economy.
- c) Agriculture based industries.
- d) The present hierarchy of rural settlements and measures to achieve balanced structure of development.
- e) Any other matters.

1.5. Meetings :

The Group held 15 meetings in all. The first meeting of the Group was held on 18th March 1968 and the 15th meeting was held on ~~14th December~~ ^{3rd Dec} 1969. In addition some of the members of the Group visited selected villages in the rural area of the region on the 8th January 1969 so as to acquaint themselves with the problems of rural areas on the spot.

1.6. Preliminary Report :

The Group submitted a preliminary report to the Board which was discussed in the Board's meeting on 25th October 1968.

1.7. The Group acknowledged with thanks, the various notes received from members and other officials which proved very useful in drafting the present report. The voluminous material collected by the Group has been integrated and reshaped in its final form by Dr. C.H. Shah of the Department of Economics, University of Bombay who also served as a member of the Group.

-4-
CHAPTER II.

Social and economic background of the region.

2.1 In this chapter, we delineate the major contours of social and economic life of the rural areas of the metropolitan region. Two major objectives of this description are:

1. to provide a back-drop of the economic and social life in the region, and
2. to assess the problems that will have to be faced while developing the region.

We shall study three major aspects in this Chapter. To begin with we shall give an outline of the physical geography and location of the region, to be followed by a description of the economic conditions prevailing in the region. We shall then attempt to formulate the problems, on the basis of the information given in the preceding two sections. The problems would be formulated in the context of the growth of the population in the region and the changes in the economic conditions in the metropolitan city that are likely to take place during the period 1969-91.

2.2 Geography and location: The rural areas of the metropolitan region stretch from latitude N. 18°-45' to N 19°-35' and from longitude E-72°-45' to E-73°-30'. The total area admeasures 3860 sq.kms. There are in all 1013 villages of which 943 are habitated villages spread over the entire region. The region is bounded by the Arabian Sea on the West and the Sahyadri ranges on the east, on the north it is bounded by Vaitarna Creek and Taluka boundaries of Bassein and Bhivandi, along the river Tansa, the south is bounded by a small river known as Patalganga. Part of the region is hilly and the highest peak is Hajimalang (Malangad) with a height of 2595' near Kalyan. The other two high peaks are Matheran (2516') and Tungar hills near Bassein (2200'). The coastal region is often washed by sea water. Partly covered by salt and partly water-logged, this area can be used only for salt production or fishing.

The rural areas in the region have relatively high and assured rainfall and high relative humidity. The total rain during the monsoon season ranges from 2554 mm. to 4266 mm. The number of rainy days are around 135 to 138 during the year. The relative humidity, varies from 65% to 80%.

There are three major rivers, namely the Ulhas, the Patalganga

and the Tansa, their total length within the Region being 135 kms. 50 kms. and 38 kms. respectively. Other small rivers are the Dhatsai and the Kalu.

2.3 Administrative Boundaries: The region consists of 8 talukas, of them 4 belong to the Thana district and 4 belong to the Kolaba District, excluding Greater Bombay. Of these 8 talukas, Bassein, Bhiwandi, Thana, Kalyan and Panvel talukas are wholly included whereas only a part of Karjat, Khalapur and Uran talukas is included in the region. The details are shown in the following table:

Table I - Political units.

District Taluka.	Area in sq miles.	Population 1961 .	For the part included in the Region.	
			Area in sq.miles.	Population 1961
<u>Thana</u>				
1.Thana.	117.9	186449	117.9	186449
2.Kalyan.	258.1	359898	258.1	359898
3.Bhiwandi.	263.7	162700	263.7	162700
4.Bassein.	203.2	166014	203.2	166014
<u>Kolaba.</u>				
1.Uran.	75.2	56462	75.2	56462
2.Panvel,	215.3	115378	196.7	107838
3.Karjat.	241.5	87238	126.7	59124
4.Khalapur.	156.8	53376	80.1	32144
Total :-	1531.7	1187565	1321.6	1130659

2.4 Population Density: The metropolitan region has a very high population density with 1,368 persons per sq.km.as against the State Average of 129 persons per sq.km.In particular the high density in the region is accounted for by the dense population of the Bombay city. In the rural areas too the population density ranges very much above that of the State average. The population density in rural areas ranges from 155 persons per sq.km.in Khalapur taluka to 284 persons per sq.km.in the Thana Taluka. The density for the entire rural parts of the Metropolitan region is 196 sq.km.

2.5 Occupational Pattern: The high population density in itself may not be a cause for concern, if it is accompanied by diversified occupational pattern, with large number of persons engaged in non-agricultural pursuits. From the data regarding the occupational distribution of the rural population given in Table number 2 we find that of the total working

Table 2.

Distribution of workers according to occupations.

Sr. No.	Taluka.	Occupations									Total
		I Cultivator	II Agricultural Labour	III Mining, currying, livestock, forestry, fishing etc.	IV Household industry	V Manufacturing other than household industry.	VI Construction	VII Trade and commerce.	VIII Transport, storage, communication.	IX Other services.	
1	2	3	4	5	6	7	8	9	10	11	12
1.	Thana	48.50	8.02	6.79	3.71	14.79	1.76	2.43	6.85	7.15	100
2.	Kalyan	58.39	15.77	2.88	1.74	6.13	1.04	2.35	5.26	6.44	100
3.	Bhivandi	54.97	22.03	5.47	2.07	7.48	0.58	1.78	6.79	4.83	100
4.	Bassein	42.34	17.34	11.71	4.54	6.41	0.90	5.68	3.25	7.83	100
5.	Uran	61.06	5.90	12.89	1.54	8.67	0.25	2.23	4.30	5.14	100
6.	Khalapur	54.63	14.40	3.46	2.66	6.56	2.12	3.76	4.08	10.33	100
7.	Panvel	72.05	13.16	5.92	1.08	0.66	0.46	1.53	0.50	4.64	100
8.	Karjat	61.29	17.06	3.38	1.64	1.48	1.11	1.62	4.88	7.84	100

A	Total rural	55.58	15.39	6.72	2.50	6.52	0.92	2.81	3.13	6.43	100
B	Total region	8.48	2.36	2.36	1.59	34.52	2.39	15.63	10.07	22.60	100
C	Western Maharashtra (Rural)	63.22	23.35	1.22	4.13	1.58	1.14	1.40	0.46	3.50	100

-1-

population nearly 74 percent were engaged in agriculture, as against the about 86 percent of the working population of rural part of Western Maharashtra being employed in agriculture. A relatively much higher proportion i.e. 6.72 per cent of the rural workers in the metropolitan region are employed in fishing, live stock, mining or otherwise in the production of primary products. This is much higher compared to 1.22 in the rural parts of western Maharashtra. Occupations of fishing and live stock production, are more akin to agriculture and hence larger proportion of employment in these two occupations does not therefore give a real advantage to the rural areas of the metropolitan region. The real index of economic prosperity of a region is in the terms of the extent of employment in manufacturing of industrial goods. Only 6.52 percent of the total workers in the rural areas of the region were engaged in these industries. On the whole therefore, we find that though in the ^{Rural} metropolitan region, there is a relatively less dependence on agriculture than compared with the rural parts of the western Maharashtra, but this advantage is not sufficiently big to make up for the relatively higher population density. In fact the proportion of workers engaged as casual labourers in agriculture in the rural metropolitan region is only slightly lower as compared with that in the rural areas of Western Maharashtra.

2.6 Another index of the employment opportunities in the rural areas would be the extent of the working population compared to the total population. In this respect, the rural metropolitan region has a slightly low advantage. As against 50 percent of the total population gainfully occupied in the rural western Maharashtra, in the rural metropolitan region less than 49 percent of the population is gainfully occupied.

2.7 One would expect the rural region skirting the metropolitan city to benefit from the spillover of the industrial activity to a much greater extent than is indicated by the working force participation or diversity of employment given above. It may be argued that there might be a great deal of employment opportunities open to males in the rural areas, who in search of these opportunities might have migrated to the city proper. They might have been temporarily settled in the city or might be commuting to the city. If there is a large scale exodus of the male population to the city, this should be reflected in the sex ratio. We find that the sex ratio in the rural metropolitan region is not very much different from that of the rural parts in the western Maharashtra. As against 948 females per 1000 males in the rural metropolitan region, there were 982 females per 1000 males in the rural parts of Western Maharashtra. In fact this suggests that there were relatively fewer females in the rural metropolitan region. If there has been a male exodus on a large scale, there should be relatively more females for a given number of males than that observed by us. That there are not a

substantial number engaged in industries living in rural areas and commuting daily in cities, can be inferred from the low percentage of industrial workers in rural areas already observed by us.

2.8. Social aspects: The rural metropolitan region as judged by some of the demographic features indicated above, would not be considered much prosperous compared to other parts of the rural areas in the western Maharashtra. This embodies probably one of the important paradoxes, 'A rural area right in the vicinity of a highly developed city remains as backward as any other part of the State' is a situation which cannot be easily explained. We can trace the reasons for continued backwardness of the rural metropolitan region, probably to the lack of such overheads that act as engines of economic growth; these are education, transport and electricity. In regard to education we find that in rural areas of the Metropolitan Region, out of the total population only 25 percent were literate, against this we find that in the rural areas of the western Maharashtra 24 per cent were literate. Thus there is hardly any special advantage to the rural metropolitan region over the rural parts of the western Maharashtra in regard to education. A more widespread education coupled with technical training probably would have helped people in the rural region of the metropolitan area to take advantage of the industrial growth in the city to a greater extent. In Bombay city nearly 58 percent of the total population was literate in 1961. Part of the difference between rural areas and the city in this respect could be traced to the fact that there are relatively more males in the urban centres. But higher percentage of literates in the city would also suggest that industrial development attracts to the city educated people to a greater extent than the less educated or uneducated persons.

2.9. A part of the economic backwardness of the rural areas of the metropolitan region can be traced also to the fact that relatively a greater proportion of the population in the region belong to socially backward communities. For instance, in the rural parts of the metropolitan region over 16 percent belong to the scheduled tribes. In some of the talukas like Khalapur over 23 percent of the population consists of scheduled tribes. These tribes have their life based on mostly forest surroundings and when they take to agriculture they adopt relatively primitive methods of production. Very few of them prefer to leave their local environs in search of better opportunities outside the rural areas.

2.10 An idea of the extent of social overheads in the rural areas of the metropolitan region can be obtained from the detailed discussion regarding the distribution of public facilities in villages of different sizes. This is discussed in detail later in the chapter . A few

indicators drawn from that chapter would suffice at this stage to show that modern facilities that help industrialisation in particular or economic development in the general are not adequate in the region. To illustrate, we find that out of 1013 villages in the region only 86 of them had post-office facilities, railway stations touched only 21 villages. Marketing facilities are still poorer, wholesale markets obtained in 9 centres only, 34 more villages had weekly bazar facilities. It is true that relatively more villages have transport facilities other than railways e.g. 217 villages have facilities of bus-stops and 439 villages are linked by main roads. However less than half i.e. 472 villages had no access to any transport, throughout the year. Electricity supply is an index of economic development, it has a somewhat wider coverage in the region, about 368 villages i.e. 36% had facilities of electricity supply, the proportion of the total villages enjoying electricity facilities in the whole of Maharashtra State was 26 per cent only.

2.11 Production According to the estimates prepared by the Study Group on industries, the total income of Metropolitan region amounted to Rs.771 crores in 1964-65, of this amount Rs.692 crores worth income was generated in Greater Bombay. The Rural region together with towns like Thana, Kalyan, Bhivandi etc. (in all about 18 towns) earned income of only Rs.79 crores. If we assume, that the income earned by sectors such as agriculture, animal husbandry, fisheries and part of the commerce belong to rural areas, we would find that the entire rural region had an income of only Rs.26 crores in 1964-65 made up of shares of different sectors as under:-

Table No. 3

Estimate of income for rural part of the Bombay Metropolitan Region for the year 1964-65 (based on current prices- old series).

Sr. No.	Sector.	Income Rs. in lacs.	Percent.
1.	Agriculture.	1517.00	57.48
2.	Animal Husbandry.	384.22	14.55
3.	Forestry.	45.40	1.72
4.	Fisheries.	257.50	9.75
5.	Mining	26.00*	0.98
6.	Commerce.	409.45*	15.52
Total:-		2639.77	100.00

*(Total income generated from commerce is divided in proportion to incomes from Agriculture and Forestry Establishments. Part corresponding to Agriculture is shown here).

As would be seen from the above table over 71% of the total income is derived from agriculture and animal husbandry, 10% income is derived from

fisheries. Mining and commerce together contributed less than 15%.

2.12 We do not have comparable data of the income from all sources for the rural areas of the Maharashtra State. Comparison can however be carried on for the Agricultural and allied activities. The agricultural income per capita in the rural parts of the Bombay Metropolitan Region worked out to about Rs.397 for 1964-65 (current prices). In the rural parts of the Maharashtra State the per capita income from Agriculture and allied activities worked out to ~~Rs.~~ about Rs.287 in the year 1964-65. (current prices). If we assume that the income from the non-agricultural operation in the above two rural parts would not be very much different, we can conclude that the rural parts of Bombay Metropolitan Region is economically some what advanced than as the rural part of the Maharashtra State, per capita income being onl-y 7 p.c.higher.

2.13 Conclusions: Our account of the socio-economic features of life in the rural areas of the Bombay Metropolitan Region leads to following major observations:

(i)The rural parts of the Bombay Metropolitan Region which is the hinterland of the Bombay Metropolitan City has not economically or socially derived any special advantage out of its location. Whether we look at it from the point of occupational pattern or migration of males to the city for employment purposes or from the point of per capita income, we do not find the rural region in the Bombay Metropolitan area to be in any way very much superior to the rural areas in the other parts of the State.

(ii)Inasmuch as There is a relatively higher percentage of persons of scheduled tribes in the region, the region would not be on par with other rural parts in social ranking. *as compared to western Maharashtra* The tribal population would need more care and attention for economic advancement and social uplift.

(iii)The region is not well served by either roads or railways nor has it any special advantage in regard to education,

(iv)We find that the percentage of literates in the region is more or less the same as that in other rural parts of the State.

An analysis of the causes of the general backwardness of the rural parts of the metropolitan region has not been carried out by us, but we can observe that one of the reasons of the backwardness may perhaps be traced to low level of such social overheads as education, transport, and marketing facilities. If the region is allowed to continue to stagnate in

in future , as in the past, the problem of economic uplift would almost be insoluble. In a rapidly growing economy a poverty zone around a developed centre would pose a dangerous enigma. In the future schemes of development therefore, the development of the city and surrounding region must be thought of as an integrated process.

PROBLEMS AND APPROACH

3.1. We shall, in this chapter deal with the magnitude of the problem of the development of the rural areas of the Bombay Metropolitan Region and shall discuss an approach necessary to bring about this development.

3.2. The Magnitude :

The magnitude of the task of development can be indicated firstly by the expected increase in the population in the region. New jobs will have to be created to provide employment to persons who would enter the labour force during the period 1969-91. Creating jobs for them at the existing level of income could only remove the pressure, but would not lead ~~the economic prosperity,~~ it would only help to maintain the per capita income at the present level. The big gap between the per capital income in the rural parts and the adjoining city cannot be minimised within a short span of less than 25 years. But a definite attempt has to be made in that direction for which schemes must be initiated during the next two decades. Arbitrarily we can fix as the target that the income in the rural areas would atleast be ^{one third} ~~1/3rd~~ of the level of the average income of a worker in Greater Bombay. Alternatively, we can fix the income target to be ^{two third} ~~2/3rd~~ of the income of a worker in the other urban centres in the metropolitan region. This target level is to be attained by 1991. The underlying assumption is that the basic character of the economy has to change gradually from one dependent on agriculture to one which has a substantial proportion of non-agricultural occupation such as commerce, industry and transport.

3.3 For projecting the labour ~~force~~ in the future we may adopt the criteria suggested by the Demography Study Group. Their criteria are - the labour participation rate would decline by 30 per cent for males and by 50 per cent for females within age-group 0-14 during the period 1961 to 1991, and labour participation ratios would remain unchanged for the age-groups 15-59 and 60+ for both males and females, during 1961-1991. Based on similar criteria we estimate that by 1991 the total labour force (refer table No.4) in the rural areas of the region would be 5.77 lakhs. In 1966, the total labour force in the rural areas was estimated to be 3.56 lakhs. Thus during the period of 25 years there will be an addition of nearly 2.21 lakhs or approximately 62 per cent. This

Table No. 4

Estimated Labour Force in Rural Areas of the Bombay Metropolitan Region.

Sr. No.	Age Groups	1961			1966			1971		
		M	F	T	M	F	T	M	F	T
1	2	3	4	5	6	7	8	9	10	11
1.	0 - 14	9756	6726	16482	10155	6878	17033	10798	7310	18108
2.	15 & above	178014	120227	298241	201611	137641	339252	224603	153717	378320
3.	Total.	187770	126953	314723	211766	144519	356285	235401	161027	396428
			<u>1976</u>			<u>1981</u>			<u>1986</u>	
2.	0 - 14	11209	7538	18747	11736	7887	19623	11966	7978	19944
2.	15 & above	248909	170770	419679	274434	188807	463241	301188	207861	509049
3.	Total.	260118	178308	438426	286170	196694	482864	313154	215839	528993
			<u>1991</u>							
1.	0 - 14	12324	8209	20533						
2.	15 & above	329062	227842	556904						
3.	Total.	341386	236051	577437						

itself is a very big increase and will require the income of the region to increase by 62 per cent in 25 years or about 2.4 per cent per year to ensure that the per capita income will remain at least at the present level. If however, the per capita income is to attain a level of at least one-half of that obtaining in the urban centres other than the Bombay City, than the total income of the rural areas of the region will have to increase by about 12 per cent annually. The income in Greater Bombay is much higher than in the other urban centres in the region, attaining one-third of the level of Greater Bombay would almost mean nearly the same level of one-half of the income in other urban centres. Income in the rural region will have to increase by almost the same rate viz. 12 per cent per annum if one-third level of the income per capita in Greater Bombay city is to be attained.

3.4. Alternatively we can assume that along with doubling of the per capita income for the State the per capita income in the rural areas of the metropolitan region will also be doubled. This implies an annual growth of income at 9.73 per cent. Thus the rural income has to increase at the rate lowest of 9 per cent and reasonably at 12 per cent annually. These magnitudes are illustrative as the calculations are based on arbitrarily fixed targets. They however convey to us the quantum of the task lying ahead of us. Some relevant calculations of the increase in income are shown in the table No.5 on the following page :

The problem that we shall pose before us is whether such an increase in rural income can be attained primarily ~~on the~~ on the basis of expansion of agricultural sector or expansion of income of non-agricultural sector at a much more rapid rate will have to be attempted.

3.5. Approach :

Necessarily rural areas have to develop on the basis of fuller utilisation of their own resources, human and non-human. Whereas this is true about areas that are far flung from the centres of growth like Bombay city, this rigid economic requirement need not restrict the growth of the rural areas in the vicinity of a metropolitan centre. The rural areas adjoining the city can and should benefit from the industrial growth of the city. That this has not happened in the region is both a

Table 5

Part.	If per capita income is doubled by 1991.					1965 to 1991 = 26 years.		
	Total income in Rs. Lacs.	population (1966)	Per C.I.	Double the P.C.I.	Popula- tion (1991)	Total Income	Rate of increase of income. 26 yrs. per year	
1. Gr. Bombay	69,241.90	4878495	1419932	2838.64	9086656	257937.45	272.52	10.48.
2. Rest urban	5,317.44	592717	897.13	1794.26	1486917	26679.16	401.73	15.45
3. Rural	2,639.77	716620	368.36	736.72	1167641	8602.24	252.87	9.73
4. Total	77,199.11	6187833	1247.59	2495.18	12461214	310929.72	302.76	11.64

Assuming that the per capita income of rural is equal to half ($\frac{1}{2}$) of rest urban and 1/3 of Greater Bombay in 1991 we have

Rural population in 1991	Per capita income equal to	Per capita income.	Total income	Percentage of in- crease 26 years per year.	
1167641	1. $\frac{1}{2}$ of income of rest urban.	897.13	10475.26	296.82	11.42
	2. 1/3 of the income of Greater Bombay.	946.21	11048.34	318.53	12.25

7-16

blemish and an enigma. If integrated development of the entire region is attempted, it should be possible to generate rapid economic growth of the rural areas, which would be in the tune with the economic prosperity of the city.

3.6. The rural areas can derive the benefit of the growth of the city in two ways. In the first place, the rural areas can provide a supply base for some of the goods consumed in the city. In particular, agricultural products can flow from the adjoining areas to the city. One obvious advantage of building up supply link for agricultural ~~products~~ ~~between the city and the adjoining rural areas~~ ~~would be a saving in the transport cost.~~ The city provides a big ready market for such products. According to ~~one estimate~~ ^{diary development commission} the total consumption of milk in the city amounted to ~~86~~ ¹¹⁰ million litres ~~in 1966~~ ^{at present}. As is well known very small part of this comes from the rural areas of the metropolitan region. Milk consumption is expected to be more than double by 1991. There would therefore be additional demand for at least ~~86~~ ¹¹⁰ million litres of milk in 1991. The increase in consumption in eggs, meat and fish would also be of a similar magnitude. At present the demand for eggs in Greater Bombay is estimated to be 5 to 6 lakhs per day while the supply is only to the extent of 5 to 6 lakhs eggs per month, despite the collection from all over the State. What applies to milk would also apply to vegetables and fruits. Thus we see that there will be vast expansion of the demand for agricultural products. If the region can come up with even a part of the demand for the agricultural products, the income in the region can increase by more than double.

3.7 As we shall see in the subsequent chapter, the potential of the region to serve as an agricultural base for supplying milk, eggs, fruits etc. is rather limited. Due to this limitation, it has been not possible for the region to benefit in a ~~big~~ way from the present big demand for milk etc. in the city. To a larger extent therefore the economic growth of the rural areas in the region will have to depend on generation of income in the non-agricultural sectors. In this respect, the region has a potential and an advantage too.

3.3. As of to-day, like the agricultural products, Bombay city draws heavily its human labour from far off places. This has lead to the creation of slums within the city limits. The labour migrating from outside has to be settled in the neighbourhood of the industrial units. The heavy inflow of labour presses on the available limited area of land and scarce supply of accommodation. Instead of industries, trade and commerce extend themselves into the wide stretches of rural areas, it may be possible to avoid further congestions as well as to relieve the economic backwardness of the adjoining rural areas. The rural areas have got enough labour supply which will increase by about 62 per cent in the next 25 years. As is projected by the Demographic Study Group for 1991, the total labour force in the Bombay city would reach the level of 35 lakhs in 1991 compared to 17 lakhs in 1961. Thus there would be a net addition of 18 lakhs. The total addition in labour force in the rural areas is expected to be 2.21 lakhs which is less than ^{one eighth} ~~1/8th~~ of the total addition to the labour force expected in the city. Instead of providing jobs to all 18 lakhs workers within the city it might be possible and expedient to transfer jobs for two lakhs or more workers to rural areas. If ^{one fifth} ~~1/5th~~ of the jobs that are to be created are thus transferred to the adjoining rural areas, the rural areas would be transformed into a fast developing industrial or commercial region. Since in 1991 over 50 per cent of the total work force would be employed in non agricultural pursuit, a scheme will have to be put into operation that would create jobs for over $3\frac{1}{2}$ lakhs persons in the rural areas in the non-agricultural sector. Such a scheme would imply re-direction of the flow of human migrants. If the present trends are allowed to be projected in future, nearly 40 per cent of the addition of the labour force will be drawn from labour migrating from outside the city. If ^{one fifth} ~~1/5th~~ of the additional jobs are to be transferred into the rural areas it would imply that the proportion of the migrated labour will have to be halved. In addition creating jobs in the non agricultural sectors in the rural areas would help bridge-up the gap between the rural and urban incomes.

3.4. Economic development of the rural areas and transformation of occupational structure by creating non-agricultural jobs can be achieved only if the economy of the city comes to be integrated with the economy of the adjoining rural areas in the region. For

this purpose the process of industrialisation should spill-over the city boundaries. The rural areas should be developed to provide servicing occupation and feeder industries. The growth of organised industries in the city would lead to the increased demand for jobs which would involve sub-contracting intensive use of labour, processing of final products, etc. Some of these industries can ^{be} the components produced by small industries or by cottage industries and assemble them into final products. This sort of industrial development should lead to the development of feeder industries or the industries which supply raw materials or semi-processed intermediate goods as well as industries that do finishing of the processed goods. Similarly occupations providing services for processing, packing and transport of goods can also be encouraged in the rural areas of the region. It is this type of mutually complementary economic activities in the urban and rural areas that would facilitate the transformation of the rural economy of the region.

AGRICULTURE.

4.1 Over 77 per cent of the workers are employed in agriculture, which makes agriculture a dominant activity of the region. As we have already shown earlier the Bombay city has fast growing consumer demand for products of agriculture. Besides, cereals, the demand for fruits, vegetables, milk and milk products, eggs, meat and fish is very high and is growing continuously. Hence the question that we would like to examine now is whether the rural areas of the metropolitan region can partake in the growing demand for increasing proportion and prosper as to provide not only jobs for growing population but also to add to the annual income per person.

4.2 Agriculture: The potential of the region to expand its agriculture and increase its share in the total demand from the city will depend on the possibility in expanding the area under cultivation and feasibility of increasing the production and area under crops. We give below in table No. 6 details of land use in the region.

Table No. 6

Sr. No.	Category.	Total area Hectares.	Percentage.
1.	Total Geographical area.	404342	100.00
2.	Area under forest.	119796	29.63
3.	Land put to non-agricultural uses	1896	0.47
4.	Barren and unculturable land.	46406	11.48
5.	Culturable waste.	11841	2.92
6.	Permanent pastures,	14005	3.47
7.	Land and under Misc. crops and trees etc. not included in area sown.	29329	7.25
8.	Current fallows	4657	1.15
9.	Old fallows	21252	5.26
10.	Net area sown	155160	38.37
11.	Gross cropped area.	161826	40.00

(Source:-District Statistical Abstract Thana/Kolaba for 1964-65).

As is evident from the above table, there is no big scope for expansion of area under cultivation, Nearly 30% of the area is occupied by forests which are useful from the point of maintaining climatic conditions as well as economic needs of the country. We cannot therefore extend cultivation by clearing the forests to any substantial extent. Since a large part of the region is made of hilly tracks, we cannot also bring under cultivation waste lands which are either barren or fallow. On the slopes of the hills crops cannot be grown and therefore these areas are used either as pastures or grazing lands. There is hardly therefore any possibility of extending the area under crops, with a view to increasing

farm production. On the contrary, it is quite possible that part of the land which is under crops or on which grass is grown may have to be surrendered to allow expansion of the urban area and to permit establishment of industries in the rural areas. Roads built for increasing facilities of transport may also take part of the land under cultivation. For increasing production, we have therefore to look to more intensive cultivation of the existing area under crops.

4.3 Cropping Pattern: Table below gives details of the cropping pattern in talukas of Thana and Kolaba Districts, which are included in the Bombay Metropolitan Region.

Table No. 7 Crops. (in Hectares).

Crops.	Thana District.				Kolaba District.			
	Bassein	Bhiwandi	Kalyan	Thana	Uran	Panvel	Karjat	Khalapur
Paddy.	9115.87	18059.74	12683.70	4047.00	7424	16274	12807	7865
Nagli.	280.86	717.94	480.38	58.28	-	-	-	-
Pulses.	688.32	569.82	476.74	72.44	67	614	588	296
Fruits & vegetables.	1558.50	284.10	228.25	45.33	87	735	43	58
Oilseeds.	66.37	172.40	122.22	4.86	-	-	-	-
Cash crops.	24.28	150.55	93.08	20.24	-	-	-	-
Food crops.	2033.62	526.95	10891.29	404.70	-	-	-	-
Total.	13767.89	25581.50	24975.66	4652.85	7578	17623	13438	8219.

From the above table it is clear that paddy is cultivated in almost all talukas, particularly in the talukas of the Kolaba District paddy is the only principal crop with a few hectares of land devoted to pulses and vegetables. In the Thana district only Bassein Taluka has over 1,500 hectares of land devoted to fruits and vegetables. Rice is one of the major cereals and efforts are made by the State Government as well as by the Central Government to increase production of rice. High yielding varieties have been evolved and introduced. New varieties have ushered in a technological revolution in rice production. According to available indications, per acre yield of rice can be increased between 50% and 100%. The rice growing areas in the region would benefit from these efforts. To an extent, it is possible to extend cultivation of rice substituting further such inferior crops as nagli, it may be further possible to increase the total out-put of rice in the region. In particular, Bhiwandi, Kalyan, Panvel and Karjat talukas have the potentiality of rice production. This programme of substituting rice for inferior cereals is a part of the general programme of development of agriculture in the State. Efforts to increase rice production would include besides use of improved seeds increased use of

fertilisers, and pesticides. In this respect, the region has a special advantage. There are two research stations already located in the region, with a history stretching over 50 years. They are seized of the problem of improving rice production in general and in particular they have research programmes to investigate into the problems of pests and diseases attacking new varieties.

4.4 The new high yielding varieties of rice have yet to be acclimated. Being sensitive to the changing weather they will need more devoted care and attention both regarding management of soil and water. Since in the region, the land is highly undulated, in several parts development of land would demand special attention. It will be necessary to plug gullies and prevent soil erosion by putting up bunds.

4.5 The soil conservation section of the Department of Agriculture is already active in the region for the last 3 to 4 years. A special techniques of terrace bunding, have been developed which would help reclaiming parts of the slopes of the hills. According to their present programme 10 per cent of the land would be protected against erosion. The programme of soil conservation will not only include programme of retaining ^{water} in soil for longer period, ~~water~~ but would also include drainage of excess waters.

4.6 Rice cultivation as is known is carried out in this region in Kyari lands. The rice plants are planted by erecting fields bunds. Some of these field bunds have been neglected for long and need immediate repairs. This is a task, which would involve relatively heavy investment, though the task itself can be undertaken by the cultivator. Arrangements may however have to be made to provide finances to cultivators for this purpose. The major ~~mainten~~ work of the contour bunds for prevention ^{of} erosion of the soil will have to be undertaken by the State as no individual farmer can handle it.

4.7 Irrigation and Water Management: Irrigation can help development of agriculture in many ways. In the first place, it would facilitate the use of high yielding varieties on the existing paddy lands, as these varieties require assured and timely supply of water. In addition, if irrigation water can be made available beyond the monsoon season, it may be possible to raise a second crop of paddy or other ~~crops~~. What is more important is that part of the land under paddy can be transferred to crops which require water supply for the period beyond the monsoon season. Such crops are sugar-cane, banana and in general most of the fruits and vegetables. The region receives fairly heavy precipitation of rainfall in a year. However rainfall is heavily concentrated in about 2½ months. If the rain water

can either be accumulated by preventing it from running into the sea, it may be possible for farmers to use it for irrigation purposes, in the rabi or summer season. Alternatively, if subterranean water can be tapped, it may be possible for them to extend the area under irrigation. The following table gives the extend of irrigation.

Table No. 8

(in acres).

Taluka.	Gross cropped area,	Irrigated area (total)	Govt. canals	Tanks	Wells	Other sources.
Bassein.	44,800	4,700	-	600	4,100	=
Bhiwandi.	64,200	400	=	=	400	=
Kalyan	61,400	700	=	=	700	=
Thana.	31,600	400	=	=	400	=
Karjat,	34,400	2,200 ⁴³²⁵	2,200 ⁴⁰⁹¹	=	=	=
Panvel,	59,100	1,800 ²⁸⁸⁶	=	=	1,100 ²²⁸¹	700 ²⁸⁴
Uran,	22,100	200	=	=	200	=
Khalapur.	48,400	600 ⁶¹⁷	300	=	300	300 ³⁴⁰
Total:-	3,66,600	11,000 ⁴²²⁸	2,500 ⁴³²⁸	600	6,000 ⁸¹²¹	1,000 ¹²²⁹

(Source: Report of the Land Use survey).

The above table shows that approximately 3% of the total area was under irrigation, and most of the irrigated areas obtained in three talukas, namely Bassein, Karjat and Panvel. It is also important to note that only for the Karjat Taluka crops are irrigated by canal irrigation. A small part of the cropped area is irrigated by canal irrigation in the Khalapur taluka. Over 53% of the total area under cultivation is irrigated by surface wells. We have very little information regarding the potential for digging more wells. Nor have we the data as know as to how much area under cultivation can be provided tank water irrigation. Irrigation by storing water in tanks is hardly known in the region as only 600 acres in Bassein taluka watered through this system. Future potential of damming or digging tanks for accumulation of rain water for irrigation purposes are not precisely known. In 1964-65 extensive surveys of irrigation potential were undertaken by the Zilla Parishads. On the basis of this lift irrigation programme had been chalked out. Works that have been completed or that are in progress or that can be immediately undertaken are listed below. The area that can be irrigated is indicated against each scheme. The details are given separately for each taluka.

Table No. 9

Lift Irrigation (area in acres).

Sr. No.	Taluka.	Irrigation Projects.	Area under irrigation.	Present state of tank.
1.	Bassein.	Palghar.	100.00	Completed.
		Sativali.	70.00	"
		Bhatane.	700.00	"
		Parol	90.00	"
		Wali	60.00	"
2.	Kalyan	Karan,	24.00	"
		Bhisol	100.00	Work in progress.
		Rayte.	60.00	completed work in progress.
		Konba	177.00	"
		Wangani.	80.00	Yet to start.
3.	Thana.	Kasarwadawli	80.00	"
4.	Bhiwandi.	Tansasangar	60.00	completed.
		Padghokariwali.	20.00	"

4.8 A few projects are under survey and plans are being prepared for them. Three such possible projects are listed below with details regarding expenditure and area that would be irrigated and the year in which the work is expected to be completed.

Projects.	Taluka.	Total Expendt. (Rs. in lacs.)	Type of work.	Area under command in acres.	Year of completion.
1. Bhoj Project.	Kalyan.	16.50	Bandhara	340	1972
2. Khanivde "	Bassein.	0.75	"	300	under construction.
3. Kharbav "	Bhiwandi.	-	"	550	"

As the above table shows if all the schemes are completed the area under irrigation in the Thana District would increase by 20% from the point of total area under crops, this would be a very small addition to the existing irrigated area. In the Kolaba District, the Rajanalla project is already under execution. When the right bank canal of the Rajanalla project is constructed it is expected that 8,000 acres would receive irrigation water from Patalganga irrigation project in Khalapur Taluka. The two together would mean substantial addition of about 160% to the existing irrigated area in four talukas of Kolaba District. Since the talukas have a poor irrigation facility to begin with even a substantial increase in area under irrigation, would help only marginally to change the cropping pattern of the region, and a dam at Bargaon in Khalapur Taluka if constructed could bring about 10000 acres under irrigation.

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As regards lift irrigation Government have recently changed its policy and accordingly the co-operative societies will have to be formed first. The Study group felt that the Board may recommend to the Government, not to apply this policy as far as possible to this region, as no other major mode of irrigation, other than lift irrigation is possible in this region. *The Group further felt that the areas covered by each of the irrigation project should be brought under the programmes of (Ayacut) development.*

4.9 Changing Cropping pattern: Even after substantial efforts of increasing production of rice in the region, agricultural production can be increased by at the most 50% to 100%. This would hardly meet the growing need of ^{even} the local rural population, as by 1991 the population would have increased by ^{only} nearly 70%. The region can prosper agriculturally if it expands its production of crops such as fruits and vegetables which are in heavy demand in the metropolitan city. As at present fruits and vegetables are grown as already shown above in a few scattered areas. These areas have besides the facility of irrigation the advantage of alluvial soil. Particularly in the Bassein, taluka the soil has a depth of 6'. According to one estimate nearly 1½ to 2' thousand tons of vegetables and fruits reach the Bombay Market from different parts of the Panvel, the Karjat, the Kahlapur, the Uran, the Bassein, The Bhiwandi and the Kalyan talukas. In the region deep alluvial soils is obtained only in limited patches. Towards the hill sides the soil is sandy loam (morum) type and is shallow with some times less than 3 inches, depth. Basically the region is formed out of granite rocks and towards the coastal area part of the land is washed by sea water which renders land uncultivable. To what extent the nature of the soil will rigidly restrict the cropping pattern in future may have to be investigated in detail. It is however suggested that with due care it should be possible not only to extent the area under fruits and vegetables to some extent but also to introduce new crops, such as sugar-cane-soyabean, root beat etc. It is also suggested that, perhaps the production of gardenflowers may become possible. If garden flowers are introduced as crops it may give employment to females in rural area. It is however, difficult at this stage to know by how much total agricultural income can be increased by introducing these crops, as we do not know the extent to which new crops can be introduced.

4.10 Whether in the final analysis it is difficult to judge whether it is a lack of technical feasibility or a lack of resources with farmers or lack of proper market facilities that prevents expansion of production of crops like vegetables, fruits, flowers etc. It is however argued that there is a monopolistic hold of the marketing agencies. These agencies which are located in the metropolitan city because of their command on the finances they dominate the market. The trading community use restrictive

practices during, the flush seasons prices tend to crash and thus has an adverse effect on the incentives of the farmers to market the crops in large quantities when harvest is ready. It is alleged that farmers receive unreasonable prices and the bulk of the profits is pocketed by intermediate agencies. If production of fruits and vegetables can be undertaken on a large scale, canning industry can also develop side by side. Canned fruits and vegetables can be supplied to the city market during the off season. It may be necessary to investigate into the economics of production of vegetables on a large scale on one hand and of running packing industry for canning vegetables and fruits on the other. In particular, the canning industry would require to have an assured minimum supply of agricultural products over a good part of the year. However, wherever sugar factories can be established taking advantage of irrigation water there will be no problem of marketing sugar for the sugarcane producer.

4.11 As a remedy towards improvement of marketing it is also suggested that the Government may set up at suitable locations regulated markets where fruits and vegetables can be brought by farmers and sold at economic prices. In order to derive full benefit of the readily available market in the big city in the vicinity, it is also suggested that farmers get organised into co-operative marketing societies which can undertake bulk marketing and eliminate private intermediaries.

4.12 Even if we project in future, not only the past experience in crop production but also the potential suggested by technological feasibility, it seems unlikely that the rural area of the metropolitan region can experience economic prosperity of a high order by concentrating efforts on agriculture alone. Nevertheless, since agriculture forms a major source of income for the bulk of the population, now the efforts to develop the region will have to start with agriculture, as these efforts would ensure the stalling of poverty, if not of improvement of economic conditions. Keeping this in view and keeping in view immediate technical feasibility a few important programmes can be suggested for immediate action. These programmes would principally aimed at providing necessary finance on a loan and matching subsidy basis to agriculturists on ~~for~~ capital and recurring expenditure as listed below. It is not possible to work out any precise estimate in this respect in the absence of any detailed data and the figures stated below are only indicative.

Table No. 10-
FINANCIAL IMPLICATIONS OF A

(in Rs.)

<u>Capital expenditure:</u>	Loan	Government share on account of subsidy.
1. Purchase of agriculture machinery and construction of godowns.	50,00,000	50,00,000
2. Introduction of processing and preservation plants (approx.)	50,00,000	50,00,000
	1,00,00,000	1,00,00,000/-
 <u>Recurring annual expenditure:-</u>		
1. Land Development	8,00,000	2,00,000/-
2. Agricultural production:-		
i) Kharif paddy, 4,00,000		
ii) Vegetable	1,00,000	
iii) Summer paddy. 1,00,000		
	6,00,000	6,00,000
3. Plant protection. 1,00,000	1,00,000	25,000/-
4. Increasing irrigation potentialities	5,00,000	5,00,000/-
5. Horticultural development.	1,00,000	1,00,000/-
	21,00,000	8,25,000
Total per year		

(as submitted by Shri Katdare, Dy. Director of Agriculture, Kokan Divn).

The above table gives an overall idea of the total efforts involved, which would be a part of the general programme for the development of agriculture in the State as a whole. In case of capital expenditure and increasing irrigation potentialities and horticulture development subsidy is proposed at 50 percent as these items would have a permanent impact on the agricultural economy. Items of land development and plant protection being of the nature of maintainance, are proposed only 25 percent subsidy, while no subsidy is proposed on agricultural production as the amount shown thereunder is proposed by way of financial accommodation. In fact, in the above estimate expenditure involved in programmes of general nature forms a bulk of the total expenditure. We have also included a small expenditure for development of horticulture. The estimate is on the lower side as no precise measure was available regarding the scale of expansion of garden crops. With a view to helping development of efficient marketing, expenditure on construction of godowns and expenditure on ~~plant~~ processing and preservation are included.

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CHAPTER 4 - V
Fisheries

5.1 Fish is an important source of protein for human nutrition . There is therefore an increasing demand for consumption of fish. It is estimated that annually about 75000 tonnes of fish is produced within the region. In addition fish comes into the Bombay market from distant centres such as Veraval (Gujerat State) in the North and Karwar(Mysore State) in the South. It is however difficult to make a reliable estimate of current consumption of fish or that of its further demand. However since per capita consumption of fish in the city and the region is not sufficiently high, there exists a scope for widening the demand for fish consumption . This in turn will give additional impetus for increased production of fish, considerable potential for which exists in the region. If adequate production of certain important varieties becomes possible there is also a possibility of developing fish processing industry. Fish can either be processed or sun dried and exported. Bombay duck is a speciality of the region and besides being favourite locally, it commands an export market in East Africa and South-east Asian countries. Good market for export of frozen prawns also exists in U.S.A. This export market can be developed if careful planning of fish production and processing can be undertaken. Dara or giant thread fin which grows to about four feet in length, is also one of the highly prized fish. Pomfret which is more highly esteemed as a table delicacy is also found in fairly large quantities locally. Ghol(jew-fish), Wam(Golden Eel), Prawns, cat-fishes are other varieties from the region which command demand in local market.

5.2 Employment According to the census conducted in 1965 it is estimated that the total population of fishermen in the region is about 47282 consisting of 135,33 adult males, 13,305 adult females and 20, 444 children. Of the total adult males only 8,175 are actively engaged in fishing operations. Taking into consideration the fishing units operating from this area the number of active fishermen is inadequate . It is therefore obvious that some fishing boats engage imported labour which in this case comes mostly from the fishing ~~xx~~ communities of Ratnagiri and Southern parts of Kolaba district. In addition about 5,255 persons are engaged in drying fish, 5,637 in marketing of fish and 1297 in other allied
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occupations connected with the fishing industry. The fishing industry therefore provides employment to 20,364 persons from the region in addition to the employed labour from outside the area. It is difficult to estimate precisely what will be the addition to the total production of fish in future. It would depend on variety of measures that may be undertaken to expand the fish production. In view of uncertainty of future fish production, it is also difficult to estimate the exact addition to employment of persons in this industry. In all the measures suggested here are taken up and they succeed in achieving the desired expansion of fish production, a substantial addition in the employment in the fish industry can be visualised. Only of late fishing industry has been looked upon as a lucrative occupation. In the past for ~~may~~ many decades, it was followed as a traditional occupation, therefore the growing population grew in an amount of apathy to it. If expansion of the demand for fish leads to incentive prices, the past apathy can be removed as well as new interest in this occupation can be generated among the coming generation. Particularly in the coastal area where alternative occupations are few and unremunerative, fishing with growing demand can provide remunerative jobs in an increasing measure.

5.3 Potentialities and measures of development:

The continental shelf off Bombay and Thana Dist. which is gradually sloping with 100 fathom line at a distance of about 120 miles naturally provides a vast fishable area as compared to the southern parts of this state. The areas nearer the coast are exploited by the fisher folk, and only a few have extended the area of operation to about 40 miles inside the sea. The extent of fisheries resources in the off-shore areas have not so far been fully assessed. Optimistically one would believe that there exists immense potentialities to expand fish production by providing larger mechanised boats and adopting appropriately improved methods of fishing.

5.4 The relatively vast coast of the Bombay Metropolitan Region harbours as many as 43 fishing centres, 20 of

which are in Greater Bombay and 7 in the nearby Bassein taluka of Thana Dist. At present it is estimated that in the region 3,662 fishing boats operate in the sea. About less than one third i.e. about 1,065 are mechanised where as 726 have sails and nearly one half i.e. 1831 are small canoes. As a part of the future development, it may be pointed out that during the Fourth Five Year Plan about 400 boats are proposed to be mechanised. The newly mechanised boats are expected to provide employment to an additional 6400 persons.

5.5 Fish processing and marketing: Traditionally fish was marketed Fresh. Fish had therefore to be carried to the market soon after it was taken out from the sea. This prevented the boats from being away for long hours in the ocean. One of the traditional methods of preserving fish is of drying fish. Fish is dried in the open in the sun. Some of the valuable varieties like Bombay duck, prawns, shrimp, ribbon fish and anchovy are traditionally sun-dried. Curing fish with salt is not the usual practice in the region. Of late however mechanised boats carry with them ice with a view to preserving fish for long hours before they are brought to the market. Some of the fishing centres have put up ice and cold storage plants for preserving fish for longer duration. According to the available information cold storage capacity already in operation is for 1027 tons and the ice production is to the tune of 63 M.T. per day. Details of existing Ice production cold storage capacity under construction and capacity proposed to be added during the Fourth Five Year Plan are given in table below.

Table No. 11
Ice factories and cold Storage plants for fish.

Centres	Capacity		Remarks
	Ice factories (Production per day)	Cold storage	
1. Arnala	(A) Existing 10	90	Coperative sector
2. Versova	11	60	-do-
3. Sassoon Docks	(i) 17	350	Government
	(ii) -	80	Coperative sector
	(iii) 25	447	Private

(B) Under construction

1. Arnala	10	90	Cooperative sector
2. Madh (i)	10	100	-do-
(ii)	5	60	-do-
3. Sassoon Docks	8	175	Government 150 FF Storage.
(3 ton flake Ice + 5 tone Block Ice)	25	chilled F. Storage	175 (app)

(C) Proposed

1. Bassein	20	90	Cooperative sector
2. Satpati	20	100	-do-
3. Versowa	25	100	-do-
4. Danda-Juhu Tara	10	60	-do-
5. Mahim	15	100	-do-
6. Kachivda	5	60	-do-

5.6 As shown in the above table when the proposed ice and cold storage plants will be completed the present ice production capacity will be trebled while that of the cold storages will be nearly doubled. Though the extent to which these plants may suffice the growing demand of the industry cannot be correctly assessed at this stage, with the growing of demand and better marketing facilities due to the development of the region as proposed in this plan, ice and cold storage plants can be established at places like Karanja or Uran in Kolaba Dist. and some other places. Similarly freezing plants and frozen fish storages also can be added with the expansion of export trade.

5.7 As at present there exists a ready and remunerative market for fresh fish locally, there has not been much incentive to process fish. Deep sea fishing requires expensive vessels. None of the local fishermen can afford them nor can small co-operatives of the fishermen undertake such enterprises. It is under Government's active consideration whether a public Corporation may be set up for exploiting the rich store of deep sea fishes in the distant waters. Such a corporation can help to expand production speedily. In the direction of off-shore fishing beginning has been made in a small way with the establishment of the New India Fisheries, Bombay in collaboration with Taiyo Fishing Company of Japan.

5.8 Fishing industry also needs accessories: like winches, wire ropes, fishing floats, nylon and cotton twines for nets, marine diesel engines, life saving appliances, such as rafts, life saving buoys and jackets, navigational lights. In addition it may be necessary to provide transport trucks to carry fish from the shore to the market. If employment expansion is also one of the goal, efforts should be made ~~expansive~~ to have new recruits in fishing. Besides co-operatives may have to be organised on more sound footing so that the fishermen who have low incomes and who are not able to maintain them during the off season for which they have to borrow loans at insurious rate of interest, can obtain credit during the off season. This credit would be made available at reasonable rate of interest through the Co-operative Societies. Credit is also required for investment in mechanised boats.

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Main items of Fisheries Development:- :

- 5.9 Fisheries can be developed in this region by taking following steps:
- i) Introduction of additional fishing units, i.e. fishing boats and mechanizing them.
 - ii) Provision of fish landing and harbour facilities at important fishing centres.
 - iii) Establishment of ice factories and cold storage plants at important fishing centres.
 - iv) Implementation of deep sea fishing projects by operation of large trawlers.
 - v) Organising fish marketing in the co-operative sector.
 - vi) Utilisation of available tanks, lakes and reservoirs for growing culturable varieties of fresh water fishes.

Location Plan for Fisheries Development:

5.10 It is necessary to observe here that though scientific and methodical approach has been adopted for fisheries development ^{an} emphasis is laid on associating the fishermen with the development and their co-operatives as closely as possible in the actual implementation of the development programme. Hence the success of development programme depends much upon the response received from these agencies. For example, the success of mechanization scheme depends upon the response from fishermen in a particular area to mechanize their boats. Similarly, taking up of a processing unit like ~~the~~ factory and cold storage plant depends upon realisation of the need for such a plant by the local agency like fisheries co-operative society. Hence the plan suggested here for the next five years can be considered to be only tentative. The targets will also undergo a change depending upon the financial resources of the financing agencies like Government, co-operative banks and other scheduled banks.

(a) Introduction of additional fishing units and mechanising them:

Taluka.	No. of mechanized boats to be constructed by Govt. and Co-operative Bank finance.	No. of mechanized boats to be introduced by obtaining finance from scheduled banks.
1. Bassein.	120	
2. Thana.	50	
3. Bhiwandi.	5	
4. Greater Bombay.	250	80
5. Uran.	75	
6. Panvel.	20	
	520	80
	Total 600 mechanized boats.	

(b) Provision of fish landing and harbour facilities at important places: It is difficult to indicate the location plan for this work as the detailed survey of some ports is in progress and at some places the survey is yet to be taken up. After the survey is complete and priorities will have to be fixed on the basis of technical and economic feasibilities.

(c) Establishment of ice factories-locations are indicated in paragraph 5.5.

(d) Implementation of deep sea fishing project- This project will have to be operated from Bombay as this is the only place at present where landing and berthing facilities are available for large fishing trawlers,

(e) Utilisation of available tanks, lakes and reservoirs for growing culturable varieties of fishes:- Though the scheme will be applicable to all the talukas in the region, fish cultural activities will be appreciably intensified in the talukas of Thana, Kalyan, Bhiwandi, Bassein, Pen, Uran and Karjat where there are relatively more number of tanks suitable for fish culture. The Study Group also suggest that if possible, special ponds may be dug in towns and villages ^{to} may be promoted ^{to} breed fish ^{rearing} in these ponds.

Financial implications indicating the source of finance.

5.11 Main agencies of financing the fisheries development are (1) Government of India (2) Government of Maharashtra, (3) Maharashtra State Co-operative Bank through its District Central Co-operative Banks and (4) Scheduled banks. Scheme of development ^{of} Sassoon Dock which is a part of major Harbour is central sponsored and 100 percent, expenditure of capital nature is borne by Govt. of India. Recurring expenditure will, however, be met by the Bombay Port Trust. As regards schemes of providing landing and harbour facilities at minor ports, the expenditure on development is shared equally by Government of India and the State Government. Other schemes are centrally assisted. In the case of introduction of mechanized boats and establishment of ice factories, the expenditure is shared by the group of fishermen, the fisheries co-operative societies, the State Government and the Co-operative banks as explained in paragraph 14. Recently, the Scheduled banks such as State Bank of India, Bank of India and even the Maharashtra Finance Corporation have started advancing loans for purchase of mechanized boats to the extent of 70 to 75 percent of the cost of the boat. Taking into consideration the present pattern of financing and the present costs, an indication can be given as under regarding expenditure on development for the next five years. As developments are rapid, the estimates beyond a period of five years are not likely to ^{be} realistic.

(a) Introduction of mechanized fishing boats (average cost of mechanized boat is taken as Rs.70,000.)

No. of Mechanised boats.	Share of Fisher-men.	Share of the co-op. society.	Share of Co-op. bank.	Rs. in lacs.			Total.
				Share of Government Nonredeem-able share capital.	Share of State Government of Nonredeem-able scheduled banks.	Share of State Government of Nonredeem-able share capital.	
No. of mechanized boats in the Co-operative sector = 520.							
1) Engines, (520)	(13.00) (5%)	2.60 (1%)	104.00 (40%)	10.40	130.00	---	260.00
2) Boats.	5.20 (5%)	1.04 (1%)	26.00 (25%)	19.76 (19%)	52.00 (50%)	---	194.00
No. of mechanized boats in private sector (80)	14.00 (25%)	-	-	-	-	42.00 (75%)	56.00
Total:-	32.00	3.64	130.00	30.16	182.00	42.00	420.00

(b) Provision of fish landing and harbour facilities.

	Amount in lakhs.	Agency.	
		Government of India.	State Govt.
i) Major ports (Sassoon-Dock).	300	Rs. 300	-
ii) Minor ports.	60	Rs. 30	Rs. 30

(c) Establishment of ice factories (average per unit is taken as Rs. 6 lakhs.)

No. of new ice factories.	Share of Fisheries co-op. society (10%)	Share of Co-op Bank (50%)	Share of the Total State Government		
			N.R.S.C. Loan.	25%	15%
5.	Rs. 3.00 lacs.	Rs. 14.00 lacs.	Rs. 7.50 lacs.	Rs. 4.50 lacs.	Rs. 30.00 lacs.

(Assubmitted by Shri A.G. Kalawar, Dy. Director of Fisheries, Maharashtra State).

(d) Implementation of deep sea fishing project:- The Project will be implemented with the subscribed capital of Rs. 100 lacs fully contributed by the Government of Maharashtra by forming a Fisheries Corporation. If additional funds are required, the Corporation can take loan from the Agricultural Refinance Corporation or from a scheduled bank.

(e) Utilisation of tanks and reservoirs for growing culturable varieties of fishes:- This is a scheme which is actually implemented by the local bodies such as Grampanchayats, Municipalities and the fisheries Co-operative societies. Government will assist these bodies in obtaining technical guidance free of cost and suitable fingerling at

subsidised rate. Cost of the scheme to the extent of about Rs.5 lacs will be borne by the State Government.

Summary of total cost on important items to be met by financing agencies in the first five years.

Amount in lacs in Rs.

Name of the Agency:-	Fisher- men.	Co-Op. soci- -ties of fishermen.	Co-Op. Banks.	Scheduled banks.	Govt. of India.	State Govt. (loan and N.R. S&S)	Total.
Amount	32.20	6.64	145.00	42.00	—	224.16	450.00

5.12 Conclusions- Fishing would be a vital and necessary adjunct to development of agriculture. Since this is one of the traditional occupation, rapid development can be undertaken with ease provided enough investment ~~is~~ is forthcoming and proper institutional changes are introduced. As already indicated above special consideration may have to be given to select locations for further development and for encouraging the processing of fish as an organised industry. The latter in particular would help meeting the growing demand for fish consumption in the local market and developing export trade.

Dairy, Animal Husbandary, Poultry and Piggery.

6.1 As already pointed out the Bombay city consumes as estimated by us around ~~60~~⁴⁰⁰ million litres of fresh milk per year. As the city population would grow and industries expand the demand for consumption of milk would also increase rapidly. Unlike fish which is consumed only by a section of the community and for other sections, it is still a religious taboo ~~and~~ unsuitable to the palate, milk is consumed in various forms by all sections. Vegeterians derive their protein requirement mainly from milk. Hence the demand for milk is likely to increase more rapidly than that for fish. In contrast however, unlike fish, milk and milk products would not have an export market.

6.2 The problems one faces in procuring adequate supply of milk are mainly of two types. In the first place, the major problem arises as to whether milk can be produced within the city area or within the metropolitan region, Or in the alternative milk has to be procured from outside the region. Production of milk ~~within~~ in the city would not be favourable for two reasons.

Firstly it would imply importing the animals from outside and housing them within the city. This would create a problem of in-sanitation and congestion.

Housing cattle in the city raised a problem of maintainance of dry cattle. As such the city is crowded with human beings ~~we add~~ to it animals, we would would accentrate the present unmanagable problem of human congestion. Maintaining dry cattle would be an expensive proposition because not only will they occupy space but they will not yield milk and will consume fodder they will thus prove a dead weight. As it ~~is~~ often happens, the dry cattle find their way to the slaughter house.

Since cattle in Bombay are imported with a view to supplying milk for the market, cattle of superior breed come to Bombay. Sacrificing relatively more efficient animals by allowing them to be slaughtered when they are out of milk leads to a general deterioration of quality of cattle in the region from where the cattle are imported.

Secondly ~~if~~ if milk is to be produced within the city cattle feed and fodder have to be imported in the city to feed cattle. This can prove to be an expensive proposition in view of the fact that the ratio of feed and fodder to milk is rather high. Without going into a detailed analysis of costing, it can be asserted that it is cheaper to transport milk in insulated railway tanks, rather than import hay by railway.

6.3 Once it is ruled out as unnecessary to encourage colonies of cattle within the city boundaries. The next question that we can ask is can we encourage dairying within the areas of the metropolitan region, as a major occupation and a main source of milk supply from the rural areas in the metropolitan region to the city. One obvious argument for establishment of dairying as one of the leading occupation in the region, is that it would save transport cost of fluid milk. In the rural areas of the metropolitan region cattle breeding along with growing crops is already in practice. Thus the art of animal breeding and producing milk is native to the local population. Efforts would then have to be made to expand production of milk as much as is possible in order to meet the growing demand for milk in the metropolitan city.

6.4 As at present out of ⁴⁰⁰ 86 million litres of milk estimated to be consumed in the metropolitan city, the supply drawn from the rural areas in the region is meagre. The live stock position and the estimates of present productions of milk * are shown in tables Nos. 37 & 38. The fact that even the present demand has not yet been covered to by the local rural areas more fully explained to some extent the problems that may have to be faced if rapid expansion of milk ~~production~~ production is to be obtained. In the major obstacle to increased milk production is a technical one and can be linked thus: The rainfall is only seasonal in the region. If fodder is to be obtained all the year round, irrigation facilities must be available. If dry fodder is used, the cattle that can be sustained per acre of land would be a few only. Besides milk production per animal would be low. If the fodder is to be imported from outside the metropolitan region, the same problem which we have discussed above of locating animals within the boundary of the city in regard to maintenance of cattle within the rural areas without adequate provision for fodder supply would arise. The cost of transport of fodder would be higher than the cost of transport of milk from outside. As we have already seen earlier, there are a few projects for expansion of area under irrigation. Some of the schemes are already completed and few others are in operation, but the total addition to the irrigated area will not be impressive. One would then ask the question whether it would be more remunerative to transfer the fodder growing areas to such crops as fruits, vegetables, etc. or to grow fodder more intensively. Once again we do not have the data in this regard. If we take the experience of other regions, it can be inferred ⁱⁿ that outlying areas where alternative of growing intensive crops like vegetables and fruits is not available, it would be economical to grow fodder there. The dung of the cattle may be used to supply the manurial needs of the areas where cereals and other light crops are grown.

Table No. 12

Milch Cattle and Poultry in Bombay-Panvel-Khopoli Region according to 1961 and 1966 liv

Talukas.	Thana		Kalyan		Bassoin		Bhiwandi		Panvel.		Uran.		Khalapur	
	Items.		Year		Year		Year		Year		Year		Year	
	1961	1966	1961	1966	1961	1966	1961	1966	1961	1966	1961	1966	1961	1966
I. Cows														
a. in milk	1626	2224	4476	5064	2033	2398	3017	3596	3087	2932	810	1021	3054	2694
b. Dry	4567	1324	13397	6515	6203	2681	11479	4913	9382	4903	2344	968	8693	4682
c. Milch (a+b)	6193	3548	17873	11579	8236	5079	14496	8509	12469	7835	3154	1989	11747	7376
d. Young stock.	3650	2386	11496	9649	4783	3852	9355	8594	8655	8755	1760	1544	9755	8114
II. Buffellocs														
a. In milk	2081	2564	6280	9768	3187	4190	3650	4211	2795	2060	540	630	952	1921
b. Dry	3737	575	10819	3762	5431	1772	8036	2708	4096	2060	1129	474	2177	936
c. Milch (a+b)	5818	3139	17099	13530	8618	5962	11686	6919	5893	4120	1669	1144	3129	1847
d. Young stock	813	1171	2966	4681	1693	1415	4238	3925	4110	2236	708	560	1825	1289
III														
Poultry.	27853	57184	53307	64882	43406	48238	58255	44611	50043	60815	24402	27706	30073	19736

Table No. 12 (contd.)

Talukas.	Karjat		Total for region Excluding Gr. Bombay.		Greater Bombay.	
	Year		Year		Year.	
	1961	1966	1961	1966	1961	1966
I. Cows						
a. in milk	3870	6164	21973	26093	3678	4573
b. Dry	13404	7103	69469	33089	5055	1282
c. Milch (a+b)	17274	13267	91442	69182	8733	5855
d. young stock	13451	13263	62905	56153	4410	4413
II. Buffaloes						
a. In milk	1670	2304	20157	26678	69693	75885
b. Dry	4629	1451	40054	13738	73390	3225
c. Milch (a+b)	6299	3755	60211	40416	143083	79110
d. Young stock.	2121	2044	18474	17321	12650	9050
III						
Poultry.	34611	46777	321950	369949	196039	229820

39

Table No. 13

Computation of Milk Production for Greater Bombay and Bombay Metropolitan Region for 1961 and 1966.

Animal.	Year.							
	1961				1966			
	Average milk yield per animal in milk per day. (in Kg.s)	Number of Animals in milk.	Production in Kg.s per year (365 days)	In Litres.	Average milk yield per animal in milk per day. (in Kg.s)	Number of animals in milk.	Production in Kg.s	In Litres.
1	2	3	4	5	6	7	8	9
A) Cows.								
1) Gr. Bombay.	0.61	3678	818907	802850	0.61	4573	1018178	998214
11) Bombay Metropolitan Region.	0.61	21973	4892288	4796361	0.61	26093	5809606	5695692
B) She-buffelocs								
1) Gr. Bombay.	2.26	69693	57489756	56362505	2.26	75885	62597537	61370134
11) Bombay Metropolitan Region	2.26	20157	16627509	16301479	2.26	26678	22006682	21575178

(Source :- "Average milk yield per animal", estimates by Institute for Agricultural Research)

Milk production is converted from Kg. to Litres, assuming specific gravity of milk = 1.02

38
04

6.5 Whereas, it is visualised that the rural areas in the metropolitan region cannot become major supply base for milk, the scope for immediate amelioration of the existing dairy produce is not ruled out. In fact some expansion of milk production activity can also be visualised. The problem of maintaining milch animals that are within the city is becoming more acute day by day. If alternate locations are found for the city cattle outside in the rural areas of the metropolitan region the city will be unburdened of one of its uneconomic activities. For this purpose, it is suggested that a few locations where enough water supply is available and intensive fodder growing can be undertaken without adversely affecting the growing of fruits etc. may be reserved for rehabilitating city cattle into rural areas. It is also necessary to induce the cattle owners in the city to transfer their cattle to the new location. They might need initially to be financed for the relocation of the cattle.

6.6 Along with this, financial aid can be given to individual farmers to organise themselves in small co-operative societies. Such an organisation would enable them to get incentive prices, which would induce farmers to push the milk production to the optimum levels. In future the co-operative societies may federate and undertake processing of milk on one hand and supplying of concentrates and feeds to farmers on the other. In addition if farmers are encouraged to import cross-bred cattle especially cows expansion of milk production can be attained more easily. The new animals would have relatively high ratio of milk to fodder and feed.

6.7 Thus on the whole, we find in regard to milk production that though there exists a scope for expansion of production of milk and special efforts in this direction are likely to help farmers, which it is that in the long run the rural areas in the metropolitan region can not be a major source of milk supply to the city. Hence it is unlikely for dairy industry to be a major source of generating income and providing employment to sufficiently large sections of working rural population in the region.

6.8 Meat Production: The problem of providing fodder during the off-season which we discussed in the context of milk production will have to be faced in regard to meat production too. Maintaining cattle on feed and fodder imported from outside till they mature is a costlier proposition than import of packaged meat from outside. As an intermediate way at the moment live cattle are brought from outside to the slaughter houses located in the city. Cattle lose their body weight rather heavily on the way and thus heavy losses are to be incurred. It would be paying, now with modernized ~~modernized~~ techniques of refrigeration to locate small units of slaughter houses at convenient places in the cattle surplus regions and import packaged of chilled meat.

6.9 The production of poultry meat in the region has a relatively better scope. The problems of the poultry production, however are of the different nature.

6.10 The main problem regarding poultry production is regarding scale of operation. As at present the individual farmer or even the labourer can breed a small flock of birds. Members of the family can look after the small flock during the leisure hours and the birds can feed themselves on inferior grains, trash and waste materials. However to make the occupation paying, it is necessary to undertake scientific breeding, proper medication and efficient marketing. Scientific breeding would require that a balanced feed is to be given to the birds. Such a feed can be produced only by an organised industry, farmers cannot produce it in their homes. A proper distribution of feed would require establishment of channels upto remote villages. Poultry birds are attacked more frequently from epidemic diseases that wipe out the entire flock of birds in the village. Veterinary help for timely inoculation of all birds will have to be provided. In addition, once a disease makes its appearance, it should be possible to get veterinary help at short notice in order to avoid annihilation of the entire flock.

6.10 Both the eggs and the birds are to be collected from the small individual producers and to be transported in bulk to the centre of consumption. As eggs have to pass through relatively more stages when they are to be collected from small individual farmers the percentage of breakage tends to increase. Delay in transport may result in deterioration and decay. Of late, a few big enterprises have come into existence for production of eggs and poultry birds. Initially, they proved a success, as the ratio of feed price to the price of eggs and poultry birds increased, such enterprises proved less and less remunerative, eggs imported from distant places like Madras and the Punjab have proved to be cheaper, probably because the cost of feed in those regions is relatively low.

6.11 Whether in the final pattern that might emerge, the large scale enterprises or the production of poultry by individual farmers is likely to prove relatively more remunerative is difficult to judge at the moment. It can however be visualised that for a long time the two can exist side by side and if co-operative institutions can provide efficient services for supplying feed and for efficient marketing of eggs and poultry birds. Individual production may become more attractive than what it is now. As at present it is understood that a poultry unit can be run profitably if it consists of 250 birds, they would require about 65 sq. metres of area for housing the birds.

Piggery:

6.12 Pigs are efficient converters of feed in a highly nutritious food. With proper management, it has been possible to get a kilogram of gain in body weight of a pig for every three kilograms of feeds consumed by it. Pigs are prolific breeders also. In the areas adjacent to big cities pig-framing can be advantageously encouraged. Since pigs are simple stomach animals, they need almost the same food as do the humans, though, to some extent, pigs relish, feeds, such as, lucern, berseem oil cakes, brans, etc. Hotel waste and whey from dairies make good pig food.

Here again the entire problem is of proper organisation both for procurement of pig feeds and for marketing of pig meat. Pigs are most profitable if slaughtered at the age of about six months; by which time a pig should weight around 90 kgs. Processing pig meat needs special skills and equipment; hence the need for proper organisation. Government of Maharashtra have established a Bacon Factory in Bombay with a capacity of slaughter as many as 100 pigs a day. This ensures a reasonably good market for the pigs in the Metropolitan Region.

Pork products can be exported also. As such if pig keeping exceeds the capacity of the Bacon Factory, the authorities of the Metropolitan Region may have to plan for more such plants. This may, however, not be required for another 10 year or so.

Pigs need special care, management and veterinary aid. As such, before any one thinks of getting into pig farming, it is better for him to get some practical training in the care and management of pigs. Also it would be necessary to make available timely adequate veterinary aid.

6.12 There is no 'feed law' in this country to guarantee minimum of certain nutrients or maximum of certain materials in the feed put up for sale. Such law is essential. A plan for compounding cheap poultry feed should be prepared, which will also provide subsidiary occupations in rural areas.

6.13 From what is stated above, it may be concluded that the main problem with regard to dairying animal husbandry, and poultry in the Bombay Metropolitan Region would essentially be of providing proper marketing facilities for animal husbandry products, to be marketed by producers in the rural areas of the metropolitan region. It is also necessary to plan for removal of buffaloes from the Greater Bombay areas to suitable places in the neighbourhood of the metropolitan region. This would ~~also~~ not only clear the cities of unhealthy stables but would also help in getting better and cheaper milk. The railways need to be assisted in developing transport facilities suitable for marketing of milk, eggs and livestock.

6.14 Financial Requirements. The financial outlay of Rs.1500 lakhs may be required ~~immediately but will have to be spread over~~ for a period of about 10 years depending upon Funds available and need to undertake activities. The details are given below.

Table No.14.

Financial outlay for additional development.

Dairy, Animal, Husbandary, Poultry and Piggery.

<u>Schemes.</u>	Cost in lakhs. Rs.
1. Financial outlay for nine additional dairies.	900.00
2. Development of Railway Transport facilities	25.00
3. Development of feed compounding activities	25.00
4. Extension work for development of dairying, poultry-keeping, pig-farming.	200.00
5. Resettlement of buffaloes from Bombay Stables.	200.00
6. Misc. Supporting items of work, organisational work, marketing etc.	150.00
	Total:- 1500.00

(As submitted by Dr.V.M.Patil, Dy,Dairy Development Commissioner, Bombay).

CHAPTER VII

F O R E S T S

7.1. Within the metropolitan region forests occupy a prominent position. Of the total area in the rural areas, nearly 30 per cent is occupied by forests, for the country as a whole this proportion is about 22 per cent. The approach regarding forests has to be different. The forests are to be considered as very essential for the nation. They help in regulating the climate as well as in meeting the needs for timber and other forest products. Hence, areas under forest cannot be reduced as it is not possible now to grow forest on an extensive scale in areas where they do not exist. The major problem regarding forests is therefore, to protect and develop them to become more productive. Since within the region forests would be maintained for purpose of climate, production of forest products can be increased only to the extent possible, and it is economical to do so. In a big city like Bombay there would be a demand for timber and furniture wood but such demand will have to be met by importing wood, if necessary, from outside the region. Plans are already a-foot to improve the productivity of the existing forests. In order to help the people living within the forest areas or on the outside fringe, it may be necessary to develop industries based on forest products to provide occupation to them. The industries may be

- i) Bidi making
- ii) Charcoal burning *making*
- iii) Bee keeping
- iv) Cultivation of forest products
- v) Bamboo work

These industries can be developed on the cottage basis. Tribes inhabiting the forest areas or living on the forest fringes can derive earnings from these industries. If there is a plan to develop these industries by supplying them raw materials at reasonable prices and providing facilities for marketing their products at remunerative prices, it might be possible to prevent them from depleting forest resources in a dangerous manner as they are doing now. There is also a scope for production on industrial basis of certain *using forest* goods *using forest* products as raw materials. For illustration production of card boards, strawboards, katha, furniture, packing materials, as well as the industry of saw mills can be organised on a modern basis.

Some of these industries are already in existence and it may be difficult to add to the existing units as it may not be possible to procure enough raw materials for new units unless the forest department has plans to increase the number of trees yielding raw materials to undertake these industries. As such the supply of grass is limited in the region. To devote the limited supply of grass to production of straw boards may be unwise.

6.2. The existing resources of the forest are given in the table below :

Table No.15

~~The classification of forest area is classified as under :~~
classification of forest area

Classification	Forest area in Thana District in sq.km.	Forest area in Kolaba District in sq.k.m.	Total forest area in sq.k.m.
Protected ^{ion} forests	144.378	65.500	209.878
Tree forests	378.042	124.800	511.842
Minor forest including protected forest in charge of Forest Department and Revenue Department and nominal reserves.	167.373	198.310	365.683
Pastures	9.660	1.840	11.500
<u>Miscellaneous forest :</u>			
(a) Bioesthetic	—	12.800	12.800
(b) Dalhi	—	34.020	34.020
Total :-	708.453	437.270	1145.723

Protected ^{ion} forests include areas which are mostly on steep slopes. In the remaining areas, the removal of tree growth is undertaken on a very conservative basis with the main object of ^{managing} ~~changing~~ the forests for the preservation of the vegetal cover to prevent soil erosion.

Tree forests are situated mostly on moderate slopes as well as flatter areas. Since the natural regeneration in these areas is scanty and since the proportion of teak is low the object of management of these forests is to improve the conditions of these forests both in respect of value and stocking by undertaking large scale plantation of teak and other economically important species including bamboo.

Minor forests are mostly situated near villages and in the coastal tract. These forests have suffered due to cattle depredation permitted by traditional privileges for cattle grazing as well as by tahal cutting. There has also been encroachments by the surrounding villagers for growing food crops. The object of management is to meet the local demand in respect of small timber, firewood and grazing.

Pasture forests are the denuded areas which are fit only for growing grass. Since the trees growth in these forests is subjected to illicit cutting for removal of the material as firewood, raising and protecting plantations is difficult and as such it is necessary to introduce good quality grass. Rotational grazing may be introduced also in area not classed as grass lands.

Bioaesthetic forests are mostly in the hill plateau of Matheran and the forests at Karnala fort. Since Matheran is a hill station removal of trees from these forests is restricted to dead and decaying over-matured and wind-fallen trees only. Material extracted from the trees is converted into firewood and sold departmentally to the public and the hotels which are maintained for the visitors. The forests at Karnala fort now form the bird sanctuary where felling of trees has been disallowed from the year 1967.

Besides developing cottage industries based on forest products, Forest Department ^{has already} ~~will have to~~ set aside the ^{Delhi} ~~leeward~~ lands for the Advaita crops providing them with occupation for livelihood in the Kolaba District. In these lands they are allowed to grow/so as to prevent illicit cutting of trees.

3.3 So far as the development of the forests are concerned it is understood that Forest Department has schemes for the development of the forests in the Metropolitan Region. Under these schemes measures are undertaken to improve the conditions of the forests both in respect of value and stocking.

Due to proximity of the forests to Bombay City and industrial centres like Ambernath, Kalyan, Bhiwandi and Thana there is a ready market for the forest produce like timber, firewood and charcoal. At present there are 116 saw mills in the Bombay Metropolitan Region and a number of furniture making units are in operation. In addition there are two boat building units at Arnala and Bassein. It is feared therefore that starting of large scale forest-based industries may starve the existing industries of its supply of raw materials. But it is possible

48

to add a saw mill with a seasoning kiln and a small furniture and other wood working unit. Bidi manufacturing units in a couple of places near Padgha and Vajreshwari can also be started to provide employment to low paid workers in nearby villages.

7.4 Likely capital cost involved for the proposed industries:-

(a) Saw Mill, Seasoning Kiln and A furniture Making Unit:- Place

The above industries are interdependent if established in one place would prove more economical. The sawn timber of hardwood species when seasoned would have a better market and will not warp or bend even if kept undisposed for a long time. The seasoned wood can also be used for preparing doors and windows of standard sizes and they will have a ready market. Even the small wooden pieces sawn in the mill can be utilised for preparing wooden articles like tool handles electrical casings and switch boards. Furniture making unit can also manufacture bullock carts and hubs if provided with a smithy unit.

Likely cost that will be involved for starting a saw mill-cum-seasoning-cum-carpentary units:-

Saw mill with a capacity to saw 2 Cu.M. of material per day:-

Non recurring expenditure (such as purchase of plots of 2000 sq.yds. Building 40'x70'=2800 sft). Machinery and equipments.	Rs.
	35,630.00
ii) Recurring expenditure on staff and labour ..	12,240.00
iii) Recurring other charges such as cost of logs etc.....	124,200.00
	172070.00
 Expenditure for erection of a seasoning kiln of a capacity of 2 cu.M. sawn timber.	
i) cost of seasoning kiln boiler and shed.....	24,400.00
ii) Cost of Pay of staff.	8,400.00
iii) Electricity	600.00
	33,400.00
 B) <u>Expenditure for a furniture unit:</u>	
Non recurring expenditure (such as heavy duty universal wood working machine and fitting etc.)	8,690.00
Recurring expenditure on staff and labour	20,160.00
Recurring other charges	10,800.00
	39,650.00

If the unit employs carpenters and has not got a planning machine.

Non recurring expenditure	2,000.00
Recurring (pay of staff for one year)	17,640.00
Cost consumable articles for one year	6,000.00
	25,640.00

49
-48-

Bidi Industry:

Bidies are made from tobacco and two types of leaves viz. apta and tambhurni. Of the two varieties tambhurni bidies are in greater demand in Maharashtra while bidies made out of apta leaves are mostly consumed in Gujrat. The bidi leaves of apta are available in the Metropolitan Region, tambhurni leaves are found in Bombay Metropolitan Region only in a limited quantity. The scope of expansion of bidi manufacturing is therefore limited. Besides tobacco is not locally available. It may not be possible to complete profitably by importing ^{quality} tobacco for bidi manufacturing as the bidies manufactured with apta leaves are to be sent outside.

An economic size of bidi making unit will be one which manufactures at least 1 lakh bidies a day may be started to give profit of Rs.20 and employment to at least 100 workers per day. One labourer is expected to prepare 1000 bidies a day.

The capital cost that will be involved in a year in starting a bidi industry, manufacturing 1 lakh bidies a day will therefore be as under:-

1. Rent of Building	Rs.	6000.00
2. Cost of Tobacco	Rs.	73000.00
3. Cost of Tambhurni leaves ^{Quality}	Rs.	22630.00
4. Bidi Making charges.	Rs.	122350.00
5. Thread	Rs.	1000.00
6. Advertising, lavelling, delivery charges...	Rs.	21810.00
7. Supervision charges	Rs.	7560.00
	Total:-	Rs. 254350.00
		<hr/>
(As submitted by Shri D.V. Khisty, Conservator of Forests, Thana Circle, Thana.)		Grand total Rs. 499470.00

If enough supply of quality bidi leaves is made available the daily production can be increased by 5 times and so also the employment. This unit can be started either at Vajreshwari or at Padgha in The Thana District and at Panvel or Uran in the Kolaba District.

INDUSTRIAL DEVELOPMENT AND ECONOMIC TRANSFORMATION.

8.1 We have already examined the scope for developing of agriculture and allied industries. The measures that are necessary for developing agriculture and allied activities have also been indicated. The two major conclusions emerge from this study, (i) In the first place, it is readily granted that there would be enough demand for agricultural products of all types, which would include besides cereals, milk, fruits, vegetables, meat, fish, eggs and poultry. The demand for these products is met only to very small extent from the supply available from within the region. The gap between the available demand and the supply is likely to increase further in the future. Even if all the resources that are locally available are stretched to the farthest, local supplies would meet only a small part of the demand in the future. The major constraint may be in this regard the technical feasibility. The climatic conditions of the region would not permit growing of vegetables and fruits on a large scale or of producing milk in bulk by feeding cattle with local supplies of green fodder. Fish production can be undertaken on a large scale but as soon as the scale of operation is increased it will rather take the stature of an organised industry. Thus although development of agriculture and allied industries is not ruled out, it cannot be accepted to improve the conditions of the vast section of the existing population by providing fuller employment and increased income. The growth of agriculture can hardly sustain the economic development of the region as a whole when population also rises steeply.

8.2 According to our estimate, in the next 25 years, there would be over 2 lakhs of people who would be in search of jobs. The development of agriculture cannot take care of the additional labour supply. We have therefore to turn to the industries for providing employment opportunities within the region at an increasing rate. Besides, industries would help in raising the wages and incomes of those employed. Thus economic development of the rural areas in the metropolitan region will have to depend on industrialisation and transformation of the region.

8.3 Industrial Structure: We have visualised different types of industries that can be developed in the region. The existing industries however fall into two separate categories.

- (a) Organised industries which produce finished products from raw material not necessarily obtained locally.
- (b) Unorganised industries either of cottage industry type or small industries depending to a large extent on the local resources, which are processed by these industries.

8.4 We give in the appendix I a list of different types of industries which could be started in the region. Some of the small scale industries process agriculture products, forest products, etc. Among the industries, processing agricultural products are rice mills, floor mills, saw mills, furniture making etc. use of raw materials drawn from the agriculture or forests. Salt production is another major industry, which uses sea water. There are cottage industries which have now grown into small units of production and they include handlooms and power looms. These industries have only marginally expanded. In particular, growth is experienced by power loom industry, under the protection given by the Government. Power looms are located in a few centres like Bhiwandi.

8.5 The phenomenal growth has taken place of late in the organised industry sector. As against 4178 units in Greater Bombay, in the Thana and the Kolaba Districts together there are about 1096 units of different industries as shown in Appendix II. An overwhelmingly large number of these i.e. 1015 are located in the Thana district. Most of them are located in the industrial estate around the Thana Creek and in the Kalyan Industrial complex. A few industries are located in the Karjat area in the Kolaba District. We should not however judge on the basis of the number of ~~the number~~ units the ~~turn~~ turn over or the employment in the rural areas. Compared to the number, the turnover is likely to be much less as many of the manufacturers in units located in the rural areas would be small in size. Organised industries include a wide range of products such as paints, chemicals, electric goods, transport equipments, beverages, paper and paper products etc.

8.6 In the existing pattern of industries we find an expansion of the type of the industrial development that usually takes place in the city. Scarcity of suitable lands is pushing the industries out into the rural areas. Besides Government regulations regarding the establishment of new industries in the already congested areas in the city has induced location of new industries in the nearby industrial centres. These newly developed industrial centres are more or less satellite towns and in the same fashion as the Bombay City they too have failed to make an impact on the rural economy of the surrounding region. A further expansion of the same process may bring the organised industries down to the rural areas but may fail to generate either large scale employment or rapid increases in wages or income. At the moment it might result into giving rise to a few pockets, of prosperity amidst general poverty around.

8.7 The remedy lies in aiming at integrated industrial development of the region. A large portion of the rural population is to be involved in the process of industrial growth. So far the industrial development has not been

able to involve the local population on any large scale. If the local population is to be involved on a large scale, two approaches at once suggest to us. With the expansion of agricultural products, it may be possible to develop agro-industries. If active efforts are made for fuller utilisation of other local resources drawn from forest or from sea, a few more industries can also be established. All of them would result in generating relatively a small additional employment. The traditional types of agro-industries which include rice mills would have a limited scope due to limited increase in production of rice itself. Certain industries based on salt may also be developed and they would include fertilisers, chemicals etc. But these industries would mean a large scale organisation which would be capital intensive in character.

8.8 For integrated industrial development, we will have to shift the emphasis on to the production of intermediate goods or use of intermediate techniques. The whole process can be visualised as under:-

The general trend of expansion of industries in already developed centres cannot be totally called to a halt, it can only be kept within limits. Thus if further expansion of industries in the industrial nexus - within Bombay city is to be permitted, the future industrial development may be so planned that new industrial development in future has benefits spread beyond the city boundaries. For instance, we can visualise an industry which gives subcontracts to numerous small units, for its final assembly in the main production centres. The small units producing components can use intermediate techniques involving use of hand & machines with or without electric motors. These machines can be operated by farm labourers individually or a group of workers living in the same place. We can also visualise type of industries which require use of intensive labour for packaging which can be left to small industries in the unorganised sectors. There might still be other types of industries where the entire production can be carried very small industrial units but sales are organised on a large scale. For instance, manufacture of pencils can be one illustration of this type of industry. The development of fodder or supplementary industry which use labour more intensively in centres widely spread out can be developed. For small industries to develop the following four types of facilities are necessary (i) extensive sales organisation which undertakes collection, grading, quality control, packing, etc. of the finished products on one hand and the provisions of supplies of raw materials, machines, spare parts of small machines and other accessories or (ii) adequate power supply, (iii) dependable transport and communications and (iv) finances.

8.9 If we analyse the reasons why industries have a tendency to congregate we would appreciate the need for the facilities mentioned above. The small and big industries come to be congregated in centres already developed because they find a ready market for the products and they are assured of timely and regular supply of raw materials. One need not undertake investment for transport but can rely on transport supply by specialised units. In big industrial towns, banking facilities are easily available, repairs can be arranged at short notice. So also small units have to depend often on floating labour supply such labour is not available in small industrial centres. If the production is undertaken on cottage scale the supply of product would fluctuate from time to time. An agency which undertakes storage and stocking will have to come up to assure even supplies. These are readily available in big cities. In other words so many important assistance on which depend the smooth working of the individual units are easily available in a big centre of industries. The new units may prefer to be located in already congested areas despite high cost of labour and rent because of external advantages in developed centres. If the industries are to be spread over a wide area advantages which are offered by a city have to be carried with the industries into the outlying areas. This is problem for organising some kind of centralised sales and supply units. For instance, we can visualise a sales organisation which on one hand provides raw materials and collects on the other semi-processed or fully processed products and packs them and sells them under one single brand to cater to the nationwide market. If the organisation is big enough it can also assist in procuring finances for small units. It can also assist in procuring initial investment which otherwise is difficult to obtain for individual producers.

8.10 In an organised industry the risk-capital is obtained through organised capital market. The small industries or the individual producer cannot take advantage of the organised capital market. In the past another major obstacle to the spreading of industries over wide areas was lack of power supply. If the power is to be supplied through steam engine or electric generator, obviously small scale production is ruled out. With the development of electricity supply on a wide scale at least this obstacle is now removed. In the metropolitan region in regard to the electricity supply there is already an initial advantage. As already seen earlier the electricity supply is available to a relatively larger proportion of the villages compared to that of the State as a whole.

8.11 The success or the failure of the integrated development of industries would hinge finally on labour and its quality. The labour which is traditionally employed in agriculture is used to spasmodic work

and is averse to continuous work and supervised discipline. Working to a given specification and fulfilling a commitment regarding delivery on a specific date is not in their nature. When the industrial units organised on factory basis undertake production they successfully break old habits and inculcate industrial discipline. Working for a given specification in a particular world require development of skill and working within a specific time would require managerial ability. If the labour can be trained in both these responsibilities, it may not be necessary for them to migrate and collect under one roof, unless it is required. ¶

8.12 Instead of training for jobs being left to the individual owners, if it is organised by the planned efforts of the community or the State, the necessary industrial and managing skill can be created among the members of the producers families, working in the rural areas. We may visualise that besides training in general, i.e. education through primary and secondary schools, technical training can be provided by institutions specially meant for it. Such institutions may prove vanguards of the industrial development of the rural areas if they are located at suitable places in the region. Establishment of technical institutions by itself will not solve the problem. In the initial stages of development, follow up measures will be necessary. It may be necessary to establish small work shops where the trained persons may come together for work as apprentice to perfect their skill and to undertake production later on either in group or individually. By the time the labourer is trained adequately if the sales organisation is available readily the produce of individual producer may find a nationwide market available right at the very doorstep. One can visualise that in the initial stages, it may be necessary to organise newly trained persons in small groups of 10 or more for production purposes. These groups may find it easy to be in continuous touch with the sales and market organisation.

8.13 Banks have an important role to play in the industrial development. With the establishment of branches of banks in the rural areas financial assistance would become available more widely. However, if the rural areas are to be developed then banks may be required to play a more positive role. They may have to act as a catalytic agent and bring together individuals or groups of producers on one hand with the market organisation on the other hand banks themselves may provide necessary marketing intelligence for guiding production once the ~~units~~ production units are established.

8.14 Whereas it is possible for us to visualise integrated development of industries, which would link up industrialisation of the rural areas with the industrial development of the city, it is at this stage very difficult in absence of specific experience and information to decide exactly on the types of industries, their production, investment and employment and location.

But it can however be indicated that types of industries which would need personal care and supervision of labour and processing of which can be sub-divided, such industries can be established in the rural areas with ease. The additional advantage in establishing these industries in the rural areas would be that the labour being stationed within villages of their resident would be satisfied with some what less remuneration than that demanded in the city for two reasons. Firstly, the cost of labour in the ^{surging} rural areas would be relatively low. The labour would not be required to incur additional expense for housing. Secondly, if workers are willing to stretch their hours of work they would not only engage in production but also be able to take care of small farms of their own. To illustrate, the industries producing parts of radios, electric appliances etc. can possibly be located in the rural areas and organised in a decentralised manner. A close look at the problems of possibilities of new types of rural industries would enable to draw up a more detailed list of industries to be established in the region.

8.15 To conclude, we would observe that the agricultural and allied activities can help only the improvement of incomes of these already in occupation. The vast addition to the labour force that is likely to be added in the future will have to be necessarily employed in non-agricultural occupations. Besides, employment in industries would be necessary to raise the level of wages and incomes, in the rural areas. The industrial development of rural areas has therefore to be centred round a new vision for future development. It is urged that a mere extension of the types of industries that exist in the city at present would only extend the city limits, so to say, but would help little to ameliorate the economic conditions of the rural people around. The industrial development of the city tied in with the industrialisation of the rural areas is essential if the advantages of relatively low wages is to be exploited. Such an ^{integrated} ~~interesting~~ development of industries in the city and rural areas would also help to prevent congestion in already developed centres. Even if new centres of industrial development are set up on the model of the Bombay City we will soon find that these new centres will grow into congested colonies of low housed labourers. Since we do not have specific experience to fall back on, it has not been possible for us to provide financial estimates of cost of developing industries in the rural areas. Instead we have suggested that a well thought out plan of development of technical basis and banking facilities may be undertaken together with co-operative organisation of small producers for production and organisation of marketing agency by ~~being provided by private~~ private enterprises, State or Co-operative organisation may be necessary only. An illustrative list of industries that can be developed in the near future in the region is given in the appendix.

Electricity.

9.1 **Electricity supply:** The supply of electricity has a dual role to play. On one hand it can help increase agricultural production irrigating a large area. On the other hand it can help expansion of industrial production within the rural areas. As the incomes in the rural areas go up, there would also be a demand for consumption of electricity in the remotest villages. Along with roads, electricity can be considered as one of the essential factor which should proceed and not follow the growth of economic activities.

9.2. **Present position:** Out of 1013 villages 368 i.e. 36.3% were electrified upto March 1969. This proportion compares very favourably with that for the whole of the State. In the entire state only 26.3% of the villages have received their electricity supply. The fact that electricity supply is available in villages may be considered only an initial advantage not all those who need power supply for production or domestic use have *
*obtained it. However the extension of the supply may be facilitated at a relatively low cost once the overhead cost of laying transmission lines has already been incurred. What is however of significance to note is that most of 368 villages that have been electrified are relatively big in size and lie on the main lines connecting Bombay with the small urban centres in the region. The total demand from 368 villages amount to 1,18,490 k.w.a. 95 m.w.a. assessed at 9.95 pf. The reasons why the demand is low is that the electricity is primarily consumed in the rural areas at present for domestic use and irrigation purposes. On an average, less than 5 pumpsets per village operate with electric power. A minimum of 10 pumpsets should in operate to make supply of electricity economical.

9.3 In the next five years the total demand is expected to increase to 225 m.w.a. This expansion would require over five years,, Rs.5.32 crores, as indicated in details given in the table below.

Table No.16

Table showing the details of cost worked out for the five years.

Item.	Cost;Rs.in lakhs.
A. Transmission(Major).	
i. 100 KV S/C Kalwa-Kolsbet line together with extension to s/s at Kalwa and establishment of a 100 KV s/s at Kolsbet.	30.20
ii. 100 KV D/C Kalwa Kalyan line together with extension to s/s at Kalwa & establishment of 100 KV s/s at Kalyan.	73.80
iii. 100 KV s/c Panvel-Uran line together associate substations works.	118.00
iv 100 KV Kalwa-Taloja-Panvel Line with associated s/s works.	45.00

v) 100 KV D/C Panvel-Khopoli line with associate s/s works.	71.00
vi) 100 KV D/C Kalyan-Ambernath line with associated s/s works	49.00
 B. <u>Transmission(33 KV)</u>	
i) 33 KV from Bassein to Wada together with associates s/s	27.76
ii) 33 KV line from Bassein to Virar with associated substations	12.66

Schemes which have been considered by the Board to meet the requisite power demand of the Region but could not be considered for want of funds.

i) Kolshet-Bhivandi 100 KV line with associated s/s works.	55.00
ii) Borivali-Bassein 100 KV line with associated s/s works	50.00
Total:-	532.00

9.4 When the above programme is completed, ^{it is possible to electrify all the} ~~villages will be~~ ^{villages will be} electrified. It should however be added that this does not give any precise ideas as to what proportion of the total population would enjoy the electric supply facility. If the past experience is of guidance, we find that a large amount of the increase in demand comes from domestic consumption in the rural areas. Once the supply is taken to the villages more and more people take to the consumption of electricity for domestic use. It is also used by public institutions like Panchayats for street lightings and drinking water supply. Only ^{industrial} ~~industrial~~ use is for rice or floor mills in the villages. Hence if with a given supply ^{more} ~~more~~ villages are to be electrified, relatively few families per village can draw their supplies of electricity. The table below gives the pattern of consumption of electricity in selected centres even a period of 8 years for these different purposes.

- (i) Domestic, (ii) Agriculture, (iii) Industries.

-55- 5.8
Table No. 10

Consumption of electricity in selected centres over a period of 8 years.

Names of village/ Taluka.	Date of electrification.	Type.	No. of consumers at the end of year							
			1st.	2nd	3rd.	4th	5th	6th	7th	8th
1. Arnala (Agashi)/ Passein.	22-5-61	L & F	80	221	274	316	358	395	435	476
		Agri.	1	11	40	54	73	89	109	118
		Ind.	-	-	4	5	5	7	8	8
2. Talaja/ Panvel.	31-5-65	L & F	35	152	163	179	-	-	-	-
		Agri	-	-	-	-	-	-	-	-
		Ind.	1	7	8	8	-	-	-	-
3. Kegaon/ Uran.	21-10-62	L & F	51	82	93	109	-	-	-	-
		Agri	-	1	2	4	-	-	-	-
		Ind.	-	-	-	-	-	-	-	-
4. Narpoli/ Bhivandi.	4-5-66	L & F	25	83	121	-	-	-	-	-
		Agri	-	-	1	-	-	-	-	-
		Ind.	2	16	20	-	-	-	-	-
5. Shelar.	8-6-65	L & F	27	40	52	67	-	-	-	-
		Agri	-	-	-	-	-	-	-	-
		Ind.	1	1	5	7	-	-	-	-

NOTE: L & F - Light & Fan. Agri. - Agriculture; Ind. - Industry.

9.5 It will be noticed that initially the expansion of the demand for domestic consumption. The consumption for irrigation or even for industrial purposes increases at a very slow pace. The result is that the electricity Board has to incur heavy losses for atleast initial two or three years. If an integrated plan of industrial development and electricity supply can be drawn up not only the initial losses can be averted to a large extent but also the extension of electric supply to new centres can be made economically. As day and for domestic purposes power will be required mostly during the industries would consume power mostly during the night even the load factor can be increased and the overhead cost per unit can be brought down. According to one estimate, the cost of electrifying one village, on an average, would be Rs.1 lac. As 645 villages are yet to be electrified, it will amount to Rs.645 lacs, for electrification. So the total financial outlay required for rural electrification for the next five years would be Rs.1177.42 lacs, including the amount required for transmission as given in the table. The electric supply, should be planned in such a manner that it would assure also the minimum supply for making supply of electricity at least on no loss no profit proposition.

One of the possible reasons for this may be that the customer has to pay the standing charges throughout the year, even if electricity is consumed for irrigation or industrial purposes for a part of the year. The Electricity Board should try to rationalise the charging practice.

T O U R I S M

10.1. Bombay being a city of international importance there is always a flow of tourists to the city. Some good sports are already developed around Bombay where tourist are attracted, however a few more spots may be developed in the vicinity of the city so that frequent visits of tourists may contribute to the economic growth of the rural region. Some of these spots are listed below, the potentialities ^{in some cases} ~~of which~~ ^{have to} may be investigated.

10.2. Matheran :

Matheran about 18 k.ms from Neral connected with a narrow guage rail link. The Matheran forests are preserved from Aesthetic point of view and the climate is bracing in the cold whether and mild to equable in summer and wet from July to October. The maximum and mean temperature of Matheran ^{82.2 degrees an} Matheran is at an elavation of about 2500 ft. from sea level and the highest point in this plateau is 2536 ft. This plateau strip is about 5 k.m. in length and about 0.89 k.m. in width. The panoramic view which these forests given and also the cool climate in the forest attracts thousands of visitors every year especially in the month of October and from March to June. At present, there are two Rest Houses and Holiday homes with canteen managed by the Building and Communication Department for the tourists. In addition, there are a number of private hotels where both lodging and boarding arrangements are provided. Since theres areas are already developed no specific measures need now to be taken.

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To the west of Matheran there is a similar plateau of Prabalgirh. This plateau has the possibility of being developed into a small hill station on the same lines as Matheran.

10.3. Proposed National Park at Borivali :

An area of about 35 sq.miles including the reserved forests incharge of Forest Department, Municipal forests of Tulsi and Vihar, the Krishnagiri Upvan and selected privately owned forests is proposed to be constituted into a National Park. The proposed Park touches the Borivali village (in

Bombay suburban) in the west extends upto Ghodbunder in the north Powai lake in the south and Yewoor village in the east.

i) The Park will be created for the preservation of scenic, floral, faunal, geological, historical and archaeological features in an unimpaired state for generations to come. The primary objective is the satisfaction of recreational aesthetic, inspirational and scientific urges of the people with as little interference with nature as possible.

ii) The Park will remain ~~in violation~~ ^{in violation} against all carriages and vandalism, but secure a balance between rigid preservation of primeval wilderness and the need to provide facilities for enjoyment and scientific studies.

iii) Thus, while preserving the scenic, archaeological, floral and faunal aspects, the Park will also provide recreational facilities and centres for scientific studies.

The development of the Park will naturally also include the development of communications, (viz. roads, rope-ways and water channels) as well as the provision of accommodation for tourists. The entire village, will be tastefully designed, partly on traditional pattern and partly on modern lines for residence of tourists amidst sylvan settings.

The park is yet in the formative stage and modest beginning has been made from this year. Detailed scheme for each sector will be drawn up by experts and will be executed accordingly.

10.4. Park at Vajreshwari :

This Park is situated at a distance of about 75 K.M. from Bombay near Ganeshpuri. The main attraction to the tourists near this Park is the hot water springs in Ganeshpuri which have medicinal importance. It is, therefore, proposed to develop the surroundings of these springs and provide adequate facilities to the tourists by improving the land scapes of these areas. At present the developments are restricted in an area of 107 acres. At present there are three Rest Houses with one room, two rooms and three rooms suits. This Park which was in charge of the Parks and Gardens Department is now transferred to Forest Department. The Park has the further possibility of development and it will be undertaken by the Forest Department.

10.5. Park at Elephanta :

An area of about 10.24 sq.k.m. (4 $\frac{1}{2}$ sq.miles) of the Elephanta Island including 3 villages viz. Shat bunder, Raja bunder and Gharapuri form the Park at Elephanta. This island is famous for the art and architecture found in the caves of the Hills with Shaivite (Thin Murti) cave temple of the seventh century A.D. Due to the proximity of this island to Bombay and other neighbouring areas thousands of visitors visit these areas daily in the fair season especially on holidays. Power driven boats dialy ply from Bombay and it takes hardly an hour or so to reach this park. At present there is no facility for over night stay at the Park except on motel where both lodging and boarding arrangements can be had through the Tourist Department. With the tranfer of this Park from Parks and Gardens Department to Forest Department it is proposed to develop this area by introducing ornamental tree species and also by constructing a well for providing good drinking water and also provide camping facilities.

20.6 Bird santuary at Karnala :

Forest area of about 4 sq.k.ms surrounding the historic Karnala fort has been established as a Bird Sanctuary. The cell for having this sanctuary has been from various corners like Natural History Society. "Friends of Trees" Association, and various ~~tourists~~. Because of its proximity to Bombay, easy access, patches of surrounding well wooded forests and in particular the hisotircal "importance" of the Karnala fort, it is a place which can offer maximum attraction to the tourists. The Natural History Society has enumerated about 146 species of birds with many migratory birds like the wheeather, Blue Treat, Black Bird, Blue Headed Rock Thrust, Ashy Minivet, large Cuckoo Shrike, Rosy, Pastur, Grey Headed myne and the like. A casual walk through these forests is an unfailing source of joy for a visitor with the excellent facilities it provides for hiking and observing the various birds that exist in the forest.

For lovers of nature, ample opportunities for studying the tree species, taking photographs of birds and other ~~scenery~~ *scenes* are also available. The area will now be developed in a manner as to afford facilities to the visitors and foreign tourists, by providing amenities for their overnight stay if necessary, in

62

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a fairly comfortable and attractive Rest Houses, constructed out of various timber species, which would be in consonance with the surrounding area. Camping facilities will also be provided for these who would like to stay in tents. When the area is developed it should be a nice tourist centre for people visiting Bombay on site seeing, since the area is hardly at a distance of about 55 miles from Bombay.

Besides the above places available as tourist spots, there are a number of other places such as forts, religious places, beautiful scenic spots, etc. Some of these are mentioned below:-

Forts: Chanderi Fort 10 miles north-east of Panvel, Malangad 10 miles south of Kalyan, Tungar hills in Bassein Taluka, Vitantgar or Pav 9 miles north east of Panvel, Prabhal fort in Khalapur Taluka and Bassein Fort in Bassein town .

Religious Places: The important religious places are Mahadev temple in Ambernath constructed in Chalukai or Hemadpanti style, Haji Malang at Malangad, Ganesh temple at Titwala and temples near about Vajreshwari.

Other Areas: ^{Shirdhon} Shirdi near Panvel is the birth place of Krantivir Vasudeo Balwant Phadke. The ^{Dronagiri} ~~Pragiri~~ hills in Uran Taluka and Kondana Caves near Karjat have very good prospects as a recreational spots. There are a number of spurs of Sahyadris which would offer innumerable opportunities if access to the foot of the hills are provided and facilities such as water supply, etc. are made available so that the tourists are attracted to these spots.

Coastal Areas: The coastal belt of about 4 miles in Uran Taluka is also a very attractive spot from this point of view. This and other beaches be preserved and provided with necessary facilities.

CHAPTER XI.Organisation for village Development.

11.1 Economic development of rural areas requires as already suggested provision of several social amenities. These social amenities are of two types. In the first category, we would include those that help economic activity directly, such as provision of transport, electric supply etc. In the second category, we would include such facilities as sanitation, schools and in general what makes life of the community in the village happy. The type of social overheads in category (i) would require - organisation at a higher level may be at the District or at the State level. Those in the second category would require organisation primarily at the village level. The crucial factor in case of both the types of social overheads is the type of the village. A big village with sufficiently large population can afford most of the amenities that would make life healthy and happy at a relatively low per capita cost of supplying these amenities. In contrast if villages are small and scattered, it becomes very difficult to provide, even the basic necessities to all inhabitants scattered over wide areas and if an attempt is made to provide these facilities the cost becomes prohibitive. Before we analyse the existing situation and indicate possible remedies for it, we would illustrate the point by taking an example. In a village where less than 100 families inhabit, the primary school can be run only if one teacher looks after pupils studying in Standards I to IV. Primary schools with separate teachers for separate standards would increase the cost four fold. Against this, a village with 100 families cannot only afford a better organised primary school but also can add a few of the standards of pre-primary level or even of high school level. It would afford provision of drinking water and even to some extent facilities for sanitation. The villages in the metropolitan region are on an average of small size. What makes the position still worse is that even the big villages are made up of small padas or wadis (sub-villages) which are located in different directions, within a radius of a mile or so.

It is observed that the villages in the region are very small. Of the 1013 villages 480 villages have less than 0.8 sq.mile area, - additional 458 villages have area between 0.9 to 3.1 sq.miles and the remaining 74 have between 3.2 and 9.7 sq.miles. Area of one village is not known. Of the 943 inhabited villages, about 532 villages have population less than 500, additional 245 villages have population between 500 to 1000. Thus more than 80% of the villages have population less than 1000. Only 144 villages belong to the population range 1000 to 3000 and only 22 villages have population more than 3000.

11.2 We have tried to collect as many details as possible, from the available sources, about different types of 22 facilities (a list is attached at the end of the chapter) available in each of the villages included in the Bombay Metropolitan Region. In few villages complete information on the facilities available could not be obtained. However data that are available now do represent the general conditions of the facilities available in the region. The analysis of these data leads us to draw the following inferences.

Communications: Out of 1013 villages, main road passes through only 445 villages. Even in the case of villages with population more than 1000, main road does not pass through about 56 out of 156 villages. For villages with population less than 1000 only 43% of such villages had main road passing through them and about 467 villages are still inaccessible during some parts of the year especially during monsoon.

Of the 943 inhabited villages, post-offices is available in only 100 villages. ~~There are~~ Also out of 166 villages having population more than 1000 only 70 villages have post-offices. Out of remaining 777 villages only 30 villages have this facility. Villagers in these villages have to walk at times even more than 7 miles to go to a post-office . There are also only 7 telegraph offices in this region. Only one village out of 22 villages with population even more than 3000 has this facility.

Railway lines touch only 21 villages in the region. Another 88 villages have railway stations within a mile, 207 villages have a railway stations within 1 to 3 miles, about 170 have a railway station within 3 to 5 miles and the rest of the villages are more than 5 miles away from the railway station.

Bus station is available in about 220 villages out of 943 inhabited villages in the region. Less than 50% i.e. 80 villages having population more than 1000 have this facility. About 320 villages have the bus stop 1 to 2 miles away and 215 villages have this facility 3 to 5 miles away from their village.

Education: Primary schools are widely distributed through-out the area. ~~However~~ ^{are not evenly distributed.} A secondary or high school is available in only 62 villages out of 943 inhabited villages. Even in villages with population more than 2000, 50% of such villages have a secondary school or a high school. Students in the villages with population less than 1000 have to walk more than 5 miles one way in about 31% of such villages.

Health: Of the 943 inhabited villages, facility of a doctor or a Vaidya, or a Hakim is available in only 108 villages. Mid-wife or a daya is available in only 76 villages. Dispensary is available in only about 59 villages.

General facilities: Of the 943 inhabited villages only 397 villages have a Multi Purpose Society. Flour Mills obtain in 246 villages. Shops are located in about 589 villages, electricity supply reaches 368 villages and a public radio is installed in 348 villages.

Thus one would observe that even most of the basic amenities have not reached in large number of villages in this region. Though the conditions of these villages are very poor it is also difficult to suggest the general remedy. The obvious remedy that would suggest itself would be merging of small villages with the adjoining big villages. The problem is however mainly human in character. It involves misery if population is to be physically shifted. The immediate solution would be, therefore, to provide certain basic amenities to certain nucleus villages, taking into consideration the distance of the surrounding villages from these nucleus villages, population and influence of the surrounding villages towards these nucleus villages.

11.3 An attempt has also been made to find out such nucleus villages in the area on the basis of the existing facilities. For this purpose information in respect of about 22 important facilities was analysed and the percentage of facilities available in each of these villages was found out. This index gave us a list of villages having maximum number of facilities in them. However, it is observed that in many instances the villages that are provided with basic facilities are concentrated in one or two parts of a taluka, they are not evenly distributed over the entire area. A list of nucleus villages i.e. having more than 50% of the facilities has been prepared and appended at the end.

The information collected and analysis made serves as a base for evolving a plan for development of the villages. As already seen earlier, we find that the basic facilities reach first the big sized villages. Villages with population between 1000 and 3000 or more than 3000 have most of the basic facilities. In the first instance, our endeavour should be to see that these facilities reach a standard high enough to generate economic development. In other words, if they lack some of the basic facilities they should be provided there first. To illustrate, we find that out of the 22 villages with a population of above 3000 only 18 have post office facilities, 7 of them do not have either a railway station or a bus stop. For communication with the

67

outside world, these are the minimum facilities and if these facilities are not available they should be provided. This is necessary for the villages to attract enterprises to start small industries or enable the local population to enter into production of industrial goods. The same point could be illustrated in regard to the facilities for population between 1000 and 3000.

11.4 The entire effort need not be concentrated on developing the developed villages. As already seen some of these villages are concentrated in the one or two parts of the taluka. For wider spreading of development, spreading wide of the basic facilities is equally important. In the programme for the development of villages, therefore, we should endeavour to provide facilities even to some of the small villages. 10 facilities are basic, they are accessibility throughout the year, a shop, a primary school, a health centre, facility for drinking water, postal facility, railway station or bus stop, a flour mill, electricity supply, co-operative society- preferably of a multiple purpose type. Those villages which have a population between 500 and 1000 should in future have all these 10 facilities. This assumption for the immediate programme would show that the villages which have a population of above 1000 should have all these 10 facilities and in addition some of them should have other facilities like middle school, a panchayat, community building, veterinary dispensary, primary health centre. A programme for road development, electricity supply, for coastal communication and education and health will have to be drawn up keeping these needs in view. Often such programmes as supply of electricity or construction of roads are undertaken with a view to economise the construction cost alone. A correct criterion would be maximisation of the facilities with a given cost.

11.5 As regards the availability of the 22 basic facilities the following criteria may be adopted for undertaking an improvement programme:

- i) No village should have less than 25% of the basic facilities.
- ii) Every village between 1000 to 3000 population should have more than 50% of the basic facilities.
- iii) Villages above 3000 population should have 90% of the basic facilities.

Table No. at the end of the chapter gives the number of villages falling under the above 3 categories classified according to the percentage of facilities available. From this table it is possible to arrive at the number of villages in different categories to be developed for meeting the above criteria. A list is also attached of villages having more than 50% of the above basic facilities.

As the table by itself did not give any indication of the location of each village, the findings of the table were plotted on a map to get an idea of the relative distribution of the villages of different types. The map showed that it is only in the western part of Bassein taluka and in the vicinity of Thana and Kalyan talukas that some large villages have more than 50% of the basic facilities. If nucleus villages provided with majority of the basic facilities are to be developed in the first stage, it is not, therefore, possible to relate them either to the population size or to the different percentage of availability of basic facilities. Such nucleus villages will have to be so selected that they will serve a number of surrounding villages and the Zilla Parishads would ^{be} the most suitable authority to take a decision on their selection.

68

11.6 Very small villages have a problem in regards to development, it is difficult to suggest a general remedy for them. The obvious remedy that would suggest itself would be merging of small villages with the adjoining big villages. The problem however is mainly human in character. It involves misery if population is to be physically shifted. The immediate solution would therefore be to induce individual families to move by offering house sites at a heavily subsidised rate. This may prove less expensive than providing all the amenities of social life at a heavily subsidised cost to small sized villages or wadis for all time to come.

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Number of facilities for which information was collected and nucleus villages decided.

Item

1. Accessible throughout the year
2. Main Road
3. Shops
4. Primary School
5. Doctors, Vaidya, Hakim
6. Midwife or Daya
7. Well
8. Post-Office
9. Railway Station/Bus-Stop
10. Panchayat
11. Radio
12. Veterinary Hospital or Dispensary
13. Vaccination centre/Public Health Centre
14. Telegraph Office
15. Police Station
16. Flour Mill
17. Electricity
18. Community building
19. Middle/High school
20. Dispensary/Family Planning Centre
21. Credit/M.P./Service Society
22. Godown

Number of villages classified according to the percentage of number of facilities and different population ranges.

Sr. No.	Name of Taluka	Population Range	Less than 10%	11 to 25%	26 to 50%	51 to 75%	76 to 90%	91 to 100%	Total
1	2	3	4	5	6	7	8	9	10
1.	Thana	A	84	9	15	2	-	-	3430
		B	-	-	13	7	-	-	20
		C	-	-	7	9	1	-	17
		D	-	-	-	2	3	-	5
		E	4	-	-	-	-	-	4
Total			8	9	35	20	4	-	76
2.	Kalyan	A	8	52	54	4	-	-	118
		B	-	10	37	7	-	-	54
		C	-	2	4	9	2	-	17
		D	-	-	3	-	2	-	5
		E	6	-	-	-	-	-	6
Total			14	64	98	20	4	-	200
3.	Bassein	A	-	9	9	4	1	-	23
		B	-	-	14	6	-	-	20
		C	-	2	14	14	2	2	34
		D	-	-	1	6	1	-	8
		E	-	-	-	-	-	-	-
Total			-	11	38	30	4	2	85
4.	Bhiwandi	A	18	53	46	3	1	-	421116
		B	-	6	40	6	2	1	55
		C	-	-	11	11	1	1	24
		D	-	-	-	1	1	-	2
		E	5	-	-	-	-	-	5
Total			18	59	97	21	5	2	202
5.	Karjat	A	10	44	27	1	-	-	82
		B	-	3	16	5	-	-	24
		C	-	-	1	4	1	-	6
		D	-	-	-	-	-	-	-
		E	10	-	-	-	-	-	10
Total			20	47	44	10	1	-	122
6.	Khalapur	A	3	30	21	1	1	-	56
		B	-	5	8	1	-	-	14
		C	-	-	2	2	2	-	6
		D	-	-	-	-	-	-	-
		E	4	-	-	-	-	-	4
Total			7	35	31	4	3	-	80

72/-

Sr. No.	Name of taluka	Popula- tion range	Less than 10%	11 to 25%	26 to 50%	51 to 75%	76 to 90%	91 to 100%	Total
1	2	3	4	5	6	7	8	9	10
7.	Panvel	A	11	40	41	3	1	-	96
		B	-	3	36	5	-	-	44
		C	-	-	8	14	3	-	25
		D	-	-	-	-	-	-	-
		E	14	-	-	-	-	-	14
Total			25	43	85	22	4	-	179
8.	Uran	A	1	4	6	1	1	-	13
		B	-	-	7	4	1	-	12
		C	-	-	5	9	1	-	15
		D	-	-	-	2	-	-	2
		E	27	-	-	-	-	-	27
Total			28	4	18	16	3	-	69
Total for the Region	A		59	241	219	19	5	-	543
	B		-	27	171	41	3	1	243
	C		-	4	52	72	13	3	144
	D		61	-	4	11	7	-	83 22
	E		61	-	-	-	-	-	61
Total			120	272	446	143	28	4	1013

Note: A = Below 500
 B = 501 to 1000
 C = 1001 to 3000
 D = 3001 & above
 E = Deserted

A list of villages having more than 50 percent
of the facilities.

Thana Taluka.

Sr. No.	Census Code No.	Name of the Village	Population	Percentage
1	2	3	4	5
1	15	Balkum	2992	65.0
2	19	Chitelsar	955	52.4
3	44	Manpada. Desai	1314	63.6
4	31	Diva	1708	77.3
5	62	Ghansali	2104	63.6
6	5	Ghodbunder	2668	73.7
7	6	Kashi	948	54.5
8	14	Kolshet	503	65.0
9	40	Kouse	820	59.1
10	77	Kukshet	307	59.1
11	20	Majivada	4015	68.2
12	39	Mumbra	3104	86.4
13	80	Nerul	1015	54.5
14	10	Ovele	1709	68.2
15	30	Rabale	484	63.6
16	3	Raimurdhe	3941	60.0
17	74	Savpada	694	63.6
18	78	Sarsale	523	59.1
19	83	Shahabaj	3528	86.4
20	79	Shiravane	1272	59.1
21	73	Turbhe	1219	72.7
22	1	Uttan	4894	77.3
23	11	Vadavali	1297	63.6
24	16	Yeur	578	52.4

Kalyan Taluka.

1	2	3	4	5
1	186	Badlapur	3647	85.0
2	86	Belvali	795	52.4
3	122	Bhal	837	55.0
4	1963	Chargaon	951	57.1
5	119	Dwarli	522	60.0
6	37	Goveli	410	61.9

Kalyan Taluka.

1	2	3	4	5
7	84	Jambhulmohili	688	57.1
8	69	Kambe	1431	52.4
9	140	Kulgaon	3625	80.9
10	40	Mamnoli	395	55.0
11	50	Mande	1717	90.5
12	126	Mangrul	779	52.4
13	74	Netivali	1324	55.0
14	125	Nevali	1320	52.4
15	109	Nilaje	1168	52.4
16	100	Sagaon Sonar- pada.	1458	54.5
17	71	Shahad	1535	76.2
18	26	Titwala	1065	54.5
19	112	Vadvali Kh.	281	59.1
20	206	Vangani	1577	68.2
21	68	Varap	561	61.9
22	124	Vasar	1631	63.2
23	149	Wadi	1873	54.5
24	189	Yeve	254	57.1

Bhivandi Taluka.

1	2	3	4	5
1	154	Akloli	1135	61.9
2	159	Amane	1249	57.1
3	40	Angaon	1158	85.7
4	204	Anjur	4005	85.0
5	15	Amle	785	72.7
6	81	Dabhad	853	80.0
7	62	Dighashi	1026	63.6
8	13	Dagad	801	54.5
9	2	Ganeshpuri	1037	71.4
10	108	Junadur Khi.	1122	52.4
11	122	Kelhar	1914	71.4
12	112	Kambe	1320	52.4
13	123	Kasheli	1133	60.0
14	685	Khambale	501	82.2

Bhivandi Taluka.

1	2	3	4	5
15	113	Kharbao	2410	68.2
16	70	Kharivali	321	53.3
17	202	Kon	3872	63.6
18	27	Mahapoli	846	66.6
19	140	Padghe	2451	100.0
20	73	Pahare	461	87.5
21	17	Palkhane	325	61.9
22	201	Pimpalas	2713	52.6
23	198	Pimpalghar	588	57.1
24	200	Purne	902	57.1
25	175	Shelar	1732	54.5
25	36	Supegaon	335	55.0
27	3	Vadavali Vazre-	944	95.0
28	69	shwari.		
28	69	Zidake	626	66.6

Uran Taluka.

1	2	3	4	5
1	20	Chanaji	6832	73.7
2	23	Chirle	2129	55.0
3	53	Chirner	2600	85.7
4	8	Dongari	657	52.6
5	33	Dighode	1205	68.4
6	10	Funde	712	55.6
7	3	Jaskhar	1248	60.0
8	22	Jasai	1481	66.6
9	6	Karal	311	55.6
10	13	Kegaon	1363	55.0
11	15	Kaladhanda	2140	80.0
12	56	Khopoli	3174	68.4
13	11	Nawghar	935	80.0
14	19	Nagaon	3094	62.5
15	59	Pirkone	1508	57.9
16	2	Sheva	2140	68.4
17	4	Sonari	1207	52.4
18	39	Vindhane	1640	57.1
19	24	Weshvi	877	65.0

Bassein---Taluka

1	2	3	4	5
1	1	Agashi	17484	80.9
2.	36	Bhatane	2164	57.1
3.	41	Bhinar	449	52.6
4.	11	Bhuigaon Bk	1847	57.1
5.	10	Bhuigaon Kh	1022	52.6
6.	22	Bolinj	2806	65.0
7.	20	Chandansar	1779	57.1
8.	35	Chandip	817	72.2
9.	51	Dhaniv	625	52.4
10.	12	Gas	3326	65.0
11.	57	Girij	1104	68.4
12.	55	Gokhivare	2179	75.0
13.	72	Jhanchandra	2757	70.0
14.	83	Kaman	1175	85.0
15.	58	Kaular Bk	5726	75.0
16.	63	Kaular Kh	1384	52.6
17.	30	Khanivade	762	52.6
18.	70	Kolhi	235	55.0
19.	3	Kopharad	2255	70.0
20.	74	Malonde	1267	94.7
21.	34	Mandvi	291	71.4
22.	67	Manikpur	4556	61.9
23.	62	Navghar	1114	94.7
24.	9	Nirmal	429	84.2
25.	46	Parol	595	54.5
26.	52	Palhar	1567	52.4
27.	59	Saloli	2798	70.0
28.	45.	Sayawan	904	55.0
29.	37	Shirwansai	442	52.6
30	13	Sopara(E)	2770	80.0
31.	78	Umele	1569	65.00
32.	23	Umrade	4465	68.4
33.	80	Vadavali	1478	57.1
34.	2	Vatar(E)	4484	61.9
35.	7	Wagholi	5623	60.0
36.	54	Waliv	905	55.0

Karjat Taluka

1	2	3	4	5
1	116	Bhaliwadi	445	52.4
2	106	Chinchawali	456	59.1
3	38	Damat	347	52.4
4	152	Dahivali Tarf	567	66.6
5	132	Nood	336	55.0
6	100	Gourkamat	336	55.0
6	100	Humgaon	778	85.7
7	108	Kadav	567	66.6
8	168	Khandpe	336	55.0
9	99	Mandavane	357	52.4
10	97	Sawale	356	55.0
11	157	Mengaan	336	55.0

Khalapur Taluka

1	2	3	4	5
1	142	Bhanwaj	1546	80.0
2	18	Choak-	1205	75.0
3	61	Maniwali	1361	85.0
4	136	Khalapur	1361	85.0
4	136	Khopoli	1013	57.9
5	10	Mohapada-	473	66.6
6	128	diawasmbe	345	88.9
6	128	Rahatawade	345	88.9
7	121	Shil	781	57.9

Panvel--Taluka

1	2	3	4	5
1	16	Navade	1029	61.9
2	69	Here	1401	76.2
3	134	Nhave	2076	65.0
4	12	Owe	2059	52.4
5	132	Palspe	1015	57.1
6.	92	Panvel Non.Municipal area	1596	76.2
7.	20	Road Pali	1244	61.1
8.	6	Rohinjan	678	65.0
9.	193	Sai	1492	55.0
10	158	Shirdhan	1713	63.2
11	30	Vavanje	1235	63.2
12	122	Wahal	2142	57.1
13	113	Ulwe	801	52.4
14.	9	Taloje Panchanad	2937	52.4
15.	110	Targhar	1194	76.2
16	166	Turade	478	52.4
17.	42	Chindran	911	52.4
18.	79	Kamothe	1815	52.4
19	97	Kalundre	1158	52.4
20	104	Ajivali	324	61.9
21	120	Dapoli	807	52.4
22	128	Kon	605	57.1
23	146	Machiprabal	39	52.6
24	171	Gulsunde	456	80.0
25	180	Apte	1620	75.0
26	123	mile	1468	57.1

CONCLUSION AND RECOMMENDATIONS.

12.1 The foregoing account of problems and possibilities of economic development of the rural area of the Bombay Metropolitan Region may now be concluded. As we have already stated at the very outset the rural area of the metropolitan region is a poverty belt girdling round a prosperous metropolitan city. There is in fact a vast difference between the income levels of the two parts. The population tide is expected to rise even in rural areas more menacingly in the coming two and half decades. According to the estimate available to us the total population of the rural region is expected to increase by 65 per cent in 25 years. If planned attempts are not made to lift the income level of the rural parts the economic gap between Bombay city and the villages is likely to widen.

12.2 There are several reasons that can possibly explain why the prosperity of the Bombay city ^{did} not spill over in the adjoining region. One can point to relatively more tribal population in this area. Lack of education, absence of roads and communication and such facilities as electricity in the past, can also explain why economic benefit did not flow to the rural areas in full measure. In fact the entire region was left to fend for itself, it had to depend entirely on resources locally available for its development. It is no wonder therefore that ^{the} development of the rural areas within the metropolitan region was in as bad a shape as that of any part in the State.

12.3 To derive full benefit of the development in the adjoining region, at least one would expect that the rural belt would serve as a supply base both for material and labour. Agricultural products, milk, fruits, vegetables, flowers, fish, forest products, could have been profitably produced and supplied ^{to the} readily available market in the Bombay City if there had been ^{well} developed transport facilities and marketing and distribution centres to handle the supplies efficiently. * If industrial development is to benefit the rural areas it would be necessary for the industries to spread their tentacles deep in the rural areas through a system of sub-contracting or through other suitable agency, which would tap production potential of the labour in the region. Obviously this development has not taken place. The industries are guided in the context of market economy, by the profit motive. If they did not utilise the available potential of the region, it would probably imply that it was not profitable for them to do so. In the ~~type~~ of the industrial development

*The Study Group has made efforts to examine in details the monopolistic trends in the terminal markets in Bombay and to evolve a programme to control the same. However, this work could not be completed. A note in this connection received from the Maharashtra state Co-operative Marketing Federation Ltd., Bombay is shown in Appendix III at the end of this report.

that has taken place the Bombay City had to depend heavily for supply of material and labour to far off places, which were linked with the city with good transport facilities.

12.4 It follows therefore almost as a logical sequence if development of the region is to be at the same pace as that of the city, closer economic links have to be forged between the two parts of the region - rural and urban. It is a general feeling of the Study Group therefore that the development programme of the region should be mainly the industrial in context or to put it in general terms, development of non-agricultural occupations i.e. industries and services together. As our analysis has shown earlier the region is predominantly agricultural. Nearly 78% workers depended for their earnings on agriculture. The nexus of the economic life has to change from mainly agricultural to predominantly non-agricultural pursuits to permit rapid and continued economic growth.

12.5 We do not suggest that to achieve the objective of rapid economic growth the remedy lies in spreading industries in the rural areas. It is conceivable that a few centres of industrial development can be located within the rural areas. As such 2 or 3 such centres (viz. Thana, ^{Mohune} ~~Mulana~~ etc.) have already come into existence. It is our observation that once again these centres have proved to be islands of prosperity amidst pervading poverty around. They too do not have the desired impact on the economic life of the masses in the rural region. Some of the industries located in these centres have to import labour from outside and bring materials from distant places. Some of the organisers have to commute from the city to the satellite industrial towns. The growth of industrial towns around Bombay City can be a good remedy to prevent congestion within the city and may be recommended as a right remedy in that context. They cannot however be given high priority amongst recommendations for the rural development in the region. For this we recommend an integrated industrial development. We have already indicated this earlier. The pivotal feature of the integrated industrial development is that the industrial production in the city and in the rural areas complement each other. As pointed out earlier packaging industry, supply of semi finished products or manufacture of small parts of machinery which can be assembled by big industry later would be the activities that can be possibly passed on to the rural areas. Some of the finished products can be produced on small scale. Such producers do not find a ready market unless organised marketing efforts are made. It may be necessary to develop links that would enable to establish a continued relationship between the local producer and the urban manufacturer or a marketing organisation. For integrated industrial development of industries therefore there will be a need to develop such overheads which

* has not made a head way here. Hence Govt. or local bodies may come forward to undertake the irrigation schemes and to expedite implementation. Subsequently their operations may be handed over to farmers co-operatives if found feasible. Whether tube wells programme can be undertaken in this region may be investigated by the technical personnel.

would help on one hand production (such as supply of electricity, facilities for training of labour for managing small machines, etc.) and on the other hand such social overheads, transport, communication of information dependable sales or supply organisations, etc.

12.6 Integrated development is a dream at this stage but this is a right ^{step} and a beginning will have to be made in that direction with a plan for rapid ^{transformation in} not too distant a future. In next 25 years a solid foundation for industry based development of the rural areas of the metropolitan region should be laid.

12.7 The poverty stricken people of the region cannot wait for a promise that would be fulfilled after a long time. An immediate action to ameliorate their economic conditions will have to be taken relentlessly. It is obvious that since agriculture is the major occupation of the people and since the people have the knowledge and ^{experience} ~~resources~~ for production of crops a beginning is to be made for rapid economic growth in that sector. We need not delineate all the details of the development plan nor can such details be readily provided by our Group. We would however recommend that though general efforts will be made to develop agriculture in the State and along with it the same in this region a special attention may however be paid to development of agriculture in this region. It may be necessary to undertake an intensive survey to assess production from potential of the local resources. For instance, the region is abundant in rainfall, even a part of the natural supply of water can be stored it would go a long way to help the development of agriculture. The region has got a large number of mountain ranges, depressions in some of which can be used as storage tanks. Several small rivers and rivulets run across the region. They run in spate during the monsoon but dry up soon thereafter. If they can be used as storage tanks. Several small rivers and rivulets run across the region. They run in spate during the monsoon but dry up soon thereafter, ^{if they} ~~if they~~ can be tamed ~~even~~ ^{partly by undertaking minor} irrigation works at several points on the course of these rivulets, the peasants can draw water to grow a second crop during the winter season. Pandar Tara Scheme or Dorgaon dam are instances in point. Many

more such schemes may be prepared and these already on anvil may be taken up for implementation. The minor irrigation schemes ^{can be} ~~can be~~ ^{operated through technical} ~~operated through~~ ^{co-operative} ~~co-operative~~ organisations of ^{user} ~~user~~ farmers. In the Metropolitan Region this may not be always possible as co-operation*

12.8 Expanding supply of irrigation water would help not only the growing two crops where one crop is grown but would ~~also~~ help producing crops which depend heavily on irrigation, which are of high value and have a ready market, such crops include fruits, vegetables, etc. To investigate into the possible range of farm products a technical survey may be undertaken

by agricultural agencies. In particular they might be requested to investigate if growing of sugarcane or sugarbeat etc. can be introduced.

12.9 Development of animal husbandry offers two advantages. Not only will it lead to increased income but it would use more intensively the available labour supply. We have already indicated earlier that the expansion of milk production in the region faces a kind of technical barrier. The region is believed to lack green fodder supply in adequate quantity. If this barrier can be overcome the milk supply can be increased. The possibility of growing green fodder at different places may therefore have to be investigated more closely. In the meanwhile, it is recommended that the present producers may be organised co-operatively to sell their milk production to the Government or the consumers directly at profitable rates. Co-operatives may also serve as agencies to procure milk producers for the necessary feed supplies, arrange veterinary help and undertake programme for improvement of breed.

12.10 Partly with a view to developing the rural areas of the metropolitan region and mainly with a view to relieving the congestion in the city, it is recommended that a programme of transferring city ^{cattle} settle to the rural areas in the region may be undertaken. For this it would be necessary to locate small areas where ample water supply would be available. As an incentive ~~the~~ Government might undertake construction of structures to house the cattle and the cattle owners. These structures may be passed on to the intending cattle owners at a concessional rate. In addition Government may guarantee ~~the~~ market for their products at reasonable price. A few specific measures may also be necessary, for instance, the Government would like to regulate the quality of the feed supply, since it is feared that along with the rapid development of dairy, a scarcity of feed supply might arise which may lead to increased mal-practices and such mal-practices would adversely affect the growth of dairy industry.

12.11 Efforts should be made to develop poultry and piggery. Unlike dairy development, the development of poultry would not experience a technological barrier. If feed is made available at profitable price the rural families can take up poultry on a much ^{bigger} scale. Besides drawing food supplies from outside ~~it~~ ~~small~~ ~~scale~~ ~~feed~~ industries are encouraged under the direct supervision of ~~of~~ the Government, within the region, poultry producers could be assured of minimum supplies evenly. It may be necessary also to ^{ensure} dependable veterinary help to avoid spread of ^{epidemic} among the birds in the area. Frequent and regular visits by veterinary doctors may be necessary to undertake preventive inoculation. If an agency may be developed to collect and process the waste material from the city ~~restaurants and domestic dwellings~~ ~~restaurants and~~ ~~domestic dwellings~~, piggery could receive a special incentive to expand.

12.12 Fish is a local produce and there is a great potential to increase production from the vast resources available in the region. A programme to mechanise boats and to supply improved equipments may, therefore, be suggested as a first step to augmenting production of fish. This programme will undoubtedly make employment in fishing industry more attractive. It will not, however, go a long way to develop fish supplies rapidly. Deep sea fishing may be necessary for the latter. With an increased production of fish, planned efforts to preserve and process fish may be necessary. Apart from reserving some lands on the coastal areas for drying of fish, drying of nets and beaching of boats, it may also be necessary to expand capacities of ice factories and cold storages. Specifically possibilities of increased facilities for fishing industry at Arnala, Bassein, Malvani, Versova, Danda, Mahim and Karanja may be examined. If deep sea fishing is undertaken on a big scale processing of exportable varieties can be developed as an additional industry. Deep sea fishing has a great potential for increasing production of fish, it will contribute relatively less to increasing employment, so also organised processing units can offer employment to a limited number of urbans.

12.13 We do not make any special recommendation for the development of forest areas as we believe forest development would be undertaken as a part of the general programme of the development of the forest resources of the country. However, attention may be drawn to the need for controlling ^{time} depredation by cattle and even human beings of the valuable resources of the forest, legal provisions for this by themselves may not be enough. Special employment programme may have to be undertaken for the people living within the forest areas; such industries as furniture making, saw mills, collection and processing of forest products may be undertaken on a more organised basis in this region.

12.14 Forest areas together with mountain on one side and the coastal region on the other side can be expected to provide a wide range of beautiful ^{panorama} ~~scenery~~ that would attract an increased flow of tourists. National Parks, bird sanctuaries, etc. can be developed within the forest areas for the purpose. To begin with it is suggested that the potentiality of developing prabalgirh plateau to the west of Matheran may be investigated. It is also suggested that intensive efforts may be made to develop a bird sanctuary at karnala Fort.

12.15 Potentialities may be investigated into for the development of sea resorts along the coast. The vast beaches on the Arabian sea may attract

tourist if adequate transport facilities are available with arrangements for open sea bathing. Frequent visits of tourists has been observed to contribute to economic growth of a rural region.

12.15 |^b Along with the development of agriculture and allied industries, industries that undertake processing of agriculture products or other raw materials locally available may be encouraged. Though development along the lines may not have vast potential as at present, along with the development of agriculture potential for the development of agro-industries may also increase. An indicative range of such industries is listed in the appendix. I.

12.16 |^c It is recommended that to foster the development of that agro-industries that process agriculture produce or undertake production of inputs to agriculture (e.g. feed industries, manure mixing, packaging of pesticides etc) supply of finance on easy terms may be undertaken, as the risk capital is not easily available within the rural areas nor do, the rural producers have an easy access to the capital markets in the city. ries

12.17 |^d In the region supply of electricity has made a rapid progress. However, it is necessary to consolidate this. As at present much of the supply is used for domestic purposes in a few instances, it is used for industries in the villages. If along with organisation, power supply is made available to the village industries at subsidised rate, it would help rapid transformation of the rural economy from an agriculture base to the industrial base. ries

12.18 |^e Our analysis of the villages shows that some of the primary facilities such as roads, market centres, railways, schools or even drinking water supply and health facilities are not found in a large number of villages. While, it is not possible to provide all these facilities to all the villages, if a planned development is undertaken, it should be possible to ensure that each village would have an easy access to these facilities. For instance, it can be ensured that most of the villages would have road or railway facilities or a market centre within a distance of five miles. To this objective a plan for development of village centres has been suggested. A map has been drawn up for details from this point of view. It is recommended that a priority may be accorded to the development of string of selected villages. Their development, would usher in economic progress of rural areas. If the living conditions in rural areas are made tolerable, attractive if possible in selected centres trained persons can be persuaded to stay on in the villages, they might prove to be the spear-head of the process of transformation of the rural areas from mainly agricultural to mainly industrial economy. In selected centres facilities for higher

learning technical training, sanitation, health, speedy transport or power may have to be provided to make living of people tolerably housing conditions may have to be improved. For poor sections of the community thatched houses may have to be replaced by semi-permanent structures. To begin with the thatched roofs may be replaced by tiled roofs, at least to reduce the danger of frequent fires. To improve training, it is recommended that the schools in rural areas may be imparted technical bias at selected places technical institutes may be started which may prepare skilled personnel with diplomas or certificates, workshops may be established to provide facilities for apprenticeship and for organizing unattached labour collective production.

12.19 To recapitulate our specific programmes are mainly for the development of village centres, transport, technical training and for the development of irrigation and fisheries. Though the potential are many more and of a diverse nature, and the directions of development are many, it has not been possible during the allotted time to go deep into the technical details to provide a dependable programme of action for developments in all fields. The recommendations are therefore in terms of suggestive measures in general. However an effort is further made to work out a few details of specific programmes in terms of financial allocations, that may be required. Even these details are worked out for the period of next five years only, as these details were readily available from the different experts attached to different departments of Government involved in formulating the Fourth Five Year plan. It has not been possible to work out employment potential or production implication of these programmes. It is recommended that such investigation as may be necessary for the purpose of working out production and employment potential for specific programmes may be undertaken. A summary of financial requirements is reproduced below ^{to} give an overall idea. In the table No.18 given below.

12.20 It may be emphasised that the magnitude indicated is approximate as the necessary technical details of potentialities were not available even to the agencies who prepared these estimates. It is recommended that more detailed studies may be undertaken to indicate the type of resources that would be required for development of the industries and other services in the State. Once this knowledge is available we can determine more confidently the manner in which the rural areas can prosper. One common experience of the study group was that for some of the questions we asked relating to the development of rural areas the answers were to be sought from the plans for development drawn up by other study groups. They in turn depended partly on the development plans for the rural ^{areas}. For instance where could industries be located in rural areas would depend on transport facilities, but the plan for the latter would depend on the plans for the former. What industries are to be developed in the rural areas would depend on what opportunities

would be available, the latter would be determined by the industries plans for the city. The migration of population from rural to urban areas would depend on whether industries would or would not move into rural areas.

Whether they would move into rural areas would depend on whether enough supply of skilled and unskilled labour together with other facilities will be available. The same applies to power supply. Thus in the final analysis, the growth of the region as a whole is inter-related and would need an integrated plan. Just as development of industrial nexus now-a-days depends on different industrial complexes, the development of region depends on dovetailing of mutual needs and potentialities. A balanced development would require saving cost on congested congregation of labour in city dwellings on one hand and cost of long range transport of men and materials on the other hand. Thus the growth of the entire region, the rural areas and the urban centres is an organic whole and could be divided only at the initial stages for the purpose of defining goals. Schemes of development should be the result however of an integrated thinking. Preparation of long term plan for a period of 25 years involves consideration of several unknown factors, e.g. how would the prices vary, how would the trade move etc. It is recommended that if a suitable agency is set up to undertake continuous study of the problems involved in the growth of the region a special wing may be established which would study the development of the rural areas vis-a-vis that of the city. Academic institutions may be involved in this process of research and investigation by persuading them to undertake a continuous study of the different aspects for the integrated growth of rural and urban parts of the region.

Both for deriving plans, measuring potentials etc. and implementation of the programme, local regional organizations of people such as Zilla Parishads may also be actively involved for rural development. It may be necessary to set up special development corporations with powers to invite capital, undertake decentralised production and centralised sale and marketing in rural areas as part of the development programme. They may even initiate investigations into specific production plans.

Table No.18

Financial implications under different heads. (Rs. in lacs.)

Head of Development.	Provisions to be made.
1. Agriculture	446.25
2. Dairy, Animal Husbandry, Poultry and Piggery	1500.00
3. Fisheries	329.16
4. Forest	4.99
5. Rural Electrification	1177.42
	Total: 3457.82

SUMMARY OF FINDINGS AND RECOMMENDATIONS.

Social and Economic Background of the Region.

1. The rural parts of the Bombay Metropolitan Region has not economically or socially derived any special advantage out of its location from the point of occupational patterns or migration of the males to the city for the employment purposes or from the point of per capita income.
2. There is a high percentage of persons of scheduled tribes in the region, which would need more care and attention for economic advancement and social uplift.
3. The rural part of the region is not well served by either roads or railway nor has it any special advantage in regard to education.
4. The percentage of literates in the region is more or less same as that in other rural parts of the States.

Problem and approach:-

5. New jobs will have to be created in rural area to provide employment to persons who would enter in the labour force during the period 1969-91, i.e. addition of nearly 2.21 lakhs to the estimated labour force of 3.56 lakhs in 1966.
6. If per capita income in rural area is to attain a level of at least one-half of that obtaining in the urban centres other than Greater Bombay or one-third of the level of the Greater Bombay, then the total income of the rural area will have to increase by above 12 per cent annually.
7. Rural Area can provide supply base for some of the goods consumed in the city. The potential of the region to serve as an agricultural base for supplying milk, eggs, fruits, etc. is rather limited.
8. An integrated development of the entire region needs to be attempted in order to generate rapid economic growth of the rural areas.
9. The process of industrialisation should spill over the city boundaries and rural areas should be developed to provide servicing occupation and feeder industries.

- 89
10. It may be necessary to undertake an intensive survey to assess production from the point of potentiality of the local resources.
 11. More detailed studies may be undertaken to indicate the type of resources that would be required for development of the industry and other services. Preparation of long term plan involves consideration of several unknown factors and so a special wing may be established to study the development of the rural areas vis-a-vis that of the city.
 12. It may be necessary to set up special development corporations with powers to invite capital, undertake decentralised production and - centralised sale and marketing in the rural areas as part of the development programme. They may even initiate investigations into specific production plants.

Agriculture:

13. Over 77% of the workers in rural area are employed in agriculture only.
14. Nearly 30% of the area is occupied by forests.
15. Paddy is cultivated in all talukas and particularly it is the principal crop in Kolaba district.
16. Per acre of yield of rice can be increased between 50% and 100%.
17. The new high yielding varieties of rice, being sensitive, will need more devoted care and attention both regarding management of soil and water. As the land is highly undulated, it will be necessary to plug gullies and prevent soil erosion by putting bunds.
18. Field bunds have been neglected for long and need immediate repairs. For this finances have to be provided to cultivators. The major work of the contour bunds for prevention of erosion of the soil will have to be undertaken by the State as no individual farmer can handle it.
19. Rajanala Project and Patalganga irrigation Project would irrigate 160% more irrigated area.

20. A dam at Borgaon in Khalapur Taluka if constructed could bring about 10,000 acres of land under irrigation.

21. All Irrigation Projects should be brought under the programmes of "AYACUT" development. Small dams could be constructed at a distance of every few miles along the Patalganga and Ulhas rivers.

22. It would be possible not only to extend the area under fruits and vegetables to some extent but also to introduce new crops such as sugar-cane, soyabean, root beat, garden flowers etc.

23. A technical survey may be undertaken by the agricultural agencies to investigate if growing of sugarcane or sugar beat etc. can be introduced.

24. If production of fruits and vegetables can be undertaken on a large scale, canning industry can also develop side by side.

Fisheries:

25. Fish is a local produce and there is great potential to increase production from the vast resources available in the region.

26. Fisheries can be developed if the following steps are taken:-
i) Introduction of additional fishing units, i.e. fishing boats and mechanizing them.

ii) Provision of fish landing and harbour facilities at important fishing centres.

iii) Establishment of ice factories and cold storage plants at important fishing centres.

iv) Implementation of deep sea fishing projects by operation of large trawlers.

v) Organising fish marketing in the co-operative sector.

vi) Utilisation of available tanks, lakes and reservoirs for growing culturable varieties of fresh water fishes.

27. Possibilities of increasing facilities for fishing industry at Arnala, Bassein, Malvani, Versova, Danda, Mahim, and Karanja may be examined.

28. Special ponds may be dug, in villages to promote fish rearing.

Dairy Animal Husbandry, Poultry and Piggery.

29. The rural areas of the region offer scope for growing intensive crops like vegetables and fruits and it would not be economical as a rule to grow fodder there. A few locations where enough water supply is available and intensive fodder growing can be undertaken without adversely affecting the growing of fruits etc. may be reserved for rehabilitating city cattle into rural areas.

30. As an incentive to shifting cattle from private stables in Greater Bombay the Government might undertake construction of structures in suitable areas in the region to house the cattle and the cattle owners and guarantee the market for their product at reasonable price.

31. Rural areas in the metropolitan region cannot be a major source of milk supply to the city. Hence it is unlikely for dairy industry to be a major source generating income and providing employment to sufficiently large sections of working rural population in the region.

32. Poultry development has a better scope. The main problem regarding poultry production is the scale of operation. A unit can be run profitably if it consists of 250 birds.

33. A 'Feed Law' to guarantee minimum of certain nutrients or a maximum of certain materials in the poultry feed is essential. A plan of compounding cheap feed should be prepared which will also provide - subsidairy occupations in rural areas.

34. As in the case of milk production, the scope for meat production is very limited on account of fodder difficulty.

35. If an agency can be developed to collect and process the waste material from the city restaurants and domestic dwellings, piggery could receive a special incentive to expand.

Forests:

36. The major problem regarding forests is to protect and develop them to become productive. Industries utilising forest products can be developed under cottage basis for example production of card-boards, straw boards, katha, furniture packing materials, saw-mills etc. Production of bidi can be increased five times if enough supply of bidi leaves is made available.

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37. Special employment programme may have to be undertaken for the people living within the forest area and such industries as furniture making saw-mills etc. may be started on a more organised basis.

38. Besides developing cottage industry based on forest product forest department will have to set aside, the leeward lands for the adiyasis in the Kolaba District.

Industrial Development and economic transformation:

39. It would be necessary for industries to spread their tentacles deep in the rural areas through a system of sub-contracting or through other suitable agency, which would tap production potential of the labour in the region.

40. An integrated development of industries in the cities and rural areas would help to prevent congestion in already developed centres. The rural people ^{will} need adequate technical training for being absorbed in industries. Besides training in general, i.e. education through primary and secondary schools, technical training can be provided by institutions specially meant for it. Such institutions may prove vanguards of the industrial development of the rural areas if they are located at suitable places in the region.

41. To foster the development of agro-industry supply of finances on easy terms may be undertaken as the risk Capital is not easily available within the rural areas nor do, the rural producers have an easy access to the capital market in the city.

42. A well thought out plan of development on technical basis and banking facilities may be undertaken together with co-operative organisation of small producers for production and organisation of marketing agency by private enterprises, State or Co-operative organisation may be necessary.

43. It needs to be stressed that a programme of training and disciplining a labour will by itself not have the desired impact on the rural economy unless it is backed up by suitable measures to ensure the employment of local people in substantial numbers.

44. A list of industries which could be started in the region is given in the appendix I.

93

45. Thatched houses may have to be replaced by semi-permanent structures. To begin with thatched roofs may be replaced by tiled roofs. Grass saved can serve as raw material for straw board industry etc.

Electricity:

46. In the region out of 1013 villages 368 i.e. 36.3% were electrified upto March 1969 by Maharashtra Electricity Board.

47. Once the supply of electricity is taken to the villages more and more people take to the consumption of electricity for domestic use.

48. The consumption for irrigation are even for industrial purposes increase at a blow pace. One of the possible reason for this may that customer has to pay standing charges through out the year even if electricity is consumed for a part of the year only as the case of lift irrigation pump. The electricity board should try to rationalise the charging practice.

49. If an integrated plan of industrial development and electricity supply can be drawn up, not only the initial losses on electric energy can be averted to a large extent but the extension of electricity supply to new centres also can be made economical.

Tourism:

50. A few spots may be developed in the vicinity of the city so that frequent visits of the tourists may contribute to the economic growth of the rural region. Major spots are Prabhal Girh Plateau near Matheran, National Park Borivali, Parks at Vajreshwari and Elephanta, Bird sanctuary at Karnala, Kandana caves near Karjat, Forts like Chandari, Malangad, Tungar hills, Vitantgar Prabhal, Bassein Fort; religious places like Mahadev temple at Ambernath, Ganesh temple at Titwala etc. The coastal belt in Uran taluka can also be developed as an attractive beach.

Organisation for village Development:

51. It is observed that the villages in the region are very small both from the point of population and area. If villages are small and scattered it becomes very difficult to provide even basic necessities to all inhabitants scattered over wide area and if an attempt is made to provide these facilities the cost becomes prohibitive.

52. The immediate solution would be to induce individual family to move to the main village by offering house sites at subsidised rates by extending Gaathan areas of main villages concerned.

53. As regards the availability of the basic facilities the following criteria may be adopted:-

- (i) No village should have less than 25% of the basic facilities;
- (ii) Every village between 1000 to 3000 should have more than 50% of the facilities.
- (iii) Villages above 3000 population should have more than 90% of the facilities.

54. Nucleus villages will have to be so selected that with the provision of all basic facilities they will serve a number of surrounding villages. The Zilla Parishad would be the most suitable authority to decide on their selection.

Marketing:

55. Rural area around Bombay has remained underdeveloped because adequate marketing facilities are not available to villagers and the agents in the terminal markets in Bombay have acquired monopoly interests. There is an urgent need for establishing in north Bombay a wholesale market - comparable to Phule Market and co-operatives would have to be organised growers of fruits and vegetables in the surrounding of Bombay city and only these co-operatives must be allotted stalls in the new market. It is necessary to draw a package programme for production and marketing agricultural produce and setting up co-operatives.

56. In order to break the strangle hold of present monopoly market of Bombay it is necessary to apply the Maharashtra Agricultural Produce Marketing resolution (Rules) 1967 to Greater Bombay area.

APPENDIX - I

List of Industries that can be started in the existing towns or villages in the Metropolitan Region.

-
1. Hard Board Manufacture.
 2. Wood Seasoning Plants.
 3. Katha Manufacture
 4. Leather tanning
 5. Bone Crushing Mill
 6. Charcoal Making
 7. Dairy and Dairy Products
 8. Writing & Printing paper from Graso ✓
 9. Tinned fish for export
 10. Bamboo Work
 11. Carpentry
 12. Smithy
 13. Shoe making
 14. Handloom Cloth
 15. Toy making
 16. Bee Keeping
 17. Pottery
 18. Brick making
 19. Drying of bananas
 20. Tad Gud manufacture
 21. Oil Ghanies
 22. Forest Product Collection
 23. Rope making
 24. Mangalore Tiles
 25. Dye making
 26. Fish oil
 27. Colour and ink preparation
 28. Automobiles spare parts and accessories
 29. Electrical parts and Accessories
 30. Prestressed Concrete poles
 31. Agricultural Implements
 32. Overhead Transmission Equipments
 33. Builder's Hardware
 34. Surgical Instruments
 35. Straw Board.
 36. Chemically pure salt.
 37. Furniture making
 38. Fruit canning
 39. Match wood and packing material
 40. Lac Cultivation
 41. Medicinal herb collection
 42. Pickles and fruits canning
 43. Handmade paper
 44. Floor tiles
 45. Cement pipes
 46. Poultry feed
 47. Fertiliser mixer
 48. Manufacture of Khandsari Sugar.
-

APPENDIX - II

Break up of Industrial Units Registered under the
Factories Act.

Type	Kolaba Dist.	Thana Dist.	Gresham Bombay	Total
1. Food Processing	-	32	288	
2. Salt industries	20	80	-	
3. Beverages	-	1	17	
4. Bidies industry	-	2	6	
5. Cotton Textiles	-	78		
6. Woollen Textiles	-	9	485	
7. Silk & Artsilk	-	232		
8. Embroidery	-	2		
9. Textile processing	-	19	-	
10. Hosiery & Knitted goods	-	16	48	
11. Saw Mills	-	6	97	
12. Wooden furniture	-	3		
13. Steel furniture	-	3	51	
14. Paper & paper Product	6	15	94	
15. Printing Press	1	23	399	
16. Rubber Products	-	10	70	
17. Chemical, Paint etc.	4	162	314	
18. Non-metallic Products	2	65	198	
19. Basic metalindustry	13	59	204	
20. Metal Products	-	152	635	
21. Manufacture of Machinery	-	67	397	
22. Electric M/cs.	-	46	243	
23. Transport Equipment	-	37	135	
24. Misc. Mfcr. Industry	22	75	503	
TOTAL :-	81	1015	4178	

(As submitted by Shri S.Y. Tipnis, Dy. Director of
Industries, Bombay Region, Bombay.)

In the discussion on the marketing aspect of rural planning by the Study Group, it was pointed out that the rural area around Bombay had remained under-developed because adequate marketing facilities were not available to villagers and that agents in the terminal markets in Bombay had acquired monopoly interests.

It is true that certain traders had acquired monopoly in marketing of fruits and vegetables. This is particularly true in the sale of bananas and onions and potatoes in the wholesale markets at Byculla and Duncan Road respectively. The bulk of banana supply to the City comes from Jalgaon district of Maharashtra and Bardoli in Surat district from Gujrat State and also Bassein in Thana district. Both in Jalgaon and Bardoli Banana growers have organised themselves fairly well by forming growers' co-operatives and to-day are in a position to export bananas to Gulf and Continental ports by chartering ships. Yet, it has not been possible for them to have their own marketing organisation in the nearest terminal market in Bombay and they have been consigning their bananas to private traders for sale. This single example of banana marketing is enough to prove the strangle-hold of monopolists on growers in the marketing of fruits and vegetables in the city.

Another reason why the monopolistic interests have strongly entrenched is that most of these wholesale and semi-wholesale markets have been located in South Bombay. There are no wholesale markets in the suburbs and both the wholesale dealers retailers and bulk consumers have to receive their supplies from the existing wholesale markets between Colaba and Byculla. There is thus an urgent need for establishing in north Bombay a wholesale market comparable to Phule Market which will serve the dual purpose of expanding the existing marketing facilities and simultaneously loosen the hold of traders on producers.

It is also necessary to make a survey of the supply channels that feed the city. For instance, as stated above, it is known that all the supplies of bananas in the city are from Thana and Jalgaon in Maharashtra and Bardoli in Surat district of Gujrat. At all these producing centres growers have their own co-operatives and in Jalgaon district there is also an association of co-operative fruit sale societies. Similar Co-operatives would have to be organised of growers of other fruits and vegetables in all the important producing areas surrounding Bombay City and ^{only} these co-operatives must be allotted the stalls in the newly established modern wholesale markets.

In the establishment of large wholesale modern markets in North Bombay, care must be taken to ensure that adequate and proper transport and storage facilities are available at minimum cost. Due consideration be given to the provision of cold storage arrangements not only in the market but

also in the Railway yard. There must also be covered sheds for unloading of trucks.

Dairy co-operatives, co-operative poultry farms and co-operative piggeries must also be established wherever possible along with those of fruit and vegetable co-operatives after ensuring that these co-operatives would be viable units. Wherever a unit is uneconomic, it must be immediately merged with the nearest economic unit.

For the establishment of co-operatives and their proper functioning, a package programme must be drawn up and implemented.

It is known that the efforts of the apex marketing federation in securing certified seed potatoes from high altitudes in Himachal Pradesh and supplying the same to growers in Maharashtra have not yielded the expected results. Many of the difficulties it experienced in this work could be overcome with the evolving of a package problem which would incidentally help provide adequate transport facilities at reasonable rates.

One of the pre-requisites for the implementation of a successful marketing programme which may help lowering of prices to consumers without any lowering of profits of growers, is the provision of adequate facilities for scientific storage and preservation at the producing centres, with a view mainly to avoid losses due to deterioration because of absence of storage facilities, lack of proper transport, crude methods of handling, packing etc.

It would, therefore, ^{be} seen that it is absolutely necessary to draw up a package programme if any planned attempt is to be made to develop the rural areas surrounding this Metropolis. The following basis is suggested for the drawing up of this plan:

1. After a thorough survey the areas selected for development, growers' co-operatives be organised for production of fruits, vegetables, milk and other produce required for local consumption.

2. Experts in each field be appointed to guide the growers and their growers in the application of modern and scientific approach to production.

3. Necessary finance be made available ^{to co-operative societies.} through co-operative financing agencies and wherever possible this should be in kind in the shape of cattle and chicken feed, certified and improved seeds, manure mixtures, nitrogenous fertilizers, etc.

4. Growers co-operatives or local bodies must be encouraged to build and develop scientific storage facilities not only to avoid storage and transit losses and glut in the market but also to regulate supplies and introduce modern methods of marketing and handling.
5. Steps must be taken to make available adequate and efficient transport from producing to consumption centres. Growers' co-operatives must be financed to buy the required number of trucks.
6. The local bodies should be required to provide the necessary irrigation and other facilities and also built roads from producing areas to loading points taking into account the expanded requirements over the next ten years.
7. The Northern suburbs be provided with an ultra modern composite wholesale and retail market taking into consideration the needs of the city for the next ten years, for marketing of fish fruits and vegetables.
8. As there is a great demand for flowers in the Bombay city flower gardening may be encouraged in rural areas in the vicinity of the city so as to promote rural economy. Bee-keeper cooperative societies can also be formed afterwards so as to make gardening more remunerative.

It is already stated earlier that the agricultural produce of the cooperative societies be marketed through new wholesale markets to be set up in North Bombay by allotting stalls only to such societies there in. Nevertheless it is highly necessary to break the stangle hold of the present monopoly market of Bombay and for this purpose all efforts must be ^{made} to apply the Maharashtra Agricultural Produce Marketing (Resolution) (Rules) 1967 to Greater Bombay area.

(Based on the note submitted by Shri. Mohale, Dy. Manager Maharashtra State Co-operative marketing Federation Ltd., Bombay).