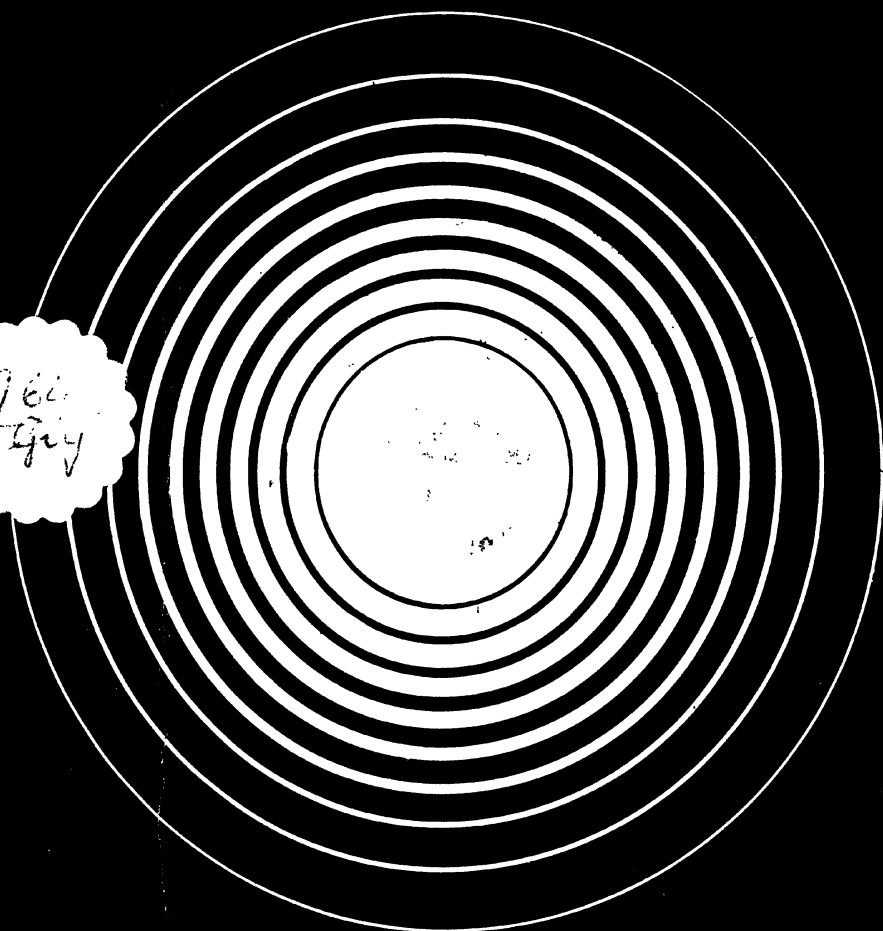


PERSPECTIVE PLAN OF GUJARAT 1974-1984

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PERSPECTIVE PLAN OF GUJARAT 1974-1984 VOLUME I



**GOVERNMENT OF GUJARAT
GENERAL ADMINISTRATION DEPARTMENT
(Planning)**

FEBRUARY, 1972.

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FOREWORD

In the modern age, perspective planning is not a luxury but a compelling necessity for developing countries. Without a vision of the foreseeable future it is impossible to plan for the present in a rational and integrated manner. The process of development is a continuous one in which priorities and objectives of each period have to be necessarily linked with a long-term perspective. Without such advance planning in the context of a larger perspective, it is, indeed, difficult to take current decisions with confidence and certainty. Haphazard and piecemeal planning without a proper vision of the future is likely to prove both wrong as well as costly. It is, therefore, essential for developing economies to look at least ten or fifteen years ahead and frame the annual and periodical programmes of development in the light of a long-term plan.

A long-term perspective worked out in sufficient detail brings out the inter-dependence between the different sectors of economy and helps in a clearer understanding of possible obstacles to the growth of the economy. It also enables a developing country to take consistent and timely decisions regarding the optimum uses of its resources, economies of scale and location and regional distribution of economic activities. In an under-developed economy, there are numerous conflicts of regional character which could be resolved only in terms of a long-term plan which knits different regions into a larger design of national development. In the absence of such perspective planning on a comprehensive scale, regional disparities and distortions are bound to arise in course of time, leading to social, economic and political imbalances and pressures.

The First and the Second Five Year Plans of India were described as 'phases' of the long-term social and economic development of the country. The First Plan gave a simple projection of economic growth over a period of thirty years from 1951 to 1981. The projections and assumptions of the First Plan were reviewed in the Report of the Second Plan in relation to the actual performance of the economy. Certain changes were made in the long-term perspective in view of satisfactory results during the first five-year period. The Third Plan envisaged a fifteen-year perspective plan from 1961 to 1976, with a cumulative rate growth as close as possible to 6 per cent per annum. Work was initiated in the Planning Commission on these lines. The idea of a 'rolling' Plan was also mooted by the Commission so that a Five Year Plan, revised from year to year, could roll on for the next five years continuously without any jerks and jolts. The long-term perspective envisioned in the Fourth Five Year Plan upto 1980-81 lays down the target of growth around 6.2 per cent per annum in the context of the latest projections of population growth in the country. The Planning Commission has, however, not yet worked out fuller details of a ten or a fifteen-year perspective plan for India, covering all sectors of economy. I do hope that such an exercise will be undertaken by the Commission soon so that the State Governments could also initiate such projects in their own areas. It is evident that while working out a long-term plan for the nation, it would be essential to achieve close collaboration between the Centre and the States.

With a view to improving the quality of a perspective plan, it would be necessary to strengthen the quality of statistical and technical information available within the country. The right quantities of raw materials, intermediate products,

machinery and essential services such as power and transport as well as the requisite trained personnel must be available at the proper time. A considerable amount of economic, technical and statistical analyses has, therefore, to be undertaken with a sense of urgency. Estimation of the demand for goods and services by consumers at the end of each given period, the volume of outputs of different sectors of economy, study of inter-industry relations and determination of investment requirements have to be collected and collated in a scientific manner. Thus, without tangibly improving the quality of our statistical material, it would not be possible to undertake advance planning with any degree of surety and precision.

Apart from statistics, manpower planning is another critical area where a long-term perspective will have to determine current decisions. The intake capacity in Engineering and Medical institutions is a case in point. Unless projections for various types of technical personnel are worked out in detail well in advance, the implementation of various plans and programmes is likely to go awry. It is comparatively easy to set up an industrial unit with all the machines and equipment ready at hand. But it is quite difficult and time-consuming to train competent staff to man these industrial units with efficiency and success. Technical education, therefore, needs perspective planning spread over a fairly long period. If our calculations in this regard are either too conservative or too liberal, either the plans of economic development will not run smoothly on a continuing basis for want of adequate personnel, or there would be unemployment among the trained youngmen, leading to great frustration.

Under modern planning, different sectors of economy

must necessarily work hand in hand with full co-operation. Otherwise, there is bound to be a wastage of rare resources, time and energy. From this standpoint, the inter-dependence of agricultural and industrial development must be recognised clearly in any scheme of perspective planning. If agriculture is developed at the cost of industry, there is likely to be a glut in the market. If, on the other hand, industrial development is planned at the cost of agriculture, the shortage of raw materials would hamper the growth of industries and create distortions in our economy. Furthermore, uneven development of the infra-structure, including power and transport, would inevitably lead to undue delays in implementation and inexcusable waste of scarce resources. From all these angles, a fairly long-term perspective planning is a dire need of our times.

During the First Five Year Plan period, Gujarat did not exist as a separate State. At that time, Saurashtra and Kutch were separate entities, while the rest of the area comprising the present Gujarat State formed part of the former Bombay State. With the formation of a bigger bilingual Bombay State on the 1st November, 1956, all the areas of the present Gujarat State formed part of this big State. The Bombay State was, however, bifurcated during the course of the Second Five Year Plan and Gujarat State was formed on the 1st May, 1960. Despite various strains and stresses in the initial stages, the Second Plan of Gujarat was completed with considerable success. As against the Second Plan outlay of Rs. 145.87 crores for the new State of Gujarat, the actual expenditure was Rs. 152.51 crores, showing an increase of 4 per cent over the original outlay. The Third Five Year Plan was the first coordinated effort at the development of all the areas of Gujarat. The implementation of the Third Plan also proved to be quite

satisfactory. As against the outlay of Rs. 236.50 crores, the actual expenditure was of the order of Rs. 240 crores. Then followed the three Annual Plans from 1966-67 to 1968-69, with a total expenditure of about Rs. 211 crores. The outlay for the Fourth Five Year Plan was initially fixed at Rs. 450.22 crores which was stepped up to Rs. 455.22 crores after the review of resources on the basis of the recommendations of the Fifth Finance Commission. With a sizeable improvement in our resources, the Fourth Plan of Gujarat is now visualized at Rs. 500 crores. If our performance continues to be satisfactory in the next two years, the total size of the Fourth Plan may increase still further.

Even so, it is imperative that Gujarat prepares a Perspective Plan covering at least the Fifth and the Sixth Five Year Plans, *i.e.*, from 1974 to 1984. As has been indicated earlier, such a long-term perspective is indispensable for achieving notable success in the Annual and the Five Year Plans. Various sectors of economy like agriculture, industry, power, transport and technical education have to be properly dovetailed and inter-linked with considerable care and attention. It was, therefore, decided during the President's rule in Gujarat that a ten-year Perspective Plan should be prepared on an emergency basis. The reconstituted State Planning Advisory Board appointed several Working Groups in July, 1971 for preparing the Outline of the Perspective Plan for the sectors allotted to them. A Steering Group was set up to coordinate the Reports of the Working Groups and prepare a consolidated Perspective Plan for the State. The Working Groups were asked to submit their Reports by the middle of November, 1971. These Reports were considered by the Steering Group at its first meeting held in Raj Bhavan on

November 28, 1971. The outlines of the Plan were finalised in the second meeting of the Steering Group on January 16, 1972. This Perspective Plan is now being published in the form of this brochure for public information and discussion.

In accordance with the general pattern of national planning in India, the basic objectives set out for the Perspective Plan of Gujarat are (1) full employment of the available manpower and natural resources, (2) maximum production in agriculture and industry, (3) equitable distribution of wealth among different segments of the population, specially the weaker sections, (4) balanced development of all regions, and (5) self-reliance in agriculture and industry with maximum import substitution. It is envisaged that during the Perspective Plan period of ten years, there would be an overall growth rate of 7 per cent—5 per cent in agriculture and 10 per cent in industry. It is also visualized that there shall be a reduction in population growth from the present level of 2.8 per cent to 1.6 per cent at the end of the Sixth Plan. Every effort shall be made to electrify all the villages with a population of 200 and above in the State by the end of the Sixth Plan. The Perspective Plan also provides that each village shall be connected by a road by the end of the Sixth Plan. Special emphasis has been laid on the social and economic amelioration of the weaker sections of the population, especially Harijans, Adivasis and other backward classes.

Agricultural programmes, including animal husbandry, dairying, afforestation, fisheries and irrigation, have been assigned the highest priority in this Perspective Plan. There is no gainsaying the fact that improved agriculture is necessary not only for achieving self-sufficiency in food but also for supplying the necessary industrial raw materials

like cotton, oil-seeds, and sugarcane. Special attention will have to be devoted to the extension of irrigation facilities, evolving dry farming practices, expanding the area of multiple cropping, introducing new cropping patterns and induction of scientific practices. Since the scope for reclamation of cultivable land is very limited, the fulfilment of agricultural targets calls for a sharp increase in the rate of improvement in yield per acre. It has also to be borne in mind that chemical fertilisers are to be properly mixed with compost and green manures. Instead of indiscriminate mechanization of agriculture, experiments will be made with improved tools and implements. Animal husbandry schemes aim at the evolution of dual-purpose cattle through scientific breeding. The milk price policy has been formulated in such a manner that better types of cattle are positively encouraged both for increasing the yield of milk and to secure good bullocks for draught purposes. The preservation and extension of forest areas in Gujarat also needs special attention.

A fast rate of industrial development could be achieved only if the present policy of a 'mixed' economy is pursued with vigour and imagination. It must be recognised in clear terms that both the public and the private sectors are integral parts of the 'national sector'. They should be allowed to function with considerable freedom in their respective spheres. While monopolistic trends must be curbed and regulated, irrational and doctrinaire controls should not stand in the way of higher production. New and young entrepreneurs ought to be encouraged and helped to set up a variety of small and medium industries, especially in the under-developed regions. In case new entrepreneurs are not forthcoming for establishing sophisticated and capital-intensive ventures, the State should not hesitate to allow

known Industrial Houses to undertake their construction for making the economy self-sustaining and self-reliant. In short, while diffusion of economic power is an essential goal, it should not be pursued at the cost of increased production in agriculture and industry.

I need hardly emphasise the urgent need for changing the existing system of education in a radical manner. If we are really anxious to augment agricultural and industrial production, our schools and colleges must impart work-oriented education and link academic studies with development schemes in the neighbourhood. The prevalence of so-called liberal education of the traditional type has stunted the physical and intellectual growth of students and rendered them unfit for participating in purposeful activities of the nation. This state of affairs must yield place to a development-oriented educational system without further loss of time. It is with this end in view that a minimum programme of Basic education has been introduced in all the Primary and Secondary schools in the State of Gujarat during the current year. I earnestly hope that this pattern of Basic education would be extended to all institutions from the Primary to the University stages during the period of the Perspective Plan.

The problem of air and water pollution also deserves our special attention. Most countries in the West are now facing this complicated and difficult problem in the highly industrialised regions. It is imperative that we learn from the experience of others and not repeat the same mistakes. Planning for environmental hygiene and sanitation is as desirable as speedy industrialisation for achieving a good life for the community. Along with the fullest use of our natural resources for increased production, protection and

improvement of human environment is vital for national welfare. Short-term commercial considerations must not be allowed to prevail over long-term basic objectives by disturbing the ecological balance in nature.

It is admitted on all hands that an excessive growth of the population in developing countries would nullify various efforts for achieving a higher rate of economic growth. The crucial importance of family planning programmes should, therefore, be recognised beyond any controversy. We should not, however, lose sight of the moral and psychological aspects of the problem in our over-anxiety to achieve the target of a lower birth-rate. Greatest emphasis should continue to be laid on the need for self-restraint, raising the age of marriage and opening up new employment opportunities for women. In any event, every care should be taken to avoid the misuse of birth control devices by the younger generation.

I should like to make a pointed mention about the Narmada Project. It is a matter of deep regret that the long-standing dispute between Gujarat and Madhya Pradesh regarding the utilisation of Narmada waters has stood in the way of constructing the Nawagam Dam all these years. The precious waters of this national river have been flowing down the Arabian sea for decades without helping the poor farmers of either Madhya Pradesh or Gujarat. This is, indeed, a tragedy too deep for words. I do hope that with the co-operation of all concerned it would now be possible for the Tribunal to give its Award without much delay. At any rate, it is clear as crystal that the speedy economic development of Gujarat in the coming years would largely depend on the early completion of the multipurpose Narmada Project both for irrigation and generation of power.

Above all, the primary objective of planned economic development is full employment of our human resources. The 'right to work' is a Constitutional Directive and must be implemented with a sense of emergency. Different programmes in the Gujarat countryside have already been integrated with a view to ensuring productive employment opportunities to all those who ask for work and register their names with the Village Panchayats. If it is not found possible to provide the necessary work through the State or Central Programmes, Ambar Charkha Centres are being organised for residual employment to the people in rural areas. A variety of schemes have also been initiated in Gujarat for absorbing unemployed engineers and technicians. A good number of short-term courses have been introduced at the Matriculate and Collegiate stages for lessening the evil of educated unemployment. Ordinary Arts, Commerce and Law Colleges are being actively discouraged by the Universities and the Government to restrain our youngmen from swelling the ranks of the unemployed and facing unnecessary frustration. It stands to reason that higher education must be limited to those youngmen and women who possess the requisite aptitude for specialised studies. If these steps are pursued with vigour in the coming years, it should be feasible to make a positive dent on the problem of unemployment and under-employment in Gujarat with noticeable success.

Although it is very difficult to anticipate the exact quantum of resources which shall be available to the State for the Fifth and the Sixth Five Year Plans, the Perspective Plan for Gujarat in the public sector has been framed on the basis of an outlay of Rs. 1,000 crores (with additional resources it may rise to Rs. 1,200 crores) during the Fifth Plan period and an outlay of Rs. 2,000 crores

(with better resources it may rise to Rs. 2,400 crores) during the Sixth Plan period. It is obvious that the Ten-Year Perspective Plan published in this brochure is neither conservative nor ambitious. With sustained efforts and economic discipline, it should be possible to implement the Plan with reasonable success.

Of course, domestic resources will have to be augmented through taxation and small savings in the rural areas. Prosperous agriculturists who have been able to increase their production through better facilities and improved practices should not mind parting with a portion of their incomes for financing this Perspective Plan. Small savings schemes, including rural debentures, should be launched in a big way. Concerted efforts have to be made to tap local resources in cash, kind and labour for diverse local schemes like village approach roads, minor irrigation, soil conservation, afforestation and reclamation of waste lands.

It is, however, necessary that the price-level during this period remains, by and large, stable and inflationary trends are held in check effectively. To this end, every nerve must be strained to step up agricultural and industrial production for meeting the consumption needs of the community at optimum levels. With a view to tapping domestic resources to the maximum extent, the community will be required to impose restraints on current consumption with discipline and understanding. The rate of savings will have to be stepped up considerably in the urban as well as rural areas. Non-Plan and non-productive expenditure must be slashed almost to the bone. It should be clearly understood that economy and austerity are not merely symbols of moral values but also the pre-requisites

for a speedy rate of economic growth. They have now become even more relevant in the context of an urgent need for self-help and self-reliance in our development plans.

The Perspective Plan seeks to underscore certain structural changes in our economy over the years. For instance, greater stress will be laid on the expansion of the public sector in strategic fields. In addition to public sector enterprises in the spheres of electricity and transport, it is assumed that ample opportunities will be made available for starting joint sector Petroleum and Aluminium Projects with the combined participation of the Centre and the State Government. A public corporation could also be established for undertaking the transport of goods through a fleet of commercial vehicles. In addition, the Co-operative sector should be expanded and strengthened further, especially in the spheres of animal husbandry, dairying, agro-industries and rural housing. Furthermore, several institutional agencies like the Tribal Development Corporation, the Rural Housing Board, Urban and Area Development Corporation, are expected to undertake a variety of measures for uplifting the present socio-economic condition of the vulnerable sections. Unless the living standards of these depressed segments register a tangible improvement, our aims at the establishment of a socialist pattern of society would prove to be infructuous and visionary.

While this 'unto this last' approach must govern all our Plans, it is incumbent on us to decentralise their implementation and provide ample initiative to the Village, Taluka and District Panchayats and Co-operatives for executing the programmes in their areas with a sense of

responsibility and devotion. There has been a talk about 'planning from below' for quite some time. It is now essential to put this ideal into practice in a systematic manner. Without actively involving the masses in the preparation and implementation of our Plans at various levels, it would be futile to expect a good response of the people to our appeals for mobilising additional resources to finance the Plan. The co-operation of the millions could be enlisted in a meaningful measure only if they are taken into confidence at every stage of our local Plans. From this angle, the numerous Village Panchayats and Co-operatives in Gujarat should be made effective tools and implements at the grass roots for fulfilling various targets laid down in the Perspective Plan.

I am, indeed, grateful to the Chairmen of various Working Groups for putting in hard labour of love and submitting their Reports in record time. Our thanks are also due to the Directors of Sardar Patel Institute of Economic and Social Research, Ahmedabad, and the Operations Research Group, Baroda for their valuable assistance in the formulation of the Plan.

I do hope that this Perspective Plan will be generally welcomed by the people of Gujarat as a useful guideline for their future development. It is obvious that, in the very nature of things, even this Plan will require to be revised and amended from time to time in the light of changing circumstances. Even so, it would provide the general direction in which our Five Year Plans must continue to move with strong will and determination.

Raj Bhavan, Ahmedabad. *Shriman Narayan*
February 1, 1972.

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CHAPTER I

OBJECTIVES OF PLANNED DEVELOPMENT

The basic objectives of planned economic development in India must be necessarily guided by the Directive Principles of the Constitution which enjoin the State "to promote the welfare of the people by securing and protecting, as effectively as it may, a social order in which justice, social, economic and political, shall inform all the institutions of national life." The Constitution also directs that all the citizens should have "the right to an adequate means of livelihood", "that the ownership and control of the material resources of the community are so distributed as best to subserve the common good", and "that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment." It has been emphasised that "the State shall promote, with special care, the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation."

1.2. The Second Five Year Plan document explained the concept of a Socialistic Pattern of Society as follows :

"These values or basic objectives have recently been summed up in the phrase 'socialist pattern of society'. Essentially, this means that the basic criterion for determining lines of advance must not be private profit, but social gain, and that the pattern of development and the structure of socio-economic relations should be so planned that they result not only in appreciable increases in national income and employment but also in greater equality in incomes and wealth. Major decisions regarding production, distribution, consumption and investment — and in fact all significant socio-economic relationships — must be made by agencies informed by social purpose. The benefits of economic development must accrue more and more to the relatively less privileged classes of society, and there should be progressive reduction of the concentration of incomes, wealth and economic power."

1.3. The Third Plan's Introductory Chapter, which was drafted by Pandit Jawaharlal Nehru himself, expressed the basic objectives of Indian planning in the following words:

"The basic objective of India's development must necessarily be to provide the masses of the Indian people the opportunity to lead a good life. That indeed is the objective of all countries for their peoples, even though the good life may be defined in many ways. In the larger context of the world, the realisation of this objective for India, as for other countries, is intimately tied up with, and dependent on the maintenance of world peace. War, with the weapons of modern warfare, would not only be an end to all hopes of progress but would endanger the survival of the human race. Peace, therefore, becomes of paramount importance and an essential pre-requisite for national progress. The existence of under-developed and poverty-stricken nations or peoples is itself an abiding danger to the maintenance of peace. It has, thus, been increasingly recognised that the welfare and peace of the world require the extermination of poverty and disease and ignorance from every country, so as to build up a liberated humanity.

Each major culture and civilisation has certain distinctive features, rooted in the past, which bear the impress of that culture. India, with thousands of years of history, bears even now the powerful impress of her own distinctive features. They are today covered up by widespread and appalling poverty, the result of a traditional society and a static economy in the past, petrified to some extent by colonial rule. But these essential features, though apparently associated with the traditional structure of society are in no sense an integral part of it. They are in fact a set of moral and ethical values which have governed Indian life for ages past, even though people may not have lived upto them.

These values are a part of India's thinking, even as, more and more, that thinking is directed to the impact of the scientific and technological civilisation of the modern world. probably, no other country in the modern world would have produced a Gandhi; even Tagore, who was typically modern in his approach to life's problems, was, at the same time, steeped in India's old culture and thinking. His message is thus one of synthesis between these two."

1.4. The Fourth Five Year Plan describes the basic goal of planning as "a rapid increase in the standard of living of the people through measures which also promote equality and social justice." It highlighted the pivotal importance of improving the lot of "the common man, the weaker sections and the less privileged." "In the last analysis, planned economic development should result in a more even distribution of benefits, a fuller life for an increasingly large number of people, and the building up of a strong integrated democratic nation."

1.5. In December 1954, the Parliament adopted a resolution reiterating that "the objective of economic policy should be a Socialistic Pattern of Society," and "towards this end, the tempo of economic activity in general and industrial development in particular should be stepped up to the maximum possible extent."

1.6. In the light of these basic aims of Indian planning, the Perspective Plan of Gujarat, covering the Fifth and Sixth Plan periods from 1974 to 1984, has been framed with the following specific objectives:

- (i) Full employment of the available manpower and other resources;
- (ii) A rapid increase in State income; specifically a rate of growth of 5 per cent per annum in the agricultural sector and 10 per cent per annum in the industrial sector — an over-all growth rate of 7 per cent per year.
- (iii) Equitable distribution of income and provision of economic and social opportunities to different segments of Gujarat's population, particularly the weaker sections;
- (iv) Balanced development of all regions of Gujarat's economy;
- (v) Increased self-reliance in agricultural and industrial production, with maximum import substitution.

1.7. While the details of the Perspective Plan are described later, a brief discussion of the approach of the Plan in relationship to the objectives and the structure of the economy, may be useful. The implementation of the schemes in the Perspective Plan, both in the community sector (public sector, joint sector and co-operative sector) and in the private sector are expected to eliminate unemployment in the organized sector and make a significant dent on the problem of unemployment and under-employment in the remaining sectors of the economy. It is estimated that during the period, the growth rate of the State's population will fall from 2.8 per cent to 1.6 per cent

per annum at the end of the Sixth Plan.* The growth of State Domestic Product is expected to lead to a rate of growth in per capita income of approximately 5 per cent per year, due to the implementation of schemes in the Perspective Plan. The industrial sector's plan estimates direct employment of the order of 6.69 lakh persons and using a ratio of 1:3, of direct to indirect employment, estimates an additional employment potential of 20.07 lakh persons by 1984, due to the plan schemes in the sector. A preliminary estimate of the total effect (both of direct as well as induced expansion) of the Perspective Plan schemes on expansion of wage income (in constant prices) in the economy, is an annual rate of growth ranging between 7.4 per cent to 10.8 per cent per annum. Expansion of this order of magnitudes would in a significant manner lead to the solution of the employment problem in Gujarat.

1.8. The second objective of the Plan is a rapid rate of growth of income in the agricultural and industrial sectors of the Gujarat's economy. Gujarat is one of the important industrial States of India. The organised industrial sector contributes about 14 per cent of the State Domestic Product in Gujarat, while for the nation as a whole its contribution is only about 8 per cent of national income. In 1968-69, State Domestic Product from industries and related sectors was Rs. 277 crores at 1950-61 prices, accounting for 31.4 per cent of total State Domestic Product. The corresponding percentage in 1960-61 was 26. Gujarat's industrial economy in the past, however, was very narrow-based. Detailed studies of inter-dependence of industries among such other in Gujarat, have shown that the industrial base of Gujarat consists of Textile-based and Agro-based industries and Drugs and Pharmaceuticals. Textile-based industries include, cotton textiles, art silk and man-made fibres, dyestuff, cotton, ginning etc., and starch. The important agro-based industries are milk food and malted food, vanaspati and vegetable oils, salt and sugar. These industries (including drugs and pharmaceuticals) account for about 75 percent of the value-added in the organised industrial sector of the State.‡ These industries are also the industrial export base of Gujarat, while the State is a heavy net importer of machinery and metal products.

* Detailed projections of population are contained in Bureau of Economics and Statistics, Government of Gujarat, *Population Projections for Gujarat 1961-1986*.

‡Sardar Patel Institute of Economic and Social Research, Preliminary Results on the Structure of Manufacturing Industries in Gujarat. *Quarterly Bulletin of Bureau of Economics and Statistics, October-December 1970, Table A-1, p. 16.*

1.9. Given the importance of the industrial sector in the economy, and its peculiar character, the approach of industrial planning in the perspective plan period has been two-fold. On the one hand, an attempt has been made to provide for the diversification of the industrial structure of the Gujarat economy and on the other to provide for conditions for the efficient use of existing capacity and expansion needs of existing industries. Starting with the public sector investments in the petro-chemical sector, diversification possibilities around these investments have been worked out (both in terms of production of intermediates and final products). Possible areas for equipment manufacturing and metal processing industries which may develop in Gujarat have also been indicated. A plan has been worked out for the maximum utilization of existing equipment and modernisation of the textile industry in the State. Keeping in mind commercial developments in agriculture, agro-based industries in general also have been emphasised and particularly development in the dairying industry.

1.10. Significant progress has been made in the introduction of high yielding varieties of wheat, paddy, jowar and bajri from 1969-1971. During the current year, progress is also expected in cotton. The Perspective Plan aims at a significant strengthening of this trend and its extension to the area of commercial crops. Agricultural research, policies for provision and effective distribution of inputs and efficient distribution of agricultural outputs have been emphasised, as also special efforts for dry farming and for marginal farmers. Special attention has been paid to the fisheries, and animal husbandry (particularly dairying) sectors. A plan for increasing the limited area under forests in Gujarat has been given an important priority. The perspective for soil conservation policies has been indicated. The Plan emphasises the need for a major effort towards the realisation of Gujarat's irrigation potential. Given the limited nature of total water resources available, as also due to important agronomic considerations, water conservation and appropriate water management policies have been indicated. The role of co-operatives in agricultural marketing and processing and in the dairying sector have been stressed as also specific organisational support needs at the State level particularly in the areas of research, marketing, procurement, soil conservation, flood control, distribution of important inputs, provision of servicing facilities for farm equipment and development of livestock and fisheries. The availability of trained manpower for the implementation of the Plan has been emphasised. Finally, the perspective has also indicated the inter-connection between different aspects of plans for the agricultural sector, vital for the successful transformation of the agrarian structure of Gujarat's economy.

1.11. Egalitarian objectives have been included in the Perspective Plan, in two ways, by incorporating them in the specific production programmes and by provision of economic and social infra-structure in a way that meets the important needs of the citizens of Gujarat, particularly the vulnerable sections, as also provides economic opportunity and facilitates social mobility. The perspective provides for free and compulsory primary education, with emphasis not only on coverage of area by primary schools (which has already been completed), but on special efforts and specific policies, *e.g.*, mobile schools, housing for teachers in rural areas and other programmes, for literally bringing educational opportunities to the door-step of those who at present find it difficult to obtain and utilise them. The perspective provides for drinking water and rural sanitation schemes in each village, rural electrification and rural roads. Housing programmes are to be stepped up and medical facilities provided by the State, expanded and improved. A Rural Housing Board is envisaged and also a Tribal Development Corporation.

1.12. As far as production programmes are concerned, the emphasis on employment opportunities has already been noted. In the industrial sector, preference and incentives will be given to young entrepreneurs. The expansion of a viable small-scale sector will receive sustenance from the industrial diversification strategy of the Perspective Plan, and also the incentives provided in it. The agricultural perspective includes special effort for small and marginal farmers, increasing opportunities for supplemental income from animal husbandry and related sectors and an emphasis on co-operation as an organisational form.

1.13. The problems of balanced regional development is a complex one. The approach in the Perspective Plan is to strengthen overhead facilities in less developed regions, as also to give special facilities and incentives for investment in them. In the agricultural sector, the emphasis on scientific dry farming methods has already been noted. Equally important, a report has been prepared on Rural Urban Development, as a part of the Perspective Plan exercise, which has suggested that for planning purposes, the State may be divided into the following six Planning Regions:

1. Already intensely developed urban corridor along the Bombay-Delhi rail-road route comprising of the urban areas of Vapi, Bulsar, Surat, Baroda, Nadiad and Ahmedabad.

2. The under-developed far-eastern region of the State comprising of Dangs and Panchmahals Districts;
3. The coastal region comprising of all coastal areas from Dahej to Cambay to Kandla;
4. The Saurashtra region comprising of Junagadh, Rajkot and adjoining areas;
5. The under-developed areas of Northern Saurashtra, including Kutch;
6. The Northern Gujarat region comprising of Gandhinagar, parts of Mehsana, Sabarkantha and Banaskantha.

The Report has also suggested necessary action towards formulation of regional development plans, as also of planned urbanisation in the State.

1.14. The need for self-sufficient development for the national economy is one of the objectives of planning in India. The Perspective Plan for Gujarat shall aim at self-sufficiency in foodgrains for the region; in dairy products and fisheries; the region should be in a position to generate surpluses. The industries plan is aimed at an all round diversification of the region's industrial economy. Utmost effort shall be made to introduce import substitution to the extent feasible, through the implementation of programmes during the Perspective Plan period. The imperative need for self-help and self-reliance has been underscored by the recent conflict with Pakistan over the Bangla Desh issue. The stoppage of economic aid to India by the United States of America has been, in a sense, a blessing in disguise. It has inspired the country to attain self-sufficiency in all economic spheres to the maximum extent and do without external assistance except in the crucial or critical sectors. There should, however, be no objection to receiving financial assistance from United Nations Organizations like the World Bank or other international agencies which advance long-term loans on a commercial basis, without any political strings.

1.15. In the end, it should be clearly understood that the basic objective of planning is the development of the human personality by improving its fibre and quality. Although planning involves material advancement, the 'investment in man' is of even greater importance. There should, therefore, be proper stress on the moral, human and

spiritual values which give meaning to economic progress. We should always bear in mind the following significant sentences of Pandit Jawaharlal Nehru which now happen to be the last expression of his views on planning and socialism :

“In India, it is important for us to profit by modern technical processes and increase our production both in agriculture and industry. But, in doing so, we must not forget that the essential objective to be aimed at is the quality of the individual and the concept of *dharma* underlying it.”*

**Foreword to Socialism in Indian Planning*, by Shriman Narayan,
Asia Publishing House, 1964.

CHAPTER II

NEED FOR A PERSPECTIVE PLAN

Perspective planning requires the gift of overall vision and the skill to comprehend the long-term trends in the economy. To initiate a process of development over a period of time, it is necessary to distinguish between the very short-term and very long-term benefits. Certain changes call for prolonged preparation and planning and involve long gestation periods before the flow of results. Unless there is a clear conceptual frame-work in which the different schemes are dovetailed in an order of priority, according to financial magnitudes, technical know-how and gestation periods, it is not possible to make wise decisions about inter-sectoral allocations between competing fields of output and employment. A succession of five-year plans with a judicious mixture of projects involving different gestation periods form the core of perspective planning over a generation.

2.2. In formulating a perspective plan for a given set of objectives, the authorities must carefully weigh and evaluate the inter-dependence and the competitive aspect of a series of decisions which Government may have to take. As decisions taken must be wise and effective, a comprehensive view of the available human and material resources and of the overall objectives should be kept in mind.

2.3. One of the main objectives of a long-term Perspective Plan should be to raise the levels of living of the people through the fullest possible exploitation of natural and human resources. The Perspective Plan should clearly bring out the inter-dependence between different sectors of the economy, and point out possible obstacles to the growth of the economy. Perspective Planning is not merely a collection of projections in several sectors of social or economic development but an integrated process aimed at achieving certain basic goals and objectives. It is also a very valuable exercise in planning and implementation for all who take part in its preparation.

2.4. The inter-dependence of programmes and projects can be readily explained. For example, if a passenger car is to be manufactured, a very large number of spare parts and accessories will have to be supplied. These spare parts and accessories in turn call for the

supply of another bunch of inputs. This chain will become discontinuous at points where imported items creep in. Most of the industrial economies, not excluding several developing countries, unfold complex patterns of input — output relations and production processes. These processes could be highly involved reflecting circularities in the economic system. For instance, when steel needs pig iron smelted from iron ore with coking coal which in turn requires the use of steel, the complexities in the production pattern become obvious. This sort of inter-dependence of economic decisions and processes is to be contrasted with the equally important fact that there are alternative ways in which resources may be used to attain specified objectives. Thus, irrigation in predominantly rural areas may be provided in a centralised fashion by constructing a dam and laying canals and field channels. Alternatively, each village in the rural area may construct a water tank to keep and store the rain water or each farmer may build his own well. These different possibilities raise the problem of choice and not of inter-dependence.

2.5. This choice occurs nearly in every decision making situation in the whole field of policy formulation. For instance, if the objective at the State level is to maximise the State income per capita by some target date, the authorities may make a choice from two or more competing policies. Resources may be utilised either for promoting population control through family planning centres, cash incentives for smaller families, dissemination of useful information and subsidisation of contraceptives. Alternatively, resources may be used to step up the rate of growth in incomes directly. As the result of a policy of population control, per capita income may rise owing to a steady decline in the population growth; whereas under a policy of rapid economic development, per capita income may increase with a rapid expansion in the State income. But there are equal chances for the increase in the per capita income slowing down if the rate of growth in population remains relatively unchanged.

2.6. It is in the context of effecting meaningful balances and consistencies in planning decisions that there is need for ensuring an overall view and a long-term perspective of the entire economy within a planning frame-work.

2.7. A well-devised and carefully thought out programme should ensure balance in many strategic sectors. Otherwise, acute shortage and wasteful surpluses will generate as the economy forges ahead. No doubt, there are several imponderables in any situation and as such

the behaviour of certain variables cannot be predicted with reasonable accuracy. We all know that Indian agriculture and Indian budget are a gamble in the monsoon. Yet this cannot be a valid argument for a failure in initiating progressive measures for modernising agriculture. Excepting where it is an act of God or Nature, the behaviour of many variables can be measured quantitatively and remedial measures devised adequately in time to neutralise the consequences of certain strategic imbalances.

2.8. Balances are generally sought for in four major areas. Firstly, savings must be matched with investment. Secondly, skilled and unskilled man-power must match the supply in each sector. Thirdly, the availability of commodities and services should be equal to the demand for them and fourthly, it is necessary to match aggregate imports with available foreign exchange. Modern Management Information Systems and Operational Research have made it easy to build up a programme which simultaneously reconciles the different balances. If one ton of cement is to be produced, this may need the production of a series of other things which in turn will have to be traced through a long chain of input-output relations.

2.9. Keeping in mind the overall structure of the economy, the planner is required to determine the total demand for all types of commodities in his programme exclusive of intermediate use. This is generally known as "final demand" which is composed of capital formation, addition to inventories, exports (minus imports) and consumption. It is also the amount of final demand that domestic production must satisfy. To this information, the planner adds the technical co-efficiency table which depicts the quantities of different commodities required to produce each unit of commodity through the techniques of operations research. The production of each commodity which will be required by way of intermediate inputs to support a pre-determined programme can be readily worked out. With intermediate and final demand thus deduced, the overall output level in each sector comes to be determined.

2.10. While the problem of consistencies in plans and programmes have turned out to be manageable for planners in developing countries, the question of choice between alternatives has remained more elusive. The notion of efficient choice rears its ugly head all over the economy. It is essential to bear in mind the universality of this problem and the difficulties that arise in tackling

it simultaneously at all levels. In view of the procedural and operational difficulties, planners have been attempting to take up certain optimisation exercises. Crucial questions are taken up for deeper analysis and the elements are analysed more or less sequentially. For example, different types of irrigation systems can be compared or investment in family planning campaign can be compared with the programme of investment in generation of incomes. The final choice one makes should ultimately reflect balances and consistencies which are feasible and acceptable from an operational point of view. For instance, if a massive programme of birth control is chosen, this in turn would have to be reflected in reduced targets for consumption and this in turn may as well affect the target of agricultural output and the choice of irrigation projects. The higher the agricultural target the stronger would be the case for the construction of a dam; whereas a lower agricultural target may not provide adequate justification for multi-purpose dams. The inter-dependence and choice aspects thus interact and the process of planning very often unfolds a succession of interrelated steps and adjustments between a series of decisions.

2.11. The time element plays a major role in planning processes. A programme like the five-year plan has to be properly phased and similarly there has to be a perspective in the light of which a series of five-year plans comes to be dovetailed indicating the pace and direction in which the country intends to move in the foreseeable future. Carefully thought-out phasing and wisely formulated perspective are essential for a good programme since they take into account the existence of time lags and gestation periods in decision taking and final implementation. Time lags creep in at many stages. In the beginning, when a project is being planned, the problem that confronts the authorities is one of getting it administratively and politically accepted by the people as a whole. In case of projects which are tied to foreign aids, the uncertainties may be of a larger magnitude. After the project is sanctioned, the technical consultancy and designing stage itself may involve a gestation period of 3 to 4 years in many big industrial projects. Alternative designs pose a choice between alternative production techniques, alternative financial arrangements and alternative technical know-how. Once a project is designed, the necessary finance for investment, organisation of management, recruitment of trained man-power, all these involve time lags. A few years may lapse before investment yields remunerative production. It may take even a few more years before a plant reaches its full capacity of production.

2.12. It is not impossible to conceive a situation in which big projects start earning a return after a period of 7 to 8 years. The techniques of wise planning lie in the avoidance of foreseeable bottlenecks by careful advance planning and phasing of projects in such a way that they are neatly dovetailed with each other. If the construction of a multi-purpose dam is to begin in 1973, the time-table indicating various stages before its completion must be laid down. Such a time-table will enable the planner to know the amount of cement and steel that will be required during each year of the construction. This in turn will determine the programmes for cement and steel production if the dam for example comes to be completed in 1978. The construction of canals and field channels must also be programmed so that supply of water, when ready, is not wasted. Whenever projects are either not phased or badly phased, different types of bottlenecks and unplanned surpluses and unforeseen shortages emerge and thereby generate price fluctuations and balance of payment difficulties.

2.13. The bigger the projects the longer are the gestation periods and more the time lags. As these gestation periods must be taken care of, the right decisions at the right points of time at the right levels and the right places have to be taken. This is the essence of perspective planning. If a target of 30 million tonnes of steel is to be achieved by 1985, the requisite planning and preparatory steps have to be initiated in 1971. If medical colleges in Gujarat are to produce, say, medical graduates of the order of 5000 in the next 20 years, the requisite planning must start at the close of the Fourth Plan. The past merges into the present and the present is intimately inter-twined with the future. A long-term view of the foreseeable future, *the near*, *the distant* and the *very distant* future-all these are the ingredients of perspective planning.

2.14. Taking wise decisions currently is dependent on the foresight and insight into the long-term trends of development. Most developing countries have come to accept the rationale underlying the formulation of a Perspective plan which provides the backdrop to and the guidelines for five-year plans and the annual plans. Indian planners have had a three decade view covering a succession of five-year plans. Their 10-year and 15-year perspectives of the Indian economy provide examples of perspective planning. While there may not be any need for well-devised rules regarding the period for which a perspective plan should be formulated, it would be wise to devise a perspective plan for a period long enough to cover the longest

gestation periods conceivable in a dynamic and fast changing system relating to the cultural milieu and the technology of a given situation. Our objective is to evolve a self-reliant, self-sustained and self-generating economy free from the consequences of fluctuations in foreign aid. It is, therefore, necessary to keep in mind a specific time horizon for the attainment of self-sufficiency in Indian economy without foreign assistance.

2.15. If time element plays a crucial role in the formulation of perspective plan, equally important is the role of the space dimension. Regional inequalities and disparities have to be carefully handled in the context of the formulation of long-term programmes. Failure to keep in mind the space dimension has resulted in wastages, high cost and inefficiency in the implementation of many projects in several under-developed countries. It is necessary to work out adequate and efficient allocation of projects and programmes between different regions in such a way that no region gets investment and income below certain minimum levels. The very formulation of such a minimum programme would reduce political pressures for locating specific projects in specific areas. It is necessary to dovetail a programme of development of backward talukas and areas within the frame-work of inter-district planning or regional planning. A series of programmes in the nature of concentric circles can be fitted in such a way that regional planning, area planning and city planning get merged with each other.

2.16. The advantage of the Perspective Plan for Gujarat, as part of the National Economy, is that, such a planning provides an initial organised frame-work of reference for discussion on the basis of which further embellishments can be effected. If the reaction of the people to the perspective of development is not meaningful and co-operative based on their enthusiasm and participation, the plan is not likely to succeed. A perspective of development equally provides, a frame-work for dialogue between different levels of policy making at the State level so that the role of each agency can be defined and energised. This in turn would make the implementation of the perspective plan, relatively easy, since it largely hinges on co-ordinated action by different official agencies towards achieving the basic objectives of development. Finally, the perspective of development provides a reference in which private efforts in the region, can be canalised on the basis of suitable incentives within a broad integrated frame-work of development.

2.17. The Perspective Plan of Gujarat State 1974-84 has been prepared keeping in mind the requirements of finance, inputs, infrastructure, necessary institutional and organisational change, requirements of know-how personnel, employment and output targets and the possible impact of these variables on different regions of the Gujarat economy. A large number of econometric exercises may, however, have to be undertaken in different sectors before balances and internal consistencies can be established on a firmer basis between a series of interrelated physical targets.

2.18. Perspective planning is not a magic wand which can cure all the ills of a developing economy faced with all types of shortages and tensions. It is a *modus operandi* which facilitates smooth, meaningful operation of the planning processes and helps the planner to devise remedial measures from time to time whereby the plan gets adjusted to unforeseen difficulties and unpredictable fluctuations in the economy.

2.19. In an under-developed country a parallelogram of forces are at work which tend to perpetuate the vicious circle of poverty. To break this circle determined and heroic efforts are necessary and they can come only in the context of a well-conceived, carefully drawn imaginative and enthusiastically implemented plan programme. But to initiate the process of change in an under-developed economy is as complex as it is complicated. Economic development is not a mechanical affair. It brings about social, institutional and organisational changes as well. Direction, pace and pattern of planned changes would call for a prolonged period of austerity and even some regimentation. Even as wars are won with blood, sweat and tears, the war on poverty calls for enormous sacrifices from the people as a whole. Of course, care has to be taken to ensure that the quantum of sacrifices made by the different sections of the community are commensurate with the abilities of different sections of the people to bear the burden.

2.20. Economic progress calls for a complete re-orientation of attitudes, beliefs, habits of mind stemming from traditional cultures. The task of delicately balancing oriental and occidental values is essentially a problem of reconciling the virtues of the traditional cultural pattern with fresh and bold ideas coming endogenously. This calls for a good deal of patience, skill and understanding and a knack to synthesize old and new values and above all considerable sacrifices from all sections of the society. The task is by no means easy. It calls for the highest statesmanship. While the short-sighted see the

immediate future and resultant quick benefits, the foresighted see the long-run benefits of planned imaginative and sustained efforts to raise the standard of the mass of the people. We in this Country are fortunate to have had the experience of two decades in planning so that the future may be approached with a greater spirit of confidence and a sense of vision. 'Where there is no vision, people perish'. This is as much true of economic planning as of moral and spiritual advancement.

CHAPTER III

THE PERSPECTIVE PLAN IN OUTLINE

When India became independent, it had a slender industrial base and its rural population suffered under the weight of a traditional agrarian structure. Productivity in agriculture and industry stood at a low level. The Plan focussed the country's attention on the vital need for rapid economic growth as well as social justice. The last two decades of planned development have witnessed rapid expansion of the State's economy. The reform of an antiquated land system, revitalisation of co-operative movement, expansion of basic facilities like irrigation, power and transport which are essential for agricultural and industrial development, opening up of mineral deposits to feed industries, expansion of human resources through the provision of facilities for education and health are some of the notable features of this period of planned development in the State. The State has completed the programme of legislation for abolition of all intermediary land tenures. The objectives of the State's land policy have been to remove such impediments in the way of achieving increases in agricultural production as arise from the agrarian structure and to eliminate elements of exploitation and social injustice within the agrarian system. A ceiling has been put on holdings so that no person can acquire large areas of land for himself. The small and marginal farmers are being assisted to enable them to improve their economic conditions and make their contribution to agricultural development. Landless labourers are being granted Government land in order to enable them to settle on land. Effective steps have been taken for dispersal of industries and grant of assistance to small industries for development. The Scheduled Castes and Scheduled Tribes are being helped in a number of ways in the sphere of education and economic uplift and by provision of facilities under health, housing and other programmes. Tribal areas are opened up by expansion of roads and transport facilities. Facilities for primary education have been provided to 98 percent of the population in their habitation or within one mile from it. Freeship is being granted to pupils of economically backward classes. Special programmes are undertaken to relieve both unskilled and educated unemployment.

3.2. In spite of this progress, the benefits of activities under the plan have not reached the common man and the weaker sections of society in appropriate measure. The growing population and the need for early fulfilment of the aspirations of the people for a better

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life make it essential to have rapid growth of the economy of the State over the next few years. The Perspective Plan for the decade 1974-84 visualizes an overall growth rate of 7 per cent with a 5 per cent growth rate in agriculture and a 10 per cent growth rate in industry. The task is large in magnitude but with efforts for maximum mobilisation of resources and effective implementation of the programmes, it is not difficult of attainment. The size of the Perspective Plan which is nearly 7 times that of the Fourth Plan takes into account the urgent need for rapid economic development of the State.

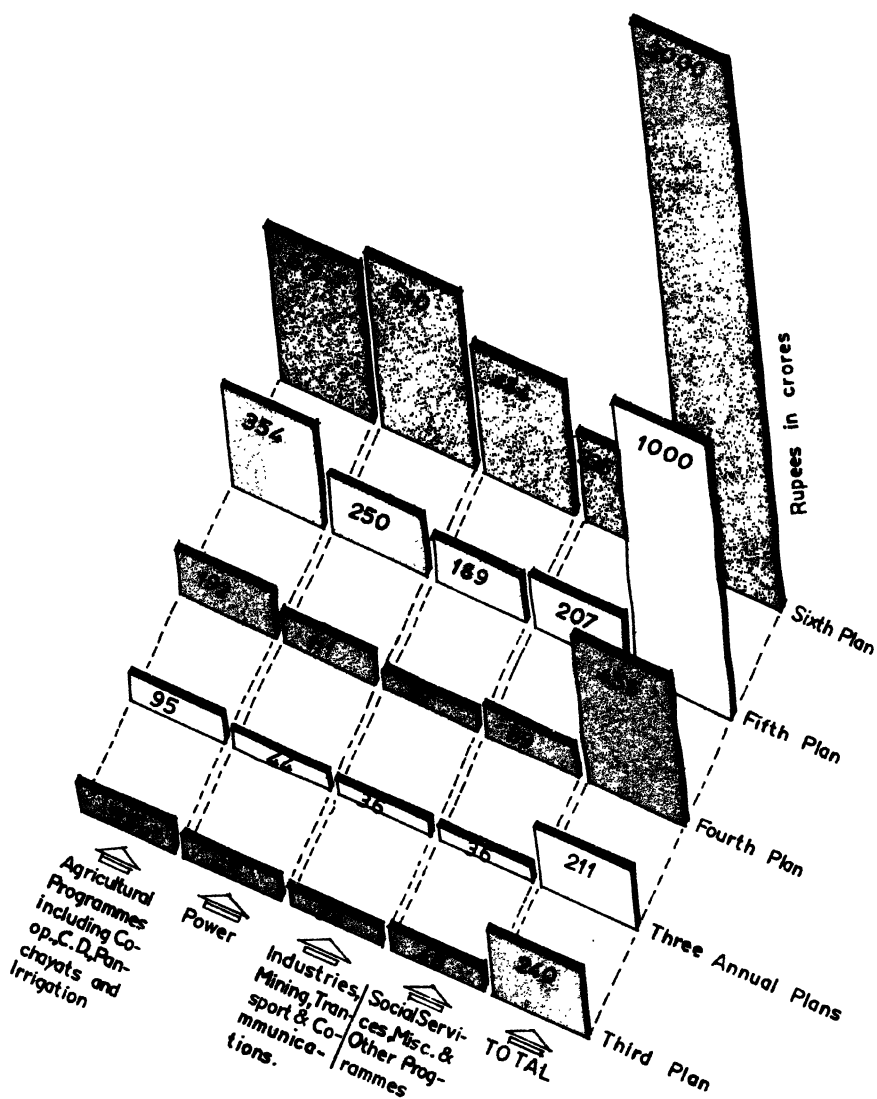
3.3. The State's Perspective Plan envisages a public sector outlay of Rs. 3,000 crores comprising of an outlay of Rs. 1000 crores for the Fifth Plan period, 1974-79, and of Rs. 2000 crores for the Sixth Plan period, 1979-84. The following table gives the expenditure on the State's Third Five Year Plan and the Three Annual Plans, 1966-1969, the outlay on the Fourth Plan and the proposed outlay for the State's Perspective Plan. The sector-wise outlays are given in the statements at the end of the publication.

TABLE 1

Head/sub-head of Development	(Rs. in crores)					
	Third Plan 1961-66	Annual Plans 1966-69	Fourth Plan 1969-74	Fifth Five Year Plan 1974-79	Sixth Five Year Plan 1979-84	Total for Perspe- ctive Plan 1974-84
				within the size of Rs. 1000 crores	within the size of Rs. 2000 crores	Outlay
	Expen- diture	Expen- diture	Provi- sion	Outlay	Outlay	
1	2	3	4	5	6	7
1. Agriculture, Co-operation, Community Development and Panchayats	47.03 (19.6)	48.47 (23.0)	82.07 (18.0)	164.00 (16.4)	314.00 (15.7)	478.00 (15.9)
2. Irrigation and Flood Control	46.28 (19.3)	46.21 (22.0)	110.00 (24.2)	190.00 (19.0)	257.00 (12.9)	447.00 (14.9)
3. Power	65.37 (27.2)	43.92 (20.8)	111.25 (24.4)	250.00 (25.0)	610.00 (30.5)	860.00 (28.7)
4. Industry and Mining	10.21 (4.2)	12.91 (6.1)	20.00 (4.4)	70.00 (7.0)	163.00 (8.1)	233.00 (7.8)
5. Transport and Communications	23.32 (9.7)	23.16 (11.0)	43.34 (9.5)	119.00 (11.9)	321.00 (16.0)	440.00 (14.7)
6. Social Services and Other Programmes	47.98 (20.0)	35.96 (17.1)	88.56 (19.5)	207.00 (20.7)	335.00 (16.8)	542.00 (18.00)
Total	240.19 (100.0)	210.63 (100.0)	455.22 (100.0)	1000.00 (100.0)	2000.00 (100.0)	3000.00 (100.0)

(Bracketted figures indicate percentage distribution)

SIZE OF THE PLANS - GUJARAT STATE



3.4. Highest priority has been accorded in the Perspective Plan to Agricultural Programmes and Irrigation. Of the outlay of Rs. 3000 crores, Agricultural Programmes and Irrigation account for an outlay of 31 per cent. An outlay of 29 per cent is earmarked for Power while Industry and Transport account for an outlay of 22 per cent. The balance of the outlay of 18 per cent is devoted to Social Services and Other Programmes. If additional resources become available, it is envisaged that the outlay during the Fifth Plan period should be stepped up by Rs. 200 crores and that for the Sixth Plan period, by Rs. 400 crores so as to realise, by the end of the Perspective Plan period, all the targets visualized by the Working Groups.

3.5. The following table gives the sectoral break-up of these increased outlays:—

TABLE 2

Head/sub-head of Development	(Rs. in crores)					
	Fifth Five Year Plan 1974-79		Sixth Five Year Plan 1979-84		Total for Perspective Plan 1974-84	
	Within the size of Rs. 1200 crores		Within the size of Rs. 2400 crores		Within the size of Rs. 3600 crores	
	Outlay	Percentage to total	Outlay	Percentage to total	Outlay	Percentage to total
1	2	3	4	5	6	7
1. Agriculture, Co-operation, Community Development and Panchayats	200.00	16.7	390.00	16.3	590.00	16.4
2. Irrigation and Flood Control	202.00 _A	16.8	257.41	10.7	459.41	12.8
3. Power	350.00 _B	29.2	653.00	27.2	1003.00	27.3
4. Industry and Mining	80.00	6.7	253.79	10.6	333.79	9.8
5. Transport and Communications	141.00	11.7	363.61	15.1	504.61	14.0
6. Social Services and Other Programmes	227.00	18.9	482.19	20.1	709.19	19.7
Total	1200.00	100.00	2400.00	100.00	3600.00	100.0

3.6. In addition to these outlays in the State Plan, considerable amounts will be available from the Centrally Sponsored or Central Sector Schemes like National Highways, Railways etc., and Central

Public Sector outlays in Gujarat such as 1200 M. W. nuclear power plants, refinery and petrochemical plants, Aluminium Complex etc. Institutional finance will also be available to meet a substantial part of the developmental expenditure. The magnitude of these outlays will depend upon the policies and programmes of the Government of India. The total outlay from these sources have been assumed at half of the State Plan outlay of Rs. 3000 crores.

3.7. Large investment especially in industries should be forthcoming from the private sector also. An estimate of the total outlay during the Perspective Plan period is given in the following table :—

TABLE 3

		(Rs. in crores)
1. Public Sector outlay in State's Perspective Plan 1974-84	3000	(Rs. 3600 crores, if additional resources become available)
2. Outlay for Centrally Sponsored Schemes and Central Sector Schemes and projects like Nuclear Power Plants, Refinery and Petro-chemical complex, Aluminium complex, Railways, National Highways etc. and Institutional finance.	1500	
3. Private Investments		
(a) Agriculture	368	
(b) Industry	2083	
(c) Household Construction	282	
	Total-3	2733
	Total-1 to 3	7233

Thus, the total development outlay during Perspective Plan from all sources may be of the order of Rs. 7200 crores. This outlay would go up to Rs. 7800 crores on the basis of increased State Public Sector outlay of Rs. 3600 crores as visualized, if additional resources become available.

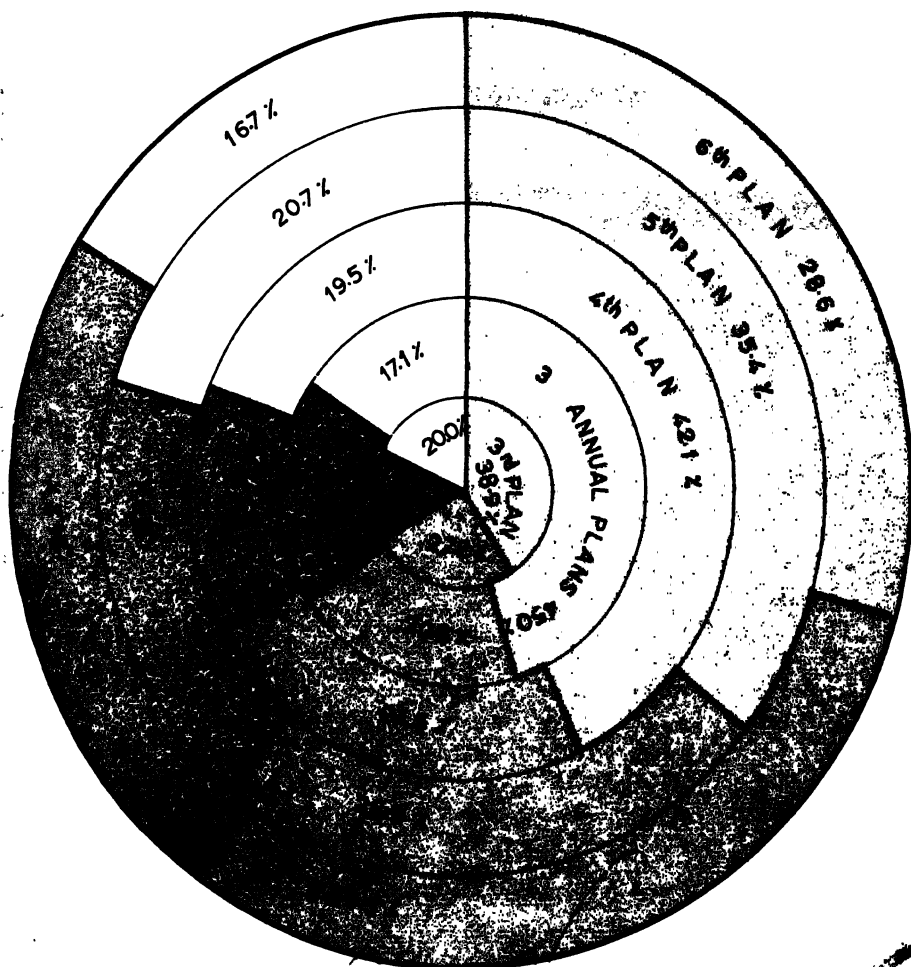
AGRICULTURAL PROGRAMMES

Agriculture

3.8. Increased agricultural production is vital for a comprehensive programme for the reconstruction of the rural economy. Nearly two-thirds of our population depends upon agriculture. By providing

PERCENTAGE DISTRIBUTION OF PLAN OUTLAYS

-  AGRICULTURAL PROGRAMMES INCLUDING CO-OP., C.D., PANCHAYATS & IRRIGATION.
-  POWER.
-  INDUSTRIES, TRANSPORT & COMMUNICATIONS.
-  SOCIAL SERVICES, MISCELLANEOUS & OTHER PROGRAMMES.



964
1964
23.0

1964

both foodgrains as well as raw materials for industries, agriculture plays a crucial role in our economy. Gujarat, however, suffers from several physical limitations to rapid development in agriculture. Over half of the area of the State has been brought under the plough and more land is not easily available for cultivation. A large part of the cultivated area suffers from poor soils, undulating terrain and undependable rainfall. Irrigation facilities are inadequate. The low percentage of forest area adversely affects agricultural production. Inspite of these limiting factors, the agricultural production in the State has recorded a substantial increase over the past years as will be evident from the following table :—

TABLE 4
*Agricultural production—Foodgrains, Oils seeds and Cotton,
Gujarat State*

Year	Total Food grains product- ion in '000 tonnes	Index.	Oilseeds produ- ction in '000 tonnes	Index	Cotton produc- tion in '000 bales £	Index
1	2	3	4	5	6	7
1950-51	1636	100	467	100	732	100
1951-52	1049	64	204	44	404	55
1952-53	1656	101	295	63	612	84
1953-54	2473	151	531	114	814	111
1954-55	2334	143	748	160	1206	165
1955-56	1862	114	421	90	1135	155
1956-57	1994	122	970	208	1049	143
1957-58	1793	109	902	193	881	120
1958-59	2574	157	1391	298	1250	171
1959-60	1892	116	1010	216	697	95
1960-61	1888	115	1259	270	1394	190
1961-62	2566	157	1537	329	1282	175
1962-63	2331	142	1226	263	1622	221
1963-64	2700	165	1329	285	1326	181
1964-65	2880	176	1698	364	1554	212
1965-66	2416	148	998	214	1408	192
1966-67	2413	147	978	209	1409	192
1967-68	3561	218	1492	319	1515	207
1968-69*	2254	138	862	185	1425	195
1969-70*	3089	189	1163	249	1552	212
1970-71*	4406	269	1943	416	1571	215

*Provisional.

£Each bale of 180 kgs.

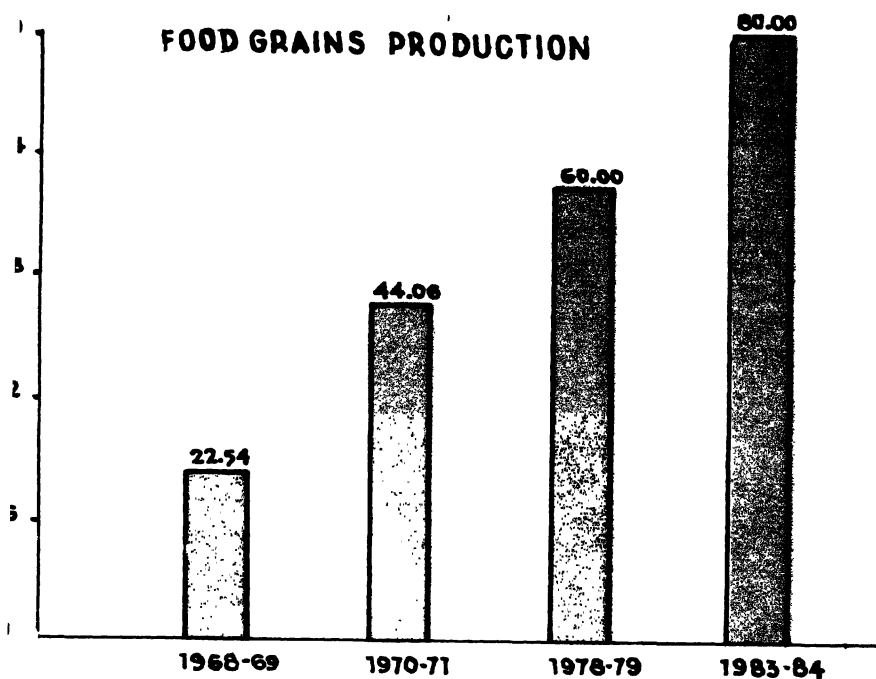
3.9. The performance of agriculture in the State in the first two years of the Fourth Plan has been particularly impressive. The following table gives the Fourth Plan foodgrains production targets and achievements in the first two years of the Fourth Plan for different States :—

TABLE 5

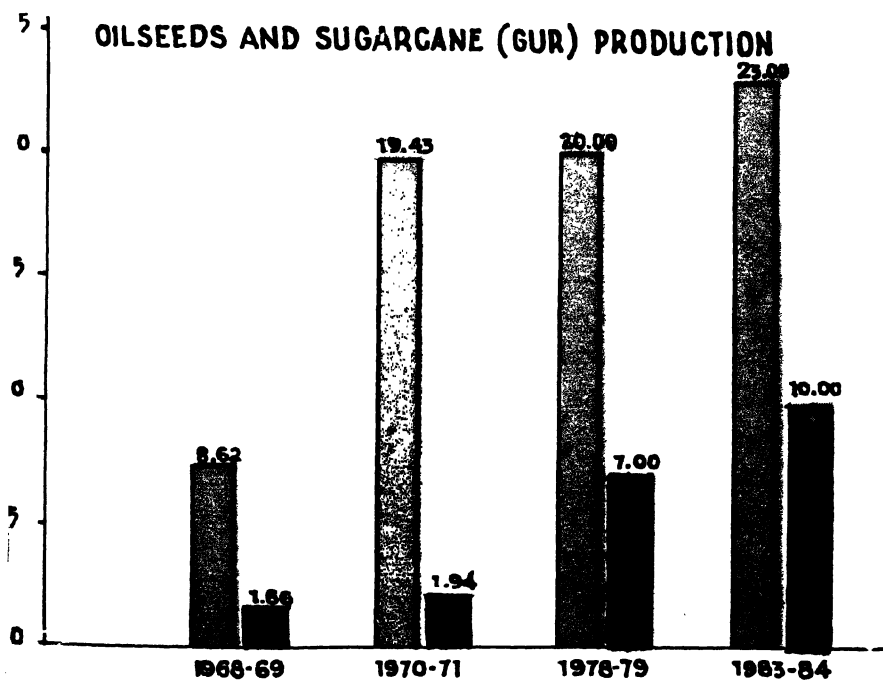
Foodgrains production targets and achievements

Sl. no.	State	Assumed base level 1968-69	Fourth Plan 1973-74 target	1969-70 actuals	1970-71 actuals	(Lakh tonnes)	
						Compound annual growth rate	To achieve Fourth Plan targets during first two years
1	2	3	4	5	6	7	8
1.	Andhra Pradesh	76.00	108.00	74.00	68.87	7.3	4.8
2.	Assam	20.70	26.00	20.00	20.70	4.7	..
3.	Bihar	86.00	114.00	75.46	81.46	5.8	-2.7
4.	Gujarat	29.00	44.00	32.21	44.06	8.7	+23.3
5.	Haryana	33.00	44.00	45.67	47.52	5.0	+19.7
6.	Himachal Pradesh	9.50	13.50	9.82	9.67	7.3	+0.9
7.	Jammu & Kashmir	9.00	11.00	11.51	10.81	4.1	+9.6
8.	Kerala	13.00	17.50	12.42	12.94	6.1	-0.2
9.	Madhya Pradesh	101.00	129.00	97.69	107.96	5.0	+3.4
10.	Maharashtra	75.00	104.00	69.14	55.90	6.8	-13.7
11.	Meghalaya	1.30	2.00	1.17	1.24	9.0	-2.3
12.	Mysore	50.00	62.00	58.91	59.62	4.4	+3.4
13.	Nagaland	0.69	0.77	0.50	0.74	2.2	+3.6
14.	Orissa	53.00	70.00	50.53	51.51	5.7	-1.4
15.	Punjab	55.00	75.00	69.37	70.24	6.4	+13.0
16.	Rajasthan	63.00	81.00	47.49	88.13	5.2	+18.3
17.	Tamil Nadu	59.00	79.00	62.39	70.24	6.0	+0.1
18.	Uttar Pradesh	168.00	214.00	175.47	194.83	5.0	+7.7
19.	West Bengal	69.00	90.00	73.64	74.18	5.5	+3.7
20.	Union Territories	9.07	11.52	7.80	7.69	4.9	-7.4
All India		980.26	1290.00	995.19	1078.11	5.6	+4.9

FOOD GRAINS PRODUCTION



OILSEEDS AND SUGARCANE (GUR) PRODUCTION



■ OILSEEDS. ■ SUGARCANE

NOTE: FIGURES FOR 1968-69 AND 1970-71 ARE ACTUALS AND THOSE FOR 1978-79 AND 1983-84 ARE TARGETS.

3.10. Gujarat achieved a compound annual growth rate of 23 per cent in food-grains in the first two years of the Fourth Plan and reached the Fourth Plan target of 44 lakh tonnes in 1970-71. The growth rate in foodgrains in the State was the highest in the country. In the production of oilseeds also, the State's performance has been quite remarkable. The State achieved an annual compound rate of growth of 13 per cent in oilseeds in the first two years of the Fourth Plan and considerably exceeded the Fourth Plan target of 17.78 lakh tonnes. The growth rate in oil seeds was the second highest in the country as will be seen from the following table :—

TABLE 6
Target and production of oilseeds.

(Lakh tonnes).

State	Fourth Five Year Plan		1968-69	1969-70	1970-71	Compound Annual Growth Rate	
	Assumed base-level	Target	Actuals	Actuals	Actuals	To Achieve Fourth Plan targets	Achieved during first two years
1	2	3	4	5	6	7	8
Andhra Pradesh	10.50	14.00	9.84	11.86	12.51	5.9	+9.2
Assam(including Meghalaya)	0.64	0.67	0.54	0.57	0.64	0.9	-1.6
Bihar	1.00	1.70	0.74	1.08	1.08	11.2	+4.0
Gujarat	15.20	17.78	8.62	11.63	19.43	3.2	+13.1
Jammu & Kashmir	0.30	0.50	0.29	0.29	0.29	10.8	-1.7
Haryana	0.85	1.30	0.43	0.89	0.97	8.9	+6.8
Kerala	0.28	0.30	0.28	0.23	0.20	1.4	-15.5
Madhya Pradesh	5.73	6.50	4.60	5.44	5.32	2.6	-3.6
Maharashtra	8.50	10.50	7.19	6.90	6.93	4.3	-9.7
Mysore	6.00	8.00	6.01	5.60	6.65	7.2	+5.3
Orissa	1.70	2.70	1.70	1.91	1.92	9.7	+6.3
Punjab	3.00	4.00	2.65	2.20	2.13	5.9	-15.7
Rajasthan	2.00	4.50	1.62	2.17	5.31	17.6	+62.9
Tamil Nadu	10.00	13.00	8.75	9.52	9.59	5.4	-2.1
Uttar Pradesh	17.00	19.00	14.69	16.45	18.27	2.3	+3.7
West Bengal	0.58	1.25	0.49	0.49	0.50	15.5	-7.1
Union Territories	0.11	0.18	0.11	0.11	0.13	..	..
All India	85.00	105.00	68.45	77.34	91.87	4.37	+4.0

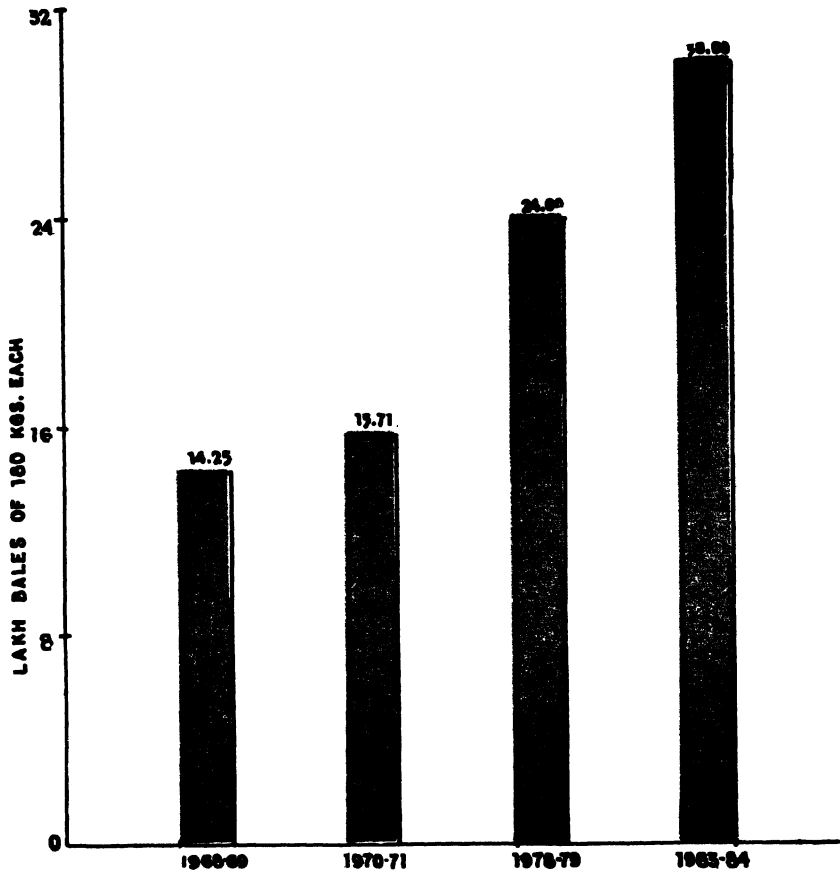
3.11. In spite of good performance in the agricultural sector in the first two years of the Fourth Plan, it is too early to say that a firm trend towards rapid growth has been established. The trend has also not been uniform for all items of agricultural production. While there has been a large increase in the out-put of cereals, the output of pulses, cotton and sugarcane has not been promising. The State must, therefore, guard against any complacency in regard to continued emphasis on agricultural development. It will be evident from the fluctuating trend of agricultural production in the past as revealed in Table 4 that the State has yet to go a long way before it achieves reasonable immunity to the vagaries of the monsoons.

3.12. The aim in agriculture is to maximise productivity per hectare through high yielding varieties and other programmes which constitute the intensive development approach and achieve an annual growth rate of 5 percent over the Perspective Plan period. There is also the need to reorient the development efforts in this sector so as to correct internal imbalances. While the high yielding varieties of bajri evolved at the Research Station at Jamnagar have proved successful and the high yielding varieties of cotton evolved at the Surat Cotton Research Station, capable of doubling the per hectare yield, are expected to give promising results, intensive research efforts on pulses and groundnut would be necessary to achieve a breakthrough. It is necessary to emphasise this aspect of agricultural development. Special programmes for developing dry farming practices are also called for. It has to be realised that large parts of Gujarat will continue as dry farming areas till the Narmada Project is completed. This underlines the urgent need for expeditious completion of the project.

3.13. The Perspective Plan visualizes foodgrains production to reach 80 lakh tonnes by 1983-84 making the State surplus in foodgrains. The cotton production will go up by 11 lakh bales over the Perspective Plan period, from 19 lakh bales in 1973-74 to 30 lakh bales in 1983-84. The oil-seeds production potential will be stepped up from 17.78 lakh tonnes to 23 lakh tonnes during this period while the sugarcane production (in terms of gur) will go up from 4.25 lakh tonnes to 10 lakh tonnes.

3.14. For achievement of these targets, all minor irrigation schemes and all major and medium irrigation schemes except Narmada and a few schemes which are located in high rain-fall areas or are

COTTON PRODUCTION



NOTE: FIGURES FOR 1968-69 AND 1970-71 ARE ACTUALS
FOR 1978-79 AND 1983-84 ARE TARGETS.

difficult ones, are proposed to be completed by 1983-84. Special programmes for enabling small and marginal farmers to become economically viable are also proposed to be taken up. Aerial spraying of insecticides, pesticides, fungicides etc. will be carried out on area basis and effective steps for water conservation and efficient use and management of water will be taken. Farm service centres will be set up and financial assistance will be provided to such centres in areas which are backward in agriculture. Establishment of State Seed Corporation on the lines of National Seed Corporation and of a Directorate of Agricultural Marketing are also contemplated. Through these and other measures the agricultural economy of the State will be put on sound foundations during the Perspective Plan period.

3.15. The long-term plan indicated above proceeds on the assumption that adequate quantities of fertilizers, pesticides, insecticides, agricultural implements of improved quality, and storage bins, adequate and reliable power supply for energizing wells and tubewells, and approach roads to market centres or to roads leading to market centres will be available. All measures will have to be taken to provide these inputs, and infrastructure facilities for the rapid development of agriculture in the State. It will also have to be ensured that valuable agricultural land is not diverted for non-agricultural purposes like setting up of industries or construction of houses. Necessary measures to ensure this will have to be taken immediately.

Irrigation

3.16. Development of irrigation facilities is essential for diversifying agriculture and increasing crop yield. Productive agriculture is possible only through the assured supply from big irrigation projects. Before the commencement of Planning, very little was done to exploit the water resources of the State. The irrigation potential in 1950-51 was only 3.9 lakh hectares which was wholly through schemes of minor irrigation. This rose to 20.7 lakh hectares of potential and 15.0 lakh hectares of utilization in 1969-70. At the end of the Fourth Plan the irrigation potential and utilization will be 28.6 lakh hectares and 22.1 lakh hectares respectively. The State, however, lags far behind the country in the field of irrigation development. The Perspective Plan envisages the completion of all minor irrigation schemes as also all major and medium schemes except Narmada and a few schemes which are located in the higher rainfall areas or are

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difficult ones. In expediting the work on minor irrigation schemes, the Gujarat Water Resources Development Corporation which has been registered under the Companies' Act, will play an effective part. The activities of the Corporation would be the exploration of ground water resources, construction and maintenance of tube-wells, construction of check dams and percolation tanks, construction of tube-wells and water wells for small and big towns for domestic and industrial water supply, construction and maintenance of lift irrigation schemes and works to recharge ground water etc. But even in the ultimate stage when all the technically and economically feasible schemes excluding Narmada are completed, the ultimate potential would be 21 percent of the cultivable area in the State, while the ultimate potential envisaged for the country is 45 per cent. Without Narmada, Gujarat would thus be pegged well below the present all-India level for all time to come. Expeditious completion of the Narmada Project is the only solution to the problem of lack of irrigation facilities in the State. Besides, heavy floods are a recurring feature in Narmada causing large-scale devastation and heavy loss of property. For the prevention of these recurring losses also it would be necessary to take up the Narmada Project expeditiously. The Perspective Plan envisages the setting up of a Flood Control Board so that all flood control schemes in the State can be taken up with utmost expedition.

3.17. Though water is a national resource, the development of water resources in the country is held up on account of numerous inter-State controversies. River waters do not recognise any barriers such as basins, or State boundaries. Wherever technically and economically feasible, the waters must be transported for the benefit of the country as a whole. The modern technical development has, indeed, made this possible. The proposed Ganga-Kaveri link would be the first step in this direction. Gujarat would be greatly interested in the formation of a National Water Grid. During the Perspective Plan period, steps will have to be initiated in the country for the linking up of big rivers and formation of a National Water Grid.

Soil Conservation

3.18. A large part of the State suffers from poor soils, undulating terrain and undependable rainfall. It is estimated that about 4 million hectares of land in the State need soil conservation measures. Most of this area is proposed to be covered by soil

conservation measures by the end of the Perspective Plan. It is proposed to give high priority to reclamation of ravine lands and establishment of a Ravine Board. The Board will not only take steps to stop erosion of the ravines but will also put the reclaimed lands to the best possible use.

Animal Husbandry and Dairying

3.19. The objectives of dairy development are to increase per capita daily consumption of milk from 175 gms. at the end of the Fourth Plan to 240 gms. by 1983-84. The capacity in the organised sector is proposed to be stepped up from over 15 lakh litres of milk per day at the end of the Fourth Plan to 30 lakh litres per day by 1983-84.

3.20. It is proposed to channel production, procurement, processing and marketing of milk and milk products through the producers' co-operative unions and to use co-operative unions as the vehicle for all investment and technical inputs for milk production enhancement programmes. It is also proposed to establish a Federation of Producers' Co-operative Unions. Organisation of an Autonomous Breeders' Association and establishment of a Directorate of Live Stock Production and Marketing, and the merging of the existing Directorate of Animal Husbandry and Dairying therein are also contemplated during the Perspective Plan period.

3.21. The main thrust of the live stock improvement and the milk production enhancement programmes during the Perspective Plan period will be on cross breeding of the cow population in the State. In implementing this programme to get more milk, emphasis will be to see that the draught quality is maintained in all such cases. In other words, the State will follow the dual purpose policy in cow development.

3.22. The pricing policy of milk will be based on the two axis pricing system. The fat and solid non-fats will be valued on the basis of what the consumers pay for them. The proportion of valuation will, therefore, be some 66 percent of the value of fat for non-fat solid. The acceptance of this pricing policy will be one of the conditions for assistance to co-operative unions and dairy plants.

Forests

3.23. In view of India's tropical climate, periodic monsoons, low forest productivity and predominantly agricultural economy, the National Forest Policy enunciated by the Government of India has prescribed a minimum of 33 per cent of total land area to be retained under protective forests. The proportion of forests to the total land area in India is 24 percent. The forest area of about 9 per cent in Gujarat is much below the present all-India average. This adversely affects agricultural production because the area is denied the moderating influence of the forests against floods and erosion and their help in maintaining soil fertility. A strong forest protection policy is, therefore, called for and there is urgent need for increasing the forest area to atleast 12 percent by 1984. It is necessary to put a ban on deforestation for any purpose except in accordance with the working plans. In the Perspective Plan, it is proposed that deforested lands in the catchment areas of river valley projects should be reforested. It is also proposed to undertake massive plantation of trees along road sides, in waste lands, along canal and railway sides and in coastal areas and to encourage panchayats and individual farmers to grow quick growing trees suitable for fuel. Emphasis will also be laid on the conservation of wild life in accordance with principles recognised by expert bodies dealing with the environment.

Fisheries

3.24. The implementation of the various programmes included in the Perspective Plan will increase the annual fish production from the targetted production of 1.79 lakh tonnes at the end of the Fourth Plan to 7 lakh tonnes by 1983-84. For the development of Fisheries it is necessary to carry out an early survey of deep sea fishing areas. It is also necessary to develop the infra-structure facilities, particularly the fishing harbours and modernise the fishing methods, preservation techniques and marketing practices. These programmes have been accorded high priority in the Perspective Plan. The establishment of a training institute to meet the personnel demand and an autonomous board for fisheries in place of the existing department of the fisheries are also contemplated.

Co-operation

3.25. In a planned economy with socialist pattern of society as its objective, co-operation should become the principal basis of

organisation especially in agriculture. A rapidly growing co-operative sector particularly in the field of agricultural finance has been one of the notable achievements of the State. The rapid strides made by the State in the co-operative movement will be evident from the following table :—

TABLE 7

item	unit	1950-51	1968-69	1970-71	1973-74 (target)	1983-84 (target)
1	2	3	4	5	6	7
I. Primary Agricultural Societies.						
1. Membership	number in lakhs	2.02	12.73	13.50	15.50	22.80
2. Agricultural population covered.	percen- tage		58.00	62.50	60.00	95.00 (khate- dars)
II. Agricultural Credit						
Short and medium	Rs. in crores	1.57	65.26	81.46	75.00 (will need revision)	150.00
Long term	"	Nil	94.97	140.97	184.97	552.97

It is proposed to cover 95 per cent land holders in the co-operative fold by the end of the Perspective Plan and to link agricultural credit with marketing and processing.

Community Development and Panchayats

3.26. The process of transformation of the social and economic life of the villages was initiated through Community Development Blocks, in 1952. All Community Development Blocks would have completed their stage II period before the expiry of the Fifth Plan period. Once a Community Development Block completes its stage II period, the existing level of activities cannot be maintained for want of schemetic funds and the programme of local works is retarded. It is, therefore, proposed that an annual amount of Rs. 40,000 per block should be provided in the Perspective Plan for post Stage II Blocks. Such a core budget would look after certain programmes and schemes which benefit the entire village community, such as

village roads, panchayat ghars, community centre-cum-information centre, village libraries and reading rooms, village playgrounds etc. Looking to the numerous functions and activities which the village level functionary has to discharge at the gram panchayat level, it is proposed to have one Village Panchayat Secretary for each Gram Panchayat. The Panchayati Raj institutions have to be strengthened so that they can play an effective role in Planning from below. It is also proposed to set up an Academy of Panchayati Raj Training and Research as an apex body to co-ordinate and supervise over all the activities in the field of training of Community Development and Panchayati Raj personnel and to conduct applied research in that sphere. The Perspective Plan for this sector provides for these activities.

INDUSTRY, MINES AND POWER

Industry.

3.27. Gujarat occupies an important place on the industrial map of India. It is fourth among the industrially developed States of the country in terms of total value added by large scale industries and third in terms of employment. The strategy adopted by Government for industrial development of the State is provision for infra-structure facilities, critical intervention of the State for promotion of industries in large and medium scale sectors, direct assistance to small scale industries and promotion of research and quality consciousness. Some of the principal features of the State's policy are to provide a comprehensive corporate net-work to offer expert service, to give assistance to self-employed technicians and artisans in semi-urban and rural areas, to provide technical assistance and information to entrepreneurs in respect of potentialities, locational advantages etc. Gujarat State Financial Corporation has been set up to help entrepreneurs by way of finance. The State Government has set up the Gujarat Industrial Development Corporation with a view to developing industrial areas and estates in a widely dispersed manner. The Gujarat Small Industries Corporation has been established to serve the needs of small scale industries by distribution of controlled raw materials, sale of finished products, supply of machinery on hire-purchase basis etc. The Gujarat Agro-Industries Corporation has been set up for agro-based industries. The Gujarat Industrial Co-operative Bank provides loans to small scale industries and artisans for working capital. The Gujarat Mineral Development

Corporation has been established to develop mineral-based industries in the State while the Gujarat Industrial Investment Corporation has been formed to provide Industries with equity capital so as to accelerate growth of industries in the State. The Gujarat Textile Corporation has been set up to take care of deteriorating position of textile mills and the Gujarat Export Corporation has been established for promoting exports.

3.28. Growth with social justice is the guide-line of the industrial policy followed by the State Government. Balanced development of regions with particular stress on backward areas is one of the main planks of this policy. Various concessions are given by the State Government for rapid industrial development of the State. New industries are exempted from the payment of electricity duty on power consumed by them for the first five years. Self-generating units are exempted from this payment for a period of ten years. Power subsidy at different rates is granted to small scale units on the motive power consumption. New industrial units which have been commissioned on or after 1st April 1970 in areas beyond 24 kms. from the municipal limits of the cities of Ahmedabad and Baroda and 16 kms. from the municipal limits of Surat, Bhavnagar, Rajkot and Jamnagar are exempted from the payment of sales tax for a period of five years. Octroi duty exemption is granted by majority of Municipalities, Nagar Panchayats and Gram Panchayats for a period of 5 to 7 years on building materials, plants, machinery, spare parts, raw materials etc. brought for an industry within their respective limits. The expenditure on construction of approach roads to industries is shared on 50:50 basis by the State Government and the industrial units concerned.

3.29. For the industrial development of backward areas, the Industrial Development Bank of India, the Industrial Financial Corporation of India and Industrial Credit and Investment Corporation of India have come forward for help by providing finance on concessional terms. Ten districts of the State namely Kutch, Amreli, Bhavnagar, Surendranagar, Panchmahals, Sabarkantha, Banaskantha, Mehsana, Broach and Junagadh have been selected for the grant of concessional finance by these institutions for location of industries in these areas. Panchmahals district would also qualify for out-right grant or subsidy by the Centre, amounting to one-tenth of the fixed capital investment of new units having a fixed capital investment of not more than Rs. 50 lakhs each.

3.30. The Industrial policy adopted by the State Government has generated a new climate and has resulted in rapid growth of industries in the State. The number of working factories which was 3649 in 1960 went upto 5544 in 1970. Similarly the number of small scale industries which was 2169 in 1961 rose to 16413 by March 1971. According to census sector of Annual Survey of Industries, the value of production of factories was Rs. 270 crores in 1960 which rose to Rs. 753 crores in 1968.

3.31. During the span of these 11 to 12 years since the formation of the State, there has been a chain of events significant to the economy of the State. The Oil Refinery and the Fertiliser Factory have been established near Baroda. The Gujarat Mineral Development Corporation has undertaken the exploitation of fluorspar deposits and has set up a beneficiation plant with a capacity of 500 tonnes of fluorspar per day. The Public Sector Udex Plant has been commissioned while the Aromatics Plant will soon be commissioned. The foundation stone of Naphtha cracker project has also been laid. With oil, gas, salt, fluorspar bauxite, lime-stone and clays, Gujarat has all that makes for a firm foundation for multi-sided industrial development.

3.32. There are, however, a few weak points in the industrial structure of the State. At the time of the formation of the State and to a considerable extent even now, Gujarat's industrial scene is dominated by textiles. This aspect is being tackled vigorously. Engineering, chemicals, cement, sugar, oil milling industry are now some of the other important industries in the State. Of late, industries based on petro-chemical complex have started coming up. Another basic weakness of the industrial sector in Gujarat is the concentration of industries around a few major cities. This is being corrected by planning decentralisation of industries.

3.33. The industrial policy formulated by the State Government to secure the benefits of rapid growth with equitable distribution has been taken as guide-line for the preparation of the Perspective Plan. The salient features of this policy are provision of full employment with increased production and equitable distribution of capital and manpower, diffusion and decentralisation of industries in the State so as to develop underdeveloped regions and secure balanced economic development of the State, preference to young entrepreneurs for starting small scale and medium sized industries in Gujarat, promotion

of industries based on indigenous raw materials, and high priority to the establishment of industries which would promote import substitution and conserve valuable foreign exchange.

3.34. With a total investment of Rs. 969 crores in the Fifth Plan, the production would be worth Rs. 1494 crores, resulting in direct employment of 2.71 lakh persons. For the Sixth Plan, with an investment of Rs. 1312 crores, the production would be of Rs. 2278 crores with direct employment potential of 3.98 lakh persons. In addition to this direct employment of 6.69 lakh persons during the Perspective Plan period, the indirect employment on account of growth in secondary and tertiary sectors would result in additional employment of over 20 lakh person.

3.35. The industries have been grouped as follows:—

- (1) Chemicals
- (2) Petro-chemicals
- (3) Agro-based industries
- (4) Textiles
- (5) Engineering
- (6) Cottage industries

The Fifth Plan can be described as chemical oriented, while the Sixth Plan can be described as engineering oriented. In the small scale sector, the investment in chemical and allied groups during the Fifth Plan is expected to be of the order of Rs. 39 crores and production about Rs. 142 crores. The corresponding figures for the engineering sector of the small scale industries are Rs. 30 crores and Rs. 208 crores respectively. In the Sixth Plan, in the chemical and allied groups of small scale sector, the investment would be of the order of Rs. 51 crores with an output of Rs. 187 crores, while for the engineering sector of small scale industries, the investment would be Rs. 46 crores, and production Rs. 201 crores. As regards textile industry, with modernisation and by working textile mills round-the-clock on seven days, it would be possible to increase the production with the present level of machinery by about 35 per cent. The additional production would largely cater to the demand for textiles upto the year 1979 and only 10 new units may have to be established.

3.36. The overall picture of industrial development during the Fifth and Sixth Plans is given in table below :

TABLE 8

	During Fifth Plan			During Sixth Plan		
	Addl. investment Rs. in crores	Addl. value of production Rs. in crores	Addl. employment	Addl. investment Rs. in crores	Addl. value of production Rs. in crores	Addl. employment
	1	2	3	4	5	6
(A) Chemicals and non-engineering industries :						
(i) Large scale	482.20	406.40	67745	432.45	506.90	58025
(ii) Small scale	39.10	142.35	49700	51.40	186.60	64000
(B) Petro-chemicals Refinery	75.20	113.00	2710	156.70	183.40	4925
(C) Engineering :						
(i) Large scale	196.30	354.50	45000	400.62	773.00	101225
(ii) Small scale	30.53	207.62	73890	46.49	200.64	90085
(D) Textiles	120.00	240.00	..	200.00	400.00	31800
(E) Agro-industries	20.40	25.50	5830	17.40	21.75	2870
(F) Cottage	4.78	5.00	26300	6.81	6.00	44900
Grand Total ..	968.51	1494.37	2,71,175	1311.87	2278.29	3,97,830

3.37. The important engineering industries proposed in the Perspective Plan are alumina plant and aluminium smelter, commercial vehicles, sponge iron, heavy electrical complex, alloy and special steels, zinc smelter, pig iron, cars, jeeps, station wagons, machine tools etc. The chemicals and non-engineering units proposed include fertilizers, caustic soda, cement, dye-stuff and pharmaceuticals, soda ash, glass, heavy water, salt etc. Agro-based industries have also good scope for development in the State. Apart from textiles, industries based on other commercial crops in the State namely oil-seeds and tobacco are proposed to be developed. Vanaspati, vegetable oil, manufacture of cigar and cigarette have good scope in the State. Paper and pulp industry based on the forest products of the State are also proposed to be developed. In the Kandla Free

Trade Zone where infra-structure facilities of road, water, railway sidings etc. are available, various industries like machine tools, electronics, soda ash, cast iron can be developed. Public sector projects like ordnance factory, machine tools unit, export oriented cement and soda ash plants, telephone industry etc. can be set up in this area.

3.38. Two focal points in industrial development of Gujarat in the decade 1974-84 would be the Petro-chemical Complex around Baroda and the Agro-industrial Complex in the Saurashtra-Kutch region. For the agro-industrial complexes based on nuclear power, the Study Group constituted by the Government of India reported on two typical areas in India—the Kutch-Saurashtra area and the Western Indo-Gangetic valley.

3.39. Kutch and North-Western Saurashtra are arid regions and acute scarcity of water from conventional sources makes the setting up of agro-industrial complex based on desalted water for agriculture, extremely relevant in this part of the country. The existence of the port of Kandla adds to the advantages, both for import of raw materials like rock phosphate and for the export of any products from the area and the coastal shipment of fertilizers to other parts of the country.

3.40. The Study Group brought out interesting findings regarding the economic viability of agro-industrial complexes based on nuclear power of about 1000-1200 MW in these two areas. In the Kutch-Saurashtra area, nuclear powered agro-industrial complex producing 4,70,000 tonnes per year of fixed nitrogen and 3,31,000 tonnes per year of P_2O_5 along with 55,000 tonnes per year of aluminium and 150 million gallons of water per day from a desalination plant would require an investment of about Rs. 600 crores. The return on the investment on the industrial portion would be about Rs. 71 crores. The desalted water would provide for additional food production of 1,92,000 tonnes of maize, 3,90,000 tonnes of potato and 46,400 tonnes of groundnut. The foodgrains produced would meet the requirements of one million people with the potato and groundnut available to supplement food intake substantially. Income from the farm sector would be about Rs. 14 crores.

3.41. The Government of India will have to give due regard to the findings of the Study Group and initiate early action on the project.

3.42. In the field of petro-chemicals, the question of increasing the refining capacity in Gujarat will need urgent attention. The Refinery at Koyali is presently processing 3.6 million tonnes crude per year. The present capacity of the refinery is 4.3 million tonnes. The question of additional refining capacity either by way of expansion or by setting up of a new refinery has to be examined on two considerations:

(1) The availability of crude oil whether indigenous or imported, and

(2) The demand for the petroleum products in the region.

3.43. According to the present estimates, against the requirements of 35 million tonnes of crude by 1975-76 to meet the demand for petroleum products in the country, indigenous availability would be around 9 million tonnes which would necessitate imports of the order of 26 million tonnes. With regard to the import of crude, Gujarat coast enjoys locational advantage of being nearest to the Middle Eastern countries. The Government of India has already thought of locating an oil terminal somewhere on the Saurashtra coast. The advantages of Dahej could also be considered from the point of view of its nearness to Koyali and the possibility of developing it as a deep-draft port. As regards the demand for petroleum products in the region, the demand projections for middle distillates for the supply area of Koyali refinery upto 1980 are shown in table below :—

TABLE 9

	Year					
	1975	1976	1977	1978	1979	1980
	(Figures in '000 tonnes)					
Kerosene 12%	715.9	766.6	858	961	1076	1205
Aviation turbine fuel 18%	52.2	58.8	68.4	80.6	101	119
High speed diesel 17%	1255.4	1414.00	1655	1936	2265	2650
Light diesel Oil 18%	622.2	663.0	782	922	1088	1283
	(Million tonnes/annum)					
Middle distillates	2.6457	2.9036	3.363	3.9096	4.530	5.257
Total production (100/42)	6.358	6.967	8.071	9.264	10.872	12.616
Refining capacity (100/85)	7.4	8.0	9.5	10.8	12.75	14.8

3.44. From these projections, it will be evident that there is urgent need to expand the Koyali refinery to meet the requirements of petroleum products in its own supply area. In the present context, the setting up of a North West Refinery would need further examination. In the meanwhile, the demand for petroleum products in the North West Area will have to be met. The Koyali refinery can meet this demand by way of expansion. It has been estimated that each additional million tonne refinery by way of expansion of an existing refinery would cost only Rs. 4 crores, against Rs. 15 crores required for setting up of a new one million tonne refinery. All these considerations point to the urgent need for expansion of Koyali refinery to 8.5 million tonne capacity.

3.45. The expansion of the Gujarat refinery will have several advantages as it can take crude from Bombay as well as Kandla as both are at equal distance. Moreover, the Petro-chemical Complex and the fertilizer units at Gujarat State Fertilizer Company, Baroda can get Naphtha over short distances.

3.46. There is, however, an optimum limit beyond which any refinery cannot be expanded further. The establishment of a million tonne refinery on the Saurashtra coast to supplement the demand for petroleum products in the decade of 1974-84 will, therefore, have to be considered.

Village and Small Scale Industries.

3.47. This is the sector through which industrial employment strategy will be implemented. This sector will open up industrial opportunities for numerous local entrepreneurs as large and medium industries get into production. The village and small scale industries will bring about decentralisation and dispersal of industries. The development of small scale industries will be essentially dependent upon the speedy execution of infra-structural schemes for providing developed land and ready-made sheds on liberal long term repayment conditions to the entrepreneurs. This aspect will need special attention in the Perspective Plan. The entrepreneurs will be financed through the schemes of the Gujarat State Financial Corporation and Gujarat Industrial Investment Corporation Ltd. The Gujarat Small Industries Corporation will assist small units in the purchase of machinery and raw materials.

3.48. The spheres of village and small scale industries and large and medium industries should be well demarcated so that they both can achieve rapid progress in their respective spheres. One of the most glaring defects in our economic planning has been the undue importance and support given to the growth of large scale organised sector, in the hope that this sector will generate sufficient economic activity in the decentralised small scale sector. This expectation has not materialised. In the process of growth the large scale sector has even displaced the small scale sector. If the spheres of the two sectors are well defined as is done in some of the other countries, both the sectors can simultaneously achieve rapid growth.

3.49. For the rapid industrial development of the State, the Perspective Plan will have to provide for the grant of various incentives to industries. To meet these requirements, an Incentive Fund is proposed to be created.

3.50. Chemical and engineering industries which will contribute to the industrial development very significantly in the coming decade will require research and development facilities. To meet this demand, the Perspective Plan provides for the following research and development institutions :—

1. Regional Research Laboratory on the lines of one at Hyderabad (CSIR).
2. Polymer Research Centre.
3. Glass and Ceramics Research Centre.
4. Cement Testing and Research Institute.
5. Sugar Research Institute.
6. Man-made Fibre Research Institute.
7. Tool Room and Electronic Facility Centre.

Mining

3.51. From the point of view of industrial development, minerals are the most important resources of Gujarat. The State has abundance of lime-stone, bauxite, lignite, clays, fluor spar and salt. But more

than any other mineral, it is the oil that holds the greatest promise as a basis for further industrial development of the State. It is necessary to plan for judicious and planned exploitation of the State's mineral wealth to secure optimum benefits. Bauxite is one of the most important deposits in the State on which Gujarat can base an alumina plant, aluminium smelter and fabrication units. Steps have been initiated for setting up such a complex with an investment of Rs. 130 crores. Such a massive investment in the core sector is bound to provide a fillip to the secondary and tertiary sectors of the economy. The base metal discovery near Ambaji would provide the much needed lead, copper, and zinc which are at present being imported. A smelter to utilise the same could be planned in the coming decade. Systematic and scientific geological surveys for other minerals would be carried out during the Perspective Plan period. Research, development and laboratory facilities would also need to be strengthened. One of the main drawbacks for exploitation of minerals has been the lack of provision for approach roads to the mines. Adequate provision for the purpose has been made in the Perspective Plan.

Power

3.52. Electrical power is one of the basic infra-structures in a growing economy. It plays an important role in shaping the country's economic life through its use in such vital sectors as industry and agriculture. Though, Gujarat is one of the industrially advanced States of the country with availability of raw materials, entrepreneurial skill and a population conditioned to industrialisation, its further industrial development is handicapped on account of serious shortage of power. The potential for developing hydro-electricity is limited except from the Narmada project. Gujarat grid is very largely fed from thermal power stations. The State is situated far away from the coal fields of the country. The price of coal would be doubled when delivered to the power stations in Gujarat. Thermal power generation in the State is, therefore, very costly. This points to the need for the establishment of atomic power stations in the State. The Atomic Energy Commission has accepted, in principle, that atomic energy is a necessity in areas which are far off from coal mines and are starved of hydro-resources. The Saurashtra region of Gujarat with its rich mineral resources and its industrial potential particularly requires power from atomic energy as it is about 1500 kms. away from the coal mines. Even the present day requirements of coal for the production of 50 to 60 MW are difficult because of the distance

and the break in gauge in the railway system. An atomic power station in this region will also provide the stability required for the power system as a whole. In this context it is also necessary to evolve a National Fuel Policy so that States like Gujarat which are far away from the coal fields, but have other forms of fuel like residual fuel oil, and gas, produced in the State, are not handicapped in the development of power.

3.53. Though there has been a considerable step up in the installed generating capacity in the State in the last two decades, the demand for power has outstripped its supply. The installed generating capacity which was 142 MW in 1951 has gone up six times to 862 MW. In the context of rapid industrial development of the State envisaged during the Perspective Plan period in the field of petrochemicals and engineering industries, the demand at the end of the Fifth Plan is estimated at 2600 MW which will go upto 4000 MW in 1983-84. The following table gives the expected demand at the end of the Fourth, Fifth and Sixth Plan periods and the installed capacity required for the same.

TABLE 10

Plan period	Year ending	Expected demand (MW)	Required installed capacity (MW)
Fourth Plan	.. 1973-74	1234	1607
Fifth Plan	.. 1978-79	2600	3300
Sixth Plan	.. 1983-84	4000	5000

3.54. The Perspective Plan visualizes an installed capacity of 4702 MW by 1983-84. This is on the assumption that measures will soon be initiated by the Government of India for setting up of atomic power stations in the State.

Rural Electrification

3.55. An important objective of planning is to develop efficient small scale industries in small towns and rural areas so as to increase employment opportunities, raise income and living standards and bring about a more balanced and diversified rural economy. In

achieving this aim, a major limiting factor is the lack of power. Where electricity is available, it becomes possible to reorganise traditional industries, and to introduce small industries based on steadily improving techniques. Electricity is being increasingly used in rural areas for irrigation pumping. In the development of rural economy, rural electrification is thus of growing importance and, indeed, its value cannot be assessed only in terms of immediate economic benefits. By the end of 1970-71, 4087 villages, out of over 18,500 villages in the State were electrified. It is expected that about 13000 villages in the State would be electrified by 1983-84. The aim is to electrify all villages with a population of 200 and above during the Perspective Plan period.

TRANSPORT AND COMMUNICATIONS

Roads

3.56. The general economic development is largely conditioned by the availability of roads. The development of roads helps to open up backward areas and break down the barriers of isolation and stagnation. Gujarat suffers greatly from lack of road communications. Historical reasons are largely responsible for the inadequate development of road system in the State. Prior to 1947, the major part of the present Gujarat State was under the control of numerous Princely States which hampered the development of "through" roads. A well co-ordinated plan of road development could be thought of only after the integration of the Princely States. At the start of post-independence period, while the all-India figure of road kilometerage stood at 12 Kms. per 100 Sq. Kms., Gujarat had only 4 Kms. per 100 Sq. Kms. of area. At the end of the Nagpur Plan period of road development in March 1961, while India as a whole exceeded the Nagpur Plan target by 36 per cent, Gujarat remained deficit to the extent of 42 per cent. This was largely due to the fact that while India started with a deficit of 33 per cent of the Nagpur Plan target, Gujarat had a deficit of 81 per cent. It has been assessed that in the post-independence period, the achievement of Gujarat in road development was almost on par with all-India average.

3.57. The position of roads constructed in Gujarat *vis-a-vis* all-India under the Road Development Plan 1961-81 is given in the table—11 on next page.

TABLE 11

Category of roads	(Length in Kms.)				
	India		Gujarat		
	Target of 20 year plan	Achievement, upto March 1966	Target of 20 year plan	Achievement upto March 1966	Achievement up to March 1970
1 Major Roads					
(a) National highways	51520	23960	3602	1033	1056
(b) State highways	112700	72972	6168	5125	8003
(c) Major district roads	241500	124605	14382	7132	6599
	405720	221537	24152	13290	15658
2 Minor Roads					
(a) Other district roads	289800	137048	16441	7065	8532
(b) Village roads	362250	476180	17035	5674	9143
	652050	613228	33476	12739	17675
Total (1+2)	1057770	834765	57628	26029	33333

3.58. It will be seen that Gujarat is highly deficit in roads as compared to all-India. It is proposed to make good this deficit in the field of road development during the Perspective Plan period. The aims of the Perspective Plan are to connect all villages by roads, provide a net-work of 32 kilometers of roads per 100 sq. kilometer area, cater to special needs of tourism, archaeology, industries, mining and ports, provide road side amenities such as travellers' bungalows, hotels, parking facilities, canteens etc., develop arboriculture and road-side parks, and provide adequate road safety measures etc.

3.59. The following table gives the length of roads of various categories at the commencement of the Fourth Plan and as anticipated in 1973-74, 1978-79 and 1983-84.

TABLE 12

Sl. no.	Year	(Length in Kms.)					
		Nation- al high- ways	State high- ways	Major district roads	Other district roads	Village roads	Total
		3	4	5	6	7	8
1	2	3	4	5	6	7	8
1	As on 31-3-69	1056	6983	7127	8417	8628	32211
2	As on 31-3-74 (anticipated)	1056	8423	7173	9817	9988	36457
3	As on 31-3-79 (anticipated)	2000	7479	10174	12867	13188	45708
4	As on 31-3-84 (anticipated)	3602	6168*	14382	17341	20035	61528

*There will be 16 two-lane highways.

The Plan includes a provision for a limited access and exit four-lane Express way between Ahmedabad and the border on the way to Bombay. It also recommends the setting up of Toll highways. High priority has been accorded in the Perspective Plan to the construction of rural roads for which an outlay of 58 per cent of the total outlay for road development is earmarked.

Road Transport

3.60. The passenger road transport services have been fully nationalised in the State. The Gujarat State Road Transport Corporation provides direct bus services to 61.3 per cent of the towns and villages in the State covering 85.5 per cent of the total population. Apart from this, 21.6 per cent of the villages covering 8.5 per cent of the population is provided with the bus facilities within a distance of 3 Kms. In order to give a spurt to the economic activity in the State, the Perspective Plan contemplates direct services to all villages. With the rapid growth of passenger services, the comfort of the passengers has tended to be neglected. The programme of expansion will have to cater to increased traffic and provide improved transport facilities to the public. Load factors are proposed to be kept within the reasonable limits. Luxury services will be provided, and greater stress will be placed on safety measures. Tourist traffic will also have to be given due emphasis.

Ports and Harbours

3.61. Gujarat has a long coast-line extending over 1600 Kms. with a number of ports. Out of 145 ports in the country, Gujarat has 40 ports including the major port of Kandla which is administered by the Government of India. The minor and medium ports in the State are playing an important role in the development of hinterland and are earning valuable foreign exchange. Apart from purely economic considerations, in the context of the present international situation, it is essential to develop suitably located ports in Gujarat in the interest of national security.

3.62. The traffic projections for the period of the Fifth and the Sixth Five Year Plans show that 6 million tonnes and 7.5 million tonnes of traffic respectively will be passing through Gujarat minor and medium ports. The programme for the Fifth and Sixth Plans has been drawn up after taking into account this growth in traffic.

3.63. The traffic pattern has been changing fast and the size of ships is increasing rapidly. The result is that lighterage ports, capable of giving small despatches are rapidly becoming out of date. The Plan, therefore, emphasises the need for deep-draft direct-berthing ports, where modern and mechanised handling facilities will enable the rapid turn-round of ships. The development of deep-draft ports is of particular importance as the size of oil tankers is constantly on the increase. Gujarat has port locations (such as those at Dahej, Pipavav etc.) which have the potential of receiving the super-tankers that are now being used for the movement of oil. A deep-draft port at Dahej or Pipavav will be needed especially, if the 'Bombay High' and other off-shore structures yield oil and, in any case, for increased crude oil supplies for Koyali refinery.

3.64. The scope of development of inland water transport in Gujarat is relatively limited because of the absence of large perennial rivers except Narmada and Tapi. In these two rivers and in a few others, inland water transport should be developed and the obstacles to navigation, caused by silting, should be removed. The geographical configuration of Gujarat makes sea-connection between the Saurashtra and Gujarat coasts attractive. The development of modern and fast ferry services between Bhavnagar-Dahej, Bhavnagar-Surat, Veraval-Surat etc. has, therefore, to be considered.

Tourism and development of places of archaeological importance

3.65. The annual tourist traffic in Gujarat by 1984 is expected at 22 lakh arrivals as against 11.70 lakhs in 1970. Of 22 lakh tourists in 1984, 17.60 lakhs would be home-tourists and 4.40 lakhs would be foreigners. For the development of tourism in Gujarat recognizing its potential as a major growth industry, a few selected centres of tourist interest, some centred on wild life sanctuaries, others on places of archaeological interest are proposed to be developed during the Perspective Plan period. These include the development of the Sasan complex near the Gir Lion Sanctuary and of the bird sanctuary at Nal Sarowar, development of Ahmedabad complex etc. The development of Modhera, Dwarka, Shamlaji, Ropeways at Girnar, Pawagadh, Palitana etc. may also be included if financial resources permit. Gujarat has a number of tourist centres which should interest foreign tourists also. If promotional publicity with high quality audio-slide presentation is undertaken in foreign countries, a large number of foreign tourists who are becoming more mobile can be attracted to Gujarat, in the beginning, as transit tourists between Bombay, Udaipur,

ipur, Agra and Delhi and later as destinational tourists. This can be a good source of foreign exchange but it must be understood that foreign tourists particularly are becoming more demanding and more sophisticated. The Perspective Plan provides for publicity also.

In order to co-ordinate all activities in connection with the development of tourism in the State and get tourist project under way will need foresight, creative ideas, drive and vigour. To provide these, it is essential to set up a Tourist Corporation urgently. A sufficient provision has also to be made for the systematic preservation and development of places of archaeological interest. This is an urgent requirement which must be met before these monuments deteriorate further due to the effects of the weather and the attentions of souvenir hunters.

Railways, Civil Aviation, Telephones

3.66. Though the subjects 'Railways', 'Civil Aviation' and 'Telephones' are outside the State's sphere of activities, suitable programmes in these spheres are proposed in the Perspective Plan for recommendation to the Government of India, as they are intimately connected with the development of the economy of the State. The following railway lines are proposed in the Perspective Plan :—

- | | |
|----------------------------|---|
| 1. Ahmedabad-Gandhinagar | Broad-gauge line. |
| Bhavnagar-Tarapur | Broad-gauge line. |
| 3. Gandhidham-Lakhpat | Broad-gauge line. |
| 4. Mahuva-Talaja-Bhavnagar | Conversion from narrow-gauge to metre-gauge. |
| 5. Ankleshwar-Rajpipla | Conversion from narrow-gauge to broad-gauge. |
| 6. Ahmedabad-Delhi | Conversion of Ahmedabad-Delhi metre gauge section into broad-gauge. |
| 7. Udhna-Magdalla | Providing broad-gauge connection from Udhana to Magdalla. |

A phased programme for conversion of narrow gauge lines in the State to broad gauge lines and for the improvement of marshalling yards should also be initiated by the Government of India.

3.67. In the sphere of civil aviation, the programmes relate to modernisation of the marginal air-ports of Keshod and Veraval, improvement of Ahmedabad airport and the provision of a new

terminal complex, developments of the airport at Diu, development of Surat as a full-fledged airport and connecting some airports in Gujarat with airports in the neighbouring States such as Rajasthan, Madhya Pradesh and Maharashtra. The State's Perspective Plan includes provision for improvement of state-owned airstrips and providing new airstrips at all district headquarters, near places of tourist importance, major project sites etc. To these airstrips, small aircraft, the purchase of which has been proposed in the Plan, can operate on a regular basis serving the needs of the administrator as well as of tourism, apart from providing stand by services during calamities such as floods, earthquakes etc. The airstrips and aircraft will also be of use in the massive plant protection drive in which agro-aviation will play an increasingly important part in the future. The appointment of an Honorary Aviation Adviser to the Government of Gujarat is contemplated in the Perspective Plan as also financial assistance to flying and gliding clubs.

3.68. As regards telephones, it is recommended that the installed capacity of local exchanges in important cities be modernised and increased. Against the telephone demand of 37,746 in 1971, the demand in 1984 is estimated at 1,86,000. Ahmedabad should be linked with other cities in India on STD system and STD services provided for linking important cities in the State. STD facilities between Ahmedabad and Gandhinagar will have to be provided on a high priority basis during the Fourth Plan period. For meeting the needs of fast growing industrial and commercial activities, adequate telex and tele-printing services should be provided at important cities in the State.

EDUCATION AND MAN-POWER PLANNING

Education

3.69. According to 1971 census, the literacy rate in Gujarat is 35.72 per cent—the fourth highest amongst the States in India, the first three States being Kerala, Tamil Nadu and Maharashtra. Gujarat which ranked third in 1961, now occupies the fourth place while Maharashtra which ranked fourth in 1961 has moved up to the third rank. In the literacy of females, Gujarat occupies the fifth rank, yielding place to Punjab which occupies the fourth rank. These aspects will have to be given due consideration while planning for education.

3.70. According to the Second Education Survey (1965), facilities for primary education have been provided to about 98 per cent of the population in the State either in the habitation or within one mile from it. The programme of universalising facilities is, therefore, almost completed in Gujarat. The main problem in primary schools is the low enrolment of girls and Adivasi children. The Perspective Plan for the decade 1974-84 aims at providing free and universal education to all children upto the age of 14.

3.71. In regard to education facilities, the State is above all-India average both in respect of boys and girls. There is, however, a wide gap in the education of boys and girls. It is expected that the introduction of free secondary education for girls in the State will help to bridge the gap to a considerable extent. In the previous plans, stress was laid on the growth of primary education, diversification of secondary education, increase in the facilities for industrial and technical education and co-ordinated development of education at higher stages. The programmes of qualitative improvement generally received a low priority. It is necessary that the emphasis should now shift increasingly on programmes for qualitative improvement. For effective use of available material and human resources of the State, schemes of work experience and vocationalisation will have to be given high priority in the Perspective Plan and primary and secondary education will have to be linked to development schemes.

3.72. The major programmes to be undertaken in the field of primary and secondary education during the Perspective Plan period will be :

- (1) Providing facilities for free and universal education upto the age of 14.
- (2) Introduction of work experience and vocationalisation of education at school stage.
- (3) Improvement of physical facilities in educational institutions.
- (4) Adoption of improved methods of teaching and evaluation.
- (5) Revision and upgrading of curricula.
- (6) Improvement of science teaching at school stage.
- (7) Training of teachers.
- (8) Improvement of physical education, games and sports.

Manpower planning

3.73. Manpower planning is an essential element in economic development. According to Adam Smith, the dexterity and skills of the population are the foundations of national wealth. The availability of personnel with the necessary skills determines the direction and rate of economic growth of a country. The development of human resources would, therefore, be an important aspect in the preparation of a Perspective Plan for the economic development of the State. Ideally, the educational development at the higher level should be broadly related to the pattern of jobs and the estimates of demand in the economy for educated manpower.

3.74. India today is, however, faced with an anomaly of simultaneous manpower surplus of unskilled persons and a severe shortage of skilled personnel. Even among the skilled personnel, on the one hand we are confronted with the problem of unemployment of engineers and on the other, we have to face a continuous demand for technical personnel to meet with the specific job requirements in industry. This calls for reorientation of the education system to suit the changing needs of time. With the discovery of oil, the State has entered into the new fields of refinery and petro-chemicals. The next few years will witness rapid industrial development of the State which will be more diversified. This will necessitate training of technical personnel in diverse disciplines. The technical institutions will have to cater to newer areas of studies such as nuclear engineering, technology of petro-chemicals, plastic technology, technology of fertilizers, electronics and tele-communications, computer technology, television engineering, agro-industrial engineering etc. Another aspect that will need emphasis in the Perspective Plan is the quality of higher technical education.

3.75. One of the constraints in drawing up of a manpower plan is the rapid rate of obsolescence of knowledge in technical and scientific subjects. Course structures and curricula become out dated very soon and continuous upgrading of instructions and teaching material becomes a great necessity. Perspective Planning will have to give due attention to this aspect. For effective manpower planning, continuous surveys and studies will be necessary to assess the changing manpower needs on account of the growth of the economy and changing pattern of industrial development.

3.76. As regards the requirements of different categories of trained personnel, the State does not experience any shortage of agricultural graduates. The post-graduate courses in agriculture need, however, to be strengthened to meet the personnel requirements for research and training programmes. The personnel already in position are also required to be trained in specialised subjects like entomology, plant pathology, horticulture, research etc. For development of proper agricultural education and improving agricultural extension work, co-ordinated and integrated approach is necessary. This can be done by an institutional structure like an Agricultural University. Steps have been initiated to establish an Agricultural University in the State during the Fourth Plan period.

3.77. In the field of medical facilities, the supply position of doctors is not very unsatisfactory. Against the ratio of one doctor for 3000/3500 population as recommended by the Mudaliar Committee, the State will achieve a ratio of one doctor for 4200 population by the end of the Fourth Plan. It would however be necessary to plan for the establishment of two more medical colleges in the State during the Perspective Plan period to meet the demand of doctors for the projected population of 3.73 crores by 1986. There is an acute shortage of nurses in the State and this will have to be rectified by increasing training facilities during the Perspective Plan period.

3.78. For engineering graduates and technicians, special measures for self-employment have been initiated in the State. These measures have made considerable impact on the problem of unemployment of engineers and technicians.

PROBLEM OF POLLUTION OF AIR AND WATER

3.79. The problem of pollution of air and water has received little attention in the country. No attempt has so far been made to cover the subject in the country's Plan. This is the first time that the State has attempted to go into the question in some depth as one of the serious problems that it will have to face in coming years with rapid industrial development and trend towards urbanisation. Before the problem gets out of control it is necessary to evolve suitable remedial measures in a planned and systematic way.

3.80. The State has serious water pollution problem, which will become more severe unless urgent steps are taken. Although the problem of air pollution is relatively less acute, it nevertheless, demands urgent attention.

3.81. A large majority of rivers in Gujarat are non-perennial and most of these are grossly polluted. The flow in rivers and streams depletes in summer months and there is little or no water available for dilution of waste waters. Population of urban areas in the State is rapidly increasing and new industries are coming up, which need a large quantity of water. The waste waters from these urban areas, both domestic as well as from industries are creating serious health problems. There is an increasing use of fertilizers, pesticides etc. on lands and these land washings from the catchment drain into the rivers. The use of D. D. T. as also synthetic detergent has increased. These also create problems of the quality of receiving waters. These waters are harmful to human being and to the fishlife and also pose problem in their treatment processes. The water pollution has posed serious health hazard in recent years. In the last few years there have been several reported cases of large scale intestinal diseases in epidemic form as well as outbreak of hepatitis. These diseases are the outcome of faecal pollution of drinking water resources. There are also cases of large scale fish kills and gradual elimination of biological life. With rapid industrialisation and urbanisation, the problem will become more acute unless urgent remedial measures are taken.

3.82. The pollution of air is created by industries from exhaust gases, by motor vehicles running on petrol or diesel oil, by thermal or nuclear power stations, by railway engines run on steam or oil, by factory stacks etc. Air pollution levels are directly related to both industrial development and population density. Persons living in location badly affected by air pollution suffer from cardiac and respiratory diseases. The weaker sections of society which are subjected to chronic malnutrition are likely to be the first victims.

3.83. In order to tackle these problems in a systematic way, it is necessary to take certain measures on a priority basis. It will be necessary to set up a network for collection and analysis of data on water and air pollution and their effects on health. Advantage should also be taken of the existing research centres like the National Institute of Occupational Health in Ahmedabad, Central Public Health Engineering Research Laboratory, Nagpur and health laboratories of State Government and universities and colleges which have the necessary basic equipment. It will also be necessary to initiate programme for training of personnel in the fields of water and air pollution. It will be necessary to study the existing water pollution control legislation and laws and bye-laws of municipalities which may have to be revised to have uniform standard all over the State. The Govern-

ment of India should also make the law relating to water pollution uniform all over the country. Legislation on the subject of air pollution on the lines of Government of India draft bill on air pollution will have to be passed by State Government as early as possible. It would be necessary to form interim Advisory Committees for Air and Water Pollution with experts, representatives of industries etc. which will advise on the correct location of new industrial establishments and general planning for industrial development from the point of view of water and air pollution control. As soon as the Pollution Control Acts are brought into force, Air and Water Pollution Control Boards will have to be set up. These Boards will have to be provided with full time technical and administrative staff. They will have to establish well equipped and staffed laboratories at headquarters and regional and field centres. In order to accelerate the implementation of various water supply augmentation and sewerage and sewage disposal schemes, water and sewage boards will have to be established. A scheme for subsidies and grants will have to be thought out to finance pollution control schemes in towns and villages. Schemes of grants-in-aid to assist small scale and medium scale industries and some of the existing industrial units having pollution problems will have to be initiated. Programmes of loans will also have to be initiated for large industries having difficult pollution control problems.

3.84. Timely remedial measures to combat the problems of water and air pollution will prevent them from developing into great health hazards for the people.

RURAL-URBAN DEVELOPMENT, HOUSING AND WATER SUPPLY

Rural-Urban Development

3.85. In the past, little attention was paid to the problem of integrated rural-urban development. This is the first attempt made in the State to tackle the problem in a systematic way. In the context of rapid urbanisation and consequent unplanned growth, the question of proper inter-relationship in the development of both rural and urban areas assumes great importance. Any corrective measures undertaken for individual sectors can not solve the problem. A comprehensive programme of development of all sectors affecting the growth is called for. Urbanisation is an important aspect of the process of economic and social development and is closely connected with many other problems such as migration from villages to towns, levels of living in rural and urban areas, provision of housing for different sections of population, provision of facilities like water supply, sanitation, transport, power, location and dispersal of industries

etc. Economic feasibility of an area is the mainspring through which the population is sustained. In attempting to solve the problem of rural and urban areas, due consideration has to be given to the question of distribution of the additional population in the State. In the Perspective Plan, regional planning approach to the problem has been adopted. The population growth in recent years in Gujarat has been in and around existing urban concentrations. The urban growth has taken place without corresponding expansion of urban amenities, with the result that the conditions in urban areas have deteriorated. It should be the basic aim of regional planning to evolve policies that will ensure balanced distribution of population and employment in the State.

3.86. The rate of increase in population has been higher in Gujarat as compared to that for the country as a whole. During the last decade, the population of Ahmedabad district has increased by 36.38 per cent which is the highest rate of growth in the State, if we ignore the growth rate of 46 per cent. for Gandhinagar district. The percentage of urban population is also higher in Gujarat. In 1961, 18.31 per cent of India's population was urban while in Gujarat the percentage of urban population was 25.4. In 1971, the urban component of Gujarat's population is 28 percent. Gujarat is one of the most rapidly urbanising States in India and it faces an acute problem of urbanisation. The present urban population in the State which is 75 lakhs is expected to go up by 42 lakhs during the Perspective Plan period. Various facilities for this growing urban population such as, water supply, housing, transport etc. will have to be provided during the Perspective Plan period.

3.87. In the regional planning approach, the State will have to be divided into various planning regions whose plans can then be integrated into a composite whole, in a broad State-wide plan. Regional plans will have to be based on studies, analyses and projections of the human, economic and physical resources of the State, of the existing conditions of the infra-structure etc.

3.88. The Perspective Plan broadly divides the State into the following six planning regions.

1. Already intensely developed urban corridor along the Bombay-Delhi rail-road route comprising of the urban area of Vapi, Bulsar, Surat, Baroda, Nadiad and Ahmedabad.
2. The under developed far eastern region of the State comprising of parts of Dangs and Panchmahals districts.

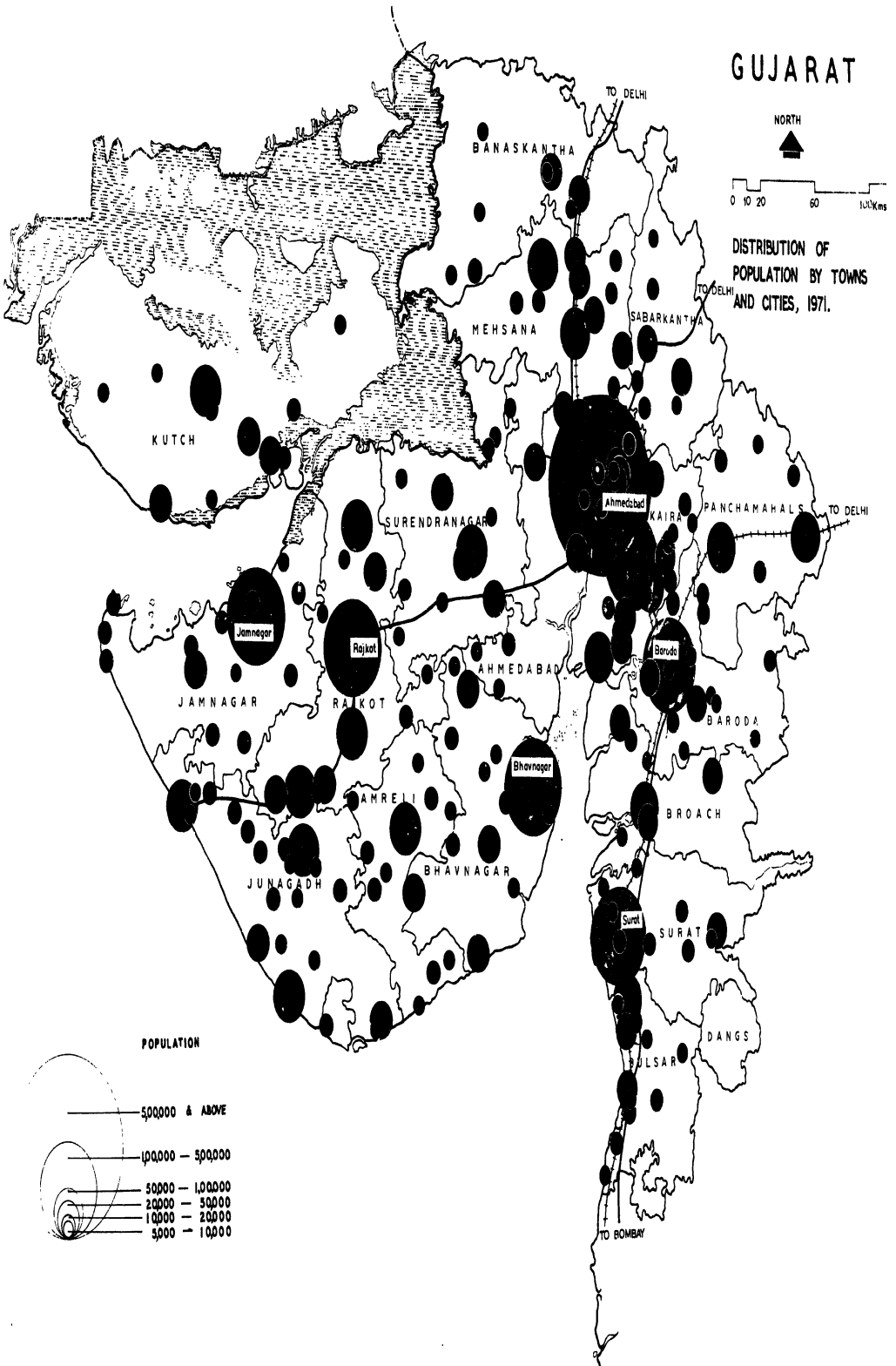
GUJARAT

NORTH



0 10 20 60 100 kms

DISTRIBUTION OF
POPULATION BY TOWNS
AND CITIES, 1971.



POPULATION

500000 & ABOVE

100000 - 500000

50000 - 100000

20000 - 50000

10000 - 20000

5000 - 10000

3. The coastal region comprising of all coastal areas from Dahej to Canbay to Kandla.
4. Saurashtra region comprising of Junagadh, Rajkot, etc.
5. The under developed areas of northern Saurashtra including Kutch.
6. The northern Gujarat region comprising of Gandhinagar, parts of Mehsana, Sabarkantha and Banaskantha.

3.89. Apart from these regional plans, special attention will have to be paid for preparing area development plans for such urban complexes like the Ahmedabad Metropolitan Area, Kandla Port Free Trade Zone and the future metropolitan cities of Baroda, Surat etc.

3.90. An integrated plan of development of these regions and areas will have to be initiated during the Perspective Plan period. Loans will have to be given to local bodies for roads and for creation of utilities like water supply, drainage, electricity etc., for the development of these areas. Government can also adopt a policy of establishing epicentres of growth in under-developed areas with a view to generate forces of development. Such epicentres of growth selected on a pre-determined basis in relatively backward areas can arrest heavy migration to metropolitan areas and other developing semi-urban areas. It may be necessary to constitute an Urban Development Corporation to tackle the problems of these areas in an integrated manner.

Housing

3.91. Allied to the problem of rural-urban development is the question of Housing and Slum Clearance. Housing constitutes one of the major requirements of the people. With rapid industrialisation, and migration of the people to cities for employment as also on account of growth in population, the housing problem has assumed great urgency. The migration has also created the problem of slums. Vigorous measures will have to be initiated for clearance of slums and prevention of new slums and a co-ordinated approach to the problem of housing will have to be adopted during the Perspective Plan period.

3.92. Under the various housing schemes, 26857 houses were completed in the State by the end of 1968-69. From the plan allocation for Housing 10,290 more houses will be constructed during the Fourth Plan period. In addition, the Gujarat Housing Board will construct 10,000 houses under various schemes with the finance of

Rs. 17 crores outside the Plan. It has also been decided that with the financial assistance of Rs. 1.5 crores, the Housing Board will construct 1400 houses for the weaker sections of society having a monthly income upto Rs. 400. The houses will be given on hire purchase basis and the ceiling cost of a house would range from Rs. 8,500 to Rs. 10,500. To accelerate the housing programme during the Perspective Plan period, an allocation of Rs. 30 crores with a target for the construction of 37,000 houses is proposed. In addition the Gujarat Housing Board will undertake the construction programme for 37,000 houses from the finance to be obtained from the open market, the Life Insurance Corporation and the Housing and Urban Development Corporation.

Water Supply

3.93. It is estimated that at the commencement of the Fourth Plan there were about 3000 'no source' villages in the State. Of these 800 villages will be covered by water supply facilities by the end of the Fourth Plan. The aim is to cover the remaining 2200 villages by the end of the Fifth Plan. In addition to these 'no source' villages, the problem of specially backward villages as also the problem of villages with inadequate water supply will have to be tackled. There are about 3250 villages in the State in the category of 'specially backward' villages where 60 percent of the population belongs to backward classes. Most of these villages are situated in border and hilly areas. They are cut off from the urban life and are without any modern basic amenities. The people in these areas rely on natural streams or springs for their daily needs of water supply. Provision of hygienic water supply is necessary for these villages. There are also 3200 villages with inadequate water supply. It is proposed to cover all these 6450 villages in 'specially backward' category and 'inadequate' category during the Perspective Plan period in addition to all 'no source' villages.

3.94. The problem of urban water supply will also have to be tackled. There were 172 towns in Gujarat (according to 1961 census excluding the three Municipal Corporations. Water supply schemes of 74 of these towns have been completed. It is proposed to cover the remaining 98 towns during the Perspective Plan period.



3.95. Drainage schemes of 11 towns and municipal corporation have been completed. 16 more towns will be covered by drainage facilities by the end of the Fourth Plan. All the remaining towns are proposed to be covered during the Perspective Plan period.

HEALTH AND FAMILY PLANNING

Health

3.96. Before independence, few efforts were made to assess the health needs of the country. A notable effort in this direction was made by the Bhore Committee in 1943. Subsequently, the whole question was examined in detail by the Health Survey and Planning Committee called the Mudaliar Committee. The Committee has laid down some broad indicators and standards to be achieved in developing the health services of the country. The Committee has, *inter alia*, recommended that there should be one medical college for 50 lakhs of population and one doctor for 3000 to 3500 population. There are, at present, five medical colleges in the State including the Municipal Medical College at Ahmedabad and the State will achieve a ratio of one doctor to 4200 population by the end of the Fourth Plan. On the basis of the projected population of 373 lakhs by 1986, the State will need two more medical colleges. The Perspective Plan provides for the establishment of these colleges by 1983-84.

3.97. The Mudaliar Committee has also laid down an overall standard of one bed per thousand population to be reached by the end of the Fourth Plan. At the end of the Fourth Plan, there would be 15000 beds in medical, health, ayurved and grant-in-aid institutions in the State which would work out to about 0.50 bed per 1000 population. It is proposed to add in the Government institutions about 1500 beds during the Perspective Plan period to meet with the shortage of beds in the State in relation to the State's projected population. There is also an acute shortage of nurses in the State. The shortage will have to be made good by increasing training facilities.

3.98. The main problem in health is the development of medical relief facilities in rural areas. 80 per cent of the beds are in urban areas though the urban population of the State is only 28 per cent. In the Perspective Plan, efforts will have to be made to reduce this imbalance in medical relief facilities. In developing these facilities, it would be necessary to provide for more of such services as are likely to prevent occurrence of illness and minimise the demand for curative services. This aspect has been given due weightage in the Perspective Plan. Primary health centres have been given the central role in rural medical services. All health services, curative as well as preventive, radiate from these centres to various villages with the help of the primary health centre staff and the staff located at

various sub-centres. In the Perspective Plan, existing primary health centres are proposed to be strengthened suitably to provide for diagnostic services, for the control of communicable diseases, for rural sanitation, for improving nutritional standards, and for care of school going children. Establishment of new primary health centres have been proposed so that there will be one primary health centre for every 70,000 persons with 1 sub-centre for every 10,000 persons

3.99. In spite of best efforts, it would not be possible to provide in primary health centres, special medical services which are ordinarily available to the population living in urban areas. With a view to providing these special services in rural areas, it is proposed to establish referral hospitals. During the Perspective Plan period, it is proposed to set up new referral hospitals so that there will be one referral hospital for every six primary health centres. The 'specialists' at the referral hospitals will be required to visit primary health centres within their jurisdiction.

3.100. The district health organisation is at present not adequate to cope up with the increasing demands made on it by the various health programmes. In the Perspective Plan, the district health organisation is proposed to be suitably strengthened.

Family Planning Programme

3.101. One of the biggest problems that faces the country to-day is the rapid growth of population. Family Planning Programme therefore, finds its place as a programme of the highest priority in the country's plan as a fully centrally sponsored scheme.

3.102. During the last seventy years, the country's population increased by 131 per cent while the population of Gujarat increased by 193 per cent. During the last decade, as against the growth of 24.57 per cent in the country's population, the growth in Gujarat was 29.34 per cent. The rate of growth of population in the State is thus higher than that for the country. While upto 1921, the birth rate was as high as to-day, the death rate was also quite high with the result that the population growth was marginal. But after 1921 and especially after independence, medical relief facilities were extended to rural areas and communicable disease control programmes were taken as national programmes. These measures coupled with the discovery of life saving drugs like antibiotics have brought about rapid drop in the death rate.

3.103. Realising the urgency of the problem, the family planning programme has been considerably expanded since the latter part of the Third Plan. The programme has been made time bound and target oriented. The goal of family planning programme in the State is to bring down the live birth rate to 25 per thousand population by 1981-1985 as given in the following table :—

TABLE 13

Period				Live birth rate	Death rate	Growth rate
1966—70	..	..	..	42.5	15.0	27.5
1971—75	..	..	..	38.3	12.1	26.2
1976—80	..	..	..	31.5	10.1	21.4
1981—85	..	..	..	25.0	8.8	16.2

3.104. For the achievement of this goal, intensive measures have been taken in the State. Urban Family Planning Welfare Centres have been set up in practically all towns with a population of 20,000 and above. In rural areas the family planning welfare centre is attached to the primary health centre. Conventional contraceptives are supplied free of cost at all rural and urban family planning welfare centres. Gujarat is one of the States in the country which has achieved considerable success in its Family Planning Programme. The State established a record by performing 2,24,000 vasectomy operations in a short period of two months during the mass vasectomy campaign held from 15th November 1971 to 15th January, 1972. The aim of reduction in population growth from the present level of 2.8 per cent to 1.6 per cent by the end of the Perspective Plan is expected to be realised.

WEAKER SECTIONS OF SOCIETY

3.105. In the formulation and implementation of the plans, more and more emphasis is being laid on the social objectives of planned development and in particular, on bringing about reduction in disparity in income and wealth and ensuring the basic necessities to the weaker sections of society. However, the benefits of activities under

the Plan, have not reached the weaker sections in an appropriate measure. More concerted efforts are necessary to ensure that these classes of people are able to take fuller benefits from developmental activities. These economically backward classes are composed of a large variety of categories whose problems and requirements are widely different. The object of the programme for economically backward producing classes such as the small farmer or the class of persons engaged in cottage or village industry will be to make them viable in the first instance, and then to start them on to the path of development. Schemes of technical and financial assistance and of credit and marketing will have to be thought of, to help these classes of people. The class of landless labourers having no productive base and depending for their livelihood on wage employment will have to be tackled by the provision of more employment opportunities through rural works and other local programmes and integrating these works with area development plans. Programmes can also be thought of, for turning some of the landless labourers into small producers through animal husbandry or by distribution of land. In the case of each of these categories, the handicaps which prevent them from taking full advantage of existing programmes will have to be studied and appropriate remedial measures adopted.

3.106. The problem of the small and marginal farmers requires special attention. They are required to be assisted in several ways to improve their economic conditions and to enable them to participate effectively in the general economic growth of the country. The implementation of the 3 projects for small farmers in the districts of Sabarkantha, Junagadh and Surat and the two projects for marginal farmers in the districts of Baroda and Bulsar is the first step in this direction.

3.107. The problem of the backward classes and especially of scheduled castes and scheduled tribes also needs particular attention. Special programmes have been evolved in the State for Bhangis, Halpatis, landless Adivasis, Nomadic Tribes, Vagharis etc. The setting up of the Tribal Development Corporation and Rural Housing Board will, also, to some extent, meet the requirements of these backward class people. Many more programmes for the advancement of educational, economic and social interest of Adivasis and Harijans will have to be evolved so as to promote their general welfare and ensure their protection from injustice and all forms of exploitation.

3.108. A number of measures to help the weaker sections of society have been initiated in the State but these will have to be further intensified and new measures undertaken. Particular attention will have to be paid to the problem of housing of these weaker sections. The programmes of settlement of landless labourers on land or turning them as producers through animal husbandry will have also to be accorded high priority. The rural artisans can be helped by providing them with unance, by measures for improving their skills and by ensuring the marketability of their products. Various social security measures like old age pension, facilities for medical relief etc. can also be thought of, to help these classes of people.

BALANCED DEVELOPMENT

3.109. One of the main objectives of planned development is to ensure balanced growth of different areas and reduce imbalances in economic development. Programmes have to be evolved after taking into account the needs, potentialities and prospects of development in different regions and at the same time ensure balanced and integrated development of the State as a whole. Stress has to be laid on the development of scheduled areas and other backward areas, Chronically drought affected areas, flood affected areas, border areas and desert areas. 56 talukas of the State have been declared as relatively more backward on the basis of data relating to selected indicators of development. Steps have to be taken for their accelerated development. Special programmes have been evolved for these areas, in the vital sectors of the economy like Irrigation, Electrification, Water Supply, Roaas, Industrial Development.

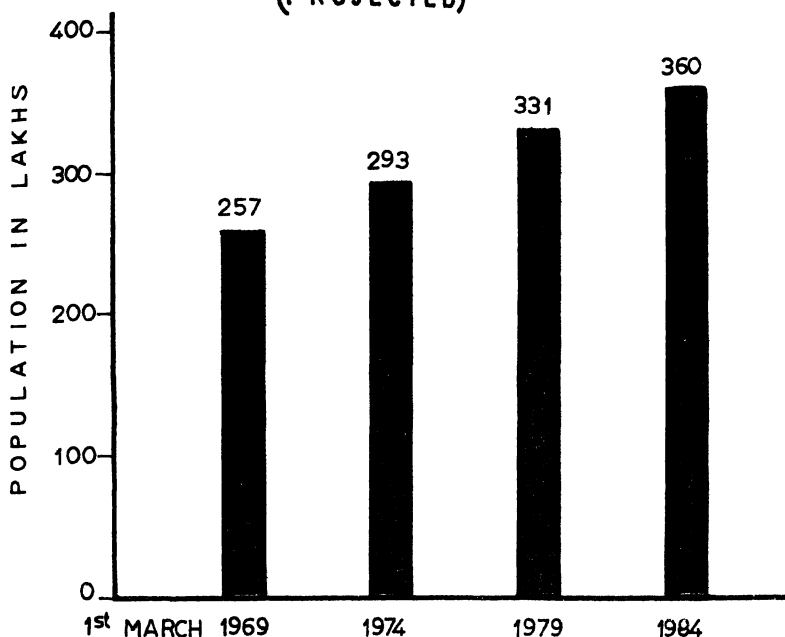
3.110. The State has adopted the industrial policy of balanced development of regions with particular stress on backward areas. The Industrial Development Bank of India, the Industrial Finance Corporation of India and Industrial Credit and Investment Corporation have come forward for help by providing finance to industrially backward areas on concessional terms. 10 districts of the State have been selected for the grant of concessional finance by these institutions for location of industries in these areas. One of these districts, namely Panchmahals has been selected also for 10 per cent outright grant from the Central Government towards capital investment for industrial development. Rural Works Programme has been taken up in 41 talukas of the State, which are declared as chronically drought affected areas.

3.111. These measures will have considerable impact in accelerating the pace of economic development of these backward areas. In order to accelerate this process, a High Level Committee under the chairmanship of Shri Jaisukhlal Hathi has been constituted to make suitable recommendations for the accelerated development of the backward areas of the State. The Committee has identified 114 talukas of the State as backward in one or more of the four vital sectors of the economy namely irrigation, electrification, roads and industrial development. The Committee has recommended an integrated programme of development of these areas and has also suggested concessional treatment for taking up works in these areas. These measures which have been initiated will have to be pursued with vigour in the Perspective Plan. The area development approach will have to be adopted for the development of backward areas which may necessitate the setting up of an Area Development Corporation in the State.

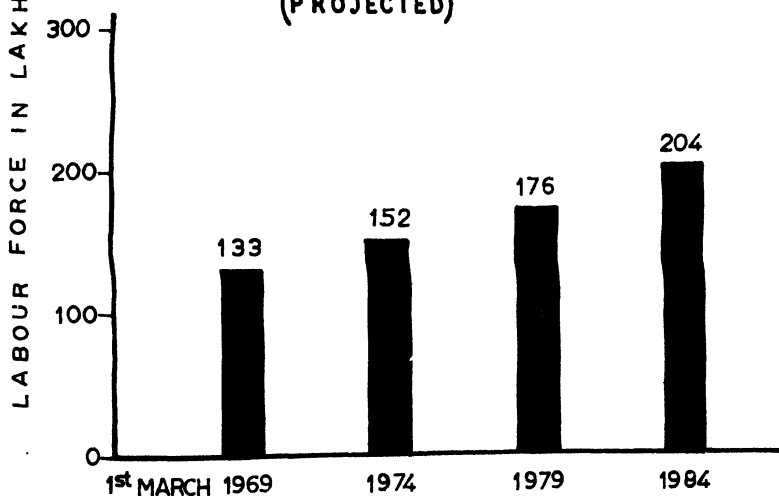
EMPLOYMENT

3.112. Over the years, the country has developed a strong and diversified industrial base. But in a rural economy like India's where the labour is plentiful, only a small fraction of the growing working population can be absorbed in organised industry. While the programmes of economic development with an employment bias are expected to provide the bulk of employment opportunities, it was considered necessary to formulate specific programmes to deal more effectively with areas affected by unemployment and under-employment. Various schemes to tackle the problem have been initiated in the State such as the Crash Scheme of Rural Employment, Rural Works Programme in chronically drought affected areas, schemes for Small and Marginal Farmers, the 'Right to Work' scheme etc. All these schemes of rural employment have been integrated to provide employment opportunities to persons seeking work. To provide employment especially to the old and infirm whose mobility is restricted, Ambar Charkha centres have been started in some of the districts of the State under the scheme 'Right to Work'. An arrangement has been made in the State under which a person seeking work in a village is required to register his name with the Village Panchayat Secretary, who forwards a list of such persons to the Taluka Development Officer. The Taluka Development Officer is required to offer work to such persons on the works going on in the taluka under the various programmes. Under this arrangement more than 25000 persons who

GROWTH OF POPULATION (PROJECTED)



GROWTH OF LABOUR FORCE (PROJECTED)



NOTE:-

BASED ON POPULATION PROJECTIONS PUBLISHED BY THE REGISTRAR
GENERAL

had registered themselves have been provided with work in the State since the integration of rural employment schemes was brought about.

3.113. For the relief of the educated unemployed persons, intensive short-term training programmes have been taken up under the scheme for educated unemployment relief. The fields of training chosen are diverse enough to admit in the programmes Arts, Science, Commerce, Law and Engineering graduates as also those who have passed the S.S.C. examination as well as those who have not passed the S.S.C. examination but have passed standard IX. The concept of training is being oriented towards job-seeking occupations as well as self-employing skills. Short-term training programmes in office-management and business-correspondence, accountancy and taxation, banking, instrumental analysis, industrial engineering and management, computer-programming have been undertaken for graduates in various faculties. For those who have passed S.S.C. examination, short-term training programmes in stenography, reception and PBX operator, punch operator, farm mechanic, and family planning assistants have been introduced. The training programmes for those who have passed standard IX are those of type/duplicating machine repairers, truck driver-cum-repairers, plumbers, foundrymen and hospital assistants.

Under the scheme, training programmes of 3 and 6 months duration for graduates, S.S.C. passed and non-S.S.C. students at 34 different centres with 20 different courses to increase employment potentiality were taken up during 1970-71. During the first and second sessions as many as 1058 and 823 students respectively took advantage of the scheme. In the third session which commenced from July 1971, 1300 students underwent training. The programme is proposed to be expanded by introducing new courses with corresponding increase in the intake capacity so as to augment the employment potentiality.

Special attention is being paid to the schemes of self-employment of engineers and technicians who are granted loans on liberal terms and allotted sheds or plots for starting their own industries.

These measures have made considerable impact on the problem of unemployment in the State.

CHAPTER IV

FINANCIAL RESOURCES FOR THE PERSPECTIVE PLAN 1974-84

The financial resources which the State Government can mobilise for the State's Perspective Plan 1974-84 will depend on a number of factors — some of them will be dependent even on the scope and the size of the Plan itself. Thus, these factors will include the volume and pattern of agricultural and industrial production envisaged, the investment targets and the composition of the investment, the outlays provided in the State Plan for programmes financed by Central financing agencies such as the Agricultural Re-finance Corporation, the Rural Electrification Corporation, the Life Insurance Corporation etc. Apart from these considerations, the resources position of the State will be largely influenced by a number of other factors the impact of which cannot be assessed at this stage with any certainty such as the recommendations of the Sixth and the Seventh Finance Commissions, the overall size of the Central assistance for the State Plans and the principles on which the amounts would be distributed among the States, the policy which may be laid down by the Reserve Bank of India in regard to market borrowings by the State Government and quasi-Government agencies in the State, the operations of the Central financing agencies, the outlays on the Central Government projects in the State, their price policies, the general level of prices etc. Nevertheless, an assessment of the financial resources that may be mobilised by the State Government for financing the State's Perspective Plan 1974-84 has been made on the basis of the available data and the result of this exercise are summarised in the following table.

TABLE

Estimates of Resources for the State Plan

(Ps. in crore)

	Fourth Plan 1969-74 (Estimates)* 2	Fifth Plan 1974-79 (Estimates) 3	Sixth Plan 1979-84 (Estimates) 4
1 Balance from current revenues at pre-Plan rates of taxation	73.12	245.47†	411.14†
2 Contribution of public enterprises—			
(a) Gujarat Electricity Board ¹	30.36	64.30	140.99
(b) Gujarat State Road Transport Corporation	4.79	7.14	18.06

* Mid-term appraisal of estimate of resources.

† At 1971-72 rates of taxation.

1	Fourth Plan 1969-74 (Estimates)*	Fifth Plan 1974-79 (Estimates)	Sixth Plan 1979-84 (Estimates)
	2	3	4
3 Loans from market by State Government (net)	64.60	121.71	153.65
4 Share of small savings	35.28	75.00	150.00
5 State provident funds	15.17	20.00	30.00
6 Miscellaneous capital receipts (net)	(-) 2.70	(-) 80.19	(-) 60.22
7 Contribution of local bodies	4.26	5.00	5.00
8 Additional resource mobilisation	69.70@	104.07@	263.88@
9 Negotiated loans from Life Insurance Corporation, Reserve Bank of India, etc.			
(a) by State Government	5.75	12.50	37.50
(b) by State enterprises			
(i) Life Insurance Corporation	19.75	40.00	100.00
(ii) Open market	17.80	35.00	70.00
(iii) Rural Electrification Corporation	..	50.00	80.00
10 Withdrawals from reserves	4.52	..	..
11 Central assistance	158.00	300.00	600.00
Total resources for the State Plan :	500.40	1000.00	2000.00

@Includes State's share in additional resource mobilisation by the Centre.

BALANCE FROM CURRENT REVENUES

4.2. The estimate of balance from current revenues during the Fourth Plan period is Rs. 73.12 crores. The balance from the current revenues during the Fifth Plan and Sixth Plans will depend, among other things, on the recommendations of the Sixth and Seventh Finance Commissions, the committed expenditure on the schemes completed in the Fourth and the Fifth Plans, the extent of the non-Plan outlays on items such as revisions of pay and allowances, administrative re-organisations, etc.

4.3. For the purpose of this forecast, the State's share in Central taxes has been projected at the 1971-72 rates of taxation and on the basis of the existing scheme of devolution of Central taxes and grants in lieu of tax on railway passenger fares.

4.4. The State's tax receipts have been projected assuming the following annual growth rates taking the 1973-74 estimates as worked out for the Mid-term Appraisal of the Resources for the Fourth Plan as the base figure :

5 per cent in the case of revenue under Sales Tax on motor spirit,

7 per cent under Entertainment Duty,

10 per cent under Stamp Duty, Registration fees, tax on passengers and goods, general and Central Sales Tax and

12 per cent under State Excise and tax on motor vehicles.

In the case of Electricity Duty, the estimates have been framed on the generation and sale of power as projected by the Working Group in the Perspective Plan of the power sector.

Similarly, in the case of water rates, the receipts have been worked out on the basis of the estimated irrigation potential and utilisation as visualised in the Fifth and the Sixth Plan proposals.

In the case of receipts from land revenue, the likely loss of revenue of Rs. one crore per year on account of exemption to small holders from payment of land revenue announced (but not implemented so far) has been taken into consideration.

4.5. The non-Plan expenditure estimates have generally been projected assuming a 5 per cent annual growth.

In the case of expenditure on natural calamities, a sum of Rs. 80 lakhs per year has been provided in the forecast.

The estimates of expenditure on interest and amortisation charges have been worked out taking into account the loans assumed to be raised during the period.

4.6. The expenditure estimates do not provide for any new non-Plan items of expenditure such as revision of pay and allowances, administrative re-organisation etc. other than those for which provision has been made in the resources estimate for the mid-term appraisal which provides for a sum of Rs. 2 crores in 1972-73 and Rs. 4 crores

in 1973-74 on account of possible revisions in the rates of dearness allowance. Price escalations during the 10 year period would call for increased outlays on various other accounts as well. No provision has been made at this stage for such increases in the forecast.

4.7. The committed expenditure on account of the Fourth Plan schemes (State as well as Centrally sponsored) has been worked out assuming a revenue component of Rs. 40 crores during 1973-74 and further assuming that 50 per cent of this will become committed. The committed expenditure of Fifth Plan (State as well as Centrally sponsored) has similarly been worked out assuming a revenue component of Rs. 75 crores in the last year of the Fifth Plan.

4.8. On the basis of these assumptions, the estimate of balance from current revenues works out to Rs. 245.47 crores in the Fifth Plan and Rs. 411.14 crores in the Sixth Plan.

CONTRIBUTION OF PUBLIC ENTERPRISES

4.9. The contribution of the Gujarat Electricity Board from out of its internal resources is estimated at Rs. 64.30 crores in the Fifth Plan period and Rs. 140.99 crores in the Sixth Plan period. The internal resources of the Gujarat State Road Transport Corporation for the Fifth Plan period are placed at Rs. 7.14 crores and for the Sixth Plan period at Rs. 18.06 crores.

LOANS FROM THE MARKET

4.10. The State Government's market borrowings have been taken at Rs. 150 crores (gross) during the Fifth Plan period and Rs. 225 crores (gross) during the Sixth Plan period. This is against the borrowings of Rs. 91.60 crores (gross) envisaged during the Fourth Plan period. In addition to this, the estimate of market borrowings by Gujarat Electricity Board is placed at Rs. 35 crores in the Fifth Plan period and Rs. 70 crores in the Sixth Plan period. No credit in respect of market borrowings by other quasi-Government institutions has been taken in this forecast and it is assumed that such borrowings will be utilised for meeting the expenditure on programmes of the respective institutions outside the State Plan. It may, however, be added that the resources that may be available from these sources will be determined largely by the policy which the Reserve Bank of India may lay down in regard to market borrowings by the State Government and the quasi-Government agencies in the State.

MISCELLANEOUS CAPITAL RECEIPTS

4.11. In working out the estimate of miscellaneous capital receipts it has been assumed that the transactions under State trading would be balancing. This will, however, depend on the policy which the Government may adopt in regard to trading in essential commodities like food-grains, edible oils etc. If it is decided to subsidise the sale of some of the commodities to the vulnerable sections of the community, it will cut the Plan resources.

A credit of Rs. 12 crores has been taken in respect of sale of plots at Gandhinagar during the Fifth and Sixth Plan periods.

The forecast provides for a sum of Rs. 2 crores per year during the Fifth Plan period and Rs. 3 crores per year during the Sixth Plan period for construction of administrative and residential buildings.

The estimate of non-Plan loans and advances such as *Tagavi* loans, loans to Government servants etc., is placed at Rs. 4 crores per year in the Fifth Plan and at Rs. 6 crores per year in the Sixth Plan period.

The estimate of repayment of loans to the Centre is placed at Rs. 196.15 crores in the Fifth Plan period and Rs. 220.81 crores in the Sixth Plan period.

Several State Governments have requested the Centre to treat the small savings loans to the State as loan in perpetuity. If this is accepted by the Government of India, there will be a reduction in the State's repayment liability and a corresponding increase in the resources for the Plan.

CONTRIBUTION OF LOCAL BODIES

4.12. It has been decided that with effect from 1966-67, 2/3 of the receipts from additional local cess of 30 paise per rupee introduced in 1965-66 will be given by the Panchayats as their contribution for the Plan programme. The receipts on this account are likely to be of the order of Rs. 4.26 crores during the Fourth Plan period. It has been assumed that the Panchayats would continue to make this contribution during the Fifth and Sixth Plans as well. In addition to this, some of the schemes included in the Plan provide for a matching

popular contribution. In most of the cases the State's share of such expenditure is only included in the Plan, the expenditure financed out of popular contribution being outside the Plan. The forecast takes credit of Rs. 10 crores during the period 1974-84 on account of the contribution from local bodies. This sum would include any popular contribution that may be received on a matching basis for such schemes where the gross expenditure, that is, expenditure inclusive of the popular contribution, is included in the Plan.

NEGOTIATED LOANS FROM LIFE INSURANCE CORPORATION/RESERVE BANK OF INDIA.

4.13. The estimate of negotiated loans by the State Government from the Reserve Bank of India and the Life Insurance Corporation for programmes included in the State Plan is placed at Rs. 12.50 crores during the Fifth Plan period and Rs. 37.50 crores during the Sixth Plan period against the estimate of Rs. 5.75 crores in the Fourth Plan period.

In addition to the loans given by the Life Insurance Corporation to the State Government, the Corporation also gives loans directly to the State Housing Board and the local bodies for programmes of housing and water supply. The programmes financed out of these loans are not included in the State's Fourth Plan. No credit in respect of such loans has been taken in this forecast on the assumption that this practice will continue in the Fifth and Sixth Plans.

The forecast takes a credit of Rs. 50 crores and Rs. 80 crores on account of loans to Gujarat Electricity Board from the Rural Electrification Corporation during the Fifth and the Sixth Plans respectively for the rural electrification programme of the Board.

ADDITIONAL RESOURCES MOBILISATION

4.14. The additional resources mobilised by the State Government during the Third Plan were Rs. 44 crores against the target of Rs. 29 crores. The measures taken during the three annual Plans yielded an additional revenue of Rs. 11 crores during the three year period 1966-69. During the Fourth Plan period the State Government was expected to raise additional resources of the order of Rs. 42.28 crores. The measures taken so far by the State Government and the State enterprises are likely to yield an additional revenue of Rs. 52.77 crores during the Plan period. This figure does not take into account the additional yield from measures taken in December-

1971 for the Bangla Desh refugees. These measures are expected to yield a revenue of Rs. 0.71 crore during current year and Rs. 2.1 crores in a full year and the entire proceeds are to be passed on to the Government of India. In addition, the State Government's share in Central taxes is expected to go up by Rs. 16.93 crores on account of additional taxation measures taken by the Centre so far. The State's share from Central taxes is likely to go up further on account of additional measures that may be taken by the Centre in the next two years.

4.15. The forecast takes credit of Rs. 104.07 crores during the Fifth Plan and Rs. 263.88 crores during the Sixth Plan on account of additional resources mobilisation. This sum would include the State Government's share from additional resources that may be raised by the Centre and the additional receipts on account of measures that may be taken by the State Government and the State enterprises like Gujarat Electricity Board and Gujarat State Road Transport Corporation. The areas which may be explored for raising additional resources keeping in view their feasibility, revenue potential and economic effects are discussed in the following paragraphs. A more detailed study and analysis may have to be undertaken on the existing tax structure with a view to determining the incidence of different taxes and in locating areas where further mobilisation can be effected keeping in view the objectives of planned development of the State. The working of the public sector undertakings may have also to be examined with a view to mobilise additional resources.

Taxes under Articles 268 and 269 of the Constitution

4.16. The net proceeds of the following seven items of taxation included in the Union list though levied by the Government of India are entirely assigned to the States and distributed among them in accordance with the principles of distribution formulated by Parliament by law under article 269 of the Constitution :—

- (a) duties in respect of succession to property other than agricultural land;
- (b) estate duty in respect of property other than agricultural land;
- (c) terminal taxes on goods or passengers carried by railway, sea or air;

- (d) taxes on railway fares and freights;
- (e) taxes other than stamp duties on transactions in stock-exchanges and futures markets;
- (f) taxes on the sale or purchase of newspapers and on advertisements published therein;
- (g) taxes on the sale or purchase of goods other than newspapers, where such sale or purchase takes place in the course of inter-State trade or commerce.

4.17. Of the taxes mentioned above, State Government could expect additional receipts during the period 1974-84 on account of the levy of tax on sale and purchase of newspapers/magazines and advertisements published therein. Upward revision in the rates of stamp duties and such duties of excise on medicinal and toilet preparations as are mentioned in the Union list, the proceeds of which are assigned to the States, under article 268 of the Constitution, could also be expected to add to the revenues of the State Government.

axes on agricultural incomes

4.18. As a result largely of public investments in the agricultural sector since the inception of planning, agricultural incomes have increased substantially. However, the contributions of the agricultural sector to the exchequer have not risen commensurately. The question was examined at some length in the report of the Fifth Finance Commission (1969) which expressed the view that the problem of rural tax policy is largely one of obtaining some part of the increased incomes of the more prosperous agriculturists for the State revenues so that the facilities which have brought prosperity to the richer farmers could be extended more widely, besides providing more amenities and services to the community in general. In the Commission's view the best way to secure a share of the increased margins in the agricultural sector would be to levy an effective income-tax. The Commission has pointed out that a tax like land revenue works well in a simple society with a small degree of differentiation but where the standards of cultivation differ widely or where there are rapid changes from year to year, such system would only be tolerated if the rate is low. In course of time as the agricultural economy loses its distinct and separate structure and farming becomes more and more a method of earning in the general economy, the separation of agricultural incomes from other incomes loses its

significance. A single income-tax levied both on agricultural and non-agricultural incomes will have the advantage of a unified system, leaving no scope for evasion by showing greater income under less taxed or non-taxed sections. This question was discussed at the Chief Minister's Conference held at New Delhi on 12th October, 1971 and it was decided that an expert Committee be set up to go into the problem of linking the agricultural income-tax with the general income-tax. In view of this it may be reasonable to expect that during the decade 1974-84, a sizeable revenue will accrue to the State from this source.

4.19. The Fifth Finance Commission had also referred to the measures taken by several State Governments to exempt small land holdings from land revenue or giving up the land revenue income, wholly or partially. The economic justification urged for exemption is that the small farmers are living below the subsistence level and, therefore, they have no taxable surplus. With reference to this, the Commission has observed that in a country with low national incomes trying simultaneously to develop its economy and to provide for better social welfare, it may not be entirely possible to avoid taxation of persons with low incomes. A part of land revenue may be justified on the ground that the State has to incur considerable expenditure for maintaining up-to-date records of land rights. There is enough material to prove that the cultivator greatly values this service and regards land revenue receipts as evidence in his possession of his title to land.

4.20. With a view to making the present system of levy more equitable among different areas, and to keep in step with changes in the value of crops, the Commission has suggested that surcharges could be levied in areas where land revenue burden is low. The Commission has suggested that it may also be examined whether some *ad hoc* increase in surcharges is not possible periodically bring them in line with price and productivity increases. The rate of tax could also be increased on lands used for non-agricultural purposes, including industrial and commercial uses, particularly in larger urban centres and developing industrial areas. In this connection, it may be mentioned that in 1962-63, a proposal to levy a tax on lands growing commercial crops was introduced in the State Assembly. However, in the light of the discussions the proposal to levy surcharge on commercial crops was replaced by a surcharge of 20 per cent of the land revenue on agricultural lands, the proceeds of which were to be credited to the Education Cess Fund.

4.21. In addition to the above, a part of the agricultural incomes could be mopped up by increasing the rate of sales tax on agricultural inputs like fertilizers, agricultural machinery, revision in the rates of electricity tariff and duty on energy consumed for agricultural purposes and revision in water rates.

Rural Debentures

4.22. Another source whose potential should grow proportionately with the increase in the economic prosperity of the agricultural sector, is the issue of rural debentures. The idea of rural debentures was mooted by the Planning Commission in 1968. According to the Planning Commission, rural debentures may be floated for raising long-term finance for agro-industries and other productive activities in the rural sector in a manner so as to effect invariably a geographical coincidence between resource mobilisation and resource utilisation on a local basis. That is, each issue of rural debentures in an area will have to be tied to a specific productive project in that very area. In consequence, rural debentures, as envisaged by the Planning Commission, will make individual financiers directly or indirectly the beneficiaries of the industry which will provide employment and entrepreneurial opportunities to the rural population, close and ready market and/or processing facilities for agricultural produce and repairing and servicing facilities as well. Rural debentures as mooted by the Planning Commission, will thus, besides yielding a rate of interest to the purchaser, provide, more significantly, through a process of development and diversification of the rural economy, various extra-monetary benefits to the purchasers of rural debentures and/or to his dependent relatives. It is these potential extra-monetary benefits which, if brought home to the rural community, will make rural debentures attractive to it and also involve it in the economic development of the rural sector. Hence, given proper organisation in the mobilisation and utilisation of resources, rural debentures can well be a means of effecting the participation of the rural people in the economic development of the sector.

Taxation of urban lands

4.23. In regard to the urban sector, greater attention will have to be paid to raise resources by taking the unearned increments in land values in and around the developing urban areas and also where property values go up because of improved roads etc. Reform of property taxation is required not only to make revenue from this source productive but also to find ways and means of using this instrument of

taxation to regulate orderly development of the cities, to check unhealthy speculation in land values and to get for the community a part of the increased un-earned income accruing to the land holders as a result of improvements made by the community. This could perhaps be done by preparing and implementing metropolitan plans by the constitution of Metropolitan Development Authorities on the lines of the Delhi Development Authority.

State lotteries

4.24. All the State Governments with the exception of Andhra Pradesh, Gujarat, Meghalaya and Nagaland have introduced State lotteries for raising resources for their development programmes. This is one of the sources of revenue open to the State Government and if exploited could yield a net revenue of roughly Rs. 25 crores during the period covered by the Perspective Plan.

Other taxes

4.25. Additional revenue could also be raised by revision in the existing rates of State taxes such as Stamp Duties, Registration fees, tax on motor vehicles, tax on passenger fares, Sales Tax, Entertainment Duty and Electricity Duty and royalty on crude oil and natural gas. Some of the States such as Tamil Nadu and Maharashtra have raised sizable revenues by amending their policy relating to prohibition. As Gujarat is firmly committed to the policy of total prohibition, this source of revenue may be ruled out so far as this State is concerned.

Mobilisation of resources by local bodies

4.26. Apart from the resources that may be raised by the State Government, the local bodies namely the Municipal Corporations, the Municipalities and the Panchayats will also have to develop the sources of revenue available to them. One of the sources of revenue recommended by the Taxation Enquiry Commission (1953-54) which could be mobilised by the local bodies is tolls in respect of new bridges on which expenditure has been incurred by the local body. The Working Group on Transport and Communications set up by the State Government for the formulation of the Perspective Plan has also suggested the levy of tolls on Highways, bridges etc. The Group is of the view that if a smooth and quick arrangement for the collection of the toll is devised people will not mind paying for the better facilities provided to them. The Group has suggested that private entrepreneurs may be encouraged to

undertake the construction of toll roads and bridges with the specific understanding that property will vest in the Government after a certain number of years and no tolls would be levied after that period. The Working Group has also referred to the special programmes of construction of rural roads in the States of Punjab and Haryana for which funds are made available from levy of cess at one per cent of the sales in the agricultural produce market committee yards. Such levies supplemented with popular contribution could be utilised for programmes like rural roads, primary school buildings in rural areas, rural water supply and drainage schemes during the Fifth and the Sixth Plan periods.

CENTRAL ASSISTANCE

4.27. In accordance with the recommendations of the National Development Council, it was decided that after providing for the requirements of the States of Assam, Nagaland and Jammu and Kashmir the Central assistance for the remaining States for the Fourth Plan be distributed to the extent of 60 per cent on the basis of their population, 10 per cent on the basis of their per capita income if below the national average, 10 per cent on the basis of the tax effort in relation to per capita income and that another 10 per cent be allocated in proportion to the commitments in respect of major continuing irrigation and power projects. The remaining 10 per cent, it was decided, should be distributed among the States so as to assist them in tackling certain special problems, like those relating to metropolitan areas, floods, chronically drought affected areas and tribal areas. In accordance with these principles the Central assistance of Rs. 3500 crores was distributed among the various States. Subsequently, the Planning Commission evolved a scheme of special accommodation to such States as had non-Plan gaps in their resources on the condition that the gaps in resources would be contained and that the States concerned would make efforts to increase their Plan outlays through additional mobilisation. It is, however, noticed that even after availing of the assistance under the scheme of special accommodation, certain States have been resorting to un-authorised overdrafts on the Reserve Bank of India which are subsequently cleared by means of accommodation from the Government of India. As a result of these devices, National Development Council's recommendations relating to the principles of Plan assistance are by-passed to a certain extent. It is, therefore, necessary that in devising the principles of Central assistance for the Fifth and Sixth Plans, this aspect is also kept in view and it ensured that States which manage their finance well are not penalised for their prudent financial management.

CHAPTER V

ORGANISATION OF PUBLIC ENTERPRISES

Public sector undertakings have been assigned a dominant and crucial role in stepping up the overall rate of growth of the National as well as the State economy. They are to be looked at as effective instruments for generating increased employment and wages, developing a network of infra-structure in all strategic sectors of the economy and creating conditions for the supply of plentiful and cheap consumer goods to the under-privileged sections of the community. These enterprises are generally organised in areas where the private sector is not prepared to go or is not allowed to invest in the light of the provisions laid down in the Industrial Policy Resolution of 1956.

5.2. The public sector investment in India has gone into strategic spheres such as metallurgy, oil exploration and refining, heavy electrical and non-electrical equipments, machine tools, aeronautics, electronics, nuclear power and defence industries. This experience in a wide range of technologies has laid the foundation for further economic progress. Our defence strength also stems from the capital invested in public sector undertakings.

5.3. The investment in these undertakings is essentially in the form of an outlay on social and economic overheads. Their performance is to be judged not in terms of a direct return but in the form of higher levels of output in the Economy. The private sector has been able to reap substantial profits due to the infra-structure facilities provided by public sector undertakings. "The great merit of the 'socialistic approach' adopted by the Government since 1956 is that its investment decisions in industries, are based not on narrow considerations relating to maximisation of profit but the aggregate of all incomes that accrue to the society as a whole". Though these undertakings may not at present measure up in terms of the profits made, they are to be viewed as major instruments for the transformation of our society. Much has yet to be done to fill in the gaps in their organisational structure and for building up a strong, progressive, dynamic managerial cadre adequate in number and dependable in quality.

5.4. The case of public sector stands on three grounds : "to gain control of the commanding heights of the economy, to promote critical development in terms of social gain or strategic value rather than primarily on considerations of profit, and to provide commercial surpluses with which to finance further economic development". There can

There is no set pattern or rigid framework for public undertakings. They must grow, evolve and change with time. Successful lessons can be drawn from the working of nationalised enterprises in some of the foreign countries. In Italy, there is a large and growing public sector which is able to withstand the forces of competition and has shown capacity for working in partnership with private sector units. Sweden offers another example of public sector organisation. In France, successful corporations such as Renault and Sud Aviation are public undertakings. In Germany, Volkswagen has been developed in the public sector. "The public sector occupies a pivotal role in our economic strategy. From the beginning it has been recognised that a public sector would necessarily have to venture into difficult and capital intensive fields of basic industry which the private sector has shunned for long. This had to be done boldly and sometimes in the teeth of opposition".¹ As the public sector must make a substantial contribution to the national economy, it must stand the test of efficiency, profit, service and technological advance.

5.5. The Select Committee of Nationalised Industries in UK went into the economic and financial objectives of nationalised industries. It stated that the "limits of their responsibility in regard to social obligations and economic objectives must be made plain as the imposition of this dual set of responsibilities normally confuses their sense of purposes, (namely, are they supposed to act as commercial bodies or as vehicles of social purpose ?) and results in the weakening of their managerial efficiency and damages their performance".

5.6. The Administrative Reforms Commission in their Report on Public Sector Undertakings have stated : "Government should make a comprehensive and clear statement on the objectives and obligations of public undertakings. This statement should lay down the broad principles for determining the precise financial and economic obligations of the enterprises in matters such as creation of various reserves, extent to which the enterprises should undertake the responsibility of self-financing, the anticipated return on capital employed and the basis for working out a rational wage structure and pricing policies".

5.7. In any assessment of the operation of the public sector undertakings, profitability may be taken as a reasonable indicator of its efficiency but the more important criteria should be "the total addition it makes to the flow of goods and services in the economy as measured by the gross national product".

1. Prime Minister's address at the Conference of Heads of Public Sector Undertakings— 19th July, 1969.

5.8. The question of motivation in the management cadre assumes great significance in the expanding arena of public sector in the context of the talk of commitment of managerial personnel in the public sector to their respective enterprises. Is the organisational set up of the public sector undertakings adequate to motivate the managers on the top, in the middle and the lower middle levels to give of their best in a sustained and inspired fashion ? Various studies have disclosed that the managerial motivation is poor in our public enterprises and the prospects of career development to the managerial class are dim. There is a need for evolving well-knit and well-conceived schemes of incentives, monetary as well as non-monetary, for sustaining a spirit of dedication, loyalty and for promoting a high level of operational efficiency at different levels in public sector undertakings. It is in this background of the growing role of public sector in the national economy, that we have to review the role of State level undertakings in Gujarat State.

5.9. The following are our major public sector undertakings functioning since May, 1960 :—

Gujarat Electricity Board.

Gujarat State Road Transport Corporation.

Gujarat Housing Board (including merged Saurashtra Housing Board).

Gujarat Warehousing Corporation.

Gujarat State Financial Corporation.

5.10. While the above five have been functioning from May 1960 the following were started after the formation of Gujarat State :—

Gujarat Industrial Development Corporation	— 1962
Gujarat Small Scale Industries Corporation	— 1962
Gujarat Mineral Development Corporation	— 1963
Gujarat Export Corporation	— 1966
Gujarat Industrial Investment Corporation	— 1967
Gujarat Agro-Industries Corporation	— 1969
Gujarat State Textile Corporation	— 1969

5.11. The Gujarat State Fertilizers Company Limited is a striking example of unqualified success of the so-called joint sector enterprise. While the State Government has 49 per cent shares in the GSFC, nearly another 30 per cent of the shares are held by Central Government/Financing Agencies. Over 35,000 farmers hold shares in the Company and thereby it has maintained a live contact with the farming community and the village level co-operatives. The control of private share-holders over the GSFC is at a minimum of 21 per

ment spread over large number of small holders. The accounts of the Company are open to the scrutiny by the Controller and Auditor General of India. That apart, it has been recently decided that the annual report of the Board of Directors of the company will be placed on the table of the State Legislature and thus the public accountability has also been taken care of.

5.12. In the present situation of acute shortage of managerial talents, technical know-how and investible resources, the joint sector will perhaps prove the most promising sector for developing newer industries in the large scale and medium categories.

5.13. Apart from the expansion of the joint sector, the feasibility of expanding co-operative sector, particularly for medium and small enterprises, should also be examined. The outstanding success of Amul Dairy and the success that has been achieved by co-operative sugar mills, cotton ginning and processing mills are likely to provide some guiding maxims for the expansion of the co-operative sector. The feasibility of starting a venture in joint sector and finally converting it into a co-operatised enterprise also deserves to be examined particularly in areas where determined efforts are likely to be planned or improving the social and economic status of the weaker sections.

5.14. Excluding the Gujarat State Fertilizers Company, the 12 public sector undertakings in Gujarat have an aggregate authorised capital of Rs. 15.00 crores.* and paid up capital of Rs. 5.49 crores. The investment of the State Government in the form of share capital contribution and loans** is of the order of Rs. 132.97 crores. The position is reflected in table 1.

TABLE 1

Name of Undertaking	Year 1969-70 (Rs. in '000)			
	Autho- rised capital	Paid up capital	Share of State Govt.	Profit or/ Loss (+ or -) before taxation
	Rs. 2	Rs. 3	Rs. 4	Rs. 5
1. Gujarat Electricity Board	..	..	1073204 (Loan)	+5829(b)
2. Gujarat State Road Transport Corporation	..	..	97042 (Loan- capital)	+14790(a) (b)

*There is no authorised share capital in : (1) GSRTC, (2) GIDC, (3) GEB, (4) GHB.

**State loan to : (1) GSRTC, (2) GIDC, (3) GHB, (4) GEB.

	1	2	3	4	5
3. Gujarat State Warehousing Corporation		20000	2800	1400	+1280
4. Gujarat Housing Board		..	..	96697 (Loan)	+2652(b)
5. Gujarat State Financial Corporation		20000	10000	3902	+1270
6. Gujarat Small Industries Corporation		5000	1421	300	+1084
7. Gujarat Industrial Development Corporation		..	..	26538	+134
8. Gujarat Mineral Development Corporation		20000	12700	12700	+289
9. Gujarat Export Corporation		5000	575	490	—23
10. Gujarat Industrial Investment Corporation		10000	7000	7000	—434
11. Gujarat State Textile Corporation		50000	3750	3750	+30
12. Gujarat Agro-Industries Corporation		20000	16705	6705	+95
Total		150000	54951	1329728	+26996
Gujarat State Fertilizers Co., Ltd.		150000	119945	58800	+25200

N. B. — (a) After providing for additional depreciation of Rs. 66,66,800 to meet the increased cost of replacement of vehicles.

(b) In case of the following undertakings, profits have been arrived at after charging interest on loan contributed by the Government. In order to make the working results of these undertakings comparable with those of the rest, the interest paid on Government loan capital should be added to the profit. Such interest paid during 1969-70 was as under:—

(Rs. in '000)

1. G. E. B.	58817
2. G. S. R. T. C.	8901
3. G. H. B.	2794

5.15. The Gujarat State Financial Corporation established in 1960 has played a major role in the industrial development of Gujarat State.

5.16. In a period of 11 years since its inception in Gujarat State, the GSFC has advanced loans to 3736 units. While in 1960, the amount of loan was Rs. 19.6 lakhs, in 1970-71, the figure rose to Rs. 2267 lakhs. Underwriting of shares was of the order of Rs. 96 lakhs and deferred payment guarantees on purchase of machineries was of the order of Rs. 122 lakhs. On an average, during the last 11 years, the GSFC has granted loans at the rate of Rs. 2 crores per year.

5.17. The GSFC has gone to the rescue of industrial units which were hit either by flood or riots. It is significant to note that it has rehabilitated 76 units affected by the communal riots by providing them a loan of Rs. 6.44 lakhs. The Corporation has also disbursed loans of Rs. 54.67 lakhs to 893 units which were affected by flood in 1968-69.

5.18. The Gujarat Small Industries Corporation Ltd., (GSIC) was incorporated as a public limited company on 26th March 1962. During the year ending 31st December 1970, the Corporation distributed various raw materials such as pig iron, iron and steel sheets of different types and other raw materials such as structural and ball bearings, chemicals etc., valued at about Rs. 5.89 crores to over 2300 units all over Gujarat.

5.19. The Gujarat Industrial Development Corporation which was established in August 1962 has now 58 industrial estates under its management. Out of 58 industrial estates/areas, 43 are located in urban areas, 5 in semi-urban and 10 in rural areas. Out of 58 industrial estates sanctioned, 32 are fully developed and 17 are under varying stages of development. In the case of the remaining 9 estates, land acquisition proceedings are in progress.

5.20. The rapid expansion in the activities of the GIDC can be seen from its investment which rose from the level of Rs. 58 lakhs in 1967-68 to Rs. 7.80 crores in 1970-71. Thus the average increase in investment has been of the order of 410 per cent. Against the present plan of acquiring 4,322 hectares, the total land in the possession of the GIDC in all industrial estates is around 3,642 hectares. Besides development of open plots, the GIDC has also undertaken disposal of plots with ready-made sheds on a hire-purchase basis. Out of 1905 sheds sanctioned as on 1st April 1971, 700 are reported to have been completed, 900 are under construction and 1290 are reported to have

been disposed of. In all there are 600 industrial units in production in the GIDC estates.

5.21. It is heartening to note that on a comparative study of the performance of the GIDC with similar institutions in other States, Gujarat emerges as one of the leading States in the country.

5.22. The total employment provided in all the twelve public sector undertakings in 1969-70 was of the order of 41,278 and the wage bill was of the order of Rs. 13.09 crores. The total employment provided in the five public sector undertakings working in 1960-61, viz., during the year in which Gujarat State came into existence, was of the order of 18377 and wage bill was of the order of Rs. 1.68 crores. This indicates that in a decade the direct employment in the undertakings had increased over two fold. Table 2 indicates the position of employment and wages during the year 1960-61 and during the year 1969-70.

TABLE 2
Employment position

Name of undertaking.	Position as on			
	1960-61		1969-70	
	Total employment No.	Expenditure on wages/salaries (Rs. in '000)	Total employment No.	Expenditure on wages/salaries (Rs. in '000)
1	2	3	4	5
1. Gujarat Electricity Board	6378	1678	14936	50107
2. Gujarat State Road Transport Corporation	11485	14285	24704	74811
3. Gujarat State Warehousing Corporation	10	6	112	470
4. Gujarat Housing Board	487(a)	840(a)	759	1624
5. Gujarat State Financial Corporation	17	47	87	350
6. Gujarat Small Industries Corporation.	..	..	135	552
7. Gujarat Industrial Development Corporation	..	..	328	1317

(a) This includes 75 employees and Rs. 1.20 lakhs expenditure on salaries of the Saurashtra Housing Board which was subsequently merged with the GHB

1	2	3	4	5
8. Gujarat Mineral Development Corporation	..	..	90	1155
9. Gujarat Export Corporation	..	..	24	87
10. Gujarat Industrial Investment-Corporation	..	..	44	231
11. Gujarat State Textile Corpora- tion.	..	..	7	51
12. Gujarat Agro-Industries Corporation.	..	..	52	195
Total	18377	16856	41278	130950

N. B.— In 1960-61 Corporation shown at Sr. Nos. 6 to 12 were not established.

5.23. A comparative study of the volume of employment and wage bill of different undertakings as shown in table 2 above would reveal that GSRTC had about 24704 employees with a wage bill of Rs. 7.4 crores per annum while GEB provided employment for 14936 with an annual wage bill of about Rs. 5 crores in 1969-70.

5.24. The total expenditure of the 12 public sector undertakings was of the order of Rs. 64.21 crores in 1969-70. The amount of expenditure on salaries was Rs. 13.09 crores in 1969-70 which worked out to be 20.38 per cent of the aggregate expenditure by the public sector undertakings. Table 3 reflects the position.

TABLE 3

Name of undertaking	Year 1969-70 (Rs. in '000)	
	Total expenditure	Expenditure on wages/ salaries
1	Rs. 2	Rs. 3
1. Gujarat Electricity Board	244776	50107
2. Gujarat State Road Transport Corporation	302862	74811
3. Gujarat State Warehousing Corporation	2603	470
4. Gujarat Housing Board	12000	1624
5. Gujarat State Financial Corporation	5676	350
6. Gujarat Small Industries Corporation	50528	552
7. Gujarat Industrial Development Corporation	6666	1317

1	2	3
8. Gujarat Mineral Development Corporation	5186	1155
9. Gujarat Export Corporation	3438	87
10. Gujarat Industrial Investment Corporation	1657	231
11. Gujarat State Textile Corporation	165	51
12. Gujarat Agro-Industries Corporation	6563	195
Total	642120	130950
Gujarat State Fertilizers Co. Ltd.	24110	10300

Public Undertakings in Gujarat, 1974-84.

5.25. Judging by the progress made by the public sector undertakings* in the decade 1960-61 to 1970-71, Gujarat can confidently look forward to these enterprises in quickening the tempo of development and in stepping up the volume of industrial and agricultural output and employment in the State-economy. The term 'public sector undertaking' should be taken broadly to mean commercial enterprises, development banks and development authorities. In the decade, 1961-71, while there have been 12 undertakings in operation, an organisation like the Gujarat State Fertilizers Company Limited, which does not strictly fall within the definition of State undertaking, has yet been included in our survey. The rest of the undertakings dealt with in this chapter are either development authorities or development authorities-cum-development banks.

5.26. In the seventies, the area of operations of public sector is likely to widen at a rapid pace. Whereas the Tribal Development Corporation and Rural Housing Board are being presently envisaged, the chances for setting up Urban Development Corporation, Area Development Corporation, Tourist Corporation, Forest Resources Corporation, Fruits Processing Corporation may not be ruled out. All in all, the number of public sector undertakings and the range of their activities are likely to increase rapidly. With this backdrop, it is essential for the policy makers to keep constantly under review, the aggregate impact of the manifold activities of the Corporations or Institutions akin to Corporations. In the absence of co-ordinated efforts in the public sector, there is an inherent danger of mal-allocation and consequent

*For details of progress undertakingwise see Annexure following this chapter.

Wastage of scarce resources arising from a lack of operationally effective and imaginative management at appropriate levels. The time has come to develop an overall perspective and project a long term horizon and keep a continuous watch over the impact of different activities of development authorities, development banks, public enterprises and regulatory commissions like Tariff Commission, Monopolies Commission, Agricultural Prices Commission on the aggregate level of output and employment, on aggregate level of money incomes and its redistribution effects on different sectors and social classes of the State-economy.

5.27. Some of the public sector undertakings have to keep in mind not only economic but also non-economic objectives in providing the foundations of the external economies in a way as to sustain the State economic system to develop a certain critical minimum ground speed before it takes off into a process of self-sustained economic growth. At the National as well as at the State levels a forthright policy will have to be evolved on the economic and non-economic functions of the public sector undertakings and on the integration of their finances with the National development budget and the State development budgets as well. This is a problem whose ramifications have to be fully appreciated. In the formulation of the National Five Year Plans or State Five Year Plans, the State outlays do not necessarily reflect the financial aid that funneled through National as well as State financing and development agencies. For example, in the State Plan budget the efforts channelised through centrally sponsored sector or central sector or through the central financing or development agencies are not either reflected at all or reflected very inadequately. Similarly, the efforts of the State financing agencies excepting GEB and GSRTC, are not at all reflected in the State Five Year Plan. It will, therefore, be desirable to fully reflect the total effort that comes from within the ambit of the State economy. This would mean that in the structure of State Plan accounting mechanism while the State outlays may be separately shown, the finances channeled through State Development/Financing agencies, Central Development/Financing agencies, 100 per cent centrally sponsored schemes, 100 per cent central sector schemes, foreign aid from international agencies and the level of committed expenditure reached before the commencement of any plan period—all these will have been fully reflected. Similarly, efforts should also be made to collect as much data as possible to know the level of income generation, income distribution, capital formation, loan finances obtained from different agencies in the private sector co-terminus with the State Five Year Plan period. It would be equally desirable to introduce the principles of performance budgeting in all State sector undertakings as well as in Government departments. In the undertakings

which are highly technical in their operations, the modern techniques of Operations Research and System Analysis ought to be introduced on a wider scale. Similarly, a suitable system of Modern Management Information will have to be evolved in all public sector undertakings without fail if the objective of maximising the operational and managerial efficiency is to be achieved. Carefully planned and imaginatively executed Electronic Data Processing methods can go a long way in facilitating systematic large scale collection of unlimited social and economic data, in processing and analysing them and in drawing meaningful and purposeful conclusions that would be relevant in policy making, policy execution and in evaluating the results of planned efforts all over the State.

5.28. As has been emphasised before, there ought to be co-ordination between private sector enterprises and the public sector enterprises so as to ensure harmonised movements in the two sectors in a way to attain the chosen goals, economic as well as social. The United Nations in a recent report entitled "Public Administration in The Second United Nations Development Decade" (1971) have laid emphasis on the need for evolving guidelines and for providing expert assistance in rationalising the structure of management for public enterprises in developing countries. The areas in which more attention needs to be paid are briefly enumerated as under :--

- (1) Evolution of managerial autonomy.
- (2) To design and implement improved methods of performance evaluation of economic effect, social value, productivity cost and financial returns.
- (3) Introduction of modern management information system and techniques of operations research.
- (4) Improving the quality of supervisory personnel by better training and by providing better instrumental control.
- (5) Reconciling an appropriate policy on decentralisation of authority, conducive to maximisation of administrative and operational efficiency with ensuring adequate accountability to Government and to the Legislature.

5.29. Perhaps, the two major areas in which urgent attention needs to be paid in the management of the public sector undertakings are

- (1) Evaluation of public enterprise operations, and (2) Managerial motivation in the public enterprises.

The suitability of profits and such feasible targets as production, technical change or employment or a combination of them should be examined in the light of the nature of industry, the nature of the economic and political system and other ecological factors. Secondly, machinery or evaluation through different media like Audit Department, Government, Parliament and *ad hoc* or permanent commissions and the inter-relations among such agencies for evaluation has to be carefully evolved. It is equally necessary for the Government to evolve a common outlook and a uniform policy on identical problems facing different public sector undertakings. At the moment, there is some vagueness and uncertainty in the arena of public sector undertakings largely due to the multiplicity of agencies that have been set up to supervise and evaluate their performances. As yet, no co-ordinated effort has been made to process the recommendations made by the Committee on public undertakings, Estimates Committee, the Bureau of Public Enterprises, special committees and *ad hoc* committees appointed from time to time for different public sector organisations. The time has come for setting up a Bureau of Public Enterprises at the State level as well. Such a Bureau can be located in the Finance Department and should be charged with the function of co-ordinating, liaising and reconciling the policies of different public sector undertakings with a view to maximise internal resources. The Bureau should also ensure maximisation of social and economic benefits without frittering away resources arising from duplication, conflict of policies pursued by the different undertakings. Such a machinery, when set up, would be useful in ensuring timely evaluation and performances of the undertakings and in initiating researches, studies in different problems confronting the undertakings all over the State.

5.30. The Achilles' heel in the operation of public sector undertakings is motivation. All efforts should be directed to ensure that public enterprises succeed in fulfilling the broad social and economic objectives set before the Nation. This is a challenge which calls for vision, dedication, hard work and identification with the larger public cause embodied in the public sector.

ANNEXURE (to Chapter V)

GUJARAT ELECTRICITY BOARD

Gujarat Electricity Board has been constituted under Section 5 of the Electricity Supply Act, 1948. The present Board consists of seven members. The primary function of the Board is to promote the coordinated development of the generation, supply and distribution of electricity within the State in the most efficient and economic manner with particular reference to such development in areas which are not at all served or only inadequately served by any licensee. The Chairman of the Board functions as a liaison between the Government of Gujarat and the Board in matters concerning the administration of the Electricity Supply Act 1948. He is responsible for properly carrying out the directions and decisions of the Board.

The total installed capacity for generation of electricity in the whole State in 1960 was over 300 Megawatts, this was raised to 608 Megawatts at the end of the Third Plan. With the additional supply of 190 Megawatts from Tarapur, the total availability of electricity in the state is around 800 Megawatts. The total installed capacity on completion of the Fourth Plan Schemes will be around 1600 Megawatts.

The total capital assets of the Board as on 31st March 1970 were Rs. 159.35 crores. The main sources of finances are :—

- (1) Loans and advances from the Government of Gujarat;
- (2) Loans and advances from the Life Insurance Corporation and Banks;
- (3) Public Borrowings;
- (4) Re-investment of depreciation reserves;
- (5) Contribution from the people.

In the year 1969-70, expenditure on running to establishment of the Corporation was Rs. 501.07 lakhs with 14936 employees on its roll. Profit was recorded as Rs. 58.29 lakhs.

In keeping with the policy to give close attention to rural areas, the Rural Electrification Programme has been stepped up. As against an average rate of electrification of around 1000 wells per year in the first 15 years of its establishment and an average of 11000 wells between 1966 and 1969, the Gujarat Electricity Board initiated

massive programme of electrifying around 20,000 wells per year from 1969-70. Nearly 600 villages with financial contribution and another 200 villages without any contribution in Adiwasi area have been taken up for electrification as a part of Gandhi Centenary Scheme. This programme has laid the foundations for large scale electrification of the rural areas in the years to come.

GUJARAT STATE ROAD TRANSPORT CORPORATION

The Gujarat State Road Transport Corporation was formed on the first of May 1960 with the formation of Gujarat as a separate State. About 90% of the passenger road transport service on mofussil routes was nationalised before the Gujarat State Road Transport Corporation came into being. During the last 11 years the Corporation has taken over 261 routes which were in the hands of private operators and has completed 100% nationalisation in the State as against nationalisation of passenger road transport services to the extent of only about 40% in the country as a whole. The Corporation has also increased the frequency of services on routes operated by it to cater to the natural growth of passenger traffic over years. The Corporation has extended the facilities of passenger transport service both by way of opening up a number of new routes and increasing the length of the routes. On an average, every year about 363 new routes have been added and route Kms. have been extended every year by about 17900. This has resulted in direct bus services to 61.3% of the towns and villages in the state covering 85.5% of the state population. If those villages which are provided with bus services within a distance of 3 Kms. are added, the present coverage will be 82.9% of the towns and villages accounting for 94.0% of the State population. The main reason for not covering the remaining villages by bus services at a closer distance is lack of motorable roads. A table showing the progress of operation of the Gujarat State Road Transport Corporation is given below :

TABLE 1

Item	Progress during the period				
	1960-61	1965-66	1968-69	1969-70	1970-71
1	2	3	4	5	6
1. Number of depots.	76	79	83	84	85
2. Number of divisions	7	9	10	10	10
3. Number of routes	1774	3146	4235	4651	5404
4. Route Kilometres	66817	136768	189324	210626	246044

	1	2	3	4	5	6
5. Fleet held (as on the last day)		1891	2733	3716	3985	4057
6. Effective Kilometre (in lakhs)		728.42	1410.13	2028.76	2114.52	2453.17
7. Average number of vehicles on road.		1174	1875	2526	2617	2896
8. Vehicle Utilisation (in Kms.)		171.4	207.4	221.3	222.9	233.9
9. Vehicular Utilisation (% age)		68.9	75.6	77.8	74.6	78.5
10. Total Traffic Earnings (in lakhs of Rs.)		668.98	1495.03	2674.60	2924.09	3438.46
11. Earning per Kilometre (paisa)		91.84	106.03	131.83	138.28	140.
12. Load Factor (% age)		72.90	70.34	70.85	73.01	73.
13. Average Seating Capacity		40.1	44.6	47.5	48.4	48.9
14. Number of passengers carried (in lakhs) ¹		1463.90	2681.40	3991.30	4444.36	5064.66
15. Total number of persons employed		11512	18219	23290	24704	27897
16. Capital Expenditure as on the last day (Rs. in lakhs)		989.04	1803.04	2763.20	2930.08	3190.46

In addition to the expansion of services, the Corporation has taken a number of measures to control the cost of operation and increase its revenues. Thus, it has increased the vehicle utilisation from 166.7 kms. in 1959-60 to 233.9 kms. in 1970-71; the fleet utilisation from 64.3 percent in 1959-60 to 78.5 percent in 1970-71. It has reduced the cost per km. on spare parts and reconditioning of buses and assemblies from 17.28 paise to 7.64 paise. The crew utilisation in terms of kms. has increased from 116.0 kms. in 1960-61 to 140.8 kms. in 1970-71. Besides control of the cost of operation as mentioned above, the Corporation has taken steps to improve its earnings per km. from 91.38 paise in 1959-60 to 140.17 paise in 1970-71, by rationalising the services and slight increase in fares. As a result of the above measures, profitability of the Corporation has shown a marked improvement and the return on capital employed has improved from only 6.2 percent in 1960-61 to 15.05 percent in 1970-71. This has enabled the Corporation to keep the net fare received by it at a low level despite heavy increase in the prices of vehicles, auto stores, and wages of staff. The Corporation has also improved the quality of services in respect of regularity, breakdowns and accidents and has provided amenities to the public in the form of bus stations, canteens, water arrangements and pick-up stands

The capital outlays in the development activities of the Corporation are financed from the capital contribution from the State Government, Central Government as well as its internal resources including public borrowings.

During 1969-70 the Corporation made a profit of Rs. 147.90 lakhs. The expenditure on wages and salaries was of the order of Rs. 748. 11 lakhs with the staff of 24704 during the same period.

It is the sole responsibility of the Gujarat State Road Transport Corporation to meet the challenge of growing passenger road traffic of the state by way of extending bus services quantitatively and qualitatively. With an expected growth rate of 15 percent per year for passenger road traffic, a minimum of 10 percent increase in the number of schedules operated is called for. The balance of the increase in traffic is to be met by adding to the seating capacity of the fleet and the kms operated by a vehicle.

GUJARAT STATE WAREHOUSING CORPORATION

The Gujarat State Warehousing Corporation was set up in December 1960 under the Agriculture Produce (Development and Warehousing) Corporation Act, 1956.

The object of the Corporation is to build and run warehouses in the State for scientific preservation, storage and distribution of agricultural produce, seeds, fertilizers and to provide adequate storage facilities to the producers and merchants of the agricultural produce and to give them credit facilities through the banks against their stored produce.

Authorised share capital of the Corporation is Rs. 2 crores with a paid up capital of Rs. 28 lakhs. Fifty percent of the paid up capital was subscribed by the State Government and the remaining fifty percent was contributed by the Central Warehousing Corporation.

The Corporation in 1969-70 was operating 30 warehouses with a total capacity of about 7150 tonnes.

For extending its preservation and development activities, the Corporation has strengthened its technical service regarding preservation of all types of stocks of agricultural produce.

The Corporation also has started three grading laboratories at Surendranagar, Broach and Ahmedabad. In near future Corporation intends to extend its technical service at reasonable terms to private storage as well.

The Corporation earned a profit of Rs. 12.80 lakhs in the year 1969-70. During the year 1969-70 the total strength of the staff was 112 with a total wage bill of Rs. 4.70 lakhs.

GUJARAT HOUSING BOARD

Till 31st August 1961 there were two Housing Boards in Gujarat State viz (1) Gujarat Housing Board and (2) Saurashtra Housing Board. Both these Boards were dissolved and a new Board namely "The Gujarat Housing Board" with its jurisdiction all over the State was created with effect from 1st September 1961.

The main functions of the Gujarat Housing Board are to meet the need for Housing requirements of the industrial workers under schemes sponsored by Government of India under the Subsidised Industrial Housing Scheme, Low Income Group Housing Scheme, Middle Income Group Housing Scheme and Land Acquisition and Development Scheme.

Under the Industrial Housing Scheme, the Board has constructed Industrial Housing at (1) Ahmedabad (2) Surat, (3) Bhavnagar, (4) Baroda, (5) Broach, (6) Gandhidham and (7) Junagadh.

Under the Low Income Group Scheme, the Board has constructed houses at (1) Ahmedabad, (2) Amreli, (3) Bhavnagar, (4) Broach, (5) Baroda, (6) Surat, (7) Bhuj, (8) Gandhidham, (9) Bulsar, (10) Rajkot (11) Jamnagar and (12) Surendranagar.

Besides other works, construction of 3 hospitals, 42 dispensaries, 3 diagnostic centres and 8 local offices have been entrusted to the Housing Board by the Employees' State Insurance Corporation Ahmedabad.

Due to closure of some textile mills and other factories, some industrial workers residing in the Board's colonies have been rendered jobless. The Board has taken steps to give relief to such workers. Without evicting such persons for non-payment of rent, the Board as a matter of policy has decided to put up cabins in the colonies for allotment to such industrial workers for running small trades. In addition to this, the Board has also made available several premises for running Ambar Charkha and other activities by Khadi Board in the colonies.

Civil Facilities

The Board takes adequate care to provide civil facilities such as roads, water supply, drainage and street light in its colonies.

Infra-Structure Facilities

The Housing Board has been taking adequate care to provide shopping centres, play grounds, recreation space, schools, medical relief, welfare centres, community halls, open air theatres to the residents of the housing colonies.

The Board realised a profit of Rs. 26.52 lakhs in 1969-70. The number of employees was 759 persons and the establishment expenditure incurred was Rs. 16.24 lakhs.

GUJARAT STATE FINANCIAL CORPORATION

The Gujarat State Financial Corporation established in 1960 has played a major role in the industrial development of Gujarat State. As a specialised financing agency, it has usefully supplemented the operations of Industrial Finance Corporation of India and has filled a distinct gap in the capital market. The Corporation advances loans for the development of different types of infrastructures such as (1) Supply of power, (2) Transport and Communication, (3) Development of plots/sheds, (4) Water and effluent disposal, (5) Finance, (6) Training etc.

Primarily its objectives are:-

- (1) To grant loan or advances or subscribe to debentures of industrial concerns;
- (2) To guarantee loans raised by industrial concerns;
- (3) To underwrite the issue of stocks, shares, bonds or debentures by industrial concerns;
- (4) To act as an agent for the Central Government, State Government or Industrial Finance Corporation in transactions of any business with industrial concerns in respect of loans, advances granted or debentures subscribed by any of them.

With a view to have integrated supply of credit, Gujarat State Financial Corporation has entered into collaboration arrangement with Commercial Banks and Gujarat-Industrial Co-operative Bank Ltd. While the working capital will be provided by these banks, the term credit will be provided by the Corporation. Similarly, the Gujarar State Financial Corporation has participation arrangements with IFCI and ICICI for securing foreign exchange loans.

During the last few years, the Gujarat State Financial Corporation has paid more attention to the small industries and to the less privileged groups in Society like truck drivers, technicians new

entrepreneurs etc. It has also rendered notable assistance to industries damaged by natural calamities.

In a period of 11 years since its inception in Gujarat State, the Gujarat State Financial Corporation has advanced loans to 3736 units. The amount of loan advanced by Gujarat State Financial Corporation has increased from a meagre sum of Rs. 19.6 lakhs in 1960 to Rs. 2267 lakhs in 1970-71

Underwriting of shares was of the order of Rs. 96 lakhs and differed payment guarantees on purchase of machineries was of the order of Rs. 122 lakhs. On an average, during the last 11 years Gujarat State Financial Corporation has granted loans at the rate of Rs. 2 crores per year.

The distribution of loans activitywise during the period in question can be seen in the following table:-

TABLE 2

Loans given to various industries and services

Activities	(Rs. in lakhs)		
	Loans Sanctioned		Disbursed
	No. of units.	Rs.	Rs.
(1) Manufacturing and processing	1630	1562.63	1160.75
(2) Preservation of goods (cold storage)	26	60.73	29.01
(3) Mining	16	17.44	6.32
(4) Electricity	3	14.69	14.69
(5) Hotel	11	36.10	16.79
(6) Transport	739	352.83	321.43
(7) Industrial Estates	15	72.18	47.66
(8) Printing Presses	82	55.29	47.35
(9) Flood Loans	1072	64.49	55.76
(10) Agency Loans	142	30.97	29.20
Total	3736	2267.35	1728.96

The Corporation has, so far, covered 18 percent of small units registered with the Directorate of Industries during the last decade. The growing volume of financial assistance to the small units could be observed from the following table:—

TABLE 3
Loans to Small Scale Industries

(Rs. in lakhs)

Industry	During 1960-61 to 1969-70			During 1970-71		
	No. of units.	Sanctioned	Disbursed.	No.	Sanctioned	Disbursed
Small scale	2182	789.08	489.14	1221	629.93	507.54
Percentage share of small units.	93.88	50.89	42.52	99.10	92.02	92.55

The above table indicates a significant share of the small scale units in the total volume of loans sanctioned by the Gujarat State Financial Corporation. During 1970-71, almost the entire loans operation was directed towards small scale units which accounted for about 92 percent of the total amount sanctioned.

The spectacular increase in the volume of financial assistance granted in 1970-71, can be attributed to the following factors:—

(1) Simplification of application forms, and elimination of unnecessary details;

(2) Relaxation of margin upto 25 percent for small units. Loans below Rs. 10,000 are advanced by keeping margin upto 20 percent and to technician entrepreneurs upto 10 percent to 15 percent.

(3) Loans are disbursed on hypothecation of machineries upto Rs. 5 lakhs for Corporate bodies and upto Rs. 2 lakhs for non-Corporate bodies and against equitable of land and building upto Rs. 2 lakhs for corporate bodies and upto Rs. 1 lakh for non-Corporate bodies, in place of a legal mortgage.

The smallest among the small scale units is estimated around 48 percent. Each of these units has investment in plant and machineries upto Rs. 10,000 only. Since 1970, the Gujarat State Financial Corporation has been providing finance to units having machineries below Rs. 10,000 at concessional rate of 5 percent.

Financial assistance granted by the Gujarat State Financial Corporation in backward districts has been steadily increasing since 1960-61 as can be seen from the following table :—

TABLE 4
Loans advanced in Backward Districts
 (Rs. in lakhs)

Period	Loans sanctioned	Loan disbursed.
	Backward Districts	Backward Districts.
(1) 1960-61 to 1968-69	172.33	121.10
(2) 1969-70	114.78	67.57
(3) 1970-71	151.76	125.95
Total	438.87	314.72

With a view to promote regional balanced development, the Gujarat State Financial Corporation in collaboration with IDBI and the State Government has been providing loans at an interest rate varying from 5 to 7 percent in the backward districts. The industrial units in the backward areas, thus, have the benefit of loans with lower margin, longer maturity and longer initial grace period.

The most impressive and successful scheme sponsored by the Gujarat State Financial Corporation, is the Driver-Owner Scheme. This Scheme is designed to offer the experienced drivers an opportunity to become owner of the vehicles they ply. The Corporation gives them loans upto 85 percent of value of the vehicle. No third party guarantee is insisted on. This scheme which has started in October 1969 has so far benefited 575 drivers with loan amount of Rs. 276.19 lakhs; 164 operators have been granted a loan of Rs. 76.64 lakhs. The most heartening feature with the Driver-Owners Scheme is that the number of defaulters is merely negligible. It is not even 1 percent of the total number of beneficiaries.

The Gujarat State Financial Corporation has recently launched a scheme to advance loans to experienced and qualified technicians to start industry of their own, subject to a limit of Rs. 3 lakhs. This scheme promotes self-employment amongst technicians with modest means.

The Gujarat State Financial Corporation has gone to the rescue of industrial units which were hit either by flood or riots. It is significant to note that it has rehabilitated 76 units affected by the communal riots by providing to them a loan of Rs. 6.44 lakhs. The Corporation has also disbursed loans of Rs. 54.67 lakhs to 893 units which were affected by flood in 1968-69.

The performance of the Gujarat State Financial Corporation in relation to the Financial Corporations in other States appears quite impressive. For example in regard to the loans sanctioned to drivers, operators and industrial estates, the Gujarat State Financial Corporation has provided 22.5 percent and 59 percent of the assistance provided by all the State Financial Corporations in aggregate. The following table makes this position clear :—

TABLE 5

Comparative position of working of the Gujarat State Financial Corporation amongst State Financial Corporations.

Item	(Percent)	
	GSFC	All SFCs.
1. In loans sanctioned by all SFCs during 1960-61 to 1968-69.	7.7	100.00
2. In loans sanctioned during 1969-70.	17.2	100.00
3. In loans disbursed by all SFCs during 1960-61 to 1968-69.	7.0	100.00
4. In loans disbursed during 1969-70.	15.8	100.00
5. In loans outstanding as on 31-3-70	7.6	100.00
6. In shares underwritten (including TNIC)	35.4	100.00
7. In deferred payment guarantee sanctioned (excluding TNIC)	11.3	100.00
8. Loans sanctioned to Small Scale Units since inception as a percentage of total loans sanctioned. (as on 31-3-70).	50.9	42.1
9. Loans outstanding to small units as a percentage of total loans outstanding as on 31-3-1970.	49.3	36.7

The encouraging feature of the functioning of the Corporation is the fact that the percentage of defaulters is negligible particularly among the under privileged groups which have come to be assisted by the Corporation in the recent years.

GUJARAT SMALL INDUSTRIES CORPORATION LIMITED

The Gujarat Small Industries Corporation Ltd., (GSIC) was incorporated as a public limited company on 26th March 1962. It has been sponsored by the Government of Gujarat to aid, consult, assist and promote interests of small scale industries in the State which include all industrial units with a capital investment of not more

than Rs. 75 lakhs irrespective of the number of persons employed. The Gujarat Small Industries Corporation has an authorised capital of Rs. 50 lakhs and the issued, subscribed and paid up capital is Rs. 14.21 lakhs.

One of the important functions of the Corporation consists in distribution of industrial raw materials to small scale industries. Presently, the Corporation is handling raw materials which are received from State Trading Corporation, Minerals & Metals Trading Corporation, Hindustan Steel Limited, Tata Iron and Steel Co., Ltd., the Tin Plate Co. of India etc. During the year ending 31st December 1970 the Corporation distributed various raw materials such as pig iron, iron and steel sheets of different types and other raw materials, such as, structurals and ball bearings, chemicals etc. valued at about Rs. 5.89 crores to over 2300 units all over Gujarat. With a view to facilitate easy procurement of supplies of raw materials by the small scale industries, the Corporation has set up depots at Ahmedabad, Rajkot, Baroda, Udhna, Bhavnagar and Jamnagar.

As a measure of assistance to the small scale units of the state, the Gujarat Small Industries Corporation operates a scheme for supplying industrial machinery and machine tools on hire-purchase basis to small scale entrepreneurs. Since its inception the Corporation has delivered machinery worth about Rs. 45.5 lakhs to 228 units under the hire-purchase scheme. With a view to developing backward tracts in the State, the Government of Gujarat have evolved an integrated scheme for providing assistance to the entrepreneurs. Under this special scheme of hire-purchase, the corporation charges on concessional terms only 5 percent towards earnest money and 3 percent towards service charges.

To help the small scale units to overcome the difficulties in marketing their products, the Gujarat Small Industries Corporation has adopted a policy of purchasing a portion of its requirements directly from such industries. Besides, direct assistance is given through its marketing division, to small scale industries to sell their products to organisations like Railway, Gujarat Electricity Board, Gujarat Refinery, Oil & Natural Gas Commission and Director General of Supplies and Disposals. So far, goods worth Rs. 48.28 lakhs have been supplied against Government tenders on behalf of small scale industries.

Under its import assistance programme, the Corporation has extended significant benefits to small scale industries by importing raw-materials worth Rs. 37.26 lakhs since its inception.

The Corporation is running a separate machine tools department with a view to extend expert advice and financial assistance to the

small entrepreneurs in selecting quality machine tools. During 1970, the Corporation had supplied machinery and equipment worth Rs. 60.27 lakhs to 45 entrepreneurs.

The Government of Gujarat had introduced a package scheme of assistance to un-employed technicians/engineers in Gujarat. Under this scheme the Corporation supplies machinery on hire-purchase at concessional rate of interest of 7.5 per cent per annum and reduced rates of service charges of 5 percent. The number of instalments have been increased to 13 spread over a period of 7 years. The attractive feature of the scheme is that the applicants are not required to provide collateral security or third party guarantee under the scheme.

As part of systematic efforts for developing ancillary industries in the State, the Small Industries Corporation has taken up a scheme for manufacturing scooters. The first batch of scooters named Girnar has been produced for the first time under the technical guidance provided by the Corporation. These scooters are now under continuous testing and after the establishment of their road-worthiness, the Corporation plans to implement the scooter project in three phases. In the first phase the Corporation proposes to produce 12000 scooters a year and in the second phase 16000 scooters a year and in the third phase 30000 scooters per year. This programme will generate in the first phase a demand for components and parts valued at about Rs. 25 lakhs. The second phase is likely to generate a demand for Rs. 1.25 crores and the third phase a demand for Rs. 6 crores. The project when fully implemented, will give employment to about 2000 skilled workers.

The Corporation is presently planning to open a training centre with a view to provide multiple service to small scale industries and new entrepreneurs. This centre will provide to the small scale unit free service for making application for import licence and follow-up on subsequent stages as well. This centre will also help the small scale unit in following up their orders placed outside the State for indigenous raw materials and in obtaining machinery from the National Small Industries Corporation.

With the slow and steady growth of Petro-Chemical Complex in and around Baroda, the supply of plastic raw materials will be plentiful. The Corporation plans to establish a training centre for mould designing and for mould manufacturing. Presently the Corporation is considering a project report for manufacturing of dye-stuffs intermediaries.

GUJARAT INDUSTRIAL DEVELOPMENT CORPORATION

The Gujarat Industrial Development Corporation has been conceived as a powerful instrument for laying a sound industrial base in Gujarat State. Established in August 1962 the Gujarat Industrial Development Corporation, has now 58 industrial estates under its management. The Gujarat Industrial Development Corporation, is engaged in the task of providing the economic and social overhead and in conferring in so called infrastructures to the industrial units that can be located in the sheds within their estates.

The infrastructures provided by the Gujarat Industrial Development Corporation, include a net work of roads, water and power supply, drainage, common servicing facilities, godowns, and housing for industrial workers. So far 58 industrial estates/areas have been sanctioned by the Gujarat Industrial Development Corporation of which 32 are fully developed. Out of the remaining 26, but for 9 estates, land acquisition is completed, and development work is in progress. 43 of such industrial estates are located in Urban areas. The total land in possession of the Gujarat Industrial Development Corporation in all industrial estates is around 3,642 hectares against the present target of 4,322 hectares. The size of an industrial estate is widely varying from 2.02 hectares in rural areas to about 810 hectares as in Vapi.

The spectacular progress of the Corporation is revealed from its investment which rose from Rs. 58 lakhs on 1967-68 to Rs. 7.80 crores in 1970-71. This means an average annual addition of about Rs. 2.40 crores in its total investment.

Besides development of open plots, the Gujarat Industrial Development Corporation, has also undertaken disposal of plots with ready made sheds on a hire-purchase basis. Out of 1905 sheds sanctioned as on 1st April 1971, 700 are reported to have been completed, 900 are under construction and 1290 are reported to have been disposed of. In all, there are 600 industrial units in production in the Gujarat Industrial Development Corporation estates.

The Gujarat Industrial Development Corporation has adopted a progressive policy of providing housing quarters for the workers of the industrial estates and supervisory staff. In 1969-70 around 1003 housing units were nearing completion.

It is heartening to note that on a comparative study of the performance of the Gujarat Industrial Development Corporation in 1969 with similar institutions in other States, Gujarat emerges as one

of the leading states in the country as will be evident from the following table :—

<i>State</i>	<i>No. of estates</i>
Mysore	21
Kerala	18
Punjab and Haryana	47
Tamilnadu	37
Andhra Pradesh	36
Gujarat	58
(additional 10 already sanctioned)	

The number of sheds constructed by different states in the year 1969 are as under :—

<i>State</i>	<i>No. of sheds constructed</i>
Punjab and Haryana	895
Mysore	311
Tamilnadu	518
Orissa	195
Kerala	513
Uttarpradesh	1012
Gujarat : Sheds completed	700
Under construction	900
Work orders given.	305

The tremendous increase in the demand of plots and sheds in the Gujarat Industrial Development Corporation estates can be primarily attributed to the attractive terms and conditions of payment. Plots are leased out on 99 years lease which can be renewed for another 99 years. A nominal lease rent of Rs. 1.20 per 1000 sq. meter (Re. 1 per 1000 sq. yards) per annum is charged. The premium price for the land allotted is fixed by the Corporation for each area keeping in mind the cost of land and the development expenditure. The total amount of the premium price is generally recovered in the following manner :—

- (1) 12 1/2 percent before allotment;
- (2) Another 12 1/2 percent in first two years with interest at 9 percent in annual instalments; and
- (3) Remaining 75 percent over a period of remaining 10 years at 9 percent interest per annum.

These conditions apply in the context of payment of the sheds as well.

The Corporation's main sources of finance in the past had been the assistance from Government by way of loans and open market loans. During the year 1968-69 the Corporation has mobilised resources from different financial institutions. During the year 1969-70, the loan from Government was Rs. 79.30 lakhs (excluding the value of Government land, interest etc.) while an amount of Rs. 192.49 lakhs was raised by issue of bonds in December 1969. In addition, the Corporation has obtained a special loan from different commercial banks amounting to Rs. 35 lakhs in 1968-69.

The Gujarat Industrial Investment Corporation Ltd., has also extended a long-term loan assistance of Rs. 100 lakhs during 1969-70 towards the development of different industrial areas.

One of the most challenging functions performed by the Gujarat Industrial Development Corporation is to supplement the financial assistance given by the Gujarat Industrial Investment Corporation, State Bank of India and other banks to technicians, engineers and craftsmen for setting up their own industry. The Gujarat Industrial Investment Corporation, has within a short period of one year, sanctioned loans totalling more than Rs. 3½ crores to such technicians. In order to provide the matching requirements of infrastructure for setting up an industrial unit, the Gujarat Industrial Development Corporation has allotted during 1969-70, 92 sheds and 21 plots to such technicians who have been sanctioned loans.

To generate a continued supply of new young entrepreneurs in the State, Gujarat Industrial Development Corporation has already successfully pioneered and implemented the Entrepreneurs' Training and Development Programme in collaboration with the Gujarat State Financial Corporation. Every three months, 50 selected employees, workers, merchants, college graduates and salesmen are trained, guided and motivated to set up their own small scale units.

As a part of its programme for initiating industrial development in rural areas the Gujarat Industrial Development Corporation decided to collaborate with the Gujarat Industrial Investment Corporation, in providing sheds for such rural workshops for which loan is sanctioned by the Gujarat Industrial Investment Corporation. So far the Gujarat Industrial Investment Corporation, has sanctioned loan for workshop for about 100 persons of whom 35 have paid deposits in the Gujarat Industrial Development Corporation for sheds. The work of obtaining suitable land and constructing sheds is in progress.

For the Petro-Chemical Complex, which is coming up near Baroda, close to the Gujarat Refinery, the Gujarat Industrial Development Corporation is providing the infrastructures and so far Rs. 1.30 crores have been invested by the Corporation in this direction.

GUJARAT MINERAL DEVELOPMENT CORPORATION LIMITED

The Gujarat Mineral Development Corporation Limited was established on 15 May 1963 as a private limited company under the Companies Act by the State Government to undertake mining and development of important minerals. The Corporation came into existence initially with an authorised capital of Rs. 50 lakhs, which has now been increased to Rs. 200 lakhs. The paid up share capital of the Corporation stood at Rs. 127 lakhs. However, the State Government have advanced to the Corporation an interest-bearing loan to the extent of Rs. 130 lakhs.

The major projects taken up on hand by the Gujarat Mineral Development Corporation are as under :—

- (1) A project of mining of the sand stone at village Vavdi in Chotila taluka of Surendranagar district and processing it into silica sand of various mesh sizes at Surajdeval in the same district;
- (2) A project of mining of fluorspar at Ambadungar in Chhotadepur taluka of Baroda district and the beneficiation of fluorspar at the foot of Ambadungar hills at Kadipani to up-grade the fluorspar ore into acid, metallurgical, and ceramic grades;
- (3) A project of alumina and aluminium based on the bauxite deposits of Kutch district and Jamnagar district.
- (4) A lignite project; and
- (5) A base metal project.

A brief description of each of the above project is given below:—
The Corporation has put up an indigenous crushing and grinding plant for processing the sand stones available from Vavdi mines into silica sand of different meshsizes with an input capacity of 40 tonnes per shift per day. The plant is able to satisfy the demand of growing industries of the State by supplying silica sand in standardised mesh and quality.

In order to obtain 500 tonnes of fluorspar ore per day, which is the input capacity of the beneficiation plant, earth work to the extent of 1,500 to 2,000 tonnes per day has been undertaken.

The expansion and mechanisation of mining at the mines was accordingly commenced by accelerating blasting and drilling operations. Four compressors were engaged. A new mineralised zone on the slope near Zone No. 8 was located and new faces were opened and new benches were formed. Five more dumpers besides the ten Hungarian dumpers initially purchased, were purchased alongwith a Hindustan dozer for feeding the required ore into the feeding apron of the plant. The Corporation has successfully completed the erection of the beneficiation plant. The beneficiation plant will have an input capacity of 500 tonnes of fluorspar ore and produce fluorspar concentrate to the tune of 40,000 tonnes per year, which will be spread over both acid and metallurgical grades, as per requirement of industries. The entire production will be consumed by the industries in the country that are importing fluorspar at present with considerable drain on scarce foreign exchange resources of the country. The Corporation will thus be contributing towards the savings of foreign exchange to the tune of Rs. 3 crores per year.

Besides holding the mining lease over the bauxite areas of Kutch district, the Corporation has got mining lease over the bauxite areas of Mevasa in Jamanagar district. The Project offices at Mandvi and Bhatia have been opened and mining of bauxite in both the areas have already been commenced by the Corporation. The Corporation has got prepared a technical report through a well known firm of France namely M/s Pechinery on geological aspect of the bauxite deposits. The Central Government have got prepared a techno-economic feasibility report for the establishment of an export-oriented alumina plant in Gujarat by the National Industrial Development Corporation. The Government of India have set up a Study Group with a view to expedite a final decision in respect of establishment of such a plant and to examine the various aspects of the project, namely location and size of the plant, availability, utilities, the capital and production cost structures etc. The Study Group has submitted its comments to the Central Government. According to the findings of the sub-group of the study group, techno economic feasibility of the project with production capacity of 2 lakh tonnes of alumina on Kutch bauxite has been fully established.

For the development of lignite deposits available in Kutch district, the Corporation has entrusted the work of preparing the techno-economic feasibility report to the Central Fuel Research Institute Dhanbad. 400 tonnes of representative samples of the lignite deposits were collected from the area, out of which 200 tonnes of samples have been supplied to the said Institute to enable them to undertake

necessary pilot and laboratory tests on the same. On the basis of the said tests, a report is expected to be prepared by the Central Fuel, Research Institute. The Gujarat Mineral Development Corporation is awaiting the said report.

The Corporation also intends to develop the base metal deposits available from the Ambamata area of Banaskantha district. Preliminary report of the Geological Survey of India indicated that the deposits are of the order of 5.5 million tonnes. Application has already been submitted to the State by the Corporation for obtaining mining lease over the said area.

With more funds and with effective streamlining, the Gujarat Mineral Development Corporation can generate adequate internal resources for financing and expansion of existing projects.

GUJARAT EXPORT CORPORATION LIMITED

Gujarat Export Corporation, a public limited company, was established in October 1965 with an authorised capital of Rs. 50 lakhs and with active State Government participation in equity share capital. The main objective of this Corporation has been that of assisting and fostering the development of the export trade of Gujarat with special emphasis on meeting the requirements of the small-scale and cottage-scale industries. The Corporation started actual business at the end of 1966. The main items of exports of the Corporation at present are engineering goods, chemicals, finish leather goods, jari, handicrafts, and jewelleryes. However engineering goods happen to be the bigger items of exports. It is the policy of the Corporation to maximise the incentives to as many lines of exports as possible. The Corporation has within a brief period of active existence achieved the total export figure of Rs. 77 lakhs.

The Corporation functions as an export body by itself and directly exports goods manufactured by the industries on sole export agency basis. The major items among the 68 commodities so far exported by the Gujarat Export Corporation are diesel engines, machine tools, centrifugal pumps, pipe fittings, bright bars, sluicevalves, gate valves, turbine pumps, industrial machinery such as tiles making machinery, rolling shutter making machinery, wire nail making machinery, wire drawing machinery, rubber extruders, synthetic coal-tar dyes, finished leather goods, jari goods and handicrafts.

Besides such direct exporting, the Corporation also works for general export promotion. The Corporation takes part in seminars, symposia, etc. to create a general climate favourable to exports and

inculcates export consciousness in the minds of traders, manufacturers, and exporters. The Corporation also keeps itself in touch with industries, chambers of commerce, engineering associations, trade associations, and all similar bodies to keep them informed about the development of exports and generally disseminates such information to all people interested in exports.

The Corporation also undertakes the task of identifying the type of industries and their location in the State which have significant export potentiality.

Small manufactures who do not take the necessary expertise are helped by the Corporation in executing their export orders on nominal service charges. The Corporation also assists the established orders in servicing orders.

The Corporation also extends financial assistance to manufacturers/exporters associated and aligned with it.

The Corporation helps the manufacturers in securing packing credit, postshipment credit, and export finance against export orders. During 1970, the Corporation has advanced about Rs. 20 lakhs to 23 manufacturers in the State.

The Corporation conducts export surveys so that eventually it may ensure that more and more commodities from the State of Gujarat are exported. Gujarat manufactures many commodities such as machine tools, bicycle accessories, textile accessories, tube valves, automobile parts, and all these are being manufactured by small industries. The Corporation through its export surveys has helped these industries to establish good markets and is successful in exporting even machine tools manufactured by the small industries in Gujarat to UK on the one side and Australia and New Zealand on the other side. The Corporation contemplates to carry out a systematic export potential survey of the State of Gujarat.

The Corporation contemplates starting a raw material bank to help the small exporters. Since the Corporation has now been recognised as an export house by the Government of India, it would be now able to develop its activities for securing raw materials, imported as well as indigenous, for the manufacturers of Gujarat.

The Corporation renders assistance to manufacturers by helping them to get their export entitlements and incentives through CCI Offices and attends to all the necessary formalities for the manufacturers to secure all the incentives to drawback for the goods exported by them.

The Corporation also participates in international exhibitions. The Corporation has participated in the industrial exhibition organised by the Government of India in Ceylon and quite a good number of products from Gujarat were exhibited. Orders worth Rs. 4 lakhs were procured on the spot from Ceylon and executed by the Gujarat Export Corporation. Similarly, the Corporation participates in the exhibition held within the country and strives to create stronger and more abiding export consciousness in the minds of exporters.

Another way in which the Corporation helps the industries is by procuring samples from the overseas markets for the products which can be offered from the State of Gujarat. Of course, no big business has yet been possible because of keen competition and unattractive prices.

The Corporation acts as useful liaison between the manufacturers and the Government in many ways.

GUJARAT INDUSTRIAL INVESTMENT CORPORATION LIMITED

The Gujarat Industrial Investment Corporation was established on 12th August, 1968 as a public limited company. All the shares of the Corporation are held by the Government of Gujarat. The objectives of this Corporation are (1) providing capital participation in companies, (2) sponsoring and underwriting of new issues of shares and securities, (3) providing long term and medium term loans for fixed capital of partnership firms, proprietary concerns and companies and (4) capital participation with commercial banks and other financial institutions.

The Gujarat Industrial Investment Corporation has been assisting large, medium and small industries in planning expansion of existing units, in effecting renovation and modernisation of economically weak units. In collaboration with financial institutions like Industrial Financial Corporation and Industrial Development Bureau of India at the all India level and the Gujarat State Financial Corporation and commercial banks, the Gujarat Industrial Investment Corporation has been providing adequate financial assistance for investment purposes.

Under its general scheme, the Gujarat Industrial Investment Corporation provides financial assistance to industries by way of term loans and subscription for the public issue upto 75 per cent of the fixed assets created. Till 1970-71 since its inception, the Gujarat Industrial Investment Corporation has assisted 303 projects with a

financial commitment of Rs. 11.53 crores. The introduction of technicians' scheme has broken new grounds. A new class of small potential entrepreneurs who were till now not introduced to the banking structure have a chance of being assisted substantially by Gujarat Industrial Investment Corporation. The Corporation does not insist on any contribution from the technicians either for the creation of assets or for the provision of working capital. No third party guarantee is also required. The rate of interest of loans under the technician's scheme is 5 per cent during the first two years and 9½ per cent thereafter. The repayment is spread over 16 half yearly instalments after a moratorium of 2 years. The Corporation has assisted 585 projects with a total financial aid of the order of Rs. 4.51 crores till the end of March 1971.

With a view to provide servicing facilities, the Gujarat Industrial Investment Corporation has promoted establishment of rural workshops. About 113 workshops have been established throughout the State for providing repairs and maintenance of tractors and oil engines. Under this scheme, an entrepreneur is provided with financial assistance to cover fixed assets and the rate of interest and other conditions are similar to the conditions laid down for the technicians' scheme. In all 113 rural workshops have been sanctioned at a cost of Rs. 25.96 lakhs till the end of 1970-71.

The Gujarat Industrial Investment Corporation has planned to launch directly industrial projects either by itself or in financial collaboration with other business houses. The Corporation has so far secured letters of intent for the projects of Fuel Injection Equipment, Fuel Injection Test Benches and Automobile Tyres and Tubes, letters of intent in respect of Methyl Methacrylate, Hydrocyanic Acid, Nylon Filament Yarn, Caustic Soda and Chlorine, and Cresols are likely to be issued to the Corporation. Once these projects materialise the investment would be of the order of Rs. 30 crores leading to an output of the value of over Rs. 100 crores. So far the Gujarat Industrial Investment Corporation has provided financial assistance of about Rs. 16 crores which in turn has induced generation of capital investment of around Rs. 75 crores.

GUJARAT STATE TEXTILE CORPORATION LIMITED

The Gujarat State Textile Corporation was registered as a Government owned private limited company on 30 November 1968. The main object of the Corporation, *inter alia*, is to manage and control any textile mill in the State which may be taken over by the Government of India under Industries (Development and Regulations) Act

or to take on lease, textile mills and to guarantee loans secured by textile mills from scheduled banks or other financial institutions. The Corporation works through its Board of Directors and several committees, namely Supervision Committee, Guarantee Committee, Stores Purchase Committee, Staff Selection Committee, etc.

With a view to support the economically weak units, the State Government had adopted a policy of giving financial guarantees to the banks to provide necessary working capital or loans to such units. On formation of this Corporation, this function of the Government has been transferred to the Corporation.

The Corporation accordingly sanctions guarantees for various textile units in appropriate cases. As and when occasion arises, the Corporation is appointed as Authorised Controller of sick mills by the Central Government under the Industries (Development and Regulations) Act, 1951. The Corporation has been discharging its function as an Authorised Controller for several such mills in the State.

Following was the working of Companies under the management of the Corporation for the year 1970.

Name of the Mills	No. of Spindles	No. of Looms			Excise duty paid (Rs. in lakhs)	Number of employees
			Plain	Auto		
The New Manekchock Spg. & Wvg. Co. Ltd.,	33416	528	100	243.15	18.63	1575
The Ahmedabad New Textile Mills Co. Ltd.,	44024	920	..	298.97	23.85	2175
The Himabhai Mfg. Co. Ltd.,	21532	448	..	160.54 (Partial Working)	10.19	1110
The Baroda Spg. and Wvg. Co. Ltd.,	34352	658	..	188.95 (Partial Working)	9.13	1835

The Corporation also took over the control of the Rajkot Spinning and Weaving Mills Ltd., Rajkot and the Mahalaxmi Mills Ltd., Bhavnagar and restarted them in February 1971.

The necessary working funds required for running the textile mills are provided by the National Textile Corporation and The Gujarat State Textile Corporation Ltd. in the ratio of 51 to 49 percent.

Working funds are secured by deeds of hypothecation and legal mortgages on the fixed assets of the company executed through this Corporation in its capacity as Authorised Controller of these mills. Further, the Corporation gives guarantees to the bankers of the mill companies for various cash credit facilities and loans granted by the bankers and the Government of Gujarat executes additional guarantees for the same.

The Corporation has established at its registered office, a Central Stores Purchase Organisation for the purchase of important and fast moving items consumed in textile mills under the management of the Corporation. This Organisation enables the mills to procure the goods at competitive prices as it has an advantage of bulk purchases.

The Corporation has started a small laboratory as its own activity for the manufacture of auxiliaries to be consumed by the mills under the management of the Corporation. It has been decided to supply the items manufactured in this laboratory to the mills run by this Corporation, on a 'no profit- no loss' basis.

GUJARAT AGRO-INDUSTRIES CORPORATION LIMITED

The Gujarat Agro-Industries Corporation Ltd. was established in May 1969 with an initial authorised capital of Rs. 2 crores under the joint and equal participation of Central and State Government. Its aims and objectives are: to promote enterprises for manufacture of inputs required in agriculture and allied pursuits; to promote industries required for processing, preservation and distribution of agriculture output and allied pursuits; to distribute farm machinery and implements and equipment pertaining to processing dairy, poultry, fishery, and other allied industries; to provide on hire and arrange for repairs and maintenance of farm machinery and other expensive equipments to increase productivity of the agricultural sector; and to provide managerial and technical guidance for setting up an efficient conduct of agro-industries. The Corporation envisages four main types of activities; (1) manufacturing, processing and preservation; (2) trading, distribution, and service (3) managerial and technical service; and (4) assistance in procurement of finance for deserving schemes.

A representative (but not exhaustive) list of enterprises which can be undertaken by the Corporation or for setting up and running of which assistance can be extended by the Corporation is as under :-

1. Cattle Feed Factory/Dairying.
2. Cold Storages.
3. Rice-bran oil extraction.

4. Rice milling plants.
5. Soil testing laboratories.
6. Insecticide Factory.
7. Aerial Spraying.
8. Fruit De-Hydration Industry.
9. Sea-Food Industries/Fishey.
10. Marine Engines Plant.
11. Guar Gum processing.
12. Oilseeds processing.
13. Protein foods.
14. Distribution of tractors and farm implements.
15. Repair workshops and training centres for farm implements.

The following is a brief description of the achievements of the Corporation on different fields :—

The Corporation has set up a cattle feed factory at Khandheri near Rajkot at an outlay of Rs. 31 lakhs with a rated capacity of 5 to 6 tonnes of cattle feed per hour. Two other cattle feed factories which were originally under the management of the Corporation have been handed over to the Milk Producers' Unions in Mehsana and Surat.

The Corporation has set up its first cold storage and ice plant in March 1971 at Boriavi in Kaira district in a record time of only six months. The Boriavi Cold Storage which has been set up at a cost of around Rs. 14 lakhs can store 2000 tonnes or about 25,000 bags of potatoes and its ice-plant can produce 10 tonnes of ice per day. The Corporation has set up its second cold storage and ice plant at Deesa in Banaskantha district at a cost of nearly Rs. 9 lakhs with a capacity of 1000 tonnes or 12,500 bags of potatoes; its ice plant has a capacity of 10 tonnes per day. The Gujarat Agro-Industries Corporation has set up a subsidiary company known as the Gujarat Agro-Industries Cold Storages Limited with a view to establish and run cold storages in different places in Gujarat. As the existing cold storages have become popular and the demand for them has been steadily increasing, the said company has been set up. The Corporation has formed another subsidiary company known as the Gujarat Agro-Industries Oil Extraction Limited which in turn proposes to start a factory for the extraction of oil from rice-bran at Bareja in Ahmedabad district with an outlay of nearly Rs. 27 lakhs and daily processing capacity of 40 tonnes of rice-bran.

The most ambitious of all the programmes of the Gujarat Agro-Industries Corporation is the launching of Gujarat Agro-Marine Products Limited in December, 1971 with a Rs. 2 crores outlay for the development and establishment of fisheries complex in the western coast of Gujarat. The proposed marine industries complex is likely to be established at Veraval and it promises to turn out to be a foreign exchange earner.

The Corporation has set up a factory at Godhra in the Panchamahals district for the manufacture of Lindane, a basic chemical for manufacturing pesticides. It will be perhaps for the first time that this basic chemical will be manufactured in India. This is an import substitute industry with an outlay of Rs. 1.25 lakhs manufacturing 7.5 tonnes of Lindane per year as against an annual demand of 100 tonnes per year in the country.

The Corporation is also planning to establish canning units in Surat, Bulsar, Baroda and Junagadh districts for effectively utilising the existing abundant crops of fruits and vegetables.

One of the most important functions of the Corporation is to promote mechanisation of agricultural activities for stepping up agriculture output. With a view to meet the growing demand of tractors, the Gujarat Agro-Industries Corporation has under taken the registration and distribution of tractors among farmers Gujarat. As a result of its efforts, 196 tractors were distributed to the farmers in the State at the close of the year 1970.

The Corporation also plans to provide servicing facilities *i. e.* pre-sale and post-sale services for tractors. It envisages to have a wide range of farm implements, tractors, oil engines, pumping sets and crop protection equipment at the proposed service centres. The Corporation is also proposing to extend hiring facilities to the smaller farmers so that effective use of tractors may be made by the small farming community. At present 3 agro-service industries are functioning at Sarkhej near Ahmedabad, Kanjari in Kaira district and at Broach. Few more centres are being planned in the year 1971.

The Corporation has plans on hand for providing employment opportunities to un-employed technicians and engineers by establishing agro-service centres with tractors and other agricultural implements.

GUJARAT STATE FERTILIZERS COMPANY LIMITED.

The Gujarat State Fertilizers Company Limited, has an established reputation in the field of fertilizer production in India and abroad.

It launched its complex for manufacture of fertilizers and chemicals in 1963, when its project report was approved by the Government of India. The project is located at Bajwa near Baroda. In close proximity is the Gujarat Oil Refinery from where the fertilizer plant is to receive Naptha which is one of the principal feed stocks.

The Gujarat State Fertilizers Company Limited is a striking example of unqualified success of the so-called joint sector enterprise. While the State Government has 49 per cent shares in the GSFC, nearly another 30 per cent of the shares are held by Central Government/Financing Agencies. Over 35,000 farmers hold shares in the company and thereby it has maintained a live contact with the farming community and the village level co-operatives. The control of private share-holders over the GSFC is at a minimum of 21 per cent spread over large number of small holders. The accounts of the company are open to the scrutiny by the Controller and Auditor General of India. That apart, it has been recently decided that the annual report of the Board of Directors of the company will be placed on the table of the State Legislature and thus the public accountability has also been taken care of.

The company's authorised capital is Rs. 15 crores. Its issued and subscribed capital is Rs. 12 crores of which 49 percent has been subscribed and paid fully by the Government of Gujarat. The farming community and the cooperative sector of Gujarat have also participated in a big way in the Company's share capital. The Gujarat State Fertilizers Company is one of the most successful public limited companies in India which combines the dynamism and initiative of the private sector with the social and economic objectives of the public sector.

The Company completed its plant erection work in a record time. In its first phase the Company was operating at 1,50,000 tonnes of Ammonia and 1,03,000 tonnes of Urea capacity per year. It has expanded in its second phase to a total capacity of 3,15,000 tonnes of Ammonia and 3,68,000 tonnes of Urea by August 1969. Thus the company plays a vital role in providing important inputs for bringing about the green revolution in the country.

The total fixed assets of Gujarat State Fertilizers Company as on 1970-71 was to the tune of Rs. 5922 lakhs including current assets worth Rs. 1598 lakhs.

During the year 1970-71 the Company made a profit of Rs. 252 lakhs. In 1969-70 the total staff in position was 1419 and the expenditure incurred on wages and salaries was of the order of Rs. 103 lakhs.

CHAPTER VI

PLAN IMPLEMENTATION AND ADMINISTRATION

PLAN IMPLEMENTATION

Economic and social planning implies the husbanding of material and human resources in relation to defined social ends. The realisation of such ends in pre-determined stages is not possible in the absence of a well-organised administrative system at the central, state and district levels. The organisation and structure of the State Government as also the district administration in Gujarat have a great bearing on the implementation of plan and non-plan schemes and thereby on the welfare of all citizens. In an under-developed economy as well as in a developing economy, the structure of Governmental machinery exerts a powerful influence on the lives of the people. With the emergence in Gujarat State of a new managerial class in the large, medium and small private sector, industrial and commercial units and with the development of commerce, banking, insurance, shipping, forward-trading and the growth of exports and imports and internal road transport, the role of commercial and trading class has progressively increased in the society; whereas the role of the administrative elite and petty bureaucrats has steadily declined. Nevertheless, the bureaucracy still enjoys a dominant influence in the rural areas of the State and even in urban areas the district administration still continues to play an important role.

6.2. Gujarat is one of the few states in the country which has had an unbroken record of a high standard of administration at the state and district levels. Thanks to the tradition of Gandhiji, Gujarat has had a band of selfless workers who have been playing an important part in exerting public opinion on the formulation and implementation of state policies. Civil servants at the top and middle management levels in Gujarat have been relatively quick to respond to public opinion in a reasonable way without giving up the principles of justice and fairplay. There has been a readiness on the part of the non-officials in Gujarat to appreciate the usefulness and difficulties of administration and similarly on the part of officials there has been a certain open-mindedness and receptivity to the ideas of non-officials. The spectacular progress of Gujarat State in the field of industrialisation during the last one decade is proof of the influential role played by the administration in rearing a large number of new entrepreneurs and in creating an adequate base of

infra-structure. Similarly, the implementation of land reforms and Ceiling Act is a tribute to the resilience and the persuasive skill of the district authorities in many parts of the State. The solution to the Pardi Ghasia land problem is an example of imaginative and dedicated administrative leadership at the district and at the state levels. The functioning of some of the public sector undertakings has been largely responsible in keeping Gujarat in the forefront of large scale and small scale industrialisation. During the scarcity in 1965-66 and again in 1967, the floods in 1968 and again in 1969 and during the emergency arising from the Indo-Pak war in September, 1965 and again in December, 1971, the district administration in different parts of the State rose to the occasion and organised relief to the unemployed or the flood-stricken or the wounded Jawans in an efficient manner that has been praised at the hands of agencies outside the State. All in all, the administrative machinery in Gujarat both at the state level and district level has a certain degree of dynamism, initiative and leadership which should prove useful in building up a socialist pattern of society.

6.3. It is admitted all over the country that Gujarat is a pioneer in democratic decentralisation. The idea underlying democratic decentralisation in administration is to ensure active participation of the people at the local district and state levels in the formulation of plan schemes and in providing an opportunity for self-government. Planning from below was one of the ardent maxims quite close to the hearts of Gandhiji and Jawaharlal Nehru, and in our own State the late Shri Balwantraji Mehta was the architect of the so called Panchayat Raj. During the eight years of its existence Panchayat Raj has helped in creating a new cadre of leaders at different levels and in promoting a consciousness about planning for the welfare of the masses. However, in tackling the problems of weaker sections of the community the Panchayats at different levels have been facing deadlocks arising from group-conflicts.

6.4. On a review of the plan schemes implemented in our State during 1971-72, it is found that out of 662 plan schemes included in the Fourth Five Year Plan of the State, 202 schemes are implemented at district level. This means that nearly 1/3rd of the total number of plan schemes fall under the jurisdiction of District Plan. With a view to improving at the field level (District and Regional) the existing machinery and procedures for reviewing the financial and physical targets, and for attempting a quantitative and qualitative evaluations of the progress of plan schemes, the creation of the offices of

Regional Commissioners and setting up of a State Planning Board have been recommended elsewhere in the chapter.

6.5. At the district level, the implementation of plan schemes is done by different technical departments and the quantitative and qualitative review of the plan schemes retained with the Government is done by the district Collectors. As regards district level schemes which have been transferred to the district Panchayats, the review of achievements and bottlenecks is done by the District Development Officers. In view of the growing pace and pattern of social and economic progress in the districts, the fact that the Collector and the District Development Officer are of the same rank drawn from the Indian Administrative Service, the growing number of regional offices and Government of India zonal offices in different sectors of development, and finally in view of the rapidly expanding role of public undertakings like Gujarat Industrial Development Corporation, Gujarat State Financial Corporation, Small Industries Corporation, Gujarat Export Corporation, Gujarat Agro-Industries Corporation, Gujarat Mineral Development Corporation, it is necessary now to ensure coordination by a senior officer at the regional level. The impact of governmental and semi-governmental activities on the functioning of the private sector and on the region has to be assessed in a balanced way so as to produce findings from time to time, as may prove useful in the formulation of policies of the State. The case for the revival of Regional Commissioners may be examined on the following grounds :—

(1) For periodical evaluation of the implications and the bottlenecks in the region as a whole and for formulating a meaningful plan for the most efficient exploitation of material and human resources with a view to maximising industrial and agricultural output, industrial and agricultural employment, to progressively eliminating pockets of backward areas and to ensuring a meaningful link-up of the backward, developing and developed areas within an overall framework of Rural Urban Development.

(2) To initiate and implement measures in accordance with State policy enunciated from time to time, for the protection of weaker sections of the community and to pay adequate attention for speedier and efficient implementation of the welfare schemes relating to Adivasis, Harijans, Halpatis, Rabaris, Maldharis and Bharwads.

(3) To ensure effective implementation of special schemes intended to confer economic benefits on marginal farmers, landless labourers and un-organised casual labour.

(4) To ensure balanced and rapid progress of schemes relating to the setting up of co-operatives, enlargement of co-operatives and diversification of co-operatives.

(5) To ensure speedier implementation of programmes of low cost housing for the weaker sections of the community and for the slum dwellers.

(6) To review from time to time and coordinate policies and programmes and resolve differences of different district offices, zonal offices, regional offices, to ensure an overall coordination with a view to eliminate administrative, technical and financial bottlenecks and delays, at the official level in the formulation and implementation of plan schemes.

(7) To ensure a realistic appraisal of the quantitative and qualitative results of plan schemes in the region as a whole.

6.6. At present, the District Collectors do not have the benefits of advice from a senior field officer who is associated with field problems and can readily appreciate the difficulties and bottlenecks that come up in the field and the remedial measures that can be quickly adopted for improving the administrative and operational efficiency of the district administration in particular and the region in general. Similarly, the District Development Officer who is under the control of the District Panchayat is in the need of support, advice and guidance from time to time for tackling problems arising from inter-personal relationships, from the functioning of the different district level committees, taluka level committees and from the differences arising from within the different technical services and from imprecise and unclear enunciation of policies by technical officers of the regional level. The case for a strong imaginative Regional Coordinator needs to be favourably carefully examined by the State Government.

6.7. A few revenue sub-divisions or Prants can be converted into sub-Collectors', divisions and young IAS/State level officers on their first promotion to senior scale can be posted to these sub-Collectorates so as to acquire thorough grinding for a period of two or three years before they move on to other spheres of responsibilities. A sub-Collectorate will give a young officer the benefit of a senior scale and at the same time give him sufficient opportunity to pick up experience and maturity before he takes up bigger districts and important departments.

6.8. With a view to improving the quality of processing of statistical data relating to plan and non-plan schemes and to different sectors of the district economy, there is a need for ensuring greater objectivity and independence of the District Statistical Officer who is

presently under the District Panchayat. It may perhaps be desirable to withdraw him (or create a new post) and keep him under the supervision of the District Collector. With a view to making the role of the Statistical Officer more effective, it is suggested that all District Statistical Officers should be made class I Officers. Similarly, in case the Office of Regional Commissioner is revived, a Deputy Director of Statistics and a Statistical Officer with a nucleus of staff should be kept at the disposal of the Commissioner's office.

6.9. With the revival of Regional Commissioners, it may be advisable to set up a *State Planning Board. At present, there is a State Planning Advisory Board which is purely advisory and meets as and when convened at the State level. What is needed is a full fledged, full time planning machinery wholly devoted to the problems of planning. Twenty years of national planning have clearly revealed that there are such large regional and local variations in climate, soil agronomy, population characteristics, underground water resources and natural resources that there is need for an expert body to undertake different studies from time to time with a view to ensure balanced and efficient utilisation of the human and material resources of the State as a whole, keeping in mind, the need for correcting regional imbalances, for developing the backward tracts and under-developed pockets in relatively developed areas. The Chairman of the State Planning Board should be the Chief Minister. The Finance Minister, the Chief Secretary and Finance Secretary may be made ex-officio members. It is desirable for reasons which will be enumerated later in this chapter to have a full fledged Secretary for planning. He may be made Member-Secretary of the State Planning Board. Apart from the Chairman and three ex-officio members, there should be another five outstanding men nominated as full-time members of the State Planning Board. They may be men with a record distinguished service and experience in different economic and social fields. Out of these five members, one may be a distinguished economist, one a distinguished administrator and one a distinguished scientist or technologist.

6.10. The State Planning Board should be entrusted with the following functions:—

- (1) To undertake organisation of surveys, studies and investigations and to explore and estimate the availability and spatial

*Vide in this connection, the suggestions made in full paper on "Planning in a Mixed Economy—Present planning methodology and future development"

distribution of (a) natural resources, (b) manpower, and (c) investment resources.

(2) To undertake interpretation of the resources potentials in macro-economic, spatial, sectoral and temporal terms.

(3) To undertake a study of material balances.

(4) To undertake integrated frame-work of intersectoral inter-dependence.

(5) To undertake investigations in respect of techno-economic implications for drawing up detailed projects for ex-ante evaluation.

(6) To undertake advising the development departments regarding the preparation of a shelf of projects and programmes.

(7) To undertake examination of five year and annual plans to establish interdependence between long-term and short-term plans.

******(8) To undertake formulation of guidelines for framing district plan and evaluation thereof.

(9) To undertake ex-ante evaluation of investment projects.

(10) To undertake periodic reorientation/revision of the Perspective Plan in the light of achievements of development programmes in different areas, developments in technology, identification of new resources, institutional changes and adoption of new policies and objectives at the national and state level.

6.11. Steps required to speed up collection of accurate and timely socio-economic data, formulation and implementation of district plans, monitoring of plan programmes and categories of personnel required in this regard—all these would become clear, once a decision is taken to introduce Modern Management Information System including the setting up the Data Bank.

6.12. The State Planning Board could utilise effectively, the research facilities and the services available for conducting techno-economic studies in the various universities of Gujarat and specialised agencies like Indian Institute of Management, Sardar Patel Institute of Economics and Social Research and Operations Research Group.

******Vide guidelines on District Planning to District Collectors by Tamil Nadu State Planning Committee.

Baroda. The State Planning Board should have at least 5 Directorates:—

- (1) Director, Perspective Plan Division.
- (2) Director, Man power planning and surveys.
- (3) Director, Projects (for cost benefit analysis).
- (4) Director, Evaluation and District Plan.
- (5) Director, Management Information System and Operatic Research.

The Directors should be so recruited that one should be a good statistician, one a demographer, one an econometrician and one an Operations Research specialist.

6.13. The need for the introduction of a Modern Management Information System including Electronic Data Processing and the introduction of the techniques of Operations Research in technically complex areas, arises from an enormous growth in manpower resources and vastness of territorial jurisdiction. The basic problem confronting the administrators and managers in controlling multifaceted operations is to take right decisions at the right time in increasingly complex situation. Such onerous responsibilities cannot be adequately discharged with the help of the traditional framework of Governmental machinery. The last three decades have been witnessing a revolution in management techniques in large sized private sector undertakings. These management techniques have gone a long way in streamlining management and control functions and in making the role of the top executives highly effective. At present, scientific methods are being brought to bear on managerial decision taking. It is, therefore, desirable for the Governmental machinery at the State level and for public sector organisations to keep pace with the recent changes in management techniques for maximising the administrative and operational efficiency.

6.14. Policy makers are confronted with a wide range of choice. Sometimes they have to make a difficult choice within a number of alternatives. They have to strike upon not only a good solution but also on the best solution. This is precisely achieved by the application of techniques of modern management information system. The gamut of operations research include programming, applications of

Queuing theory, Replacement analysis, Markovian analysis, net work techniques — PERT and CPM. Management Information System includes—

(1) Integrated Materials Management covering stock monitoring system, buffer stock and re-order quantity determination, automatic recording system and related accounting system. These techniques can be usefully applied in the areas where the central stores purchase officer has to operate and wherever large inventories are to be handled in public sector undertakings.

(2) Budgeting and Costing System covering Budgetary control and Forecasting, Standard Cost Systems and Variance Analysis, Project Cash Flow, and Projection from PERT analysis. All these techniques can be fruitfully utilised by the Finance Department. The cost benefit analysis can apply to all the major projects of the Public Works Department, — roads, buildings, multipurpose projects, housing etc.

(3) Financial Management covering Portfolio Evaluation, Balance Sheet Ratio Analysis, Discounted Cash Flow Analysis. These techniques are useful in public sector undertakings which function partly as development banks and partly as development authorities.

(4) Statistical Methods covering Regression Analysis, Design of Experiments, Bayesian Decision Making, Analysis of Variance Techniques which can help in decision making.

(5) *Data Bank*.—Computerised Integrated Data Bank which can stock unlimited technical, financial, administrative and socio-economic data on a uniformly acceptable basis as may prove useful for the policy makers as well as researchers. Some data, of course, may have to be treated as classified and used exclusively for Government purposes.

6.15. Introduction of EDP can go a long way in preparing service records and personnel data and would facilitate selection of suitable candidates to meet job requirements of different Governmental and semi-Governmental undertakings.

6.16. Modern management information system provides to top administrators and policy makers alternative solutions in any given situations and provides excellent aid for taking not only the right

decisions but the best decisions. But management information system is no substitute to the competence and ability of the decision taker to take the correct and the best decision. Careless handling and thoughtless misapplication of techniques associated with the management information system can produce unpleasant results. The problem of training and retraining, of improving the substance of human material, is a problem which, should never be lost sight of, in any scheme of large scale managerial reorganisation.

6.17. It is proposed that a centralised management information system is established as a separate department under General Administration Department with a Data Bank. This Data Bank should be headed by a Senior Officer or an expert with the status of Joint Secretary. This data bank should collect all types of socio-economic data from time to time and ensure accuracy, timeliness and uniformity in their coverage. It should act as a vast store house of meaningful statistical information for researchers and planners and for the State Planning Board as well. Once the data bank comes into existence, the Bureau of Economics and Statistics will serve as a field office conducting all types of surveys as may be suggested by the State Planning Board or by the Heads of Departments.

6.18. The department of management information system will devise suitable measures for the introduction of Operation Research techniques and EDP in big departments like the Public Works Department and in public sector undertakings like Gujarat Electricity Board and G. S. R. T. C. The facilities of Electronic Data Processing can be extended to other Government departments on the basis of experiences gained in early stages.

6.19. *In the chapter on the organisation of public enterprises, a reference has been made to the need for setting up a Bureau of Public Enterprise in Gujarat State. This Bureau should formulate a scheme for training the second line and third line of defence in the public sector undertakings. A carefully planned scheme should be devised for training young IAS officers and State Service Officers in middle management in different positions so that a new managerial class is created from within the ranks of IAS and State Service Officers who can man effectively the public sector undertakings. A suitable number of promising technical officers also can be selected and trained in methods of modern management and posted in different public sector undertakings. The demand for managerial personnel in public sector is likely to increase so fast that unless a well conceived programme*

for managerial training of promising talented young officers is undertaken from now, we may as well be facing a shortage of managerial personnel in such undertakings.

6.20. In any programme of fiscal reforms the need for changing the present methods of budgeting can hardly be over-emphasised. As the Administrative Reforms Commission's Working Group on performance budgeting observed "from the point of view of plan implementation, our budgets have failed to provide an adequate link between the financial outlays and physical targets". So far they have failed as an instrument in assigning programmes' objectives and their accomplishments. They are not adequately geared towards facilitating, analysing and exposing, 'Performance'. The main objectives of performance budgeting are:—

(1) To achieve an equation between the physical targets and financial outlays of the programme.

(2) To improve preparation of budgets and quality of policy making decisions and the review of the actual progress at all levels of Government.

(3) To facilitate a ready appreciation and review by the legislature of the objectives of the Government, the direction of outlays and the results flowing from them.

(4) To facilitate a more effective performance audit.

(5) To help measurements and assessment of the actual progress attained in relation to the long term objectives.

(6) To evolve an overall efficient financial management in the Government.

6.21. It is recommended that the State Government should introduce the principles of performance budgeting at the earliest so that our budget becomes result-oriented and not remain as cost-oriented. Nevertheless, the importance of cost consciousness should not be lost sight of. Two decades of planning shed considerable light on dissipation of resources in areas where there has been absence of imaginative project planning, construction planning and construction management; a large proportion of the State outlay goes into building construction. Wherever expenditure on building construction constitutes a very high percentage of total plan outlay in a given sector, the

need for utmost economy has to be kept in mind. The question of controlling the price of bricks by organising massive production in the public and cooperative sectors has to be carefully examined. Continuous research will have to be made for exploring alternative cheaper materials that can go into all types of building construction. All in all there is a need for infusing a spirit of cost consciousness in the economy as a whole and particularly among engineers, architects and contractors. The principles outlined in the National Building Code may be adopted on a uniform basis all over the State.

6.22. The growth in the work load in the planning section of General Administration Department is likely to be much faster, once the Perspective Plan document is issued by Government. Even after the setting up of the State Planning Board, the planning section will have a sizable work load since it has to act as a co-ordinator and as a reviewing machinery of the problems and policies emerging from economic planning. There is a strong case for appointing a full time Secretary for planning and a Deputy Secretary exclusively for Perspective Plan. As stated before, the Secretary Planning may serve as a Member-Secretary of the State Planning Board. The Deputy Secretary Perspective Planning should process all the proposals arising from the implementation of the Perspective Plan 1974-84 and ensure that timely decisions are taken and orders issued on different issues by different departments in accordance with a pre-determined programme of action.

6.23. There is equally a need for strengthening the planning cells in the Secretariat departments, in the Heads of Departments and the District Collectorates. One Deputy Director of Statistics should be posted in Public Works Department and another in Agriculture Department. A statistical officer should be posted in each of the Secretariat Departments of Panchayats and Health, Education and Labour and in the office of the Development Commissioner.

ADMINISTRATION

6.24. "A theoretically perfect administration and inclusive methods of work may be devised; but they will be of little or no avail if those who man the administration are either unequal to the task or are apathetic towards it".* 1. The Administrative Reforms Commission of the Government of India reviewing the current administrative situation in the report on personnel administration observed that administration today is involved "in formulation of policies and implementation of tasks concerned with social welfare and economic growth

* *Vide* p. 246 of the Indian Journal of Public Administration Vol. XVII No. 2, April-June, 1971.

of personnel has rendered it necessary to devise special measures for ensuring that each member of the public service gives the best that he is capable of". 2. The major recommendations made by the Administrative Reforms Commission relate to the method of selection and recruitment to middle management posts in the Central Government from amongst all senior officers who have requisite experience in certain specialised fields such as economic administration, social and education administration, industrial administration, agricultural and rural development administration, personnel administration, financial administration, defence administration and internal security and planning. The Commission also suggested a unified grading structure as a solution towards promoting harmony and integration among the different All India Services. The Commission also made significant recommendations with regard to the training and recruitment policy, promotion policy and the conduct and discipline of services. In its report on State Administration, the Commission made sweeping recommendations in the matters of district and State administration.

6.25. Today in India about 10 million people are employed in public service. This means roughly 1 in every 50 persons throughout the country is a civil servant of some category or the other at some level or the other. There can be no doubt that it is imperative to establish close understanding and coordination between the civil service and the political system both of which are the servants of the people at large. It is revealing to note that the famous Fulton Committee of the British Civil Service made the observation that "throughout it (the civil service) has to remember that it exists to serve the community and that imaginative humanity sometimes matters more than tidy efficiency and administrative uniformity. In our (Committee's) view, the structure and practice of the service have not kept up with the changing tasks. The defects we have found can nearly all be attributed to this. We have found no instance where reform has run ahead too rapidly. So today the service is in need of fundamental change".* These words could with greater justification and advantage be applied to the present administrative conditions in India.

6.26. The machinery of Government both at the Centre and the State should be reviewed as a powerful instrument for effecting desired social and economic changes in accordance with a pre-determined plan of implementation. The environment and social attitudes that govern the operations of the organisation and machinery of the Government of

* Fulton Committee Report, *Vide* p. 14 of the Public Administrator-News Letter (April-September, 1971) of Indian Institute of Public Administration Maharashtra Region Branch.

India exercise influence over the governmental machinery in Gujarat State as well. As has been pointed out before, in Gujarat a healthy and pragmatic attitude has been evolved both by the officials and the non-officials towards their relative roles in realising the objectives of a welfare State. This does not however mean that the machinery of Government in Gujarat is in an ideal state of perfection and needs no improvement. The deficiencies and limitations that may be noticeable in the organisation and machinery of Government in Gujarat State are those which can be equally traced in the governmental machinery of other comparable States as well. Wherever there is an alert and organised public opinion the administrative services in the State have to positively respond to the genuine requirements of the people. Even the situation in many backward States is fast changing particularly after the fourth general elections and with the growing awareness among weaker sections of their fundamental rights, the State administrative machinery can ill-afford to cut itself away from the mainstream of the social and economic life of the community. No Government can be greater than the people who compose it and similarly the civil service cannot be better or worse than the members who are part of it. The Indian Administrative Service and other Central Services, despite some decline in quality, continue to be manned by individuals of exceptionally high calibre. Nearly 95 per cent of all direct recruits of IAS and even about a third of Class I and Class II officers have master degrees. About half of the IAS officers are first class graduates and another 41 per cent graduated with a second class degree¹. It would be thus clear that the young recruits, given the appropriate job training stimuli, can be shaped into excellent human material capable of handling advanced technological and communication techniques.

6.27. The fact of the matter is that India today is in the grip of a large scale social transformation. In this changing background the old values, habits of mind and attitudes towards individual group and social problems are fast disintegrating. Pride and contempt, attachment to status, symbols, superiority complex and inferiority complex, arising from class, caste, linguistic and religious, economic and social differences, failure to work as a team and the failure to bring about emotional integration among all sections of the society (except in emergencies like war) find their reflection in the behaviour pattern of the civil servants as well. Today, administration in the districts and in the offices of the heads of departments call for an assortment of talents. Mere possession of a high IQ or intellectual brilliance provides no guarantee to success.

¹ Vide page 359, Volume XVII, No. 3 July-Sept., 1971 — The Indian Journal of Public Administration.

Along with a sound mental equipment the officer must develop patience, persuasive skill in administering laws and in handling men, situations and in effecting coordination among innumerable coordinates which in themselves keep on changing from time to time. The civil servant of today has to be polite and cautious, listen to the applicants patiently and help them throw off their chest tensions and grievances and to impress on them a sense of fairplay and justice. The feeling that one must have some influence somewhere to get things done somehow is a feeling of creeping paralysis afflicting public life all over the country. Political interferences, influence of commercial and industrial and landed interests sometimes make the functioning of administration difficult and an unfavourable impression is created in the minds of the public that administration can be readily influenced by vested interests. The impartiality of service is the key stone of public administration and it is this which will ensure fairplay and justice irrespective of the nature of the political complexion of the Government.

6.28. During the last two years the literature of Indian Administration is replete with frequent references to the so called concept of 'commitment' in civil service. Much of the discussions has been pointless and unrealistically ideological in character. The remarks of the Prime Minister Smt. Indira Gandhi on commitment have dispelled beyond any doubt that neutrality of the civil service should continue unaffected. He said frankly, "recently my remarks that we needed Government servants with commitment have been, perhaps deliberately, misrepresented to mean that I wanted civil servants to support me or my political ideology. On the contrary I do not want politically convenient or servile civil servants. Their job is to give frank advice but they must feel committed to the objectives of the State which have been approved by Parliament. They should have unreserved faith in the programmes which they administer. An official who has no active faith in secularism cannot deal with the communal problem. They must all have a commitment to the development of the country and a sense of personal involvement with the welfare of our people".¹ The notion of neutrality which involves a scientific temper in administering situations is different from the common belief that a politically neutral civil servant must approach his work with a negative attitude. Such a concept is not only untenable but even dangerous. While dedication and social commitment and quality of neutrality are essential in the functioning of the administrator, dedication or commitment on the part of the civil servant could be of little consequence in the present economic set up unless it

¹ Speech by Prime Minister on February 9, 1970 at the Institute of Engineers.

is matched by an equally dedicated political system in which Ministers keep public interest above party requirements. Politicians should be able to inspire greater confidence among the civil servants and encourage them to dedicate themselves more enthusiastically to the task of national reconstruction by setting a shining example of their own commitment and devotion for the realisation of the concepts of social justice and organisation of public welfare.

6.29. The Indian society is committed to transforming the quality of national life to bring about a change in the peasantbased non-egalitarian society into a more technical oriented egalitarian order. This calls for a total transformation of the social set up and a reconstruction of the national life. Large scale social changes and alternations in status arrangements would lead to political instability unless the pace of change is regulated in accordance with a pre-determined plan. India is a developing country and a land of contrasts. We can notice the co-existence of the most primitive and the most advanced technological know-how, of traditional culture and semi-urbanised, semi-anglicized or Europeanised cultures. The administrative machinery though sound in quality in many ways, however, is not yet fully geared to meet the challenges of the emerging industrial society in the urban and semi-urban areas. Similarly it has not been able to fully appreciate the gravity of the social problems arising from the awakening of the weaker sections of the community. But this is not the failure of the civil service since it is not an autonomous entity. It is only an instrument (if handled properly a powerful instrument indeed) in the hands of the Government. The civil servants, at the top and middle levels can, by careful planning, be provided with periodical refresher courses for a reorientation of its beliefs and social values. Thus a re-adjustment can be brought about in the outlook of the civil service to the changing socio-political milieu. The initiative and enterprise for bringing about qualitative transformation in the organisation of Government as a whole is the exclusive responsibility of the political overlords. The civil service is like a race horse which when properly handled can win the race. Everything depends on the rider and in this case on the political masters. All that the civil service should concern itself is to commit itself to secularism, democratic practice, eradication of poverty, upholding of the fundamental principles of integrity, honesty and dedication work.

6.30. The current controversy which has a great bearing on efficient and speedier plan implementation rages around the role of

the generalist administrator *vis-a-vis* the specialist. A generalist is one who aims at acquiring a bird's eye view of any given branch of knowledge, whereas a specialist dealing in physical science, technology or social science or in public administration, is one who acquires depth in a particular branch or sector. The generalist, by training, is best suited in judging the interplay of different disciplines in several sectors. The approach of the generalist is that of a coordinator, that of a reviewer, that of an evaluator, that of an assessor who keeps track of all variables. The generalist is a keen student of human affairs. He handles laws, men, situations, agencies of all types and the changing moods of Government. The real controversy between a generalist and the specialist is around the enjoyment of prestigious position—positions which facilitates exercise of power and the distribution of largesse. It is widely felt that the generalists today in India enjoy positions of prestige since they are close to sources of influence and decision taking and hence remain powerful. It is this glamour for power which strikes envy in the hearts of non-generalists and generates controversy. The controversy between the generalist and specialist had acquired a new dimension with the recommendations of the Administrative Reforms Commission restricting the role of the IAS to that of the revenue administration in the district. If the recommendations of the ARC were to be implemented at the last level, the state administrative services and the State and subordinate services would come to be restricted to revenue administration. The basic assumption of the ARC seems to be that in the state as well as in the Central administration there is no more need for generalists. If this proposition is conceded, then there will be no generalist left and all officers will become specialists of some sort or the other.

6.31. On the other hand the specialists *i.e.*, the scientists, technologists, engineers feel that, they as a class, by training and temperament by their width and depth of experience, are admirably suited for Management. The feeling is becoming widespread that the scientists, technologists and engineers should not be on tap but on top. They should not only advise in the formulation of policies and decision taking but also be entrusted with the task of decision taking. The specialist feels that the generalist takes time before he familiarises himself with a new field of work and by the time he gets the hang of the whole range of problems confronting him in a complicated field, he is shifted and is replaced by a new generalist. In a democratic set up, it is felt by the specialists, that at policy making levels, they have to deal with two layers of common sense; the tier of the Secretary and the tier of the Minister. By the time they are

educated they change and new ones come in who have to be educated all over again. This is somewhat of a jaundiced view of the helplessness of the generalists who, in reality, belong to the class of Professional Managers. Similarly the jibe about specialists is that with more and more specialisation they become more and more parochial in their outlook and can hardly hold the scales even between different disciplines and sectors.

6.32. The fact of the matter is that at a time when the benefits of science and technology are to be applied on a vast scale for promoting public weal, the specialists have as an important role to play as the generalists. There is a need for frank re-appraisal of the relative roles of the generalists and the specialists. It appears that with rapid industrialisation and with the multiplication of scientific laboratories, technological institutions and specialised research centres, there is a need for developing a healthy respect towards and for assigning a position of dignity to the scientists and technologists. It should also be not forgotten that too much of a specialist, is as much ineffective as too much of a generalist. The real class of managers who can meet the challenges of the seventies are ones who remain somewhere in between the two categories. Intelligence is no substitute for knowledge and so a generalist, apart from his IQ should develop versatility, resilience and assimilation powers of a high order and develop insights into the related fields of knowledge and skills wherever he has an important role to play as a Professional Manager in policy formulation. Similarly first rate scientist may have to develop managerial skills before he can take up executive responsibilities, for in the absence of managerial ability a first rate scientist may prove a second rate administrator. As the country needs a large managerial class to man the growing number of public sector undertakings and a growing number of private sector firms, there is really no room for a controversy between the generalists and specialists. Whosoever proves his mettle is ideally fitted to be a top executive or a manager or a senior administrator. What is needed is tolerance and understanding, an inter-disciplinary outlook and above all dedicated team work. The country can ill afford to fritter away its energies in meaningless and futile controversies. It is the sacred duty particularly of the intellectual elite to which the specialists belong, to call off the controversy and evolve a *modus vivendi* in restructuring the existing administrative set up so as to utilise all types of talents to the best advantage.

6.33. The Government of India and the State Governments should follow a well laid down policy of career planning for officers of the IAS and the State Civil Service Officers of other class I techni-

al officers. Conceptually thirty five years of service of an officer may be divided in three parts; ten years for a basic grinding, fifteen years for intensive specialisation in a few fields within a large area before ultimately he is posted as a Secretary. For example before an officer becomes Secretary for Agriculture he should get experience of three years in agriculture, three years in dairying, three years in animal husbandry, three years in forest and three years in agro- industries following ten years of preliminary grinding before he is upgraded as Secretary in Agricultural Ministry. Career Planning suggested above may be implemented within the broad fields of economic administration, social and education administration, industrial administration, agricultural and rural development administration, personnel administration, financial administration, defence administration and internal security and planning. With a view to ensure fullest development of one's inherent talent, an officer may be kept in a specific assignment for a period of 3 to 5 years; similarly there should be adequate opportunities for an officer to acquire different types of experience.

6.34. There is another aspect of administration which has a bearing on speedier plan implementation and that of securing money's worth from various schemes and projects. Qualitative evaluation and quantitative evaluation of the plan projects during the last two decades in the country indicate that the benefits of many of the schemes have not really reached the last man and there has been considerable dissipation of resources due to delay and corruption. Corruption again is an evil which is directly related to the moral values of the society. Controls, quotas, permits, licences, the whole range of economic, industrial and commercial administration, administration of scarcity and flood relief, distribution of loans for development and non-development purposes -- all these provide temptations to the scheming and the unscrupulous. It is only with tighter supervision and greater dedication that we can hope to reduce infructuous expenditure and corruption. The role of social education in reviving the faith in moral and spiritual values can hardly be over emphasised.

CHAPTER VII

PROGRAMMES OF DEVELOPMENT

1. AGRICULTURAL PROGRAMMES

A well developed agricultural economy is an essential element for balanced growth and has been a source of strength and foundation of prosperity even in the industrially advanced countries of the world.

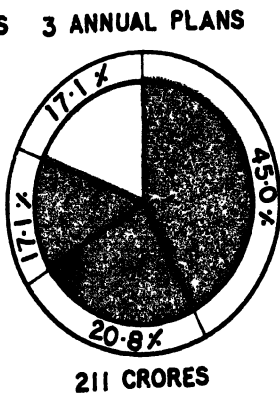
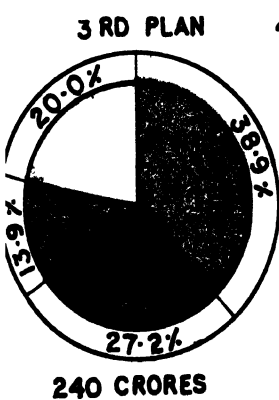
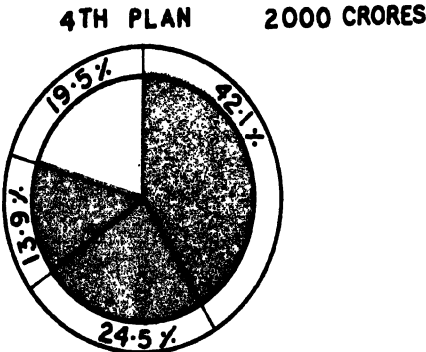
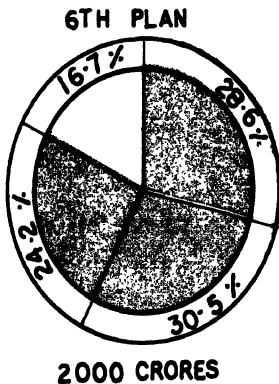
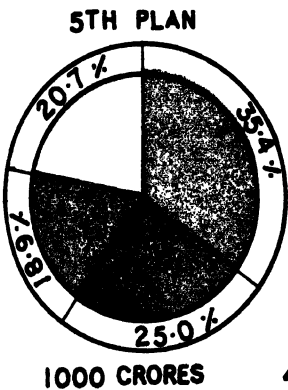
7.1.2. In a country like ours, a highly developed system of agriculture and expansion of agricultural production were and still continue to be the urgent necessities for meeting growing needs of the teeming millions, and also for providing raw materials to feed the growing number of factories.

7.1.3. With the Green Revolution, mankind now has the capability, given the will, to meet food needs and in doing so, to stimulate widespread economic and social development in agrarian areas wherever agricultural productivity remains low and static. But realisation of such comprehensive progress will require proper and massive investments of man and money, organisation or reorientation of a great number of activities and co-ordination of efforts at State and National levels. Investments in appropriate agricultural research and training can provide high returns. As agricultural scientists have developed new systems, farmers have demonstrated their willingness to change. Agricultural technology should be specific and imaginatively tailored to local needs by the research agencies. Behind each effort, there has been and there should be men of vision and talented research workers. The high yielding technology must be developed for every crop, for every season, in every region of every State in India.

7.1.4. The stability of technology is not obtainable unless the stability of an agrarian structure is attained. In other words, the agrarian structure prior to the advent of Green Revolution, should be stable. The prime necessity would, therefore, be to ensure removal of such impediments to increased agricultural production as arise from agrarian structure inherited from the past. This would help create conditions for evolving, as speedily as possible, an agricultural economy with high level of efficiency and productivity. In the second place, all elements of exploitation and social injustice

PERCENTAGE DISTRIBUTION OF PLAN OUTLAYS

-  Agricultural Programmes including Co-op., C.D., Panchayats, & Irrigation.
-  Power.
-  Industries, Transport and Communications.
-  Social Services, Miscellaneous and Other Programmes.



n the agrarian system have to be eliminated in order to provide security for the tiller of soil and assure a guarantee of status and opportunity to all sections of the rural population.

7.1.5. Gujarat can legitimately be proud of being perhaps the first State in the Country to complete the programme of legislation or abolishing all intermediary land tenures. The scheme of tenure abolition laws of Gujarat, provides, not only for abolition of intermediary tenures but also for upgrading the tenant cultivators to the status occupants. Having thus provided the holder of land, an opportunity of securing the occupancy rights, a stable agrarian structure has been built up which is now better placed for absorbing new agricultural technological innovations for increasing the productivity.

7.1.6. The agricultural programmes covered under this chapter are comprised of developmental activities under the sub-sectors of Agricultural Production including Warehousing and Marketing, Land reforms, Minor Irrigation, Soil Conservation, Animal Husbandry and Dairying, Forests, Fisheries, Cooperation, Community Development and Panchayats. Each of these programmes has its importance in the development of agriculture and in the reorganisation of the rural economy.

7.1.7. The following table indicates the financial investments made by the Government during the Third Plan, three Annual Plans, Fourth Plan and the outlay proposed for the Perspective Plan decade 1974-84 covering the Fifth and Sixth Plan periods. The outlay on agricultural programmes as percentage of total Plan outlays is also indicated in the table :

TABLE I

(Rs. in crores)

Plan period	Total expenditure/ outlay for the Plan period	Total expenditure/ outlay on Agricultural Programmes for the Plan period	Percentage of expenditure/ outlay on Agricultural Programmes to the total Plan expenditure/ outlay
1	2	3	4
1 Third Plan (Expenditure)	240.19	47.03	19.6
2 Three Annual Plans (Expenditure)	210.63	48.47	23.0
3 Fourth Plan (Outlay)	455.22	82.07	18.0
4 Fifth Plan (Outlay)	1000.00	164.00	16.4
5 Sixth Plan (Outlay)	2000.00	314.00	15.7

Outlays for the Perspective Plan

7.1.8. The total outlay proposed for the agricultural programmes for the Perspective Plan decade, covering the Fifth and Sixth Plans, is Rs. 478 crores. The sub-sectoral break-up of this outlay as compared to the Fourth Plan is shown in the following table.

TABLE 2

(Rs. in crores)

Sub-head of development	Outlay			
	Fourth Plan	Fifth Plan	Sixth Plan	Total for (1974-84) (3+4)
1	2	3	4	5
1 Agricultural Production including Warehousing and Marketing	13.51	38.00	100.00	138.00
2 Land Reforms	1.00	2.00	4.00	6.00
3 Minor Irrigation	32.01	62.00	67.00	129.00
4 Soil Conservation	10.02	15.00	40.00	55.00
5 Animal Husbandry and Dairying	8.52	16.00	39.00	55.00
6 Forest	3.50	8.00	13.00	21.00
7 Fisheries	3.50	9.00	25.00	34.00
8 Cooperation	5.00	9.00	16.00	25.00
9 Community Development and Panchayats	5.01	5.00	10.00	15.00
Total for Agricultural Programmes	82.07	164.00	314.00	478.00

7.1.9. In addition to the above outlays proposed for the Perspective Plan, supplementary outlays aggregating to Rs. 112 crores are also envisaged depending on the availability of additional funds. The sectoral break-up of this supplementary outlay is given in the following table :—

TABLE 3

(Rs. in crores)

Sub-head of development	Supplementary Outlay		
	Fifth Plan	Sixth Plan	Perspective Plan period (1974-84)
1	2	3	4
1 Agricultural Production including Warehousing and Marketing	20.00	35.30	55.30
2 Land Reforms	..	..	..
3 Minor Irrigation	..	..	..

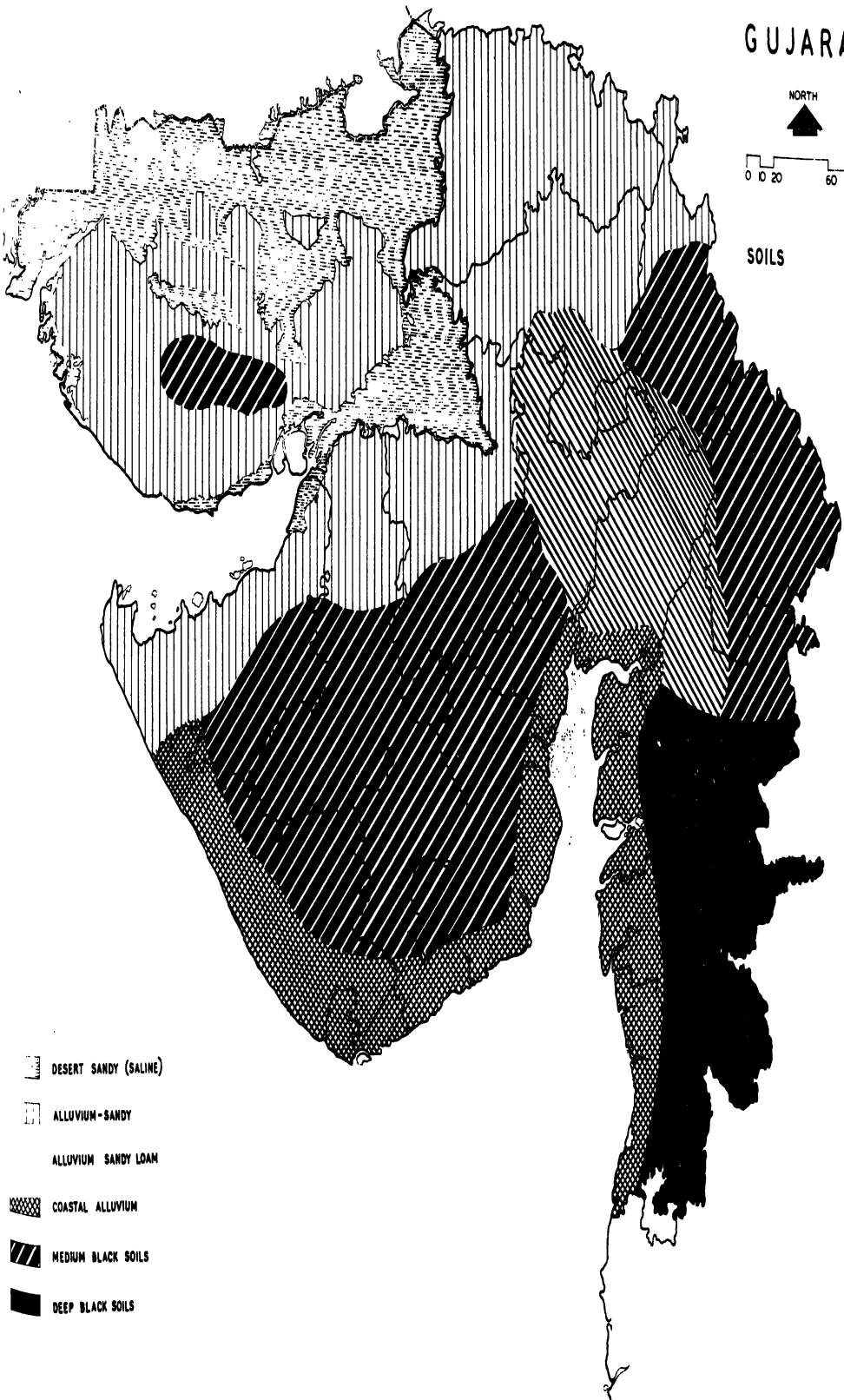
GUJARAT

NORTH



0 10 20 60 100 Kms

SOILS



1	2	3	4
4 Soil Conservation	5.00	..	5.00
5 Animal Husbandry and Dairying	6.00	9.41	15.41
6 Forests	..	0.38	0.38
7 Fisheries	5.00	19.35	24.35
8 Cooperation	..	0.60	0.60
9 Community Development and Panchayats	..	10.96	10.96
Total for Agricultural Programmes	36.00	76.00	112.00

7.1.10. A brief account of the progress likely to be achieved in the above sub-sectors of development at the end of the Fourth Plan period as also the salient features of the programmes contemplated in the Perspective Plan are discussed in subsequent paragraphs.

Agricultural Production

7.1.11. The principal food crops in Gujarat State are wheat, rice, pulses and millets while oilseeds, cotton, tobacco and sugarcane are the main cash crops. The cash crops have a good market in important industries like textiles, oil, soap, bidi and cigarettes etc. Sugarcane is used for manufacture of sugar. The growth of cash crops has become important for the economy of the State. It has also led to a measure of integration of agriculture and industries. In our future agricultural policy, we will have to recognise the basic economic principle that crop pattern in a region should be determined on the basis of suitability of land and the economic contribution it can make to the generation of income and wealth. Any deviation from this principle would be harmful to the economy of the State and the Country. In Gujarat, since over 54 per cent of the area is already brought under cultivation, a very substantial expansion of area under crops is not possible though whatever possible by means of reclamation of lands for agricultural production should receive best attention. A large part of the cultivable area suffers from poor soils, undulating terrain and undependable rainfall. The agricultural economy is characterised with wide cyclical fluctuations. Irrigation facilities are very inadequate. With all these limitations, however, the progress of agriculture in Gujarat is phenomenal. This achievement is a result of increase in productivity. The following

table shows the rate of growth of production and productivity different crops during the period 1949-50 to 1969-70 :

TABLE 4

Crop 1	Linear growth rate%		Compound growth rate%	
	Production 2	Productivity 3	Production 4	Productivity 5
Total food grains	5.55	6.75	3.8	4.3
Total food crops	6.06	6.62	4.1	3.8
Groundnut	22.36	1.72	9.1	1.5
Cotton	9.00	3.51	5.2	2.8
Tobacco	9.66	3.70	5.9	3.0
Total non-food crops	10.91	2.72	5.9	2.3

7.1.12. It will be seen from above table that compound growth rate for food-grains production was 3.8 percent, while its productivity increased at a compound growth rate of 4.3 percent. The groundnut production registered a compound growth rate of 9.1 percent with corresponding compound growth rate of 1.5 percent in its productivity. The production of cotton increased at compound growth rate of 5.2 percent whereas its productivity showed compound growth rate of 2.8 percent. Similarly, compound growth rate of production achieved in respect of tobacco was 5.9 percent with a compound growth rate of its productivity at 3.0 percent.

7.1.13. The following table provides the data regarding the annual average yield of different crops per hectare for different periods and last five years (1966-71).

TABLE 5

(Yield per hectare in Kgs.)				
Period 1	Total food-grains 2	Total oil seeds 3	Cotton 4	Tobacco 5
Annual average First Five Year Plan	333	362	107	67%
„ Second Five Year Plan	407	586	103	69%
„ Third Five Year Plan	538	581	147	96%
„ Five Year period 1966-71	629	673	164	1104

7.1.14. As may be observed from table 5, the average yield of food grains per hectare has risen from 333 kgs. in the First Plan period to 629 kgs. during the last five years *i.e.* 1966-71. Similarly over the same period, the average yield per hectare of oil seeds has gone up from 362 kgs. to 673 kgs., that of cotton from 107 kgs. to 164 kgs. and that of tobacco from 679 kgs. to 1104 kgs. The performance in agriculture in 1970-71 was still better, the yields per hectare during that year being 864, 988, 179 and 1301 kgs. respectively for foodgrains, oilseeds, cotton and tobacco.

7.1.15. The Mid-Term Appraisal of the Fourth Plan recently undertaken by the Planning Commission has revealed very interesting and encouraging results in respect of achievements of Gujarat in the sphere of agriculture as compared to those of other States in the Country. Gujarat is one of the few States which have accomplished in the second year of the Fourth Plan period, their entire Fourth Plan targets relating to additional foodgrains production over the assumed base level production figures for 1968-69. Gujarat has secured the first rank amongst all the States in the Country by achieving a compound annual growth rate of 23.3 percent during the first two years of the Fourth Plan as against the corresponding all India figure of 4.9 percent in respect of foodgrains production. Similarly, in respect of production of oilseeds also, the achievement of Gujarat is quite impressive. With a compound annual growth rate of 13.1 percent during the first two years, Gujarat ranks second amongst all the States. Though the compound growth rate achieved by Gujarat in respect of cotton production during first two years of the Fourth Plan period shows a slightly negative trend *viz.* (-) 0.9 percent, it would appear to be negligible as compared to the corresponding all-India figure of (-) 12.09 percent.

7.1.16. However, the above position, though very encouraging, does not warrant any complacency, particularly in view of the several handicaps such as poor soils, dependance on rainfed crops etc. from which the State's economy still continues to suffer. Besides, it is also to be remembered that agricultural production enjoys a pivotal role not only for providing food grains but also helps building up the State economy in several spheres by providing cash crops and raw-materials which are so very necessary for industrial production. Agriculture and industry are inter-related sectors and in many ways they are inter-twined. An increase in the productivity of agriculture would mean provision of adequate supply of agricultural raw materials to agro-based industries. Similarly, an increase in industrial

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productivity can indirectly stimulate growth in agriculture. Increased use of chemical fertilizers, insecticides and pesticides have a direct bearing on the level of output in agriculture. A strong modernised agriculture provides a large base for a variety of industrial products. Agriculture and industry are thus admirably complementary to each other. It is thus imperative that efforts should still be concentrated for maximising the agricultural production. The achievements registered so far in respect of per hectare yields do not necessarily represent the optimum that could be aimed at. In fact, the entire Country and Gujarat in particular, has to go a long way before they catch up with the established optima already achieved by several countries in the world.

7.1.17. As stated earlier, more than 54 percent of the total reporting area is already under cultivation, and more area is not easily available for cultivation. It is only through increasing the gross cropped area by resorting to double cropping that increase in agricultural production could become possible. However, this would need considerable augmentation of irrigation facilities coupled with improved seeds and proper dosage of chemical fertilizers supported by application of new technological innovations. Here again, increase in irrigation facilities will be dependent on the exploitable water resources of the State which are themselves very limited.

Foodgrains

7.1.18. Bajri, wheat, rice, jowar and pulses are the main food grains grown in the State. The annual average production figures of these crops for the period 1966-71 together with estimated production during 1970-71 are given below:—

TABLE 6

Crop	Annual average production 1966-71 ('000 tonnes)	Percentage to total	Estimated production 1970-71 ('000 tonnes)	Percentage to total
1	2	3	4	5
1 Bajri	1099	34.9	1575	35.7
2 Wheat	659	20.9	939	21.3
3 Rice	405	12.9	598	13.6
4 Jowar	398	12.7	497	11.3

1	2	3	4	5
5 Maize	270	8.6	444	10.1
6 Other cereals	163	5.2	188	4.3
Total cereals	2994	95.2	4241	96.3
7 Pulses	151	4.8	165	3.7
Total food grains	3145	100.0	4406	100.0

7.1.19. Though the annual average production over the five year period 1966-71 was 31.45 lakh tonnes, the foodgrains production during 1970-71 was 44.06 lakh tonnes of which bajri accounted for 15.75 lakh tonnes.

7.1.20. Annual average production of foodgrains during the last five years *viz.* 1966-71 indicates that inferior varieties of cereals *viz.* bajri, jowar and maize account for over 56 percent of the total foodgrains production. Amongst these, again bajri occupies the first rank with its contribution of about 35 percent of total foodgrains production of the State. The superior quality of cereals *viz.* wheat and rice account for about 34 percent of the total foodgrains production of the State. The percentage contribution of pulses in the total foodgrains production is hardly about 5 percent. The production pattern of different food crops in the year 1970-71 has remained more or less the same as for annual average for the five years 1966-71. This points to the need for concentrated efforts towards increasing production of superior varieties of cereals and also that of pulses. As light soils and low rainfall are suitable for growing bajri, it has a special place in Gujarat. The advent of hybrid bajri has made a tremendous impact. The production of bajri is likely to exceed the State's requirements of this foodgrain, and in that event new uses such as cattle-feed may have to be devised in view of the limited possibilities of its export to other parts of the Country. Wheat is grown both under irrigated and unirrigated conditions. The productivity of wheat in irrigated areas is much higher. Paddy has attracted farmers because of its higher productivity and attractive prices. Jowar, grown mostly as a fodder crop, has low productivity and as yet, its high yielding variety has not created a significant impact. Maize is grown mainly in Panchmahals and Sabarkantha districts and it has a high level of productivity. The increase in productivity of pulses has not been significant upto now, but it is expected that efforts for evolving high yielding varieties may meet with early success.

7.1.21. Possibilities of expansion of area under cultivation as well as ultimate availability of irrigation facilities in the State being limited, as they are, the only course feasible for increasing agricultural production would be through securing higher growth rate in productivity of the crops. The projections of foodgrains production for the Fifth and Sixth Plan periods have, therefore, been based on improvement in productivity. On the basis of data for the period 1949-50 to 1969-70, the productivity has increased at the linear rate of 6.7 percent per annum. The Perspective Plan studies envisage to achieve the productivity at the rate of 8 percent in the period 1974-84. In terms of foodgrains production, 8 percent growth rate envisaged in 1974-84 would result in increasing the annual production potential from 44 lakh tonnes in 1973-74 to about 60 lakh tonnes in 1978-79 and 80 lakh tonnes in 1983-84.

Oil seeds

7.1.22. The annual average production figures of oilseeds for the period 1966-71 together with estimated production during 1970-71 are given below :-

TABLE 7

Crop	Annual average production 1966-71 ('000 tonnes)	Percentage to total	Estimated production 1970-71 ('000 tonnes)	Percentage to total
1	2	3	4	5
1. Groundnut	1214	94.2	1836	94.5
2. Sesamum	36	2.8	52	2.7
3. Castor	23	1.8	39	2.0
4. Other Oil Seeds	15	1.2	16	0.8
Total Oil Seeds	1288	100.0	1943	100.0

7.1.23. Though the annual average production of oilseeds over the five-year period 1966-71 was of order of 12.88 lakh tonnes, the estimated production during the year 1970-71 was 19.43 lakh tonnes of which groundnut accounted for 18.36 lakh tonnes.

7.1.24. Groundnut thus occupies a prominent place among oilseeds. Gujarat State stands first amongst all States in India in area and production of groundnut and accounts for about 20 percent of

the total annual production in the Country. However, having regard to the yield per hectare, the position of Gujarat is not quite satisfactory. The yield per hectare in Gujarat has remained below the all-India average. In fact, in terms of per hectare yield of groundnut (1960-69), Gujarat ranks last amongst five major groundnut growing States viz. Gujarat, Andhra Pradesh, Tamil Nadu, Maharashtra and Mysore, and is considerably lagging behind Tamil Nadu which tops the list in this regard.

7.1.25. The linear rate of growth in the productivity of groundnut is as low as 1.72 percent for the period 1949-50 to 1969-70. The improvement in variety of groundnut has not been of the same order as in cereals and cotton. In fact, real research work on fairly modest scale was started only in the Third Plan. As a result, a few improved varieties have been evolved which give better yields than local ones such as Junagadh groundnut-11 variety. Stress is now being laid on research in oilseeds which is aimed at finding variety suitable for each agro-climatic condition together with agronomic requirement of each oilseed crop in each zone. Improvement of the productivity of oilseeds being of special interest to the State, the Perspective Plan envisages adequate investment in research on groundnut and other oilseeds.

7.1.26. Looking to the immediate feasibility, there can only be a marginal increase in productivity during the next decade. This can be placed at 2.0 percent in the Fifth Plan and may increase to 3.0 percent in the Sixth Plan period. The annual production potential of oilseeds (excluding soyabean) is, therefore, expected to rise from 17.78 lakh tonnes at the end of the Fourth Plan to 19.65 lakh tonnes at the end of the Fifth Plan and 22 lakh tonnes at the end of the Sixth Plan.

7.1.27. In the past few years, the feasibility of growing new oil-seed crops of soyabean and sunflower has been demonstrated. The precise areas in which these crops can be successfully grown as substitute crops, are under exploration. Such substitution will, however, improve production marginally. It is proposed to encourage production of soyabean as an alternative source for edible oil. Soyabean is proposed to be grown as inter-crop in an area of about 40,000 hectares in the Fifth Plan and 80,000 hectares in the Sixth Plan. This will contribute annually about 35,000 tonnes of soyabean in the Fifth Plan and 1,00,000 tonnes in the Sixth Plan. Thus the total annual oil-seeds production potential will rise to 20 lakh tonnes by the end of the Fifth Plan and 23 lakh tonnes by the end of the Sixth Plan.

Cotton

7.1.28. Quality has received more emphasis in cotton than other crops. Short staple cotton constituted nearly two-third of the cotton production in the forties whereas now it is about 18 percent the rest being medium, long, superior and extra long staple cotton. Gujarat produces more than 50 percent of the Country's medium staple cotton, nearly 30 percent of superior long staple cotton and about 59 percent of the extra long staple cotton. The high yielding cotton variety, namely, hybrid cotton-4, V-797 have been released recently. The hybrid cotton-4 can double the per hectare yield of cotton.

7.1.29. The linear rate of growth of productivity of cotton for the period 1949-50 to 1969-70 was 3.51 percent. This rate is expected to rise to about 5 percent during the decade 1974-84. This will lead to annual production of 24 lakh bales (of 180 kgs. each) by the end of the Fifth Plan and 30 lakh bales (of 180 kgs. each) by the end of the Sixth Plan.

Sugarcane

7.1.30. Gujarat State is not producing sugarcane in sufficient quantities to meet the requirements of gur and sugar of the State. The annual production potential of sugarcane which was 1.30 lakh tonnes (in terms of gur) in 1960-61 rose to 1.85 lakh tonnes in 1968-69. It has further increased to about 2.66 lakh tonnes (provisional) in 1970-71 and is expected to rise further upto 4.25 lakh tonnes by the end of the Fourth Plan period. Having regard to the felt needs of the State, it is imperative to increase not only the area under sugarcane but also the per hectare yield. However, the feasibility of increasing the production of sugarcane largely depends upon the availability of irrigated waters. Mainly in view of the anticipated increase in perennial irrigation facilities, the annual production potential of sugarcane (in terms of gur) is expected to increase to 7 lakh tonnes by the end of the Fifth Plan and further to 10 lakh tonnes by the end of the Sixth Plan. There are at present 14 sugar factories in the State. The number is expected to go up to 16 by the end of the Fourth Plan. The increased production of sugarcane as visualised in the Fifth and Sixth Plan will be adequate to support the establishment of 8 additional sugar factories each during the Fifth and Sixth Plan.

Fruits and Vegetables

7.1.31. Horticultural development is very important from the point of view of improving agricultural economy, reducing the strains on supply of foodgrains, providing balanced diet and utilising cultivable waste land. Various schemes for development of fruits, coconut, vegetables, potatoes, arecanut, etc. are being implemented in the State. Special schemes have also been worked out by the State Land Development Bank for advancing loans to cultivators for planting new fruit-orchards and planting new fruit, coconut and arecanut plantations. 75 percent of the debentures floated by the Land Development Bank are being purchased by the Agricultural Re-finance Corporation while the remaining 25 percent are being purchased by the State Government.

7.1.32. During the decade 1974-84, better availability of irrigation facilities in larger measure is likely to result in increase in area under horticulture. This will also lead to give a spurt to fruit and vegetable processing and canning industries in the State.

Tobacco

7.1.33. Gujarat State is one of the leading States in India in respect of tobacco production. Implementation of tobacco extension and intensive cultivation of bidi tobacco schemes, has helped in increasing productivity and getting standard quality tobacco which is easily marketed and which fetch better prices. This has considerably benefitted the cultivators. The tobacco development activity is being intensified by supplying disease-free seedlings and adoption of improved methods of production of the superior type of tobacco. The production of tobacco has gone up from about 0.65 lakh tonnes in 1960-61 to about 1.13 lakh tonnes in 1970-71. The per hectare yield of tobacco has also gone up from 700 Kgs. per hectare in 1960-61 to about 1301 Kgs. in 1970-71.

7.1.34. No research work has been taken up on Hooka and Chewing types of tobacco in the State. There is substantial area under these types of tobacco in the State and there is a good scope to improve the yield and quality, if systematic breeding and agronomic work is taken up. The exploratory trials on cigarette tobacco have shown bright prospects for expanding the cultivation in new areas. It is necessary to evolve suitable types and find out agronomic practices etc. for getting higher yield and high grade leaf products.

7.1.35. Thus, the progress achieved by the Gujarat State in the sphere of agricultural production - both food grains as well as commercial crops - is quite encouraging. Nevertheless, in view of the various limitations from which the State suffers, stabilisation of the present promising trend and its further improvement needed for realising targets of production set for the Fifth and Sixth Plans, would call for adoption of a many-sided approach. This will include expansion of irrigation facilities, fuller utilisation of available irrigation facilities, soil conservation measures, increased and timely supply of fertilizer and manures, improved seeds, improved implements and measures for plant protection etc. Greater emphasis will have to be laid on long term measures for increasing agricultural production such as research, education and training and land reclamation and development. The supporting programmes such as, co-operative credit, warehousing and marketing and agricultural extension would have to play an increasingly vital role in the task ahead. The Perspective Plan provides for an outlay of Rs. 138 crores for various programmes directly falling under the sub-sector of development 'Agricultural Production'. A broad outline of these programmes is given in the subsequent paragraphs.

Agricultural Inputs

7.1.36. Experience regarding the actual use of various inputs for agricultural production during the past few years has indicated the need for review of the standards of inputs for various crops. Such a review should form the basis for more realistic targets in respect of coverage under improved seeds and high yielding varieties, consumption of manures and fertilizers, area to be covered under plant protection measures, improved implements, intensive agriculture etc.

7.1.37. To achieve sustained growth of our economy and to maintain continued interest of farmers in improved agricultural technology, it is not enough to establish a supply line of varied inputs but it is vitally important to see that the farmer uses the right inputs in right quantity and in right manner with right tools or equipment. It is essential that farmers should get the right inputs in sufficient quantity at the appropriate time. This will require much organisational effort. The inputs may be made available to the farmer through private, public and co-operative organisations.

Seeds

7.1.38. For supply of improved seeds, 142 seed farms are already established in the State. One large sized farm comprising about 138 hectares is established at Aseda in Banaskantha district.

7.1.39. The programme for cultivation of newly identified high yielding varieties, has a special significance for Gujarat State. Among the various food crops, bajri has a great potentiality for increase in production. A new hybrid variety of bajri hybrid-3 has already been released as a result of research at Agriculture Research Farm, Jamnagar. It is expected that by the end of the Fourth Plan, 16.75 lakh hectares will be covered under high yielding varieties. Of this, Bajri will account for 11.74 lakh hectares.

7.1.40. In order to ensure purity and quality of seeds, production and distribution have to be organised at all stages and inspections carried out. In view of the importance of improved seeds, their production and multiplication would need high degree of supervision. Testing and certification of the improved seeds are also of equal importance. The State's Perspective Plan, therefore, contemplates setting up of a State Seed Corporation on the lines of the National Seed Corporation.

Fertilizers and Manures

7.1.41. Fertilizers hold great potentialities for stepping up of food output as well as to increase the production of commercial crops. Nitrogenous fertilizers have a particular importance, as Nitrogen is considered to be the important limiting factor of the fertility of our soil. The cultivators are now making increased use of fertilizers to improve the productivity of their lands. As against the consumption of little over 7000 tonnes of nitrogenous fertilizers (in terms of 'N') in 1960-61, the consumption in 1968-69 had risen to 67,000 tonnes and it is likely to rise to 2.04.000 tonnes by the end of the Fourth Plan. Similarly, consumption of phosphatic fertilizers has also increased over the period. The consumption of phosphatic fertilizers during 1968-69 was of the order of 25.000 tonnes (in terms of P_2O_5) which is expected to rise to 76.000 tonnes by the end of the Fourth Plan. The consumption of potassic fertilizers (in terms of K_2O) is also likely to register an increase from 4000 tonnes in 1968-69 to 20,000 tonnes in 1973-74. The increasing trend in the use of fertilizers is likely to be maintained over the decade covering the Perspective Plan period 1974-84.

7.1.42. Use of chemical fertilizers and organic manure is complementary to each other and both are necessary to maintain and raise the fertility of the soil. Increased consumption of chemical fertilizers makes it necessary that organic manure should be produced on a

larger scale. Considerable stress is laid in the State's Fourth Plan on encouraging rural as well as urban composting and also on green manure. As against production of 1.71 lakh tonnes of compost in 1968-69, the production is expected to go up to 4.72 lakhs tonnes by the end of the Fourth Plan. Area likely to be benefitted by green manuring by the end of the Fourth Plan is estimated at 2.11 lakhs hectares against 0.82 lakh hectares in 1968-69. Efforts are required to be made for intensification of the development and utilisation of local manurial resources to the maximum extent possible. Keeping in view the vast potential the State has, for the development of green manuring, the programme for production and distribution of green manure requires to be intensified.

Plant protection

7.1.43. It is estimated that losses due to plant diseases and pests, work out nearly to 10 to 15 per cent of the total production. With the use of fertilizers over large areas and adoption of other improved practices, plant protection measures have become all the more imperative. Plant protection measures are often not effective unless they are undertaken on an area basis. Efforts should be made to encourage all villages to take up plant protection measures. For this, aerial sprayings are carried out and will be continued in the Perspective Plan period. The plant protection measures on area basis need to be undertaken by Government free of cost on the analogy of preventive and curative measures which Government takes when epidemic breaks out amongst human beings/animals. Helicopters may have to be used for aerial spraying and suitable sites for Helipads and Air-Strips may also have to be reserved at appropriate places like Dantiwada, Anand and Junagadh so that in addition to the needs of aerial sprayings they can also serve the proposed Agricultural University.

Agricultural implements

7.1.44. Improved agricultural implements are vital for adopting proper techniques of production and raising levels of agricultural production. The improved agricultural implements are needed not only for agricultural operations but also for irrigation, soil conservation etc.. However, the introduction and adoption of improved agricultural implements had been slow till now. With the recent break-through in agriculture, the need for farm mechanisation is realised. In several instances, this has been recognised as the most critical farm input.

The rapidly increasing demand of farm machinery has prompted many manufacturers to take up the production of farm machinery both for pre-harvest and post-harvest operations. The Perspective Plan envisages establishment of a 'Farm Machinery Testing Centre'. The Centre would help the farmers in providing guidelines for taking decisions on the type of machines to be used for particular operations and assist in the selection of the best equipments on the basis of evaluation test data. An Advisory Board consisting of agricultural scientists and representatives of industry and farming community would be constituted for running the Centre. It would be advantageous to locate the 'Farm Machinery Testing Centre' at or near one of the campuses of the Agricultural University.

Extension services

7.1.45. From the point of view of the farmer, once he is convinced of the use of farm machinery of different kinds, and of the use of fertilizers, pesticides, improved seeds etc., he will begin to find that he stands in need almost continuously, of assistance and guidance in one way or other in respect of one item of input or another. In order that such assistance could be made available to him most easily and without having to waste much time, the Farm Assistance Centres should be established. At such centres, the farmers will be able to obtain guidance as to which input he needs for his purposes, assistance in servicing his farm machinery and whatever guidance he requires in respect of any crop that he may have sown. The Gujarat State Fertilizers Company depots provide, besides supply of fertilizers and pesticides, seed testing facility and broad guidelines on agricultural practices. To begin with, the services provided by the Gujarat State Fertilizers Company may be supplemented by other services at its depots. Such co-ordinated complex centres for affording technical service to farmers should be set up alongside such of the existing Gujarat State Fertilizers Company depots as have the facilities existing for setting up a work-shop etc. The number of such centres in the initial stage should not be less than fifty. The number should thereafter be increased in light of the experience gained.

Education and Research

7.1.46. The agricultural education is broadly classified in three parts viz. (a) education at college level (b) education at school level and (c) training in agricultural extension.

7.1.47. (a) *College education.*—There was only one agricultural college at the Institute of Agriculture, Anand with an intake capacity of 100 by the end of the First Plan. The intake capacity was raised to 250 in 1957-58. At the end of the Second Plan, Government Agriculture College at Junagadh was started with an annual intake capacity of 100 seats. To relieve the shortages of personnel as a long-term measure, one more college of Agriculture was started at Navsari during the Third Plan period. During the same period, the post-graduate training facilities were strengthened at the Institute of Agriculture, Anand and Agriculture College, Junagadh. The present capacity of the Agricultural colleges in the State is 450 seats for degree courses. The post-graduate courses in agriculture need to be strengthened to meet the personnel requirement for research and training programmes. The personnel already in position are required to be trained in specialised subjects of entomology, plant pathology, botany, horticulture, agriculture engineering, etc. In order to achieve the objectives of rapid agricultural research, development of proper agricultural education and improving agricultural extension work, coordinated and integrated approach is necessary. This can be done by an institutional structure like an Agricultural University. It is, therefore, proposed to establish Agricultural University during the Fourth Plan period. The various research laboratories and agricultural educational institutions in the State will work as constituents of the university. In order to develop the right kind of persons with requisite qualifications and competence, the university should evolve purposeful and job-oriented syllabi for different cadres of persons required to man specialised field vocations like pest control, seed production, farm management etc. as well as those required to man jobs in research and developmental organisations. The university and its affiliates should embrace the entire field of agricultural education and research and its application to the agricultural fields.

7.1.48. (b) *Education at school level.*—Agricultural education has to be taken to the grass-root level in our villages. Although many schools have vocational training programme in agriculture and full-fledged 13 agricultural schools are also functioning in the State, proper methodology in teaching and competent teachers having the knowledge of such methods are not available at present. For effective vocational training in agriculture, it is necessary to train teaching staff in rural schools. Agricultural education institutions and research institutions should, therefore, organise appropriate training programmes for such teachers during summer vacation. When these young sons of farmers are trained right from primary and secondary educational level, intensive agriculture will be more broad based.

7.1.49. (c) *Training in agricultural extension.*—The new agricultural production techniques are not as simple as those of the past. Knowledge of pest and pesticides, soils and fertilizers, hybrid seeds and their production, farm management and proper use of irrigation water is essential for extension workers to render effective service to cultivators. Besides having the knowledge of these subjects, the extension workers have to be familiar with methods and efficiency of various media of communications in rural areas. The extension personnel to be provided for spread of the new technology should have higher academic qualifications. Qualitative strengthening of agricultural extension should be an important policy for the future plans.

7.1.50. The demands from the farmers seeking knowledge and information on improved methods of farming are bound to be more exacting and pin-pointed and hence frequent special refresher courses for the junior level extension workers will be necessary to bring their knowledge up-to-date. Short duration courses, primarily devoted to improved agricultural technology may be planned during the slack farming season of summer.

7.1.51. Agricultural research forms the very foundation for development work. Research on main food crops was initiated in the Second Plan but a comprehensive programme for paddy, wheat, jowar, jowar, maize and hill millets could be taken up only in the Third Plan. For each of these crops main research stations have been established and several sub-stations have been opened according to climate and soil conditions obtaining in the areas under these crops. A few stations for research on groundnut, cotton and dry farming and irrigated farming were established in the Second Plan. In the Third Plan, this programme was further strengthened. The research farms undertaking research on various foodgrains have undertaken a wide range of programmes to evolve important varieties. The evolution in our Research Station at Jamnagar of hybrid varieties of Bajri which are highly responsive to fertilizers application and at the same time high yielding with little rain deserves special mention. Mention may also be made of hybrid cotton-4 which can substantially increase the per hectare yield.

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7.1.52. The progress made in agriculture in recent past had indicated that investment in agricultural research pays handsome dividends in increasing the total income. Attention is principally paid for research on major crops like cotton, groundnut, seed crops,

bajri, rice and wheat. Efforts for research on fruits and vegetables, fodder crops, fruits and their preservation and other aspects are not of the same scale. In order to achieve balanced development in agriculture, co-ordinated research programmes are required to be taken up. The State predominantly consists of population having vegetarian food habits and their main source of protein is pulses. Thus, to meet the full needs of proteins, higher production of pulses is very vital. All out efforts on priority basis should, therefore, be made to evolve early maturing and high yielding varieties in major legume crops such as tur, urid, gram and green gram both for irrigated and dry conditions.

7.1.53. As the tempo of agricultural development gains momentum, it is to be expected that more and more exacting demands of farmers will have to be met by the agricultural research scientists of the State. In order to enable them to be ready with appropriate answers for the vast variety of problems which are likely to crop up, well equipped regional agricultural research organizations should be established. Considering the agro-climatic conditions of the State, four Regional Agricultural Research Stations viz. one in South-Gujarat, one in Middle Gujarat, one in North-Gujarat and one in Saurashtra, should be planned. Existing smaller research stations in various districts may be attached to the proposed Regional Research Stations as sub-stations. These Regional Research Stations will work in close liaison with the Agricultural University and will play a positive role in organising proper agricultural extension activities to ensure that the results of research percolate quickly to the farmers of the region concerned.

Dry farming

7.1.54. The ultimate irrigation potential in the State being limited on account of limited water resources of the State agricultural growth mainly depends on improvement effected in rain-fed crops. Soil and moisture conservation works have, therefore a substantial role to play. It is necessary to devote considerable amount of effort in improving and evolving new dry farming methods including development of suitable varieties of seeds and agronomical practices. The proposed Regional Agricultural Research Station should devote special efforts to this important area.

7.1.55. Pilot projects in dry land farming have been taken up in Rajkot and Amreli districts under central sector programme. The

y farming projects should be taken up in all districts on the basis of experience gained in the pilot projects. The Government of India could be approached for setting up of a full-fledged Arid Zone Research Station in the State.

Small and marginal farmers

7.1.56. The efforts on agricultural development will not serve the real socialist goal of planned development unless the benefits of modern technology are made available to the small and marginal farmers, enabling them to put their small and marginal holdings to the most profitable use. Pilot projects have been taken up recently, with Central Government's assistance, in Sabarkantha, Surat and Mahesana districts for raising the potentially viable small farmers to viable status by extending all necessary assistance to enable them to make optimum use of their small holdings and achieve viable status. The pilot projects have also been taken up in selected talukas of Amroli and Bhusar districts for marginal farmers and landless labourers.

7.1.57. It is important that small and marginal holders and landless labourers are brought up, as speedily as possible to the economic status of rest of the rural population. The pilot projects under way should be continuously evaluated and concrete action programme should be drawn up for the small and marginal farmers in the light of the results of the pilot projects.

Organisational set up and Statistics

7.1.58. The agricultural organisational set up may be reviewed from time to time in order to make it responsive to the needs of the time. It is necessary to have an adequately staffed and well equipped statistical cell in the Directorate of Agriculture.

7.1.59. The principal activities of the statistical cell relate to analysis of crop cutting experiments for different crops, compilation of area statistics, crop forecasts, preparation of season and crop reports etc. In the coming years, the coverage of crop cutting experiments will need to be extended to the important minor crops in the State. For successful introduction of improved agricultural practices, and to work out variant to suit local agro-climatic conditions, detailed impact studies and *ad hoc* surveys will be necessary. The programme envisages introduction of mechanical tabulation

system leading to the use of electronic data processing *i.e.* computerization.

Agro-Industries

7.1.60. A sustained growth of agricultural production is largely dependent on adequate marketing and processing facilities. Wherever feasible, processing of agricultural produce may be undertaken in the co-operative sector. It is desirable for the State Government to encourage the establishment of food and processing plants by Agro-Industries Corporation and in the co-operative sector. If the co-operative societies do not come forward to handle processing of fruits and vegetables, a Board of Perishables should be set up in the public sector for processing fruits and vegetables.

7.1.61. The Gujarat Agro-Industries Corporation is planning for the setting up of units like oil extraction, compost manure plants, rice/pulse mills, Guar-gum processing, dehydration of fruits and vegetables, canning of fruits, agro-service centres etc. As it is proposed to develop soyabean as an additional source of edible oil, one soyabean processing plant will have to be set up in the Fifth Plan and another in the Sixth Plan.

Ware-housing and Marketing

7.1.62. The development activities under this programme are aimed at encouraging (i) sale of marketable surplus of agricultural commodities through regulated markets to ensure fair price to the producers, (ii) grading of agricultural produce in regulated markets, (iii) development of warehousing activities, and (iv) dissemination of information regarding market price and undertaking market surveys. It is expected to regulate 30 markets during the Fourth Plan, raising the number of regulated markets to 269 by the end of the Fourth Plan.

7.1.63. Substantial increase in agricultural produce on account of various agricultural development programmes will result in larger marketable surplus of agricultural commodities. Additional storage facilities will, therefore, have to be created and adequate marketing facilities arranged. Ware-housing and marketing will have to play a dynamic role in agricultural development in Gujarat, in the next decade.

7.1.64. With a view to ensure fair return to the farmers and to safe-guard the interest of consumers, the State Government have to

play an important role in regulating the price mechanism by way of support prices and buffer stock in case of food crops and groundnut during the Fifth and Sixth Plans.

7.1.65. The Perspective Plan studies suggest that the State Government should cause a detailed study to be undertaken to determine the most efficient manner of processing and marketing cotton which is one of the major crops of the State. It may be examined whether in the interest of farmers, merchants and mills, it would not be desirable to set up an organisation for purchase of cotton by the State.

7.1.66. A Directorate of Agricultural Marketing may be set up, preferably before the commencement of the Fifth Plan. It should be adequately staffed and should have personnel, with professional skills. This Directorate shall (i) supervise the regulated markets, (ii) anticipate problems relating to the marketing of agricultural produce, collect market intelligence, analyse data, disseminate information through concerned channels, (iii) undertake marketing survey and research and (iv) give timely advice to Government on measures considered necessary to protect the interests of the producers.

Land Policy

7.1.67. The State has already carried out the programme of abolition of all intermediary tenures. The total number of persons, who have acquired occupancy rights under Tenure Abolition Laws and the Tenancy Act is 16.9 lakhs involving an area of about 57.4 lakh hectares or about 57 per cent of the total area under cultivation in the State. The programme is at present concentrated on certain important items of works viz. (1) completion of all residual work pertaining to Tenure Abolition Laws and Tenancy Laws, (2) payment of purchase price and occupancy price, (3) facilities of loan assistance to new occupants, (4) measures for land management and (5) measures to check hoarding and profiteering in non-agricultural lands.

7.1.68. It will have to be ensured that valuable agricultural land is not diverted for non-agricultural purposes like setting up of industries or construction of houses.

7.1.69. The forest area of about 9 percent in Gujarat is much below the present all-India average. This adversely affects agricultural production because the area is denied moderating influence of

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the forests against floods and erosion and their help in maintaining soil fertility. A strong forest protection policy is, therefore, called for. It is necessary to put a ban on deforestation for any purpose except in accordance with the working plans.

Minor Irrigation

7.1.70. Considering the low irrigation facilities obtaining in the State and only marginal possibilities of bringing additional land under the plough, larger agricultural production has to be realised only by striving hard to harvest high yields per hectare and by spreading the concept of multiple cropping through optimum use of the available irrigation water. This means that Gujarat must initiate a special programme aiming at utilization of every drop of water from irrigation projects and rain. The extravagant use of water now taking place in agriculture requires to be checked and efficient water management practices need to be evolved. Excessive use of irrigation water creates problems of water logging and salinity. To realise the twin objectives of efficient water management and water conservation massive campaigns to educate the farmers on efficient water management and water conservation require to be planned. Special Research Programmes to determine the optimum water requirements of different crops and water conservation techniques deserve special attention.

7.1.71. The irrigation potential in 1950-51 was about 4 lakh hectares which was wholly through schemes of minor irrigation. This rose to 20.7 lakh hectares in 1969-70, of which 15.8 lakh hectares was through minor irrigation schemes. Thus, out of total irrigation potential created at the end of 1969-70, about 77 per cent was through minor irrigation schemes. The benefits of minor irrigation works are usually realised within a short period. They serve the useful purpose of tiding over ill-spread but adequate rainfall and ensure the growing of at least one seasonal crop in most years. It is also possible to entrust the management of minor irrigation works to the beneficiaries resulting in economy in maintenance and running cost. The programme of multi-purpose major and medium irrigation projects are discussed in the relevant chapter.

The minor irrigation schemes include :

- (i) Tanks and Bandharas.

- (ii) Check Dams and Percolation Tanks.
- (iii) Drains.
- (iv) Lift irrigation.
- (v) Dug wells (Private).
- (vi) Tube wells (Government and Private).

7.1.72. Tanks and Bandharas contribute significantly to total irrigation facilities in India, and particularly in Gujarat. They are of simpler nature and their planning and execution are comparatively quicker. Investigation and sanctioning of schemes can be finalised in shorter time and at the State level only. These schemes have greater adaptability even in difficult locations where bigger schemes are not possible. Thus, balanced and equitable development of various regions is ensured resulting in appreciable utilisation of water from even comparatively smaller streams. Again, tanks and bandharas are employment oriented and they are found very handy as scarcity relief works.

7.1.73. Most deep tubewells schemes are community based open wells and shallow tube wells, however, are useably constructed and owned by individuals. In either case ground water provides the farmer with just the type of "Instant" and controlled irrigation which the new high yielding varieties of seeds demand. The increased availability of modern equipment for drilling and blasting and of pumpsets have assisted remarkably in the development of ground water resources in the recent years. These schemes have also greater adaptability.

7.1.74. Check dams are small works constructed for temporarily storing post-monsoon flow in small streams and thereby allowing water to go deep into the ground. They help in maintaining ground water table on which dug wells depend.

7.1.75. Percolation tanks are likewise small earthen bunds which conserve the rain water during the monsoon and help raising the water level in the dry wells, on the periphery and especially on its down stream side by percolation through pervious strata. Since there are no canals taken out from such tanks, there is no direct irrigation. Some irrigation on the periphery is done by lifting the water.

7.1.76. The lift irrigation schemes are generally constructed on banks of rivers and nalas and thus, the potential tapped through these works will, by and large, be surface water potential.

7.1.77. At the end of the Third Plan, the irrigation potential created by the minor irrigation works was about 12.25 lakh hectares and utilisation was of the order of 8.89 lakh hectares. During the period 1966-69, additional irrigation potential of about 2.83 lakh hectares was created with additional utilisation of 2.40 lakh hectares, bringing the total irrigation potential created through minor irrigation works to about 15.08 lakh hectares and corresponding utilisation of 11.29 lakh hectares. The programme for the Fourth Plan envisages creation of additional potential of 5.36 lakh hectares and utilisation of 4.84 lakh hectares. Thus, the total irrigation potential and utilisation at the end of the Fourth Plan would be of 20.44 lakh hectares and 16.13 laks hectares respectively.

7.1.78. In expediting the work on minor irrigation schemes, the Gujarat Water Resources Development Corporation which has been registered under the Companies' Act, will play an effective part. The activities of the Corporation would be the exploration of ground water resources, construction and maintenance of tube-wells, construction of check dams and percolation tanks, construction of tube wells and water wells for small and big towns for domestic and industrial water supply, construction and maintenance of lift irrigation schemes and works to recharge ground water etc.

7.1.79 The economy and efficiency of tubewells and pump sets greatly depend on their electrification. The Perspective Plan for Power sector envisages energisation of 54,000 pump sets during the Fifth Plan and 1,20,000 pump sets during the Sixth Plan. The Perspective Plan also envisages electrification of 245 tube wells during the Fifth Plan and 600 tube wells during the Sixth Plan.

Soil Conservation

7.1.80. In Gujarat State, there is a large area of poor soils, undulating terrain and undependable rainfall. Hence the State faces an acute problem of soil erosion and losses of soil moisture due to heavy run off of natural precipitation. Though detailed survey has not been made to determine the actual area needing protection from soil erosion it is estimated that an area of about 40 lakh hectares of lands will need soil conservation measures. There are also special problems of reclamation of Kotar land and other saline lands and of bringing new area under cultivation by nala plugging and terracing.

7.1.81. The banks of various rivers such as Banas, Mahi, Yamuna, Tapi etc. are affected with ravines called Kotars. They extend far back into the cultivated fields bordering the banks of these rivers. It is estimated that about 4 lakh hectares of land have been affected by flood waters along the banks of river and ravines have been formed. It is estimated that 70 percent of the total ravine affected areas pertain to privately owned agricultural land. Essentially, these lands are on upper reaches. These lands are required to be reclaimed on a priority basis. The State Government had appointed a committee to study this problem and, as recommended by the committee, had also appointed an Advisory Board for Ravine Reclamation. A centrally sponsored ravine reclamation pilot project is under implementation and a scheme for afforestation and reclamation of ravine land is also being implemented in the State.

Looking to the magnitude of problem, these efforts are not enough. The soil being fertile in these ravine lands and the availability of irrigation facilities in these areas justify allocation of very high priority to the reclamation of ravine lands.

7.1.82. Reclamation of ravine lands should be taken up on a priority basis. Ownership of ravine lands should not come in the way of expeditious reclamation work as the cost can be recovered wholly or partly from the beneficiaries under the law.

7.1.83. A survey of all the ravine lands should be undertaken immediately and should be completed as a pre-Fifth Plan measure, so that a concrete and realistic reclamation programme can be chalked out for execution during the Fifth Plan. If any area is left over, it should be fully reclaimed during the Sixth Plan.

7.1.84. In order to ensure expeditious execution of ravine reclamation work, a Ravine Reclamation Board should be constituted and given adequate executive powers for speedy execution of the work of reclamation. The Board should be responsible for full development of these lands before handing over management to the parties. The process of reclamation can be said to have been completed only after three full agricultural seasons have passed and crops obtained. Having prevented further erosion of soil, the Board should have adequate powers to put the reclaimed land to such use as it considers to be proper, including cultivation, afforestation and preservation of wild life.

7.1.85. There are other areas also particularly drought affected areas in need of soil and moisture conservation measures. For this

purpose, programmes of contour bunding and reclamation etc. are being implemented. By the end of the Fourth Plan an area of 12.1 lakh hectares is expected to be contour bunded. Additional areas 4.06 lakh hectares and 19.23 lakh hectares are proposed to be covered under contour bunding during the Fifth and Sixth Plan periods respectively. Thus, most of the area needing contour bunding would be covered by the end of the Sixth Plan. Besides, programmes such as development of Ghed area and reclamation of Khar lands need to be intensified during the Perspective Plan period.

7.1.86. The Khar land problem is two-fold, the problem of salinity arising in the command areas of irrigation projects on account of lack of drainage, and the problem of Khar lands in the coastal areas. The reclamation of the latter type of lands is undertaken by the Khar Land Board. As the development of reclaimed Khar lands requires heavy investment, such lands should be developed by the Khar Land Board itself. The Board should undertake this work in a business-like manner, making investments necessary for developing the reclaimed land as Government farms. For this purpose, the Board should be reconstituted so that it can effectively fulfil the new functions proposed to be entrusted to it.

7.1.87. The pilot project for drainage and reclamation of coastal area under Umbhrat, Danti-Bhatha Kharland will give experience in engineering aspects and soil behaviour and this experience should be utilised for enlarging the programmes for drainage and reclamation of saline, alkaline, water-logged and coastal areas.

7.1.88. The programme of Soil Conservation measures envisaged an outlay of Rs. 15 crores in the Fifth and Rs. 40 crores in the Sixth Plan.

Animal Husbandry and Dairying

7.1.89. Animal husbandry is an inseparable part of agriculture. Cows and buffaloes not only provide additional income to the agriculturists, but they also provide nutritious food in the form of milk and meat and organic manure. They also provide bullock power. Sheep provide mutton and wool. Eggs and poultry meat are the products of poultry. On the other hand, the output of agriculture such as fodder, grass, corn etc. are indispensable for animals.

7.1.90. The gross value of output from the live-stock constitutes about one-fifth of the gross value of output from agriculture and

live-stock together. Main live-stock products are milk and milk products, meat and meat products, hides and skins, wool and hair, poultry meat and eggs. The minor products are bones, horns, hoofs, etc. The main group which contributes about four-fifth of the gross value of output from live-stock is milk and milk products. Many industries such as dairying, canning of meat, leather and leather products, wool and materials prepared from feathers, hair etc. wholly depend upon the live-stock for the basic requirement of raw materials.

7.1.91. Mechanisation of agriculture is likely to result in considerable addition to surplus rural man-power in rural areas which is dependent on agriculture. One of the solutions to poverty and rural unemployment is that of providing gainful employment to vast number of persons and to put them on productive work. From this point of view, dairying has got the potentiality of providing gainful employment even to the weakest sections of the society because milk is one of the few commodities which gives the producer a larger share of what the consumer pays for it.

7.1.92. Dairying is an effective instrument for social change in rural areas. Given the right type of organisational structure, the peasants can be brought together in the cooperative fold for handling production, procurement and marketing of milk and milk products. People's participation in such organisation would condition them to profitable business practice. The cooperatives in Gujarat have been effective in bringing about a viable integration of rural side. The Kaira District Milk Producers' Union in Anand has about 1.85 lakh producer members and is one of the largest business enterprises of its kind, in the country.

7.1.93. There has been a systematic destruction of our high yielding milch animals in the cities. The Operation Flood aims at facilitating the preservation of our highly productive animals by rehabilitating them in our rural areas and their proliferation in natural ecology. Implementation of the Operation Flood Programme, more or less, coincides with the schemes and investments under the Fourth Plan. Nevertheless, there had been considerable selectivity in area of operation, the most favourable ecologies receiving investments and inputs. These programmes operate in the districts of Kaira, Mehsana, Sabarkantha and Banaskantha.

7.1.94. Milk production is often expressed in terms of per capita daily production. It is estimated that in Gujarat State per capita milk available in 1965-66 was 184 grams which rose to 195 grams in

1969-70. However, the State has to go a long way before it can accomplish the national nutrition target for milk consumption.

7.1.95. Milk supply to modern dairy plants in the State was 3.56 lakh litres per day at the end of the Third Plan when most of the plants were running on an average of about 33 percent of the capacity. The Fourth Five Year Plan envisages to increase the total capacity of the dairy plants to 8.30 lakh litres. It is pertinent to note that this target has already been exceeded by the end of December 1970 and on the basis of the expansion and additional capacity provided mainly under Operation Flood Programme, the total capacity likely to be available by 1974 is estimated at over 15 lakh litres per day which is very near to double the Fourth Plan target.

7.1.96. The Perspective Plan envisages increase in per capita availability of milk and handling capacity by the organised sector of the dairy industry in the State. The programmes for increased production have necessarily to take into account the population increase. The through-puts of the installed dairy plants in the State would be about 20 lakh litres per day at the end of the Fifth Plan and about 30 lakh litres per day at the end of the Sixth Plan. The through-put of the liquid milk plants in the State would be entirely for the consumption of State's population and some 30 percent of the through-puts of the feeder/balancing plants and the product plants would also be consumed in the State either as liquid milk or as products. Taking into consideration, the target of 200 grams of milk consumption per day per capita and 70 percent of the through-puts of the product plants, the annual requirements of milk production would be about 2.8 million tonnes for the Fifth Plan. For Sixth Plan, the annual requirement at the rate of 240 grams per day and taking into account the 70 percent of the through-puts of the product plants has been estimated at 3.7 million tonnes. The Fourth Plan investment and the Operation Flood inputs and investment together are expected to push up milk production in the State to about 2.2 million tonnes by 1974. Therefore, the proposed increase in production in the Fifth Plan would reflect an increase of about 27 percent over 1974, and about 32 percent in the case of Sixth Plan over the Fifth Plan target.

7.1.97. Dairying is closely linked with the problems and policies towards animal health, disease control, veterinary education and research. The inputs and expenditure in connection with such services have high bearing on the realisation of the goals towards take off stage in dairying industry. White revolution will not be the only vista for future actions but sufficient care will have to be taken for development of other animal products too. Development of sheep

equines and poultry are the other avenues towards increasing live-stock products and by no means the minor products should receive less attention.

7.1.98. From the State's point of view, livestock production and development consists of four major action fronts and their essential supportive actions.

- (i) Planning and administration of livestock production and development.
- (ii) The enhancement of milk production and of supplies to dairy plants.
- (iii) The management of dairy plants.
- (iv) Other livestock-production and development.

The supportive actions are (v) research and (vi) training and education.

7.1.99. The main thrust of the live-stock improvement and the milk production enhancement programmes during the Perspective Plan period will be on cross breeding of the cow population in the State. In implementing this programme to get more milk, emphasis will be to see that the draught quality is maintained in all such cases. In other words, the State will have to follow the dual purpose policy in cow development.

7.1.100. The pricing policy of milk will be based on the two axis pricing system. The fat and solid non-fat will be valued on the basis of what the consumers pay for them. The proportion of valuation will, therefore, be some 66 percent of the value of fat for non-fat solid. The acceptance of this pricing policy will be one of the conditions for assistance to Co-operative Unions and Dairy Plants.

7.1.101. The objectives of the Dairy Programme for the Fifth and Sixth Plan periods are given below:—

- (i) To increase consumption to 200 grams per capita daily by the end of the Fifth Plan and to 240 grams by the end of the Sixth Plan, assuming consumption rate of 175 grams per capita per day by the end of the Fourth Plan.

- (ii) To achieve economic viability in all Gujarat's dairy plants by increasing the through-puts to at least 66 percent of the expanded capacity by the end of the Fifth Plan and to increase the throughputs to 75 percent by the end of the Sixth Plan.
- (iii) To increase the volumes handled by the organised sector of the industry to 20 lakhs litres per day by the end of the Fifth Plan and to 30 lakhs litres by the end of the Sixth Plan.
- (iv) To channel the production, procurement, processing and marketing of milk and milk products, through producers' co-operative unions, to use the co-operative unions as a vehicle for all investments and technical inputs for milk production enhancement programmes.

7.1.102. By the end of the Fourth Plan, it is estimated that the State will have about 18 lakh breedable buffaloes and about 18 lakh breedable cows. During the Fifth Plan, about 9.9 lakh cows and 9.2 lakh buffaloes are proposed to be covered by various input schemes. The remaining cows and buffaloes would receive only veterinary care and benefit of disease control programme. During the Sixth Plan, about 16 lakh cows and 12 lakh buffaloes are proposed to be covered by input schemes, leaving only a small number of poorer than average cows and buffaloes.

7.1.103. The performance of the milch herd and expected improvement in their production traits are summarised in table below:—

TABLE 8

Expected performance of milch herd.

Period/category	Percentage in milk	Number of days in milk	Daily yield per animal in milk (litres)	Total lactation yield (litres)
1	2	3	4	5
<i>Fourth Plan</i>				
(i) Local cows	46	200	2.9	580
(ii) Local buffaloes	56	300	3.4	1020

1	2	3	4	5
<i>Fifth Plan</i>				
(i) Local cows	.. 51	200	3.4	680
(ii) Local buffaloes	.. 62	300	4.1	1230
<i>Sixth Plan</i>				
(i) Local cows	.. 51	200	3.4	680
(ii) Local buffaloes	.. 62	300	4.1	1230
Cross bred cows	.. 65	300	6.0	1800

7.1.104. It is expected that different technical inputs would account for an increase of about 20 per cent in the average daily yield per milch animal and about 10 per cent in the number of animal performing in a year, through shortening of inter-calving period.

7.1.105. The details of the expected milk production are as under:—

TABLE 9

Expected milk production

(million tonnes)

Item 1	Fifth Plan 2	Sixth Plan 3
1. Contribution by input schemes	.. 1.04	0.89
2. Contribution of cross bred cows	0.76	2.34
3. Contribution of animals not covered by input schemes	0.95	0.48
Total	.. 2.75	3.71

7.1.106. The production estimates envisaged for the Perspective Plan period are based on the impact of all production enhancement programmes with massive inputs in cross breeding of local cows.

7.1.107. The dairy plants at Kaira and Mehsana have made sizeable progress, token provision is, therefore, proposed for them for their expansion during the Sixth Plan. Plants at Sabarkantha and Banaskantha may profitably expand during the Fifth Plan as well as the Sixth Plan. It is proposed to considerably expand dairy plants

at Junagadh, Rajkot, Bhavnagar and Jamnagar. It is also proposed to establish a new dairy at Bhuj during the Fifth Plan and it might be expanded in the Sixth Plan. The dairies at Surat and Baroda are essentially market milk plants and expansion of their capacities will include the bulk vending systems in Baroda and Surat for increasing their share in market. Expansion of Municipal Dairy at Ahmedabad may also have to be considered.

7.1.108. Urban milk supply schemes will be organised, increasingly, through consumer co-operative societies. It is proposed to organise such distribution system in 5 urban areas during the Fifth Plan and 10 areas during the Sixth Plan through bulk vending system.

7.1.109. With a view to develop dairy industry on co-ordinated lines, it is proposed that district unions and co-operative dairies should form a federation. The federation is proposed to facilitate collaboration on the movement of milk and milk products, formulate policies for purchase and sale of milk, arrange for training and education and demarcate areas for procurement operations. It is proposed that this federation should be assisted financially.

7.1.110. Milk enhancement programme brings together various activities relating to development of cattle and buffaloes. The main thrust of the programme is towards cross breeding of local cattle with exotic dairy breeds. For this, it is proposed to set up a registered society of breeders. The society is expected to cover districts which are not covered by the intensive cattle development programmes or intensive milk production enhancement programme including key village schemes. It will look after many aspects of the problem such as setting up of bull studs and semen banks, organising net work of artificial insemination centres at village level and administering and evaluating the artificial insemination programme, organising herd registration and milk recording, establishing cross-breed farms etc. It is proposed to set up, during the Fifth Plan, 7 artificial insemination units with semen banks and stud farms in the area of operation of the society. These 7 units are proposed to establish a stud farm with 15 exotic bulls and a semen bank. It is proposed to equip 2 out of the 7 units with LP2 deep freeze units and 40 exotic bulls during the Sixth Plan.

7.1.111. The intensive milk production enhancement programme includes massive production programme in selected progressive dairy milk sheds through producers' organisation. The scheme will be

operated either through the department or preferably through the proposed registered society of breeders, wherever the district milk producers' unions are not adequately developed. The scheme proposes to provide financial aid on certain conditions to unions, as well as village level co-operative units. The scheme is meant to provide the package of inputs to the producers, identify needs and quantify inputs such as veterinary care and disease control, artificial insemination, fodder development and production, mass castration of bulls etc. It is proposed to set up 5 projects in Banaskantha, Sabarkantha, Rajkot, Bhavnagar and Junagadh districts under the scheme during the Fifth Plan. Depending on the availability of infra-structure, 4 additional projects are proposed for the Sixth Plan.

7.1.112. The programme of intensive cattle development was originally devised as 'Crash programme' to accelerate the production of milk. This programme proposed to cover all items of scientific cattle development, such as breeding, feeding, disease control, rural dairy extension, marketing etc. The scheme is included in the Fourth Plan to be implemented in the Districts of Ahmedabad, Baroda, Rajkot and Surat with each project having 100 stockmen sub-centres. Existing village schemes in the respective areas would also be merged with the programme. The existing intensive cattle development projects need further intensification of the inputs and investments. The programme will be continued during the Perspective Plan period.

7.1.113. There are 5 State farms for Gir and Kankrej breeds of cattle, at Junagadh, Morvi, Bhuj, Thara and Sindhvai. Two farms, one for each breed are proposed for the Fifth Plan. It is also proposed to expand 2 existing farms during the Sixth Plan.

7.1.114. Integrated area development programme proposes to exploit the potentialities of arid zones in Kutch area for milk production.

7.1.115. The schemes for cattle feed plants are also included under the milk production enhancement programme. The existing plants are located at Anand, Mehsana, Surat and Rajkot. The former plants are owned by producers' unions and the plant at Rajkot is owned by the Agro-Industries Corporation. It is proposed to double the capacity of plants at Surat, Rajkot and Mehsana during the Fifth Plan. Two additional plants with the capacity of about 200 tonnes are proposed to be started during the Sixth Plan.

Animal health and disease control

7.1.116. The programme of veterinary services and prevention and control of diseases includes schemes relating to improvement of veterinary service, modernising veterinary institutions, establishment of new veterinary institutions, mobile veterinary units and disease eradication and control.

Sheep development

7.1.117. This programme would include schemes relating to cross-breeding of sheep in Saurashtra and Kutch area, intensive sheep development programme with a view to cover additional four lakh sheep population in each Plan, health control of migratory flocks, starting of wool grading centres at Mahuva and Rajkot, setting up of wool scouring plants and setting up of Gujarat Sheep and Wool Development Corporation in the State.

Poultry development

7.1.118. It is proposed to continue and reorganise the poultry training centre at Anand. It is also proposed to expand and reorganise 3 existing Regional Poultry Breeding Farms at Ahmedabad, Junagarh and Surat. The other schemes relate to intensive poultry development blocks, organisation of cooperative societies of poultry farmers, application of nutrition programme, organisation of marketing of eggs and poultry, strengthening poultry extension service, establishment of service centres and poultry development in the tribal district of Dangs.

Equine and Camel development

7.1.119. The scheme aims at expansion of the horse breeding farm at Junagadh, development of donkeys and expansion of camel breeding farm at Bhuj.

Education and Research

7.1.120. Under this programme, it is proposed to expand Dairy Science College at Anand and to set up a Technicians' Training Centre at Mehsana. The Dairy Science College at Anand was established in 1961-62. The college imparts training for (i) Indian Dairy Diploma (IDD) and (ii) B.Sc. (Dairy Science). It trains 10 students for B.Sc. degree and 25 students for IDD. The college requires considerable expansion. Moreover, it is desirable to introduce facility for post-graduate studies. As regards veterinary education, Gujarat Veterinary College is proposed to be expanded.

Administrative organisation

7.1.121. There is a felt need for reorganising the existing department of Animal Husbandry. It is proposed to organise a new Directorate of Livestock Production and Marketing and merging the present department as a unit of the proposed department.

Forests

7.1.122. Forests have important protective as well as productive functions. They not only supply timber, fuel, fodder and variety of other products but also have a moderating influence against floods, soil erosion and help to maintain soil fertility. A number of industries, such as, construction, furniture, paper, rayon, plywood, matches, resin and tanning depend on forests for supply of raw materials. Development of forestry is also essential for raising the income of the tribal people. Apart from being the habitats of our wild life, which needs careful conservation, forests are of inestimable value in enriching man's life by providing areas for his mental and physical regeneration. The main functions of forests, so vital to our economy, are:—

- (1) Conservation of water resources.
- (2) Mitigation of floods.
- (3) Conservation of soil which reduces sedimentation of river valley projects, dams and canals and
- (4) Habitat for our wild life and areas for man's mental and physical regeneration.

7.1.123. While the area under forests continues to be at a low level, the demand for various forest products in domestic as well as industrial use has been steadily increasing. It is, therefore, necessary that the forest development should be taken up extensively and intensively. More and more barren and desert areas should be brought under a common agency so that overall forest development work can be done systematically.

7.1.124. The relative importance of the functions and the relative emphasis on the methods of realising those objectives would really depend on the importance of forests in the economy of the particular area, the physical and climatic conditions prevailing in the area, and the overall strategy of development of the forestry in the State. In non-forest land use, forestry and agriculture share the same objective of most efficient management of soil for human good. They have to be

visualised as inter-locking and mutually sustaining. For enabling the forests to perform these functions effectively, it is necessary that forests should be well stocked and properly distributed. The National Forest Policy approved by the Government of India in 1952, lays down that the proportion of land to be kept permanently under forest should be 33 per cent of the total land area increasing to about 60 per cent in mountainous tracts liable to erosion and decreasing to a minimum of about 20 per cent in the plains, where the ground is flat and erosion is not a general phenomenon. In our State, the percentage of forest area is only 9.5, of which 10 per cent is in private hands. Almost the whole of the area of forest under private ownership lies in a ruined state. Thus, in Gujarat State, forest area is very much below 33 per cent of land to be under forests as recommended in National Forest Policy, 1952 adopted by the Government of India. There is therefore, an urgent need for increasing the forest area in Gujarat State to at least 12 per cent by 1984.

7.1.125. The Forest area of Gujarat is unevenly distributed. With the great variation in climatic and soil conditions, the forest growth also varies from scrub and thorn forest in the North and North-Western parts of the State to luxuriant and valuable forests in the South Gujarat. Considering the districtwise distribution of forests the major and valuable portion of the forest is located in the districts of Dangs, Surat, Bulsar, medium quality forests in Baroda and with poor or insignificant tree-growth in Mehsana and Kutch in the Northern and North-Western parts of the State. Only the districts of Dangs, Bulsar, Surat and Panchmahals have adequate area under forest, while in the districts of Ahmedabad, Mehsana, Rajkot and Surendranagar, the percentage of the forest area is even below 2 per cent of the total land area. The annual forest production is about 1.64 lakh cu. Ms. of timber and 2.02 lakh tonnes of fuel. As against this, the need of the State is about 3 lakh cu. Ms. of timber and about 32 lakh tonnes of fuel. There is, thus, a large gap between production and demand.

7.1.126. Only the forest area which lies south of Narmada is well wooded. This forest area is fairly compact and has favourable rainfall. The product of this forest has commercial value. The soil and climate is suited for good quality of teak and other species. Unfortunately, in the last two and half decades numerous bamboo clumps have been cut and burnt to bring the land under cultivation. The cultivation has added very little to the economy of the residing population but it has done immense damage to the forest. The rest of the forest area lies in the dry and arid zone. Naturally, the per hectare yield from all these forests cannot be high and they cannot produce timber and

large size. Since last three decades, forest lands are given for cultivation and other purposes. Due to this factor, the natural regeneration has become almost absent. Hence, protection of the forest became extremely difficult. Heavy grazing has also affected the soil of the forest area and as such the cheapest method of the quality of the tree growth is poor and annual increment of the wood is low. Illicit cutting is also very heavy. The position of forests in this State is, therefore, very precarious and calls for immediate action to remedy it. With this background, the policies and objectives of the Perspective Plan may be summarised as under:—

(1) To stop immediately further destruction of the forests by tackling efficiently the causes which have led to destruction of the forest wealth.

(2) To consolidate the existing forest area and manage it most intensively.

(3) To bring additional areas under forest by taking over from the Revenue Department whatever lands that are available for afforestation along the coast, the semi-saline periphery of the Rann of Kutch and in compact blocks from surplus waste lands in the interior and by acquiring private forest lands.

(4) To educate the public in the importance of forests and help the panchayats, various institutions, industrial estates and individual agriculturists in planting trees in lands in their charge by giving them necessary technical and financial help. Hence, emphasis will have to be placed on the conservation of the wild life in its forest habitats.

7.1.127.* The Perspective Plan 1974-84 envisages an outlay of Rs. 21 crores for forests. The schemes under implementation during the Fourth Plan are proposed to be continued in the Fifth and Sixth Plan periods. The important features of the programmes are discussed in the subsequent paragraphs.

7.1.128. There is a formidable gap between the available forest resources and the existing demand. The gap is likely to be widened in the years to come as the demand for forest produce will increase due to increase in population and industrial development. The scheme of plantation of fast-growing species aims at raising fast-growing economically important species in place of slow-growing inferior species.

7.1.129. It is expected that the work of the forest settlement would be over by the end of the Fourth Plan. During the Fifth and Sixth Plan periods, it is proposed to get the toposheets prepared through the Survey of India.

7.1.130. With a view to examine the possibility of bringing additional area under forests, land utilisation survey should be taken up and completed in the whole State during the Fifth and Sixth Plan periods.

7.1.131. It is proposed to undertake plantation of valuable species of teak, khair and bamboos and the fast-growing species like eucalyptus in the exploited forest area. Normally, most trees give coppice shoots after exploitation and plantation in about 10 per cent of the exploited area is sufficient for maintaining the existing forests. But large areas of forests in Gujarat have generally been over exploited and denuded and it is considered appropriate to plan about 20 to 25 per cent of the area exploited annually.

7.1.132. A total area of about 11,000 hectares is available for plantation along the sea coast. An area of 5,658 hectares will be planted by the end of the Fourth Plan. The remaining area is proposed to be planted during the Fifth and Sixth Plan periods.

7.1.133. It is proposed to carry out afforestation and soil and moisture conservation work in 20,000 hectares and 25,000 hectares of saline/desert, coastal and denuded areas during the Fifth and Sixth Plans respectively.

7.1.134. Gujarat has a fairly good net work of roads and canals which is required to be planted with shady and ornamental trees and trees of some utility. It is proposed to take up the programme of road-side and canal bank plantation over 1,000 Kms. and 2,000 Kms respectively during the Fifth and Sixth Plans on the roads of importance and having heavy traffic.

7.1.135. Villages will be selected for starting a pilot project for planting trees and grasses in common village lands and in the fields of individuals. Experience gained in the project will determine the nature and extent of a concrete programme of village forestry.

Wild Life

1.7.136. The existing wild life sanctuaries in the State will be developed. In addition, the forest area at Ukai will also be con-

situted into a sanctuary which has immense possibility and may ultimately turn out to be one of the best sanctuaries in India. The Gir sanctuary which is the only habitat of the Asiatic lion, will be constituted into a National Park. The Maldharis residing in the nesses in the sanctuary area will be shifted and settled on surplus waste lands. The whole area will be then fenced with a rubble wall supported by five rows of live hedges of a suitable thorny species. There will also be a jeepable lane which will facilitate frequent patrolling of the entire boundary. It is expected that after the closure, the development of the flora and fauna will be rapid. Steps will be taken to carry out soil and moisture conservation measures in the whole area, to improve the water regime, to establish check dams, to create perennial source of water all over the sanctuary area and to provide salt licks etc. A Biological Research Centre at Gir is established under the auspices of the Natural History Society of Bombay and the centre is collecting very valuable data about the ecology of lions.

Some special matters

7.1.137. It is necessary that the balance of nature is not disturbed. The State Government has, therefore, set up a Council of Ecology. It is necessary, that the Council be strengthened both organisationally and financially. The advice of the Council should be sought and invariably followed in matters pertaining to conservation of forests and wild life. The Council should be an effective agency for advising Government and to form legislation, where it is necessary.

Fisheries

7.1.138. Gujarat is favourably situated for development of fisheries due to its long coast line broken by the gulf of Kutch and Gulf of Cambay which are two of the most prominent gulfs of India — surrounding the Saurashtra peninsula. The State has a span of over 1,20,000 Sq. Kms. of ocean area spread over the in-shore and off-shore regions available for fishing. The State has, thus the richest grounds for fishing. Very important commercial species like Bombay Duck, Pomfret, Indian Salmon, Hilsa, Prawns, Ghol-Dara are very much in abundance in sea waters of Gujarat. However, the State of Gujarat at present exploits only a small portion of its fishery resources. The bulk of the marine fish landings currently accrue mainly from in-shore area upto 10-20 fms. (20-40 meters depth) and therefore, the State has an advantage of increasing fish production considerably by tapping the unexploited areas off-shore and deep sea regions.

7.1.139. The State has four major rivers viz., Narmada, Tapi, Mahi and Sabarmati as well as tanks, ponds and reservoirs. These indicate rich potential for inland fisheries. In inland waters, production of wild fish does not exceed 25 Kgs. per hectare per year. In cultivated waters the yield can be increased upto 2,000 to 2,500 Kgs. and in exceptionally productive waters upto 3,000 Kgs. per hectare per year. Only 18,700 hectares out of 1,14,800 hectares of inland water sheets have been taken up for fish culture. The potentiality for increasing fish production, both from the marine and inland sources is very great. This can be exploited by applying improved techniques of fish culture, fish capture, its handling, preservation, storage, quick transportation etc.

7.1.140. Annual fish landing in the State for the year 1970-71 was about 1.5 lakh tonnes. Of these, the Bombay Duck, a major fishery, contributed about 51,000 tonnes. Pomfret is the second important fishery with an average contribution of about 8000 tonnes, followed by Ghol--Dara and miscellaneous varieties like Eel, Hilsa, Clupeids, Sciaenids and other species averaging between 5,000 and 6,000 tonnes each. Shrimp fishery has also attained importance in recent years.

7.1.141. Much progress has been achieved in the last decade of planned development in respect of mechanisation of fishing crafts, supply of improved wooden boats and supply of fishing requisities. Fish production which was about 50,000 tonnes in 1955-56 is expected to increase to about 2 lakh tonnes by the end of the Fourth Plan. The State Government is encouraging fishermen financially and technically to take up modern methods of mechanised fishing. It is expected by the end of the Fourth Plan, there would be about 2,100 mechanised fishing boats out of which 10 percent will be engaged in trawl fishing.

7.1.142. There are immense possibilities for exploiting the fishery resources available to the State. It is true that the fish production in the State is progressively increasing but as compared to the vast potentialities of the State in this regard, the rate of progress achieved would appear to be meagre. It is possible to achieve a much faster rate of augmenting the fish production by tapping the unexploited areas of off-shore and deep sea region. However, this will call for special efforts and provision of necessary requisities on an adequate scale.

7.1.143. In order to maintain the momentum and give a real push to fishing industry, it would be necessary to provide for suffi-

cient infrastructure facilities, large sized fishing vessels for deep sea and high sea operations, exploration and adequate knowledge of fishing grounds, trained manpower, especially for manning the large vessels etc.

7.1.144. Main objectives of the fishery programme would, therefore, be:—

- (1) to increase fish production,
- (2) to provide nutritious food at a comparatively low cost,
- (3) as a source of cattle and poultry food,
- (4) as a base for setting up ancillary industry,
- (5) to earn foreign exchange for the country and
- (6) to improve the socio-economic conditions of fishermen.

Development of fisheries harbours

7.1.145. Fishing harbours constitute an important link between the actual operations of catching fish in the seas and the delivery in fresh condition to the processors and consumers. Having regard to the need for giving the fishermen the maximum amount of time for fishing operations and considering the perishable nature of the commodity every facility has to be provided for handling the fish in the harbour with minimum delay. Development and provision for essential services such as berthing, maintenance and repairs of fishing boats, supply of fishery requisities and landing, handling and auctioning of fish is of crucial importance for the fishing industry development. It would, therefore, be of paramount importance to develop some harbours as basically good fishing harbours, particularly Veraval, Porbandar, Jakhau, Madhwad, Navabandar, Jaffrabad, Kolak, and Umbergaon. The development of fishing harbours is to an extent being handicapped because of lack of certain basic equipment and machinery. Among these the most important is the requirement of dredgers. Fishing harbours do not by themselves mean immediate return but they do act as the catalyst for quicker pace of progress in fishing industry and hence adequate attention will have to be paid to the development of fishing harbours.

Marine fisheries development

7.1.146. Fishing is mostly confined in in-shore areas and hence emphasis during next plan periods will be mainly on introduction of

small, medium and large size trawlers for exploitation of off-shore and deep sea regions. The individual fishermen and their co-operative will be given financial incentives and technical know-how for engines and boats as shown in table below:---

TABLE 10

Boats	Fifth Plan	Sixth Plan	Engines (HP range)
1	2	3	4
Improved designed boats	375	250	5-15
Small trawlers	200	600	25-150
Medium and large size trawlers	40	150	210 & above.
Total	615	1000	

Alongwith supply of boats and engines, it will be necessary to distribute 400 tonnes of nylon nets during the Fifth Plan and 60 tonnes during Sixth Plan.

Fish Transport

7.1.147. For effective and efficient handling of fish, it would be essential to provide adequate transport facilities by rail, road and sea. For transport by road, it is estimated that at the end of the Sixth Plan total fleet required would be about 200 trucks/vans. For rail transport, it is proposed to introduce container service for export as well as internal marketing, it is proposed to have three to four such services per annum so that at the end of the Sixth Plan, there will be 35 such services. The Perspective Plan also envisages an increase in sea traffic by 15 new carrier launches bringing the total to 40 by the end of the Sixth Plan.

7.1.148. With the increase landing of exportable varieties of fish, Gujarat would be in a position to offer fish cargo of about Rs. 15 crores annually at the end of the Fifth Plan and Rs. 30 crore annually at the end of the Sixth Plan period. For this purpose arrangements will have to be worked out with shipping lines for the exports of fish cargo.

Preservation and processing

7.1.149. Augmentation of fish catch and facilities for its transport should be supported by facilities for proper preservation and processing. As regards providing facilities for freezing and processing, Government will have to continue offering financial incentives for setting up freezing plant and processing units that may come forward during the Fifth and Sixth Plan period. It is necessary that introduction of latest and advanced techniques in the field of freezing, such as, IQF and Accelerated Freeze Drying Units etc., projects are taken up by the Government sponsored agencies.

7.1.150. Encouragement should be given for introduction of new processing techniques with a view to enhancing utility and marketability.

Fishmeal and canned fish

7.1.151. With the increase of fish production, trash fish will also increase. Trash fish can be ideally converted into fish meal. It is calculated that the production of fish meal at the end of Fifth Plan would be 3,500 tonnes and at the end of Sixth Plan 12,000 tonnes.

7.1.152. In the years to come, canned fish food is bound to gain popularity and therefore, it is proposed to establish 10 canning plants by the end of the Sixth Plan, of which one is expected to be established during the Fourth Plan, one more during the Fifth Plan and remaining 8 plants during the Sixth Plan.

Inland Fisheries

7.1.153. Unlike marine fisheries where efforts are mainly directed towards capture of fish and its preservation inland fisheries requires intensive efforts right from the stage of seed conception to its delivery and rearing into fingerling (fish) stage. The development efforts of the State so far have succeeded in producing required number of quality fish seeds and it is necessary that efforts at production of fish seeds are intensified during next two plan periods. The present fish production from inland areas is a very negligible quantity and looking to the area of water sheets available, it is possible to have fish production of 15,000 tonnes at the end of the Fifth Plan and 25,000 tonnes at the end of the Sixth Plan.

7.1.154. For attaining the above target of fish production efforts will have to be made to obtain sufficient number of quality seeds through (i) induced breeding methods, (ii) riverine collection and (iii) induced breeding under artificial hatcheries.

7.1.155. It is planned to have 3 such artificial hatcheries during the Fifth Plan which can be increased to 8 during the Sixth Plan. Introduction of artificial hatcheries will minimise dependence on rain and hence normal supply of seeds can be ensured.

7.1.156. Development of inland fisheries will also call for measures such as fish farms for stocking and rearing of fish, rearing spaces (nurseries) for spawn, provision of nylon nets, mechanisation of boats, training and research programme, introduction of frog culture and coverage of larger areas for areas for fish culture.

Co-operatives and social upliftment of fishermen

7.1.157. The fishermen population in Gujarat is fairly scattered and the total population is about 2.5 lakhs. Of these, the concentration is in the Umbergaon-Kolak belt in South Gujarat, and the Jaffra bad-Portbandar belt in Saurashtra. Of these, the number of active fishermen is about 39,000 persons. However, a number of persons who do not belong to the fishermen community is also taking to fishing in small numbers. It is envisaged that with the availability of facilities and opening up of the field of fisheries more and more persons not belonging to the fishermen community, would also be attracted to this field and will seek employment in the fisheries sector. It is those persons also, who would, to a fairly substantial extent, make up the shortage of the trained and technical personnel required for fisheries.

7.1.158. There should be correlation between planned efforts at development of fisheries and social upliftment of fishermen. The standard of living of fishermen will have to be elevated. Increase in the earning will no doubt have a very favourable impact in this regard. However, for improving their standard of living, Housing Co-operatives of fishermen should be formed. Besides, it would be necessary to extend requisite assistance for the purpose.

Marketing

7.1.159. Marketing of fish (fresh and dry) will have to be handled mostly through public bodies if the benefits are to accrue largely to

the fishermen who are directly engaged in fishing. The export of fish will have also to be done through either one agency or under one brand name so as to ensure uniform quality at all times. A State inspection agency will be necessary for this purpose.

7.1.160. Marketing survey will have to be conducted for exploration of new markets. Marketing research will also be necessary to cater to ever changing consumer's preference.

7.1.161. This will call for measures such as Market Research Wing in the Fisheries Department, marketing loans to public bodies dealing with marketing of fish, financial incentives for transport of fish and fishery products for export abroad and establishment of marketing stalls in important consumer centres through co-operatives.

Survey research and exploration

7.1.162. The programme of charting out new fishing grounds for optimum exploitation is a continuous programme of fisheries plans. It is hoped to complete the first phase of programme of covering upto 25 fms. of fishable area of sea, by the end of the Fifth Plan. For this purpose, it is necessary to have total operative fleet of 5 vessels (49' OAL). It is also envisaged to have survey of 25-50 fms. off Saurashtra coast from Jaffrabad to Okha with total operative fleet of five (57) vessels, during the Fifth Plan which would be continued in the area of Kutch coast from Okha to Mandvi and then in the area off South Gujarat during the Sixth Plan period.

7.1.163. For survey of deep sea fishing areas, it is envisaged to introduce one (72) survey vessel during the Fifth Plan and one (100) survey vessel during the Sixth Plan.

7.1.164. For intensifying research activities during the Sixth Plan period it may be necessary further to have 2 more exploratory survey cum research vessels of 72' OAL. It is also proposed to introduce one factory ship at an estimated cost of Rs. 50 lakhs for carrying out processing research. This factory ship is proposed to be of 300' OAL. It would be quite appropriate if assistance from foreign agencies like FAO etc. is also sought for in regard to the survey and exploratory programme of the State.

7.1.165. The findings of these vessels will be disseminated to the fishermen, co-operatives and all those interested in the development of trade and industry.

7.1.166. Oceano-graphical and Hydro-biological Research will be continued at Okha. Plankton studies *i.e.* primary productivity research will be intensified during these plan periods.

Training

7.1.167. For effective and efficient handling of any project, trained personnel is a fundamental pre-requisite for its success. Looking to the need of large number of trained personnel required for efficient handling of mechanised crafts and trawlers it would be necessary to have one separate unit of Central Institute of Fisheries Organisation (CIFO) on the basis of Ernakulam unit established in Gujarat, where instructions in training in the regional language can be imparted.

7.1.168. The departmental officers and the personnel required for industry in other aspects of fishing, such as processing, inland fishing techniques, etc., will be recommended to the various institute outside the State and the Country.

Statistics, supervision etc.

7.1.169. No future planning of any industry can be made without adequate basic statistical data of the potential for that industry. Supervision and evaluation of projects at every stage is another important aspect of long term planning. It is, therefore, essential that the machinery for collection, compilation and interpretation of statistical data as well as that for supervision and evaluation is strengthened during the Perspective Plan period. It would also be necessary to provide facilities for buildings and quarters at important fishing centres.

7.1.170. The development of fisheries in the State has reached a take-off stage now and needs to be provided with necessary impetus and incentive for accelerating its pace. The primary investment of Rs. 34 crores envisaged in the Perspective Plan, 1974-84 will have a multiplier effect and would generate employment opportunities for 30,000 jobs during the Fifth Plan and 50,000 jobs during the Sixth Plan period. Besides, depending upon the availability of additional fund a supplementary outlay of over Rs. 24 crores is also envisaged in the Perspective Plan.

Fisheries Board

7.1.171. For exploitation of rich natural resources at an accelerated rate and for integrating various developmental projects in the public, co-operative and private sectors so as to ensure even balanced development of fisheries, it is essential that a Fisheries Board is established in the State.

7.1.172. The Board should have overall control on all aspects and should coordinate the entire Governmental efforts towards fisheries development in the State. The Board should undertake all activities of development at present being undertaken by the department of fisheries, such as exploration and survey of fishing grounds, provision of infrastructure facilities including harbours, research and training, help exploit fishing resources on commercial scale, integrating activities of co-operatives and private entrepreneurs, ensuring systematic marketing, steps for increasing exports of fish and fisheries products, as well as looking after the welfare of the fishermen and their amelioration. Above all, the Board should have the final authority on the expenditure and control of finances after the Government has made the allocations.

Co-operation

7.1.173. Working together and helping one another in times of need and hardship have been known to mankind since the beginning of civilisation. The Co-operation in its institutional form, however, came to be introduced in this country for the first time with the first co-operative Societies' Act of 1904. In its true form, co-operation is a voluntary movement. In other words, the urge for co-operation should come from within. The movement has passed through different stages of development and ultimately it has come to be recognised as a medium through which various economic activities can be executed particularly in rural economy. The first attempt for planning in co-operation was made as back as 1944 when a Committee under the Chairmanship of Shri R. G. Saraiya gave a report giving details about Co-operative planning and targets to be realised. Thus, planning in Co-operation was conceived even before economic planning was actually taken up hand.

Agricultural credit societies

7.1.174. In our rural economy, where the major sector of agriculture is composed of a large number of small land-holders and unorganised cultivators, the tempo of agricultural development is to a considerable extent dependent upon the development of co-operatives as the chief mode of organisation. The provision of credit facilities for agricultural production still forms and will continue to form the main plank of the co-operative development programme.

7.1.175. The object of covering all villages of the State by primary agricultural credit societies has almost been achieved. There

are still some villages which are not served effectively by societies as some societies are either dormant or not viable. It is necessary to strengthen Co-operatives by making them viable units. A programme for making societies viable has already been undertaken. Societies which are not viable are being wound up and the areas served by these societies are included in the areas of operation of other viable societies. It is estimated that out of about 7,700 societies at the end of 1970-71 about 6,500 societies will survive as viable societies.

7.1.176. Having made co-operative societies available at the village level for all villages of the State, the next objective should be to cover all persons in need of co-operative services. As these societies are mainly agriculture-based and as the main population of villages consists of agriculturists, most of the members who have joined primary co-operative societies are agriculturists. After the concept of the multipurpose societies and service co-operative societies, the policy has been to enrol as members, all sections of the rural population, viz. agriculturists, landless labourers, artisans, etc. Even then the stress will have to be continued on enrolling all agriculturists as members, as that would help in implementing the agricultural production programme. The membership of agricultural credit societies stood at 11.40 lakhs and 12.73 lakhs at the end of the Third Plan and 1968-69 respectively. At the end of the Fourth Plan, it is expected that membership in these societies will be 15.50 lakhs. There are about 22.41 lakh Khatedars in the State. The broad objective is to cover 95 percent *i.e.* about 21.30 lakh Khatedars, by the end of the Perspective Plan period in 1983-84. There are also 11.30 lakh landless labourers. So far, no systematic efforts to enrol these people into co-operatives were made. It is felt that the landless labourers should also be enrolled into primary co-operative societies. This is all the more necessary when instead of agricultural credit societies broad-based village service co-operative societies are organised wherein the whole village population including agriculturists, artisans and land-less labourers etc. are proposed to be covered. The broad objective envisaged is to cover 50 percent of such landless labourers as members in the co-operatives. In order to bring 5.65 lakh landless labourers eventually within co-operative fold, it is proposed to enrol 1.10 lakh members from this section during the period 1974-84. These labourers are also being organised into labour contract societies. It is estimated that one half of the persons proposed to be brought within the co-operative fold *i.e.* about 0.55 lakh would be enrolled as members of labour contract societies and an equal member would be enrolled into service co-operative societies.

7.1.177. A large number of persons in the rural area is engaged in cottage and small scale industries. Efforts have been made during two decades of Planning to bring such artisans into co-operative fold by organising industrial co-operative societies, and the same will be continued. However, industrial co-operative societies can be organised only where there is concentrations of artisans. It is estimated that about 3.40 lakh persons are engaged in cottage industries. Of these, it is estimated that 1.5 lakh persons could be brought under co-operative fold by organising industrial co-operative societies, and the rest be covered under village service co-operative societies. As stress is now being laid on embracing all sections of rural population by the service co-operative societies, it is expected that 50 percent of them *i.e.* 0.95 lakh could be enrolled into service co-operatives during the decade 1974-84.

7.1.178. Thus, the broad objective for the Perspective Plan period 1974-84 is to enrol 95 percent of the Khatedars *i.e.* about 21.30 lakhs, 25 percent of the landless labourers *i.e.* about 0.55 lakh, and 50 percent of such artisans who can not be organised into separate industrial co-operative societies *i.e.* 0.95 lakh into service co-operatives. This would raise the total membership of service co-operative societies to 22.80 lakhs.

7.1.179. The main task of co-operative societies is to provide agricultural finance to members. The exact amount of finance required for production purposes can be assessed if production plan of each member is prepared. As this task requires large resources and technical personnel, it is not attempted except in districts where the intensive agricultural development programme is introduced. Till the stage of preparing production plan for each member is reached, a practical method of fixing the scale of production finance per hectare for each crop is being followed.

7.1.180. At the end of the Third Plan, short and medium term advances were Rs. 46.78 crores. These advances increased to Rs. 65.26 crores by the end of 1968-69. As against the target of Rs. 75.0 crores for short and medium term advances, envisaged in the Fourth Plan, the actual achievement is likely to be exceeded. In coming decade, considerable increase in membership is visualised. The agricultural practices are also improving and agriculturists are adopting intensive methods of agriculture. With the introduction of improved and intensive methods, the scale of finance for the same crop in the same tract will increase. Taking all these factors into account and looking to

the trend of increase in finance provided by the primary service societies during the decade, it can be assessed that the co-operatives will advance Rs. 115 crores by the end of the Fifth Plan and Rs. 150 crores by the end of the Sixth Plan.

7.1.181. In addition to the short and medium term loans, farmer requires long term loan for development of land and increasing the productivity of land. Provision of this type of loan is quite important for increasing agricultural production.

7.1.182. The finance required for the above said purposes is being provided by the Gujarat State Co-operative Land Development Bank Ltd., which has also taken up special development schemes under the International Development Association Projects. The amount of long term loans likely to be advanced by the Land Development Bank is expected to rise to about Rs. 185 crores at the end of the Fourth Plan. Looking to the present trend of long-term finance, it is estimated that during the Fifth and Sixth Plan periods loans of Rs. 168 crores and Rs. 200 crores respectively would be advanced by the Land Development Bank.

7.1.183. After the nationalisation of commercial banks, one of the important objectives of these banks is to provide finance for priority sectors, viz. agriculture, small scale industries, small borrowers and exports. With expanded activities of the commercial banks, the deposits from the semi-urban and rural areas would increase. It would be desirable if 50 percent of the deposits of semi-urban and rural branches of all commercial banks in Gujarat and 75 percent of the incremental deposits of these branches since then should be advanced back to rural areas. As agriculture is the mainstay of rural areas, it can be assumed that 80 percent of these advances will go to agriculture.

Marketing and processing

7.1.184. Provision of adequate and timely credit being an essential pre-requisite for sustained agricultural growth, and extension of fresh credit being related to repayment of earlier borrowings, linking of credit with marketing is considered essential. The activities of credit should be linked with marketing and processing in order to achieve the twin objectives of providing fair prices to the agricultural producers and effecting recovery of loans which would enable provision of fresh credit in the next season.

7.1.185. The existing schemes of financial assistance to marketing societies by way of share capital contribution and subsidy for

rious purposes would be continued. Subsidy may, in particular, be tendered for construction of godowns by the marketing societies.

7.1.186. For the marketing of fruits and vegetables in urban areas, in the first instance, a few pilot projects may be taken up in selected urban areas. The co-operative societies should purchase fruits and vegetables from the neighbouring rural areas by paying fair prices to the growers and supply them to the urban consumers at reasonable prices. The societies should also handle the processing of fruits and vegetables and market the processed products. Assistance should be given to the societies for grading of fruits and vegetables, construction of cold storage by way of share capital contribution. After evaluating the performance of pilot projects, and if the results be encouraging such projects may be extended to other urban areas during the respective Plan period. A larger programme should be prepared on the basis of experience gained in the pilot projects.

sugar factories

7.1.187. It is expected that 14 sugar factories will have been established by the end of the Fourth Plan. All these sugar factories will be in the co-operative sector. Based on trends of the sugar cane production and the irrigation facilities likely to be available in the Perspective Plan period, the sugar cane production by the end of 1983-84 is likely to be 10 lakh tonnes in terms of gur. This estimated production potential of sugar cane would be able to support 16 additional sugar factories in the State. It is thus expected that there will be 22 sugar factories at the end of the Fifth Plan and 30 sugar factories at the end of the Sixth Plan.

Administrative and supervisory staff

7.1.188. It is felt that the present organisation of the Co-operative Department is not best suited to perform its functions with the desired speed and efficiency. At present, along with the subject of co-operation, the subject of agriculture marketing, cottage industries, industrial co-operatives, money lending etc. are also dealt with by the Co-operative Department. The subject like agricultural marketing and cottage industries, need full time attention. The establishment of an independent directorate of agricultural marketing, a separate directorate of industrial co-operatives including co-operatives for cottage industries and separate organisation for agro-industrial co-operatives need to be examined.

Other schemes

7.1.189. The various schemes of assisting the co-operative societies of consumer, labourers, autorickshaw drivers etc. which benefit the weaker sections of society are proposed to be continued during the Fifth and Sixth Plans. All these schemes would be constantly reviewed and modified from time to time in light of the experience that may be gained. Financial assistance is also proposed to be given to banks and societies for granting additional credit to small and marginal farmers in order to ensure that their small and marginal holdings are put to proper use.

Community Development and Panchayats

7.1.190. Since 1st April, 1963, Panchayati Raj has been introduced in Gujarat with three tier system of Panchayati Raj Organisations. At present, there are 11,974 Gram Panchayats and 58 Nagar Panchayats and 17 District Panchayats functioning in the State. These institutions have been assigned the vast field of local development with transfer of functions, powers and resources together with staff.

7.1.191. Piloted in 1952, Community Development Programme which is entrusted to Panchayats is being operated according to the stages. The intensive First stage will be over in 1972-73 and second stage will be over in 1977-78 *i.e.* in the fourth year of the Fifth Five Year Plan. Majority of the blocks have entered into post stage II period wherein no schematic budget is envisaged. Only committed liability for extension staff remains to be shouldered by the State Government.

7.1.192. After introduction of Panchayati Raj, increased channelisation of departmental funds through Panchayati Raj institutions is a welcome feature. During the post intensive period of Community Development Programme, some assistance forming "Nucleus Budget" at the rate of Rs. 40,000 need to be continued for long time to come for following important activities :—

- (1) Technique of village and area planning.
- (2) Extension Technique.
- (3) Promotion of group action through Mahila and Youth Organisations and leadership training.
- (4) Removal of hardships of weaker sections of the locality.
- (5) Propaganda of Nutritional Education.

- (6) Staff support for co-ordination and implementation of various schemes, functions and activities transferred to Panchayats.
- (7) Increasing functional competence at grass root of democracy *i.e.* Gram Panchayats by providing performance incentives in the various functions assigned such as tax recovery, afforestation, family planning, removal of untouchability, rural employment, voluntary labour environmental sanitation etc.

The above activities will also enable achievement of integrated approach in the implementation of schemes in the field.

7.1.193. As against about 12000 Gram Panchayats in the State, the existing number of 8100 posts of Talati-*cum*-Village Panchayat Secretaries is inadequate. Looking to the numerous functions and activities which the village level functionary has to discharge at the Gram Panchayat level, it is necessary to have one Village Panchayat Secretary for each Gram Panchayat. Hence it is proposed to create additional posts of Panchayat Secretaries to the tune of 1500 during the Fifth Plan and 2500 during the Sixth Plan. It is proposed to set up an Academy of Panchayati Raj Training and Research, an apex body to co-ordinate and supervise all the activities in the field of training of Community Development and Panchayati Raj personnel at all levels as well as to conduct applied research in that sphere.

7.1.194. The Central sector schemes of applied nutrition programmes, rural employment and Tribal Development Blocks would require to be continued during the Perspective Plan period.

7.1.195. A large number of programmes are executed by authorities at district level and below. These programmes aim at rural development particularly in the fields of agriculture, co-operation, rural roads and social services like education, health and welfare of backward classes etc. The organisations which have been playing a very important role in rural development are the Panchayats and Co-operatives as also the extension machinery and various voluntary agencies working in the field of development. The Panchayat organisations are associated in the formulation of Plan Programmes being implemented at the district level. The Panchayats are guided from time to time in the preparation of their district plans and are encouraged to identify their need based programmes by undertaking surveys on scientific lines. The proposals received from the district panchayats are integrated to the extent feasible while drawing up the detailed programmes for district level schemes to be included in the State Plan.

2. IRRIGATION AND FLOOD CONTROL

Irrigation

India with one fifth of the world's irrigated land leads the world in the sphere of irrigation. The availability of water in adequate quantities and at the right time is one of the basic requirements of agricultural productivity. In Gujarat where the rainfall is undependable both in incidence and quantum, irrigation facilities are indispensable for successful harvesting of Kharif crops.

7.2.2. The total reporting area of Gujarat for land utilisation purpose is 185.53 lakh hectares, of which less than 97.46 lakh hectares i.e. slightly over half of the reporting area is cultivated. The cultivable area admeasures 123.78 lakh hectares i.e. about $\frac{2}{3}$ of the total reporting area. At present about 18.70 lakh hectares of Land area in the State get irrigation facilities of which 11.12 lakh hectares are from surface wells.

7.2.3. The State can be divided into three main regions (i) part of Gujarat other than Saurashtra and Kutch (ii) Saurashtra and (iii) Kutch for assessing the water resources.

Rivers of Gujarat Region other than Saurashtra and Kutch

7.2.4. The region stretches between the Rel Basin in north and the Damanganga Basin in the South and has an area of 53,500 Sq. Kms. There are 17 river basins in this region. The five river basins, namely Rel, Banas, Saraswati, Rupen and Sabarmati cover 26,750 Sq. Kms. in north Gujarat. River Rel disappears about 3 Kms downstream of Dhanera town in Banaskantha district. Banas, Saraswati and Rupen drain into the Little Rann of Kutch. Sabarmati and Mahi rivers, which are amongst the major river basins of the State, drain into the Gulf of Cambay. The catchments of the basins of the Rel, Banas, Saraswati, and Mahi stretch into the neighbouring State of Rajasthan.

7.2.5. A small portion of the Mahi basin lies in Madhya Pradesh. The two largest rivers of Gujarat State viz. Narmada and the Tapi are inter-State rivers, with origins in Vindhya Mountain ranges and Satpura Mountain ranges of central India, respectively.

7.2.6. All the remaining nine rivers are west flowing coastal rivers and empty into the Arabian Sea.

7.2.7 On account of high rainfall in Southern part of Gujarat region, the average yield per Sq. Mile of the rivers south of Tapi is as high as over 101 million cu. m./Sq. Km. (100 Mcft. per Sq. Mile) of catchment area as against about 0.22 million cu. m./Sq. Km. (20 Mcft. per Sq. Mile) of catchment area of North Gujarat rivers.

Rivers of Saurashtra Region

7.2.8. The Saurashtra Peninsula is bounded by the Gulf of Kutch and the Little Rann of Kutch in the North and Arabian Sea in the West. The Gulf of Cambay lies on its south and south east. The ridge line is almost at the centre of this region with the Gir Mountains protruding towards the south west a little and most of the rivers big and small flow radially towards the coasts. There are as many as 71 rivers in this region. The Shetrunji and the Bhadar are the largest river basins of this region. The rainfall in this region is about 50 Cms. (20 inches) and hence, water resources potential has been assessed at 50% reliability.

Rivers of Kutch Region

7.2.9. The major ridge line in this region stretches almost east to west in the main land. It is bounded by the Great Rann of Kutch in the North and the Little Rann of Kutch in the East. The Arabian Sea and the Gulf of Kutch constitute the Western and Southern borders. All the rivers generally flow towards the Great Rann of Kutch in the North or towards the Gulf of Kutch in the South. A few rivers flowing towards the west empty into the Arabian Sea, while a few others flowing towards the East and the South East disappear in the Little Rann of Kutch. There are some 97 small rivers and rivulets in this region including those in the islands of Pachham and Khadir in Great Rann of Kutch.

7.2.10. The average rainfall in this region is as low as 32 Cms. (13 inches) and hence, water resources potential has been assessed at 50 percent reliability.

7.2.11. The aggregate potential of surface water excluding the Narmada basin after considering the different reliabilities for yields etc. have been estimated at 38 Maft. as under:—

Table 11

Region	Total catchment area in Sq.Kms.	Dependable annual yield in Maft.	Reliability.
1	2	3	4
1. Gujarat (excluding Narmada)	66905	32.40	75%
2. Saurashtra	60365	3.69	60%
3. Kutch	44286	1.97	50%
		38.06	
		Say 38.00	

7.2.12. Out of the total surface water resources of 38 Maft., (excluding Narmada) nearly 53 percent of the resources is from the three inter-State rivers namely Sabarmati, Mahi and Tapi. Only limited quantities of water can be available from these rivers. Lack of reserve sites due to flat nature of the terrain and non-availability of suitable foundation have been the principal handicap in harnessing the available surface water. Less than one third viz. 12.46 Maft. of the available supplies can be harnessed and put to use.

7.2.13. Narmada has an enormous potential which is almost equal to that of all the rivers of the State put together. It is estimated that even in the ultimate stage when all the technically and economically feasible schemes are completed, the irrigation potential would hardly exceed 21.4 percent without Narmada whereas the ultimate potential envisaged for the country is 45.3 percent. In other words, without Narmada, Gujarat would be pegged down, for all time to come to the level reached in the country by the end of the Third Plan.

7.2.14. Mere provision of irrigation is hardly adequate for optimum utilisation of water and for improving agricultural productivity. Integrated development of the command area with roads, drainage, land levelling etc., with complementary inputs for agricultural productivity such as chemical fertilisers, improved technology, credit, marketing facilities etc., are necessary. The need for an effective agricultural support programme has also to be recognised. This approach has been first applied to the Mahi-Kadana Project which is a World-Bank assisted programme. Minor irrigation schemes are planned on village-wise basis while multipurpose, major and medium irrigation schemes are planned on the basis of a perspective, considering the resources of the whole basin as a unit. Master Plans are prepared for each basin.

7.2.15. Three multipurpose projects viz. Ukai, Kadana (Mahi Stage II) and Narmada and 4 major projects viz. Mahi Stage-I, Kakrapar, Dantiwada and Shetrunji and 52 medium schemes were undertaken before the commencement of the Third Plan. No new scheme was taken up during the Third Plan period due to large pill-over commitments. One more multipurpose project viz. Dharoi was taken up during 1966-67. Of these, one major scheme viz. Shetrunji and 40 Medium Schemes were completed by the end of 1968-69.

7.2.16. The table given below shows progressive expenditure and progressive irrigation potential of these schemes :

Table 12

Plan period	Amount Spent (Rs. in crores)		Irrigation potential (lakh hectares)		Utilisation (Lakh hectares).	
	Addi- tional	Cumu- lative	Addi- tional	Cumu- lative	Addi- tional	Cumu- lative
1	2	3	4	5	6	7
First Plan ..	19.16	..	0.23	..	..	..
Second Plan ..	35.42	54.58	2.26	2.49	0.66	0.66
Third Plan ..	45.90	100.48	2.22	4.71 (3.41)*	1.06	1.72
Three Annual Plans. ..	45.66	146.14	1.18	4.59	1.20	2.92

* Reappraised.

7.2.17. At the end of 1968-69, in all 19 schemes spilled into the fourth Plan which included the projects of Ukai, Kadana, Narmada, Dharoi, Mahi Stage-I and Kakrapar and Dantiwada.

7.2.18. All spill-over major and medium irrigation schemes are proposed to be completed during the Fourth Plan. In addition, Ukai and works will be completed while the work on the Ukai canals could be in an advanced stage of construction at the end of the Fourth Plan. The work on the Kadana, Dharoi and Panam irrigation projects will be in full swing.

7.2.19. The total ultimate potential is roughly estimated at 14.5 lakh hectares through multipurpose, major and medium irrigation schemes (excepting Narmada Project and Kadana high level canal). Against this, the total potential likely to be created at the end of the Fourth Plan by all multipurpose, major and medium irrigation schemes will be about 8.2 lakh hectares, and the corresponding utilisation would be 6.0 lakh hectares. The list of important schemes which are in progress is given in Annexure I.

Perspective Plan for Irrigation Development

7.2.20. The Perspective Plan for multipurpose, major and medium irrigation schemes envisages an outlay of Rs. 175 crores for the Fifth Plan period and Rs. 240 crores for the Sixth Plan period. All spill-over schemes of the Fourth Plan will be completed by the end of the Fifth Plan except Damanganga and Karjan which will spill into the Sixth Plan because these schemes are yet to be cleared by the Government of India. All the feasible schemes in Saurashtra and Kutch have been included in the Fourth Plan on the basis of available data. However, due to the absence of large rivers, the irrigation development would be mainly under minor irrigation schemes such as tanks and bandharas, check dams, dug wells and tubewells wherever they are feasible. The new schemes to be taken up during the Fifth and Sixth Plans will be completed either during the Fifth Plan or by the end of the Sixth Plan. Only those schemes which are located in areas of higher rainfall and those which are in difficult areas may spill over beyond the Sixth Plan. The Narmada Project will be given high priority and this will be the only multipurpose project which will continue during the Fifth and Sixth Plans and will take about 25 years to complete after its commencement in a big way. The Narmada project as envisaged by Gujarat with F.R.L. 530 and the canal off taking with F.S.L. 300 when completed will usher an era of prosperity to Gujarat as well as to the nation. The project is planned to irrigate annually 29.13 lakh hectares including reclaiming and irrigating about 4.45 lakh hectares of the Banni area in Kutch and the Fann of Kutch. Narmada waters will mostly benefit the needy scarcity areas which form about 81 percent of the gross commanded area and about 52 percent of the total scarcity area in the State. Moreover, it would generate very cheap hydro-power to the extent of 1535 MW at 60 percent load factor. The project will provide effective flood protection to the areas on the down stream of Navagam Dam including Broach city. The question regarding the scope and size of the project is at present before the Narmada Water Disputes Tribunal, which was set up by the Government of India in October, 1969. The preliminary work such as approach roads, buildings, investigations etc. have been completed. The work on the main project will be commenced in a big way as soon as the Narmada Water Disputes Tribunal gives its decision.

7.2.21. The new schemes which are envisaged to be taken up during the Perspective Plan 1974-84 are given in the Annexures I and III.

Fifth Plan

7.2.22. A provision of Rs. 175 crores is envisaged for the Fifth Plan, about 50 percent of which is proposed to be provided for completing most of the continuing schemes. A substantial amount is proposed to be earmarked for Narmada Project depending upon the scope and size of Narmada Project and the share of Gujarat Government therein. In the case of some of the projects like Bharoi, Panam and Damanganga, the total cost of the projects will include some share from non-government bodies like the Ahmedabad Municipal Corporation, Gujarat Industrial Development Corporation etc. for meeting their water supply demands. As such the outlays for such projects have been worked out for the State budget only after deducting the likely share of the such bodies. The amount of Rs. 175 crores also takes into consideration the outlays on reclamation and miscellaneous essential schemes like research, workshop etc.

New Schemes

7.2.23. 12 schemes covering all the regions of State, estimated to cost Rs. 94.74 crores are proposed to be started in the Fifth Plan with an outlay of Rs. 9.83 crores. Three schemes namely (1) Mitti in Kutch (2) Godathad in Kutch and (3) Wankleshwar Bhey in Panchmahals will be completed during the Fifth Plan period and the remaining nine will spill into the Sixth Plan. The additional potential that will be created during the Fifth Plan would be of the order of 1.5 lakh hectares. The cumulative irrigation potential would be of the order of 11.7 lakh hectares.

Financial break-up

7.2.24. The break up of Rs. 175 crores on various items is proposed to be as under:—

	<i>Rs. in crores.</i>
	<i>Outlay</i>
1. Spill-over schemes of the Fourth Plan.	87.22
2. New schemes to be taken up in the Fifth Plan.	9.83
3. Narmada Project (Irrigation Part).	69.00
4. Reclamation works.	5.00
5. Other works like research, investigation works etc.	3.95
	175.00

7.2.25. In the alternate overall Plan size of Rs. 1200 crores, an outlay of Rs. 187 crores is proposed to be earmarked for irrigation schemes. The additional amount of Rs. 12 crores that would be available will be earmarked for Narmada Project. Thus, the outlay for Narmada project in the Plan of Rs. 187 crores would go up to Rs. 81 crores.

Sixth Plan

7.2.26. A provision of Rs. 240 crores is envisaged for the Sixth Plan which takes into consideration provisions for reclamation and miscellaneous essential schemes like research, workshop etc.

7.2.27. As indicated earlier, Karjan and Damanganga will be the only schemes besides Narmada which will spill over from the Fourth Plan to this Plan.

7.2.28. In respect of schemes proposed to be started in the Fifth Plan at an estimated cost of Rs. 94.74 crores, an outlay of Rs. 43.41 crores is proposed to be made available in the Sixth Plan. Out of the nine schemes which will spill into the Sixth Plan from 12 commenced from the Fifth Plan, three schemes namely Heran, Sukhi and Orsang will spill into the subsequent Plan.

7.2.29. The Kadana High Level Canal will spillover further as the benefits of the scheme are dependent on the Narmada Project. As such, the Kadana High Level Canal will be carried forward beyond the Seventh Plan.

New Schemes

7.2.30. All the remaining schemes thought of in achieving the ultimate potential of 14.5 lakh hectares (excluding Narmada) estimated to cost Rs. 14.84 crores will be taken up in this Plan. An outlay of Rs. 6 crores is proposed for these schemes and balance will spill into subsequent Plan. It is hoped that by this time the work on Narmada would be in full swing and therefore a substantial provision is proposed during this Plan for the Narmada Project.

7.2.31. The additional irrigation potential which will be created during the Sixth Plan comes to 5.9 lakh hectares. The cumulative potential at the end of the Sixth Plan will be 17.6 lakh hectares.

Financial break-up :

7.2.32. The outlay of Rs. 240 crores is proposed to be distributed amongst the following items :

	<i>Rs. in crores Outlay</i>
(i) Spill over schemes of the Fourth Plan.	14.00
(ii) Spill over schemes of the Fifth Plan.	43.41
(iii) New schemes to be taken up in the Sixth Plan.	6.00
(iv) Narmada Project (Irrigation part).	143.59
(v) Reclamation works.	30.00
(vi) Other works like research investigation, workshop etc.	3.00
	240.00

7.2.33. In the alternate Plan size of Rs. 2400 crores for the Sixth Plan, an outlay of Rs. 240.41 crores is envisaged for the irrigation projects. The additional amount of Rs. 0.41 crore that would be available is proposed to be spent on Narmada Project raising the provision from Rs. 143.59 crores to Rs. 144 crores.

Flood Control

7.2.34. Although, Gujarat has large areas which are either arid or semi-arid, it is faced with the menacing problem of floods which cause large scale devastation and heavy loss of life and property. Some of the cities like Surat, Broach, Baroda and Ahmedabad are frequently affected by floods. The floods in Gujarat have peculiar characteristics. The rivers being flashy, the floods do not occur every year or alternate year but they occur at somewhat longer intervals. Another characteristic of these floods is that they occur suddenly without sufficient warning. The floods bring with them huge quantity of silt every year. As a result, the mouths of rivers get silted up and the flood levels show a tendency to rise even-though the flood discharge may remain the same. The major parts of the catchments of the big rivers such as the Tapi, Narmada and Mahi lie in the

neighbouring State. The measures with regard to either flood forecasting or flood control should, therefore, have to be taken in a co-ordinated manner and all the States concerned have to co-operate if the measures are to be effective. There were unprecedented floods in the State in August, 1968 and September, 1970 which caused colossal loss of life and property. The measures with regard to flood control should also include afforestation, construction of reservoirs, construction of flood embankments etc. With the object of taking up and completing as many flood control schemes as possible urgently, a special Flood Control Circle has been created.

7.2.35. The master plan for the flood control measures of the State including soil conservation drainage and anti-sea erosion works envisages an outlay of about Rs. 46.5 crores. However, in view of the inter-State nature of big rivers like Narmada and Tapi, it is imperative that the Central Government should plan and implement different schemes basin-wise in a co-ordinated manner. The following are the flood protective measures included in the above Plan :—

	<i>Rs. in crores</i>
1. Sabarmati basin	5.26
2. Vishvamitri basin	3.92
3. Narmada basin	4.14
4. Tapi basin	5.68
5. Other rivers in the State	1.32
6. Miscellaneous flood protective works	6.30
7. Soil conservation	5.38
8. Drainage works	9.28
9. Anti-sea erosion	5.00
10. Flood forecasting and warning system	0.22
	46.50

7.2.36. Against the estimated cost of Rs. 46.50 crores, a provision of Rs. 7 crores has been made in the Fourth Plan. The most important scheme included under this provision is the Tapi Embankment Scheme which has been approved by the Planning Commission at an estimated cost of Rs. 5.21 crores. The scheme has been taken up in 1971-72. 292 small works costing less than Rs. 3

lakhs each aggregating to Rs. 3.57 crores and 33 Government works costing more than Rs. 3 lakhs each totalling to Rs. 7.75 crores have been provided in the Fourth Plan. The estimated cost of the Panchayat and Government Schemes is Rs. 12 crores. The provision in the Fourth Plan being Rs. 7 crores, an amount of Rs. 5 crores will spill into the Fifth Plan. New works costing another Rs. 10 crores will be taken up during the Fifth Plan. The total outlay for flood control work will thus be Rs. 15 crores. The remaining works included in the master plan after the completion of the schemes proposed in the Fourth and Fifth Plans would cost Rs. 25 crores. It is proposed to provide Rs. 17 crores during the Sixth Plan whereas the remaining amount of Rs. 8 crores will spill into the subsequent Plan.

ANNEXURE I

List of important schemes which are in progress.

- (1) Ukai
- (2) Narmada
- (3) Mahi Stage I
- (4) Mahi Stage II (Kadana)
- (5) Kakrapar
- (6) Dharoi
- (7) Damanganga.

ANNEXURE II

Statement showing the new schemes to be taken up during the Fifth Plan—1974-79.

(Rs. in lakhs)

Name of the Scheme	Esti- mated cost	Outlay envisaged for			
		Fifth Plan	Sixth Plan	Seventh Plan	Eighth Plan
1	2	3	4	5	6
1. Heran in Baroda District. ..	1260	70	890	300	..
2. Sukhi in Baroda District. ..	600	50	450	100	..
3. Orsang in Baroda District. ..	948	60	500	388	..
4. Kadana Highlevel Canal. ..	5000	138	1500	2000	1362
5. Mitti in Kutch District ..	48	48	..	..	..
6. Godathad in Kutch District ..	64	64	..	..	..
7. Zankhari in Bulsar District ..	329	80	249	..	..
8. Dam on Nani Vahial in Bulsar District.	189	39	150	..	..
9. Hadaf in Panchmahals District... ..	352	300	52	..	..
10. Wankleswar Bhey in Panchmahals District.	39	39	..	..	..
11. Guhai in Sabarkantha District. ..	293	43	250	..	..
12. Nazam in Sabarkantha District. ..	352	52	300	..	..
Total ..	9474	983	4341	2788	1362

ANNEXURE III

Statement showing the new schemes to be taken up during the Sixth Plan—1979-84.

(Rs. in lak)

Name of the Scheme	Estimated cost	Outlay envisaged for	
		Sixth Plan	Seventh Plan
1	2	3	4
1. Weir Antapur in Bulsar District.	110	50	60
2. Reservoir at Kelia on river Ambica in Bulsar District.	46	46	..
3. Pick-up-weir at sara on river Ambica in Bulsar District. ..	58	58	..
4. Khanddolpura Scheme on river Ambica in Bulsar District. ..	40	40	..
5. Pick-up-weir near Sidhumbpur in Bulsar District.	28	28	..
6. Dam on river Tan in Bulsar District.	82	32	50
7. Pick-up-weir at Dali in Bulsar District.	145	65	80
8. Dam at Manal and Pick-up-weir near Kothar in Bulsar District. ..	82	32	50
9. Scheme on river man in Baroda District.	39	39	..
10. Other Schemes.			
Gujarat	756	112	644
Saurashtra	58	58	..
Kutch	40	40	..
Total ..	1484	600	884

3. INDUSTRIES, MINING AND POWER.

Industries

Industries can be divided into four main groups, viz. (1) Large scale industries, (2) Medium scale industries, (3) Small scale industries and (4) Cottage industries.

7.3.2. Till 1960, the industrial economy of Gujarat rested primarily on the textile industry and engineering industry ancillary to textiles; no doubt the small engineering industries other than textile ancillaries came into existence but this had only a marginal impact on the economy of the State. With the finding of oil and setting up of refinery and fertilizer factory coupled with increased salt production and a mineral exploration, the economic horizon has widened considerably providing scope for chemical and petro-chemical industries. Nevertheless, the textile industry will continue to play an important role in Gujarat's economy.

7.3.3. The real industrial development of Gujarat started after 1960. The number of working factories which was 3,649 in 1960 went up to 5,544 in 1970. Similarly, the number of small scale industries which was 2,169 in 1961 rose to 16,413 by March 1971. During the period 1st May, 1960 to 31st March, 1971, 275 licences for substantial expansions have been granted besides 152 letters of intent. During this period, 387 licences both for new projects and for substantial expansions were implemented. A sum of Rs. 487 crores would have been newly invested in the fixed assets providing additional employment for about 1.26.000 persons, during this period.

7.3.4. According to Annual Survey of Industries, Gujarat ranks fourth in India in value added by the industrial sector and ranks third so far as employment in industry is concerned. The growth of industrial investment in the fixed assets in factories has shown considerable increase during the last decade. In the year 1959, the investment was only Rs. 101.84 crores. According to provisional result of Annual Survey of Industries 1968, this investment has gone up to Rs. 484.38 crores, nearly a four-fold growth. During the year 1969-70, actual investment in the licenced projects alone was about Rs. 70 crores. Besides, the investment in the small scale sector is estimated at Rs. 17.04 crores. Thus, during the Fourth Plan period, investment in the fixed assets will be of the order of Rs. 80 to 90 crores per annum i.e. between Rs. 400 to 500 crores during the entire Plan period.

Perspective Plan for Industries.

7.3.5. The industrial policy formulated by the State Government to secure the benefits of rapid growth with equitable distribution has been taken as guideline for the preparation of the Perspective Plan. The salient features of this policy are : provision of full employment with increased production and equitable distribution of capital and manpower, diffusion and decentralisation of industries in the State so as to develop underdeveloped regions and secure balanced economic development of the State, preference to young entrepreneur for starting small scale and medium sized industries in Gujarat, promotion of industries based on indigenous raw materials, and high priority to the establishment of industries which would promote import substitution and conserve valuable foreign exchange.

7.3.6. A beginning has been in the Fourth Plan with petro chemical and chemical industries. The Gujarat Refinery is operating at a level of 3.6 million tonnes per year. The public sector Udex plant has been commissioned while the Aromatics plant will soon be commissioned. The DMT and Caprolactum Projects are on their way to implementation. The Indian Petro-chemical Limited is entering in a big way for the downstream projects like Detergent Alkylate, Acrylic Fibre, Ethylene Glycol, Synthetic Rubber etc. These industries will play a predominant role in the economy of the State beginning with the Fifth Five Year Plan. Therefore, it would not be inappropriate, if we describe the Fifth Plan as chemical-oriented. Based on this petro chemical complex, many other secondary and tertiary industries will be set up. In addition, allied engineering industries for the manufacture of plants, equipment and ancillaries to meet the requirements of the petro-chemical complex would also be set up during the Fifth Plan and will have their full impact felt in the Sixth Plan. In view of this the Sixth Plan might well be described as engineering oriented.

7.3.7. The potentialities which exist and programmes envisaged for development of various industries in Gujarat are described in the following paragraphs.

CHEMICAL INDUSTRIES

7.3.8. Gujarat has a long coast line of over 1.600 Kms. and climate specially suited for the production of salt. The present production of salt in the State is about 3.5 million tonnes which accounts for nearly 60 percent of production in the country. In view

of the anticipated growth of alkali industry and possibility of exports, it is proposed to achieve a production of 6 million tonnes of salt by the year 1978-79 and 7.5 million tonnes by the year 1983-84.

7.3.9. The demand within Gujarat for caustic soda and chlorine is expected to rise considerably during the Fifth Plan period. With the availability of good quality salt, the establishment of a big alkali complex in the public/joint sector has been proposed.

7.3.10. Availability of chemical grade limestone close to the salt works gives a unique advantage to Gujarat for the production of soda ash. The existing units are expected to expand and new units are also likely to be set up.

7.3.11. Gujarat has large fluorite deposits in the backward areas of Baroda district. A unit for the production of fluorite chemicals which are imported at present has already been established in the State. Further expansion of this industry has been envisaged.

7.3.12. Gujarat has extensive deposits of good quality bauxite. Production of alumina is being planned which would subsequently be used for production of aluminium. Similarly, the rich deposits of china clay, silica sand, quartz etc. have given rise to growth of ceramic and refractory industries.

7.3.13. Gujarat has a well developed dyestuffs and pharmaceutical industry. Production in the initial stages was based on imported intermediates, though basic raw materials like benzene, toluene, naphthalene were available. There was, therefore, a need for a centralised agency to co-ordinate the production of intermediates with available basic raw materials. Messrs Hindustan Organic Chemicals Limited, Panvel had been set up for this purpose. Simultaneously, dyestuffs and pharmaceutical manufacturers have also taken steps to extend their production stages to co-ordinate with the programme of the Hindustan Organic Chemicals. The availability of basic chemicals like benzene, toluene, xylenes in the State also has opened up an extensive area for the development of other organic chemical industries.

7.3.14. The overall investment in chemical and non-engineering industries envisaged for the Fifth and Sixth Plans would be of the order of Rs. 521.30 crores and Rs. 483.85 crores respectively with additional production of Rs. 548.75 crores and Rs. 693.50 crores.

The employment generated will be around 1,17,445 and 1,22,025 during the Fifth and Sixth Plans respectively.

PETRO-CHEMICAL INDUSTRIES

Refining Capacity

7.3.15. The Gujarat Refinery at Koyali is presently processing 3.6 million tonnes crude per year. The present capacity of the refinery is 4.3 million tonnes.

7.3.16. According to the present estimates, against requirements of 35 million tonnes of crude by 1975-76 to meet our demand for petroleum products in the country, indigenous availability would be around 9 million tonnes only, thus necessitating imports to the extent of 26 million tonnes.

7.3.17. With regard to the import of crude, Gujarat coast enjoys locational advantage of being nearest to the middle eastern countries. Government of India has already thought of locating an oil terminal on the Saurashtra coast between Salaya and Sikka. The demand projections for middle distillates for the supply area of Koyali Refinery upto 1980 are shown in table below :—

TABLE 13

(Figures in '000 tonnes)

	Year					
	1975	1976	1977	1978	1979	1980
Kerosene 12%	715.9	766.6	858	961	1076	1205
Aviation Turbine Fuel 18%	52.2	58.8	68.4	80.6	101	119
High Speed Diesel 17%	1255.4	1414.6	1655	1936	2265	2650
Light Diesel Oil 18%	622.2	683.0	782	922	1088	1283
	(Million tonnes/annum)					
Middle distillates	2.6457	2.9036	3.363	3.9096	4.530	5.257
Total Production (100/42)	6.358	6.967	8.071	9.264	10.8/2	12.616
Refining Capacity	7.4	8.0	9.5	10.8	12.75	14.8

From the above projections, it will be seen that there is enough justification to expand the Koyali Refinery to meet the requirements of the petroleum products in its own supply area.

7.3.18. The economics of scale should be utilised to the optimum level by expanding the Koyali Refinery to 8.5 million tonnes. However, there is an optimum limit beyond which any refinery cannot be expanded further. In view of this, it would become necessary to establish a 3 million tonnes refinery on the Saurashtra coast to supplement the demand for petroleum products in the coming decade.

7.3.19. On the assumption that a total refining capacity of 11.5 million tonnes will be created in Gujarat, the naphtha expected to become available will be about 1.6 million tonne, out of which 0.75 million tonne have been committed for fertilizer and petro-chemicals production leaving a balance of 0.85 million tonne. Even after providing additional 0.3 million tonne for fertilizer production, it would be possible to increase the cracking capacity to one million tonne with available balance of naphtha. The down-stream projections have been worked out on this basis.

Petro-chemicals Complex

7.3.20. Gujarat Petro-chemicals Complex will consist of two major projects (1) Aromatics Project and (2) Olefins Project.

7.3.21. *Aromatics Project*.—This project is expected to go on stream sometime by middle of 1972. Based on the raw materials produced in the project (DMT, Oxylene, mixed xylene), the following projects will be set up in the State.

(a) Polyester Staple Fibre (6,100 tonnes/year):—This unit will meet the demand of textile industry for this fibre.

(b) Polyester Film Unit (2,000 tonnes/year):—Currently large quantities of the imported polyester film is used as artificial zari by silk industry at Surat. This unit will meet the demand of zari industry from year 1973-74 onward^e.

(c) Phthalic Anhydride Unit—About 6,000 tonnes/year of phthalic anhydride and 7,550 tonnes/year of plasticisers will be produced which will meet the demand of Gujarat's plastic conversion industry for this project.

7.3.22. Olefins Project.—This project is expected to go on stream during the year 1974 and will lead to the production of the following items :—

(a) *Low Density Polyethylene.*—Currently only 20,000-22,000 tonnes per year of LDPE is produced in the country. With the additional production of 80,000 tonnes per year of LDPE from the Complex, the plastic conversion industry will be able to expand considerably in the State offering excellent opportunities to young entrepreneurs.

(b) *Mono Ethylene Glycol (MEG) (20,000 tonnes/year).*—Polyester staple fibre and polyester film unit will be able to draw their requirements of both DMT and MEG from the Complex.

(c) *Polypropylene.*—At present, there is no production of polypropylene in the country and only limited quantities (100 tonnes/year) are imported. With the availability of 30,000 tonnes per annum of polypropylene from this Complex from year 1974 onwards, a large number of products will be produced in the State by plastics conversion industry.

(d) *Acrylonitrile.*—About 24,000 tonnes per year of acrylonitrile will be available for the production of acrylates, ABS and SAN. Acrylates are currently imported in the country, and are mostly used by the leather and textile industry. A unit producing 4000 tonnes/year of acrylates (methyl, butyl, ethyl) will be set up in Gujarat which would be able to meet all Indian estimated demand for these products. ABS and SAN are plastics which are very suitable for special applications. They are not yet produced in India and they would become available from indigenous sources (in Gujarat) (5,000 tonnes/year) for the first time based on acrylonitrile from the Complex.

(e) *Acrylic Fibre (12,000 tonnes/year).*—This fibre known as synthetic wool is very popular in overseas countries. India is chronically short of wool and about Rs. 17.00 crores of wool per year is imported. With the availability of acrylic fibres from this Complex, the woollen industry in the country will be able to run to full capacity and produce a variety of new products. Moreover, felt industry, carpet industry, industrial filters, and blanket industry will also be able to expand their production. A wide variety of cotton/acrylic textiles will also be produced enabling the textile industry to maintain its lead in fashion and variety.

(f) *Methyl Methacrylate*.—A unit with production of about 5,000 tonnes per year of Methyl Methacrylate Monomer will be set up in Gujarat based on hydrocyanic acid from this Complex. PMM will be produced in India for the first time. This plastic finds use in light fittings, stationery articles and publicity articles. This unit will be able to meet substantially the demand for this product.

(g) *Cyanide Salts*.—These salts are essentially required by the electroplating and heat treatment industry and are imported at present. A unit producing about 2,000-3000 tonnes per year of cyanide salts based on hydrocyanic acid from this Complex will be set up in Gujarat which will meet all India demand of these cyanide salts for the first time from indigenous sources. The availability of cyanide salts in Gujarat will also give impetus to electroplating industry in the State.

(h) *Carbon Black*.—A unit producing carbon black can be set up in the State based on the availability of 11,500 tonnes per year of pyrolysis fuel oil from this Complex.

(i) *Synthetic Rubber*.—A 20,000 tonnes per year of high cis-polybutadiene synthetic rubber plant will be set up in the Complex. This will be the second synthetic rubber plant in the country but the first petro-based rubber plant. This rubber finds use mainly in tyres and shoes industry.

(j) *C4 Stream-Isobutylene*.—A unit for the production of isobutylene will be set up. This is a good feed for manufacturer of various chemicals.

(k) *Detergent Alkylate (DA)*.—With the availability of 30,000 tonnes per year of detergent alkylate, the synthetic detergent industry in Gujarat, particularly in the small scale sector, will get considerable scope for expansion and setting up new units. This will result in considerable saving of foreign exchange both on import of D.A. and of mutton tallow.

(l) *Captrolactum (20,000 tonnes/year)*.—Based on benzene available from the Gujarat Complex, a captrolactum unit is being set up in Gujarat. Captrolactum is monomer for nylon-6, which is used for producing nylon filament yarns and film. It is also used as plastics for producing various nylon articles which

find special uses in various industries and help substitute the use of steel and other scarce conventional materials. Plastic industry and the textile and art silk industry will be able to expand further in the State when this project goes on stream.

(m) *Maleic Anhydride*.—Based on benzene availability from the Complex, a maleic anhydride unit (3,000 tonnes/year) will be set up in Gujarat. This is used by the paint and synthetic resin industry.

(n) *Ethylene, Propylene, Benzene, Xylene, Butadiene*.—Small quantities of these products will be available to small scale entrepreneurs in the State to set up a number of industries for producing various chemicals and other intermediates.

(o) *Styrene*.—A styrene project is now envisaged during the early part of the Fifth Plan. The availability of styrene will enable expansion of plastics industry in the State.

(p) *Vinylchloride*.—A vinylchloride plant is envisaged in early part of the Fifth Plan. This also will enable the plastics conversion industry in the State to expand further.

7.3.23. It will be observed from the above that the substantial quantities of most of the products and especially plastics resins will become available in the Fifth Plan and Sixth Plan periods as a result of the expansion of the plans envisaged. This would open out very substantial opportunities to entrepreneurs to set up intermediates manufacturing and other allied industries in the State.

Industries based on Gas likely to be discovered in Gujarat

7.3.24. The Oil and Natural Gas Commission has undertaken exploratory activities to locate further fields for oil and gas in Gujarat. They are preparing a decade Plan for such exploration to conserve the available foreign exchange utilised for imports at present. In view of this, further finds of gas fields in Gujarat cannot be ruled out. Recently, Oil and Natural Gas Commission has struck a gas field in one of the wells at Dabka near Baroda and its commercial exploitation could be established after 2-3 more wells are drilled. It is, therefore, necessary to plan for gas utilisation in the coming decade. Apart from the use of gas as feed-stock for the fertilizers and other units, the gas, if available, could also be profitably used for some of

the industries as fuel. One such industry could be sponge iron plant, where the entire economic of the plant would change if the required quantum of gas is made available. The other industry which could be based on gas is methanol.

7.3.25. The overall investment in petro-chemicals industries envisaged during the Fifth and Sixth Plans would be of the order of Rs. 75.20 crores and Rs. 156.70 crores respectively with a corresponding rise in the levels of production of Rs. 113.00 crores and Rs. 183.40 crores. The employment generated will be around 2,710 and 4,925 during the Fifth and Sixth Plans respectively.

AGRO-BASED INDUSTRIES

7.3.26. Gujarat has four major industrial agricultural crops (1) Cotton, (2) Tobacco, (3) Sugar cane and (4) Oil seeds.

Cotton.—There are 117 textile mills of which 91 are composite units and 26 are spinning mills. The installed capacity of these mills is 36,85,054 spindles and 63,832 looms. Over and above this, Surat, Ahmedabad, Cambay, Navsari and Dholka are humming with power-looms on cotton and man-made yarn. Gujarat's contribution to the textile industry of the country is around 30 percent.

Tobacco.—Gujarat produces good virginia tobacco in addition to the low grade variety used for the manufacture of bidi. However, industrial production of the tobacco products is insignificant. Two units are now being established in the State. Manufacture of cigars has a very good scope in the State.

Sugar cane.—At the time of bifurcation of the State, there was hardly any sugar production in this area. Today, there are five units crushing over 9,000 tonnes of sugarcane per day. Four more units have been licenced and two are having letters of intent. Even with all this expansion, local production will not meet even half of the requirements. With the additional irrigation facility from Ukai Dam and Kakrapar Weir in South Gujarat and energised wells, it is envisaged to have about 15 more units in the coming decade. Molasses and bagasses are two important by-products of this industry. It is proposed to use molasses for the production of industrial alcohol. This would form a very important raw material for organo-chemical industries. Similarly, bagasses would be a basic raw material for a paper unit.

Oil Seeds.—Gujarat is one of the largest producers of oil seeds such as ground nut and cotton-seeds. Oil therefrom is primarily recovered by expellers and subsequently by solvent extractions. De-oiled cake was till recently a very important export item from the State, exporting worth Rs. 8.00 crores per annum. Modest progress has been made in hydrogenating oil and a small beginning in making cattle feed. There is a vast scope for manufacture of these items as more seeds become available as a result of improvement in agriculture.

Forest Products.—Gujarat is deficient in forest. Even then, it has encouraged a pulp factory based on the bamboos of the forest of Dangs district. It is proposed to grow fast growing varieties of trees like bamboos and eucalyptus on the banks of canals as also in the valleys of the Narmada and the Tapi, which are good raw materials for pulp and paper industry to be set up in the Sixth Plan.

Although, there are many facets of agro-industries, greater emphasis will be on protein production, processed foods and fisheries in the coming decade.

Protein.—Gujarat grows a significant portion of the total ground-nut crop in India. A beginning has also been made in the cultivation of soyabean, as a mixed crop with cotton. The de-oiled cake produced from the groundnut is a very good source of edible protein for human consumption. The technology for separation of this protein from de-oiled cake is developing and it is expected that with the availability of raw materials and the developing technology, the protein production will be an important industry in the coming decade. At the same time, there is a growing realisation about the importance of protein in our diet and it is, therefore, expected that the demand for protein rich foods would grow significantly in the coming decade.

Processed Foods.—To-day processed foods figure only marginally in our diet. However, it is expected that the demand for processed foods would increase steadily. Processed foods, particularly canned fruits and vegetables, would, therefore, have a good scope in the coming decade. Gujarat grows a wide variety of fruits and vegetable as well as cereals like wheat, rice, etc., which are important raw materials for processed foods.

Fisheries.—Gujarat with a large coast line and having rich

resources of quality fish like Pomfret, Bombay-duck and Prawns, the potential for fisheries is much more in Gujarat than in any other State. This is more so because these resources have not so far been utilized to even a fraction of the available potential. The demand for frozen shrimps and canned and fresh fish is likely to grow in India and has already been established abroad. In this direction, Gujarat Agro-Industries Corporation is setting up a subsidiary to undertake the exploitation of marine resources in an integrated manner. The Project involves a capital outlay of Rs. 2.5 crores and includes catching, processing, transporting and marketing operations of all types to be implemented in a three year phased programme. Other industrial houses of the country are also planning to establish their operations on the Saurashtra coast.

7.3.27. Potential also exists for other industries, such as cattle feed factories, cold storages, oil extraction units, compost manure plants, rice and pulse mills, guar gum processing, furfural from agricultural waste and many other industries based on agriculture.

7.3.28. The overall investment in Agro-Industries envisaged during the Fifth and Sixth Plans would be of the order of Rs. 20.40 crores and Rs. 17.40 crores respectively with a corresponding rise in the levels of production of Rs. 25.50 crores and Rs. 21.75 crores. The employment generated will be around 5,830 and 2,870 during the Fifth and Sixth Plans respectively.

TEXTILE INDUSTRIES

7.3.29. The per capita availability of cotton cloth in the year 1969 was 13.51 metres and that of man-made fabrics was 1.76 metres. According to studies of 'Textile—1960-75' by Economic and Scientific Research Foundation, New Delhi, per capita demand of textiles by 1975, is 21 metres (all types of cotton, rayon and synthetic). The estimated composition of demand in 1975 is 75% cotton, 10% rayon and 15% synthetics. The per capita demand of cloth of 21 metres in 1975 is on the high side if we consider increase in per capita availability of only 2.52 metres during 1951 to 1969. Under these circumstances, it is assumed that during next 14 years, i.e. by 1984, the per capita demand for cloth will be 17.7 metres at 1% annual growth rate.

7.3.30. The additional demand of cloth in the country would be of the order of 2,123 million metres per annum by 1984. Gujarat's share in this additional requirement can be estimated to be 6.37

million metres. The yarn requirement and the weaving could be undertaken by 13.25 lakh spindles and 26,500 looms. The estimated investment in these machineries would be of the order of Rs. 200 crores.

7.3.31. It is estimated that with the modernisation and establishment of 2,60,000 spindles and 5,000 looms, the State would be able to meet the rising demand of the population up to 1979. It is assumed that the textile industry would need about Rs. 80 crores at the current prices to modernise the existing textile mills. During the period 1974-79, the estimated investment in the textile industry in Gujarat would be of the order of Rs. 120 crores inclusive of investment in machineries for additional spindlage and loomage. In the Sixth Plan, the industry would need about Rs. 200 crores to meet the additional demand because of the increase in demand and the rise in population.

Woollen Textiles

7.3.32. There are two woollen textile mills in Gujarat, viz. Shri Dinesh Mills Limited, Ranoli and Messrs Digvijay Woollen Mills Limited, Jamnagar with 15,570 spindles and 167 powerlooms. Gujarat has produced 1.20 million metres of wearable woollen fabrics and 2.60 lakh Kgs. of non-wearable fabrics in the year 1970. The State's contribution in all India wearable fabrics was 8.97% and that in non-wearable fabric is 6.02%.

7.3.33. The Planning Commission has anticipated production of 20.0 million metres of woollen cloth by 1973-74. Even if we assume 100% increase in production of woollen cloth in the next 10 years i.e. by 1984, the anticipated production will be 40 million metres of woollen cloth as against present installed capacity of 43.6 million metres. As such, it will be advisable not to create additional capacity for woollen cloth in next 15 years, but to make arrangement by augmenting supply of raw material for full utilisation of present installed capacity. At the most, one unit may be established specifically for using only acrylic fibre in Gujarat.

ENGINEERING INDUSTRIES

7.3.34. The engineering industry in the State of Gujarat is still in an infant stage and it is necessary to make rapid strides in this field. Once the heavy industry is set up, there will be a healthy growth of the consumer industry, ancillary industries etc.

7.3.35. A Plan has been drawn out for setting up the basic engineering industry in the Fifth Plan. An intensive engineering industry oriented Plan has been envisaged for the Sixth Plan.

Iron and Steel Industries

Sponge Iron Plant

7.3.36. Gujarat is endowed with resources of natural gas. The modern technology of steel making is by reducing the iron ore directly into sponge iron using natural gas. Sponge iron in turn forms the raw material for the electric steel smelting practice. These enable the production of low and high alloy steels and sponge iron complements steel scrap which is a scarce commodity in the country. A sponge iron plant with an investment of Rs. 15 crores and having a capacity of 0.2 million tonnes per year could be planned in the Fifth Plan with an additional capacity of 0.5 million tonnes in the Sixth Plan. Iron ore could be obtained from Goa.

Alloy Steel, Electric furnances and continuous casting plants

7.3.37. Continuous casting units are replacing the rolling mills. A few units comprising of electric furnances, continuous casting units and re-rolling mills of the economic capacities of 50,000 tonnes per year could be set up. These will use sponge iron as raw material. The continuously cast billets can be supplied to a number of re-rolling mills which are already producing wires, bars, etc. in the State. The continuous cast skelp bars and slabs can be further processed to skelp and strip. These can be supplied to the existing tube mills and also to the container industries. Re-rolling mills can produce the merchant bars for building construction, light structurals and strips.

Pig Iron Plant

7.3.38. Pig iron forms the raw material of many of the foundries in Gujarat. We have a numerous foundry plants which are well established. In view of this, a pig iron plant is proposed of capacity of 0.3 million tonnes per year in the Fifth Plan with an expansion of additional capacity of 0.5 million tonnes in the Sixth Plan. There will be a continuous growth in the demand of pig iron in foundries.

Tube Mills

7.3.39. There is a very great unsatisfied demand of seamless, ERW and fertzmoon tubes in the country. There is also great export

potential for these tubes. In Gujarat, there are two tube mills. A plant of 1,00,000 tonnes tube mill in the Fifth Plan to be expanded to 2,00,000 tonnes in the Sixth Plan could be set up.

7.3.40. Steel Wires and Ropes.—In setting up more electric furnace plants, it will be possible to produce steel suitable for the manufacture of wires and ropes. With the rapid industrialisation in the country and with continuous demand of steel wires and ropes, a plant producing 25,000 tonnes of steel wires and ropes could be set up.

Non-Ferrous Metals

7.3.41. Alumina/Aluminium Complex.—Gujarat has rich deposits of bauxite which can be economically exploited for producing alumina and aluminium products. This industry is a highly power intensive one. Aluminium is gradually replacing steel and aluminium alloys are the metals of the future. It is very timely that an aluminium complex of a capacity of Rs. 130 crores is being proposed to be set up in the backward district of Kutch. This complex will also hold sufficient environment for setting up of a number of ancillary units in aluminium metal industry.

7.3.42. Powder Metallurgy Units.—Many of the sophisticated components of the machineries are made out of sintered products. Powder metallurgy is yet to be established in the country. These units are not very capital intensive. To save considerable amount of foreign exchange, powder metallurgy units with capital investment of the order of Rs. 1 crore for each unit for producing powders of copper, iron, silver, cadmium, etc. could be set up. Such units can supply the raw material for electrical and electronic components, and other machinery components.

Engineering Industry

7.3.43. Foundries.—Gujarat has a well established group of industries in foundry and has the skilled labour in this field of engineering. It is essential to exploit the same and promote the industry in a big way. Foundries manufacturing grey iron, malleable iron and steel castings of capacity of 50,000 tonnes per year during the Fifth Plan could be considered.

7.3.44. Malleable cast iron plant can be considered which can manufacture components for automobile and engineering industries

ich are presently mostly imported. A unit of "Investment casting" which is the latest in the field of technology, could be considered with capital investment of the order of Rs. 50 lakhs. This can produce sophisticated castings which are presently being totally imported.

Forging

7.3.45. A forging plant producing 10,000 tonnes per year of alloy steels and steel forgings can be considered. A small forging unit which can specially produce pipe forgings which are totally imported today should be planned. These units further produce forgings suitable for the manufacture of textile machinery, material handling equipment, paper and pulp machineries, rolls for re-rolling plants, links for the reduction gears, shafts and spindles, etc. Further, the forging units can be expanded in the Sixth Plan to produce additional 10,000 tonnes per year.

Chemical Plant Fabricating Complex

7.3.46. There is heavy concentration of chemical industry in the State. A big petro-chemicals complex and other allied chemical industries are likely to come up in the Fifth Plan. It is necessary to manufacture plant and equipment required for petro-chemical, chemical and fertilizer industries within the State. Most of these units and equipments are currently imported. Manufacturing of these plants within Gujarat will not only save considerable foreign exchange, but also make the country self-sufficient in the know how.

7.3.47. Thus, a chemical plant fabricating complex having a design cell, fabricating shop, machine shop, and testing equipment units could be considered. The design cell can have well qualified and experienced engineers who can be trained in the field of manufacture of these sophisticated plants.

Textile Machinery Project

7.3.48. A project for manufacturing textile machinery could be set up. The unit will be oriented to manufacture machinery for processing synthetic fibre and also to produce sophisticated automatic textile machinery which are totally imported today. Such automatic plants will increase the productivity of textile mills.

7.3.49. A project for machine building plants for the manufacture of paper and pulp machinery, sugar machinery, printing

machinery, dairy machinery, material handling equipment, building and road construction machinery, E. O. T. Cranes, etc. could be planned. These are low capital intensive projects, the capital investment ranging from Rs. 1 to 5 crores but they provide the necessary base for the growth of other industries in Gujarat. Further they are highly labour intensive.

Machine Tool Project

7.3.50. Machine tool projects at Bhavnagar and Kandla port could be considered. There are many machine tools for which there is an unsatisfied demand in the country such as centreless grinding machines, precision drilling machines employing electric discharges of electrochemical techniques, automats, bolt heading machines, cold forging machine, machine for dies and tools using electrolytic metals (plan miller, boring machines, cylindrical grinders, drilling machines, broaching machines, automats, etc. Further, there is also a great scope for export of the conventional machine tools. It is also necessary to set up a mother plant supplying machine tools for the other industries in the State. The Bhavnagar Machine Tool Project with an investment of Rs. 6 crore could be planned to meet these demands.

Tractors, Commercial Vehicles, Motor Cars, Scooters etc.

7.3.51. With the advent of green revolution there are more and more tractor users in India. A number of tractor manufacturing units have been set up in the country. One more tractor manufacturing unit could be set up in the State with a capacity of about 10,00 tractors per year.

7.3.52. Automobile industry in the other countries forms nearly 20 to 30% of the total engineering industry in their countries. Today in our country this industry is still in a very rudimentary stage and a unit for manufacturing of commercial vehicles and cars could be planned in the Sixth Plan. There is already a unit manufacturing scooters in the State and it will be expanded further.

Ball and Roller Bearing Industry

7.3.53. The present capacity of the manufacture of ball and roller bearings in the country is of the order of 12 million bearings per year and this will fall short of the demand to the extent of 28 million at the end of the Fourth Plan and 58 million at the end of the Fifth Plan. Every year bearings worth Rs. 8 to 10 crores are being imported. There is also a great export market for bearings.

7.3.54. A big ball and roller bearing complex could be set up which will have a capacity of 20 to 30 million bearings, per year. In the first phase, this unit can produce the raw materials like inner and outer races, hydro-statically extruded tube and about 10 million bearings per year. This will save the entire foreign exchange that being spent on importing the raw material for the existing bearings manufacturers. In the Sixth Plan, this can be expanded to produce 30 million bearings.

Electrical Machinery

7.3.55. With the rapid industrialisation of the country, the demand of the electrical goods viz. transformers, motors, switch gears etc. will be continuously rising. Units for the manufacture of these items could be considered for which there is a considerable demand within the State. Further, with the rapid rural electrification there will be a requirement of a number of distribution transformers, motors for agricultural use, fans, refrigerators etc. Units for manufacturing of electric lamps and fluorescent tubes could be planned for which there is already an unsatisfied demand. Further, there is no such unit in Gujarat manufacturing electrical lamps and the State market itself is sufficient for setting up such a unit. Units manufacturing refrigerators, air conditioners, washing machines, vacuum cleaners, water coolers etc. for which the demand is continuously on the increase could be planned.

Heavy Electrical Complex

7.3.56. It is worthwhile setting up a heavy electrical complex which can produce the industrial controls and control components in collaboration with such reputed manufacturing companies like GE-USA, SIEMENS—Germany, HITACHI-Japan etc. Such an industry is highly labour intensive giving employment to more than 15,000 people.

Electronics

7.3.57. The electronic industry in the country is still in an infant stage and it has been recognised that immediate steps should be taken for setting up the electronic industry in Gujarat. We have also set up an industrial estate which is totally meant for setting up electronic industries. These electronic industries are highly labour intensive and have a lot export potential in addition to the saving foreign exchange.

Ancillary Industries

7.3.58. A number of ancillary units could be set up in the State. One such unit for the manufacture of the fuel injection pumps, nozzles, nozzle holders, elements, delivery valves etc. would be set up. With the increased manufacture of tractors, heavy vehicles and diesel engines, this unit can be in a position not only to meet the heavy replacement market but also of the original equipment manufacturers. Thus, it is evident that with the setting up of heavy engineering industries, there will be enough scope for a number of entrepreneurs to set up ancillary industries in the State.

7.3.59. The overall investment in engineering industries envisaged during the Fifth and Sixth Plans would be of the order of Rs. 227 crores and Rs. 447 crores respectively with a corresponding rise in the levels of production of Rs. 562 crores and Rs. 974 crores. The employment generated will be around 1,18,890 and 1,91,310 during the Fifth and Sixth Plans respectively.

7.3.60. The total investment envisaged for the Fifth Plan approximately comes to Rs. 968.51 crores. The production would be of Rs. 1494.37 crores creating the employment potential for 2.71 lakh persons. In the Sixth Plan, with an investment of Rs. 1312 crores and production of Rs. 2278 crores, the employment potential would be 3.98 lakhs making a total employment potential of 6.69 lakh persons during the decade 1974-84. These estimates do not take into account, the resultant further growth in secondary and tertiary sectors creating additional employment of 3 persons for every person directly engaged. Thus, there would be an additional employment potential for 20.07 lakh persons by 1984.

7.3.61. Annexure—I gives an overall picture of industrial development envisaged during the Fifth and Sixth Plans, while Annexure—II gives investment outlays envisaged, on major items of various industries during the Perspective Plan decade.

7.4.62. The Perspective Plan of the schemes to be executed by the State Government envisages an outlay of Rs. 55 crores for the Fifth Plan, within the overall Plan size of Rs. 1000 crores and Rs. 143 crores for the Sixth Plan, within the overall Plan size of Rs. 2000 crores. Supplementary outlays of Rs. 10 crores in the Fifth and Rs. 85.79 crores in the Sixth Plan would be provided

within the overall ceiling of Rs. 1,200 crores and Rs. 2,400 crores for the Fifth and Sixth Plan period respectively, if additional resources become available.

Programmes based on State outlay

7.3.63. By the end of the Fourth Plan, the Petro-chemical Complex, the fertilizer projects of I.F.F.C.O. and the caprolactum facilities of Gujarat State Fertilizers Company will be entering the production stage. These large scale units are expected to generate major thrusts of investment, out-put and income. The 1974-84 decade, thus, will be marked by significant structural changes and diversification in the existing pattern of State industrial production accompanied by a rapid growth rate, both in production and employment. The State will have to function, initiate, support, sustain, control or accelerate the changes in this new phase, to obtain optimum benefits therefrom. The specific programmes based on the above strategy for long term in industrial development is narrated in the subsequent paragraphs.

7.3.64. The strategy adopted for long term industrial development in the State has several aspects viz. provision of infra-structure facilities, critical intervention of the State for promotion of industries in the large and medium scale sectors, direct assistance to small industries and promotion of research and quality consciousness.

Infra-structure

7.3.65. The infra-structure viz. land, roads, power, water, drainage etc. are of vital importance for expansion of industries. The State will be required, during the Fifth and Sixth Plans, to supplement resources of Gujarat Industrial Development Corporation which bears the major brunt of providing such facilities to industries.

Corporations

7.3.66. There are some corporations like Gujarat State Financial Corporation, Gujarat Industrial Investment Corporation which are expected to serve as tools for achieving decentralisation and diffusion of economic activities to various regions of the State as also to encourage new entrepreneurs. The resources of these corporations are proposed to be augmented by the State Government. The textile industry will continue to remain in prominence inspite of the fact that the structural pattern of industries will be substantially changed.

The Gujarat State Textile Corporation has been formed to look after this sector. To finance the operations of this corporation in its handling deteriorating textile units, provision is proposed to be made in the State Fifth and Sixth Plans.

7.3.67. With a view to intensifying the export promotion activities, the Gujarat State Export Corporation had been set up. It is proposed to supplement its finances during the Fifth and Sixth Plans.

Industrial Research

7.3.68. For optimum use of the newly found resources of the State and to convert them into a variety of industrial opportunities, industrial research activities will have to be appropriately intensified in which the State will play an important role. Provision is proposed to be made during the Perspective Plan decade on industrial research grants to various research institutions and laboratories. It is also proposed to set up a research laboratory on the lines of C.S.I.R., Hyderabad. A Polymer Research Institute is also proposed to be established to develop new products from and make efficient use of the basic resins produced in the olefins projects of the petro-chemical complex. It is also proposed to set up a Glass and Ceramic Institute to undertake research for the manufacture of glass and ceramic. A Sugar Research Institute will also be established to accelerate the expansion of the sugar industry in the State which is expected to improve utilisation of molasses and baggasses. In addition, the Cement Research Institute, Electronic and Machine Tools Development Institute and a Man-made Fibre Research Institute will also be established to meet the needs of the new industrial structure. To accelerate the expansion of the sugar industry in the State to meet with the growing demand, a Sugar Research Institute is also proposed to be set up. This will enable the State to improve utilisation of by-products such as molasses and baggasses.

Village and Small Scale Industries

7.3.69. This is the sector through which the industrial employment strategy will be implemented. This sector will open up industrial opportunities for numerous local entrepreneurs as the large and medium industries get into production. This sector will, apart from decentralisation of opportunities, lead to geographic dispersal of industrial gains since the small scale and the village industries would be feasible even in rural and less developed areas. An appropriate provision will be made for the schemes under this sector.

Small Scale Industries (Organised Sector)

7.3.70. The development of small-scale industries will be essentially depended upon the speedy execution of infra-structural schemes for providing developed land and ready-made sheds on liberal long term repayment conditions to the entrepreneurs. The entrepreneurs will be financed through the schemes of Gujarat State Financial Corporation and Gujarat Industrial Investment Corporation Limited. The Gujarat Small Industries Corporation will assist small units in the purchase of machinery and raw materials. The Industries Commissioner grants loans upto Rs. 3,000 and in exceptional cases upto Rs. 5,000 to qualified, trained or experienced artisans or technicians to carry out any of the scheduled jobs under the provisions of Gujarat State Aid to the Professionals and Artisans Rules, 1971. Under the package schemes, the Directorate of Industries also provides financial assistance to the extent of Rs. 10,000/- at 3 percent interest to unemployed technicians. The Gujarat State Financial Corporation grants loans to small as well as medium scale industries from its funds. State Government is subsidising the difference between normal lending loans of the Corporation and subsidised rate of interest. This scheme will be continued during the Fifth and Sixth Plans.

7.3.71. To encourage small scale and cottage industries to increase their production by use of motive power, subsidy is granted on consumption of electricity. More and more small scale units will be taking advantage of this, for which provision is proposed in the State outlay.

7.3.72. The quality marking scheme has been introduced to assist small industries to maintain product quality with 2 centres at Baroda and Rajkot by the end of the Fourth Plan. This scheme will be expanded in several other industrial centres. Similarly, testing facilities are badly required for the small scale entrepreneurs increasingly manufacturing sophisticated engineering and other products. Since such testing facilities require substantial capital for the small entrepreneur, there is a scheme in the Fourth Plan for financial assistance to small scale industries by way of subsidy towards testing charges paid for products tested in approved testing houses. The scheme is proposed to be continued during the Fifth and the Sixth Plans and will cover a large number of units. Similarly, factory owners desiring to own testing equipments are proposed to be granted a subsidy or grant-in-aid for part of the expenditure incurred on the purchase of such equipment.

7.3.73. With changing industrial structure and new opportunities, industrial information to assist established entrepreneurs and encourage new entrepreneurs will acquire new significance. Industrial Information Centres already established in a number of places will have to be taken further into rural and newly developing areas.

7.3.74. Further assistance to small scale units will be required in the form of Common Facilities Centres to enable them to use machines and processes which they cannot otherwise afford. 5 such centres would have been established preferably in the industrial estates by the end of the Fourth Plan. Their numbers will be expanded to 25 by the end of the Sixth Plan to keep up with the increased number of industrial growth points. Assistance in the form of loan will also be given for setting up such centres to a combine and private units in industrial estates/areas.

Khadi and Village Industries

7.3.75. Necessary provision is envisaged in the Fifth and Sixth Plans to assist production and sales expansion of Khadi and Village Industries.

Handlooms

7.3.76. The planned schemes will be aimed at improving the competitiveness of the handloom industry together with measures to increase popularity and demand for the cloth. Weavers will be assisted by way of loans for purchase of shares of weavers societies. Training of handloom weavers, rebate on sale of handloom cloth, supply of improved looms and accessories, setting up of dye houses and new sales depots and financial assistance to Central Financial Agencies for advance of loans from their own funds and guarantees for loans at subsidised rate of interest will be the other schemes to be implemented in an expanded way.

Powerlooms

7.3.77. Efforts will be made to help existing weavers to convert their handlooms into powerlooms during the Perspective Plan decade.

Handicrafts

7.3.78. A number of schemes in operation already to help the artisans in different handicrafts industries to organise themselves in

co-operatives, improve the competitiveness of the handicraft, promote their sales within and outside the country will be further expanded and co-ordinated during the Fifth and Sixth Plans. The number of sales depots, show-cases and design centres will be increased. Government share capital contribution will be granted to individuals and societies and assistance will be provided for purchase of tools and equipments.

Cottage Industries

7.3.79. A variety of schemes for training and financial assistance to individuals and societies at concessional rate, share capital contribution to societies, rural workshops, managerial subsidy to societies, workshops and godowns, assistance to societies for sale of cottage industry products, share capital loans for prospective members of the society, training of administrative and supervisory staff, etc are being implemented. The Fifth and the Sixth Plans aim to further solidify and strengthen these schemes.

7.3.80. Among the new schemes for cottage industries, diamond cutting societies will be established with State contribution in the Fifth and Sixth Plans for block capital and working capital. Co-operative Ayurvedic Society will also be set up.

7.3.81. The pioneering scooter factory organised by the Gujarat Small Industries Corporation will also be in operation by the end of the Fourth Plan. It is proposed to set up a co-operative scooter factory, with the State's contribution for block and working capital.

Incentives

7.3.82. At present, various concessions are given by the State Government for rapid industrial development of the State. New industries are exempted from the payment of electricity duty on power consumed by them for the first five years. Self generating units are exempted from this payment for a period of 10 years. Power subsidy at different rates is granted to small scale units on the motive power consumption. New industrial units which have been commissioned on or after 1st April, 1970 in areas beyond 24 Kms. from the municipal limits of the cities of Ahmedabad and Baroda and 16 Kms. from the municipal limits of Surat, Bhavnagar, Rajkot and Jamnagar are exempted from the payment of sales tax for a period of five years. Octroi duty exemption is granted by majority of Municipalities, Nagar Panchayats and Gram Panchayats for a period

of 5 to 7 years on building materials, plants, machinery, spare parts, raw materials, etc. brought for an industry within their respective limits. The expenditure on construction of approach roads to industries is shared on 50:50 basis by the State Government and industrial units concerned.

7.3.83. For the industrial development of backward areas, Industrial Development Bank of India, the Industrial Finance Corporation of India and Industrial Credit and Investment Corporation of India have come forward for help by providing finance at concessional rates. Ten districts of the State namely Kutch, Amreli, Bhavnagar, Surendranagar, Panchmahals, Sabarkantha, Banaskantha, Mehsana, Broach and Junagadh have been selected for the grant of concessional finance by these institutions for location of industries in these areas. Panchmahals district would also qualify for out-right grant or subsidy by the Centre, amounting to one-tenth of the fixed capital investment of new units having a fixed capital investment of not more than Rs. 50 lakhs each.

7.3.84. During the Perspective Plan decade, special efforts will have to be made, for the new industrial phase of the State to ensue that entrepreneurs find the State a desirable and attractive location to set up large and medium scale industries. A concerted effort will be required through a package of incentives to improve the competitiveness of the State and compensate for cost increasing factors for industries if they are to be located in the State. The amount that will be provided for the incentive fund will have to be utilised for the grant of various subsidies for power, land, water, backward areas etc. The aim of the fund will be to expand the industrial base of the State. The increased investment, output and employment will have multiplier effect on the State economy and will broaden its tax base which will help more than recover the investment made in the incentive scheme.

7.3.85. The ten year Perspective Plan envisages new schemes of incentives on two tier pattern. The first would be to catalyse private investment from within and outside the State. For doing this, the incentives should be such as would match those being provided elsewhere. The second would be to promote development of backward areas as growth points with a well formulated pattern of support and assistance. The recommendations of the Wanchand Committee of the Government of India on the development of backward areas would be the guidelines for a scheme of incentives to

provided by the State Government. The scheme of catalysing entrepreneurial interest from within and outside State consists of the following items:—

(1) *Preparation of project reports.*—The State Industries department would identify a series of projects in the large and medium scale sector based on the local available raw-materials or locational advantages or which are complementary to the State's balanced industrial growth and arrange for feasibility studies and prepare project report through reputed consultants.

(2) *Plant location service.* The plant locational service is expected to place itself at the disposal of entrepreneurs and identify alternative locations with complete information on raw materials, marketing facilities, labour supply, transport advantages, infra-structure etc. This service will help in determining an optimum location from all points of view.

(3) *Technical and management consultancy service.* This service would help the entrepreneurs particularly the techno-entrepreneurs in small scale industry to manage their industries properly.

(4) *Partnership promotion bureau.*—This bureau is expected to locate the entrepreneurs who are in search of financial partners and other partners who have finance but require partners with technical and other managerial abilities. The bureau will maintain the list with particulars and put them in each other's contacts.

Export incentives

7.3.86. It is contemplated that in coming ten years, a great potential for export will be generated, capable of harnessing simultaneously in the field of engineering, chemicals, minerals, agro-based industries, jewellery etc. It is, therefore, envisaged to take some export promotion measures during the Perspective Plan decade.

Mining

7.3.87. The mineral resources of a country are the basis for its industrial development. The scope they offer is unlimited. It is necessary to explore them in the most scientific way and exploit them with a view to conserve them over the longest possible period. It, therefore becomes necessary to ensure that the pace of development of mining activities is stepped up and no avoidable waste of the resources either at the mining stage or at the utilisation stage takes place.

7.3.88. The formations in the State extend in age from the oldest to the youngest in the Geological time scale. The oldest formation contains such minerals as manganese ore, lead ore, copper ore, marble, lime stone, dolomite, kyanite, china clay, barytes, steatite, etc. Even the normally barren deccan traps have given rise to an important deposit of fluorite. Coal is found in the Jurassic formation of the Saurashtra region, while lignite is present in the eocene formation of Kutch and Broach districts. Substantial deposits of high grade bauxite have been formed by the weathering of the deccan traps. Other minerals occurring in the State are agate, asbestos, base metals, calcite, clays, feldspar, quartz and glass sand. Gujarat's coastal marshy areas alongwith the dry climatic conditions prevalent in the region are particularly favourable for the production of salt by solar evaporation. The discovery of natural gas and crude oil in Gujarat is one of the most significant mile-stones in the industrial development in Gujarat. The discovery of oil and gas in commercial quantity and rich deposits of fluorite, lignite and bauxite have raised the State's importance on the mineral map of India.

Mineral Exploration

7.3.89. As a result of various programmes of mineral exploration, reliable data have been collected of mineral resources. In the field of base metal exploration, the activities of the Directorate of Geology and Mining and the Geological Survey of India are properly co-ordinated. There are indications for establishing workable deposits of lead and zinc in Banaskantha district. Promising occurrences of lead have also been located in Panchmahals district and encouraging results are obtained during mineral survey for copper bearing mineral in Sabarkantha and Banaskantha districts. The available reserves, both for industrial and non-industrial minerals, are shown in table given below :—

TABLE 14

Estimated Reserves of Various Minerals

Mineral	District	Estimated Reserves (Million tonnes)
1		3
Agate	Broach, Bhavnagar, Kutch and Rajkot	
Asbestos	Sabarkantha	
Bauxite	Amreli, Bulsar, Bhavnagar, Jamnagar, Junagadh, Kaira, Kutch, Sabarkantha	32.89
Bentonite	Amreli, Banaskantha, Bhavnagar, Broach, Jamnagar, Kutch, Mehsana, Sabarkantha, Baroda	0.6
Calcite	Amreli, Banaskantha, Baroda, Bhavnagar, Broach, Jamnagar, Junagadh, Panchmahals, Rajkot	0.087
China clay	Mehsana, Sabarkantha, Surat	6.82
Clay	Amreli, Mehsana, Sabarkantha, Surendranagar, Rajkot	
Chalk	Bhavnagar, Jamnagar, Junagadh	
Coal	Surendranagar	2.9
Dolomite	Amreli, Baroda, Bhavnagar, Broach	
Feldspar	Banaskantha, Baroda, Panchmahals	
Fire clay	Amreli, Mehsana, Panchmahals, Surendranagar, Rajkot	
Fluorite	Baroda, Sabarkantha	11.60
Fullers earth	Bhavnagar, Kutch	
Graphite	Panchmahals	1.695
Gypsum	Amreli, Bhavnagar, Broach, Jamnagar, Junagadh, Kutch, Surendranagar	6.54
Lignite	Broach, Kutch	215.00
Limestone	Amreli, Banaskantha, Baroda, Bhavnagar, Broach, Jamnagar, Junagadh, Kutch, Kaira, Panchmahals, Surat, Sabarkantha	10,814.28
Manganese ores	Baroda, Panchmahals, Sabarkantha	3.0
Marble	Banaskantha, Baroda	45.0
Petroleum and natural gas	Ahmedabad, Baroda, Broach, Bhavnagar, Kaira, Mehsana, Surat (Oil reserve)	
Quartz and silica sand	Baroda, Panchmahals, Kutch, Sabarkantha, Surendranagar	6.42
Red ochre	Amreli, Banaskantha, Broach, Jamnagar, Junagadh, Kutch	
Salt	Ahmedabad, Amreli, Bhavnagar, Jamnagar, Junagadh, Kutch, Rajkot, Surendranagar	
Steatite	Baroda, Panchmahals, Sabarkantha	

7.3.90. The major physical achievements during the Third Plan and the subsequent Annual Plans are the completion of assessment of bauxite deposits in Kutch, intensive drilling in the lignite field of Kutch with a view to assess its quality and quantity, the systematic appraisal of the limestone deposits in Bhavnagar, Jafrabad and Veraval areas of Saurashtra to provide a base for the expansion of cement industry in the State, and detailed mapping and exploration work in the Amirgadh region of Banaskantha district for limestone with a view to setting up a cement plant. Several exploration activities were initiated during this period and these activities will provide a base for subsequent enlarged exploration programme.

7.3.91. The Fourth Plan programme is based on the foundation work done during the previous Plan periods. Gujarat has nearly 19,000 sq. kms. of area which is considered as potentially rich for metallic minerals both ferrous and non-ferrous and also many industrially important non-metals. It is necessary to cover this entire area by a systematic preliminary survey. An area of 4,000 sq. kms. was covered under preliminary survey by the end of 1968-69. The remaining 15,000 sq. kms. of the area is proposed to be covered under such survey during the Fourth Plan.

7.3.92. The Gujarat Mineral Development Corporation Limited has been set up during the Third Plan. The Corporation has taken up mining and upgrading of silica sand. One of the most important projects undertaken by the Corporation is to develop the fluorspar deposits of Ambadungar in Chhotaudepur taluka of Baroda district.

7.3.93. The State Directorate of Geology and Mining has proved so far 194.88 million tonnes of lignite in Kutch district and 19.9 million tonnes in Bhuri area of Broach district. Efforts are made to investigate the recently found lignite deposits of Mandvi taluka in Kutch district by drilling as well as to assess the Akarimota field in greater details, by close space drilling. The State Directorate has also proved 27.74 million tonnes of bauxite in Kutch district and 5.15 million tonnes in leased as well as unleased areas in Jamnagar district. Efforts will have also been made to investigate the bauxite deposits of Bulsar, Kaira and Sabarkantha districts. The State Directorate has continued the exploration by drilling for china clay in Sabarkantha district, for graphite in Panchmahals district, for gypsum in Jamnagar district, for coal near Pipari in Surendranagar district and for chemical grade lime stone in Junagadh district.

7.3.94. The following table gives the details about the mineral production in Gujarat and the country and share and rank of the State in the country during 1970.

TABLE 15

Sr. No.	Mineral	Gujarat	India	Share of the State	Rank of the State
1	2	3	4	5	6
		(tonnes)	(tonnes)		
1.	Petroleum (Crude)* ..	3,452	6,809	50.68	1
2.	Natural Gas @ ..	316	676	46.75	2
3.	Agate ..	736	739	100.00	1
4.	Bauxite ..	2,44,508	13,59,641	17.93	2
5.	Calcite ..	6,414	15,307	39.32	2
6.	Chalk ..	46,904	46,904	100.00	1
7.	China clay (non-saleable) ..	47,876	3,36,630	14.22	3
8.	China clay (saleable) ..	1,942	2,01,795	0.96	10
9.	China clay (processed) ..	11,435	1,02,123	11.20	5
10.	Dolomite ..	66,702	11,34,966	5.35	3
11.	Feldspar ..	39	29,255	0.13	5
12.	Fireclay ..	1,02,210	5,09,271	20.07	1
13.	Fluorite ..	1,900	4,647	40.88	2
14.	Gypsum ..	1,275	8,82,735	0.14	4
15.	Limestone and calcareous materials	20,91,605	2,35,64,975	8.88	7
16.	Calcareous sand ..	9,96,201	9,96,201	100.00	1
17.	Ochre ..	384	37,682	1.00	6
18.	Quartz ..	16,709	1,68,071	9.94	4
19.	Silica sand ..	32,799	2,48,924	13.18	3
20.	Moulding sand	67,952	4,88,612	13.91	3

*000 tonnes

@ Million cubic meters, relates to gas utilised.

7.3.95. It will be seen from the above table that Gujarat ranks first in production of crude oil, agate, chalk and calcareous sand. The exploitation of various minerals have proved that Gujarat is rich in mineral deposits.

Perspective Plan

7.3.96. The Gujarat Mineral Development Corporation is the public sector undertaking in the mineral sector of the State. The Corporation is presently engaged in mining and beneficiation of fluorspar at Kadipani, mining of bauxite in Kutch and Jamnagar districts, and silica sand mining and processing at Surajdeval in Surendranagar district. The projects envisaged to be taken up in near future are the mining of lignite and siderite deposits in Kutch, setting up of an Aluminium Complex in public sector in Kutch and exploitation of base metal deposit in Amba Mata area. The highlights of various projects and their future development are as follows :

Fluorspar Project

7.3.97. This project is located at Kadipani in the Baroda district. The plant has an input capacity of 500 tonnes of run mine ore per day having about 20-25 percent CAF content. The plant is currently engaged in stabilising and standardising concentrates.

7.3.98. In order to meet the increasing demands and fulfil the requirements of the domestic industries, the Corporation will have to expand the mining and beneficiation capacity in order to quadruple the present rated capacity.

Bauxite Project

7.3.99. The Corporation is currently engaged in the development of bauxite deposits around Wandh village in Kutch district and Mewasa village in Jamnagar district with a view to assess the grade, depth and behaviour of ore to be fed to the proposed alumina plant to be set up under a separate company. This export oriented plant having capacity of two lakh tonnes will be fed with bauxite from Kutch and Jamnagar districts and will produce alumina in the first phase. Afterwards, with the availability of sufficient technical know-how, power and water supplies, it is envisaged to go in for an aluminium smelter of the capacity of about 50,000 to 1,00,000 tonnes with rolling mills and fabrication facilities with a total investment of Rs. 130 crores.

Base Metal Project

7.3.100. The Corporation has currently undertaken the exploratory mining of base metal deposits proved by Geological Survey of India at Ambaji.

Silica Sand Project

7.3.101. The Gujarat Mineral Development Corporation is working the sand stone mines in Surajdeval area with a processing plant for recovery of silica sand at Surajdeval. The ore, after mining, is directly fed to the plant and silica sand of various mesh sizes are recovered. It is planned to process the silica sand further by washing and classifying in order to get a higher grade.

Lignite Project

7.3.102. Large reserves of lignite have been proved by the Directorate of Geology and Mining in Kutch district scattered over a wide area. About 184 million tonnes of good quality of lignite has been proved in the Panadhro and Akrimota areas in Lakhpat taluka. Last year, the Gujarat Mineral Development Corporation developed a pilot quarry and collected about 200 tonnes of lignite which were later sent to the Central Fuel Research Institute, Dhanbad, for feasibility studies. After the data, both from the Ground Water Directorate and the CFRI is received the Corporation will be in a position to submit a detailed report to the Government of Gujarat for setting up a thermal power plant of 100-150 MW in the Kutch district.

7.3.103. It will not be out of place to recall the known data of the utility of Kutch lignite for power generation. For conventional thermal power lignite with 35 percent to 45 percent moisture will be suitable for operation. The analytical result of Kutch lignite so far shows moisture content around 34.5 percent. The next important aspect so far as the exploitation of Kutch lignite for power generation is the over-burden ratio. Experience obtained in the lignite operation in the Neyveli is relevant in this connection. The lignite to over-burden ratio in Kutch is 1:5 to 1:6 and the lignite to over-burden ratio at Neyveli is 1 to 3 : 3. It is estimated that a conventional thermal plant of 150 MW can be set up based on the lignite of Kutch. The calorific value of Kutch lignite varies from 2620 to 3930 Kcal/Kg. The sulphur content varies between 1.55 to 3.18 percent. The Kutch lignite can be exploited for generation of power from either open cast mining and using the lignite for power generation or underground gassification and the utilisation of gas for power generation on account of high sulphur content.

7.3.104. Another important factor that will have to be examined in depth before setting up the power plant is the availability of water. A

large quantum of water is one of the primary requirements for a thermal power station. At least a supply of water to the extent of 35 cusecs will be required to run a plant of 150 MW. The high sulphur may also off-set the advantage of higher calorific value.

7.3.105. The final decision regarding the setting up of a power plant will depend upon the feasibility report of the CFRI. Moreover, the Gujarat Mineral Development Corporation is also considering that at a later date it may have to undertake development of china clay and graphite after their deposits are sufficiently proved by the Directorate of Geology and Mining.

7.3.106. It is estimated that a total provision of Rs. 211.20 crores will be required on different projects during the Perspective Plan period as under:—

	(Rs. in crores)
1. Fluorspar Project	18.00
2. Glass Sand Project	00.20
3. Bauxite Mining and Alumina	130.00
4. Lignite (Excluding Power Plant)	36.00
5. Base Metal	25.00
6. Misc. Projects.	2.00
	211.20

Thus the Gujarat Mineral Development Corporation would need an amount of Rs. 211 crores to undertake the above projects.

Construction of Roads

7.3.107. One of the essential infra-structures in the development of the mineral industry is the construction of roads. It is proposed to construct the following link roads:—

Baroda district (For dolomite mines)

- (1) Chhota Udepur link road of about 16 kms. required for linking main road with mines.

Panchmahals district: (for trap rock quarries).

- (1) 3 kms. link road required from Halol-Pavagadh-Helical Vav to mines area.
- (2) 5 to 6 kms. link road required from Jambudi area to Pavagadh Halol road.

Surat district: (for trap rock quarries)

- (1) 1 km. link road required from Jab village to Kim-Mandvi road.

Kutch district: (for bauxite, lignite, bentonite and limestone mines)

- (1) 24 kms. link road required from Nana-Asambia to Nagrecha.
- (2) 24 kms. link road required from Gaduli to Panandhro to Lakhpat.

Jamnagar district: (for bauxite mines)

- (1) 24 kms. link road required for Jamnagar. Virpur, Ran. Bhoplka, Bhoplka is 8 kms. away from highway.
- (2) About 12 kms. link road required from Maha-Devia to highway.
- (3) About 27 kms. link road via Hadmatia required from Lamba Gandhvi to Bhatia station.

Bhavnagar district: (for bentonite mines)

22 kms. link road required from Bhavnagar to Lakhnaka for bentonite leases.

Junagadh district: (for whiting chalk mines)

Porbandar link road requirement of about 24 kms. to connect to the main road of Ranavav.

Surendranagar district: (for fire clay mines)

Link road required from Vagadia to Muli on Surendranagar-Rajkot Road.

Considering the investment that is to be made by Gujarat Mineral Development Corporation for the development of lignite and bauxite, roads in Kutch will be given high priority.

Survey

7.3.108. Survey of minerals conducted by the State Directorate of Geology and Mining has so far indicated reserves of important minerals. The entire State has not been fully surveyed so far and hence our present knowledge regarding the mineral resources and the mineral reserves in the State is therefore incomplete. It is proposed to cover the entire State through scientific geological survey latest by the end of 1984.

7.3.109. These mineral surveys would need the support of adequate and up to date laboratory facilities to produce the desired results. The present laboratory of the State Directorate will be expanded by introducing Geo-physical and Geo-chemical wings to undertake all these activities.

7.3.110. As mentioned earlier the various schemes of Gujarat Mineral Development Corporation would need an amount of Rs. 211 crores of which Government contribution would be Rs. 28 crores.

Power

7.3.111. The need for increased agricultural and industrial development hardly need any emphasis. One of the essential conditions for increasing the agricultural and industrial development is the availability of power. The sources of electric power are large and varied. They are coal, oil, natural gas, atomic fuel and water. It is necessary in the first instance to assess the power needs of the State from time to time and plan the availability of power by exploiting and harnessing all resources of power generation and making the same available to the consumers at their respective local centres.

7.3.112. In May 1960, the total generating capacity in Gujarat was of the order of 315 MW from two major and five small steam power stations and 53 diesel power houses of various sizes located at different places in the State. Out of this, the capacity of the power plants operated by the Gujarat Electricity Board was only 145 MW and the balance used to be fed into the grid by private licensees. The Gujarat Electricity

Board used to distribute power to a limited area around the power stations through transmission lines of various voltages, 66 KV being the highest in the system. Besides, the Board was purchasing about 7 MW in bulk from the Ahmedabad Electricity Company and distributing it in North Gujarat region through a 66 KV system. The total installed generating capacity in the State at the end of the Third Five Year Plan was 608 MW as under :-

	MW
1. Dhuvaran Power Station	254
2. Utran Power Station	67.5
3. Shahpur Power Station	16
4. Porbandar Power Station	15
5. Sikka Power Station	16
6. Kandla Power Station	6
7. Ahmedabad Electricity Company Power House	217.5
8. Bhavnagar Licensee Power House	16
Total ...	608

7.3.113. During the Annual Plans period 1966-69, 10MW of additional installed generation capacity under the Kandla Extension scheme was commissioned. It is estimated that the net installed capacity at the end of the Fourth Plan would stand at 1607 MW after allowing for retirement of 75 MW of old and obsolete sets. The details of the existing as well as planned installed capacity are given in the table given below :—

TABLE 16

Existing and Planned Installed Generating Capacity in Gujarat State during Fourth Five Year Plan

Sr. No.	Power Station	Installed generating capacity in MW	Remarks
1	2	3	4
<i>A. Existing and in operation :</i>			
1.	Dhuvaran Thermal Power Station	254	
2.	Gas Turbines at Dhuvaran	54	
3.	Utran Power Station	67.5	

Sl. No.	Power Station	Installed generating capacity in MW	Remarks
1	2	3	4
4.	Shahpur Power Station	16	
5.	Porbandar Power Station	15	
6.	Sikka Power Station	16	(Two of 4 sets will be retired during Fourth Plan)
7.	Kandla Power Station	16	
8.	Ahmedabad Electricity Co. Ltd. Power Station at Sabarmati (Private Licensee)	217.5	(67.5 MW capacity will be retired during Fourth Plan)
9.	Bhavnagar Electricity Supply Co. Ltd., (Private Licensee)	16	
10.	Tarapur Atomic Power Station (Gujarat's Share)	190	
	Total existing installed generating capacity:	862	
B. Scheme under execution :			
11.	Dhuvaran Thermal Power Station	280	
12.	Ukai Hydro Electric Power Station	300	
13.	Ukai Thermal Power Station	240	
	Total :	820	
	Total installed generating capacity at the end of the Fourth Plan :	1682	
14.	Retirement of old and inefficient sets.	75	
	Net installed capacity by end of 1973-74	1607 MW	

Gujarat has, thus, made impressive progress in the field of power development over the last decade.

Rural Electrification.

7.3.114. Rural electrification is the key factor in the socio-economic transformation in the rural areas. Before the commencement of the First Plan, the number of towns and villages electrified in the State was only 117. Among these, 46 towns and villages were electrified by the license holders. At the end of 1968-69, the State Electricity Board electrified 2,912 towns and villages and the license holders electrified 136 places by this year bringing the total places electrified to 3,048. At the end of 1970-71 this figure rose to 4,087.

7.3.115. The State Government is laying special emphasis on the energisation of agricultural pumps. During the last 15 years of the first three Plans the Gujarat Electricity Board could energise only about 15,045 irrigation pump sets out of the total of 5,50,000 in the State. This programme gathered momentum only from 1966 onwards. During the last five years, as many as 51,000 pump sets have been energised—an average of nearly 10,000 per year as against the average of 1,000 per year in the previous 15 years. At the end of 1970-71, 66,159 irrigation pump sets have been energised besides nearly 867 tube wells in the State. The number of pump sets energised and tube wells electrified is expected to be 1,26,000 and 1,005 respectively at the end of Fourth Plan.

Perspective Plan (1974-84)

7.3.116. The per capita use of electricity in Gujarat by the end of 1970-71 stands at around 130 KW based on the installed capacity of 862 MW. The Perspective Plan for power development for the period 1974-84 envisages an intensive generation programme to raise the per capita use of electricity to the level of 250 to 350 K.W.

Demand for power—load projection

7.3.117. It has been estimated that the demand of power in the State has been growing at the rate of about 150 MW per year. On account of progressive industrialisation as well as the rapid spread of the use of electrical energy for bringing about Green Revolution and for intensified rural electrification programme, this rate of growth is expected to go upto about 250 MW every year during the Fifth Plan. One of the major considerations for projecting the power requirements at about 250 MW per year during the Fifth Plan is the growth of various industries that are likely to come up during the next decade. It is visualised that the industrial base during the Fifth Plan would be chemical oriented. Moreover, accelerated rate of growth of engineering industries, fertilizers etc. are anticipated during the Fifth and the Sixth Plans. The generation schemes will have to be planned carefully, after taking into account all these factors. It would be necessary to install the generation schemes with adequate gross margin over and above that required to meet the load demand. In view of the wide and extensive net work which Gujarat has, it is estimated that a gross margin of 30 per cent to 35 per cent will be adequate to meet the exigencies of the system. The load demand anticipated and installed capacity required at the end of 1983-84 will be as under :—

TABLE 17

Year ending 1	Expected demand (MW) 2	Required capacity 3	installed (MW) 4
1973-74	1234	1607	
1983-84	4000	5000	

The generation schemes which are planned for being taken up and their estimated cost are shown in the table given below :—

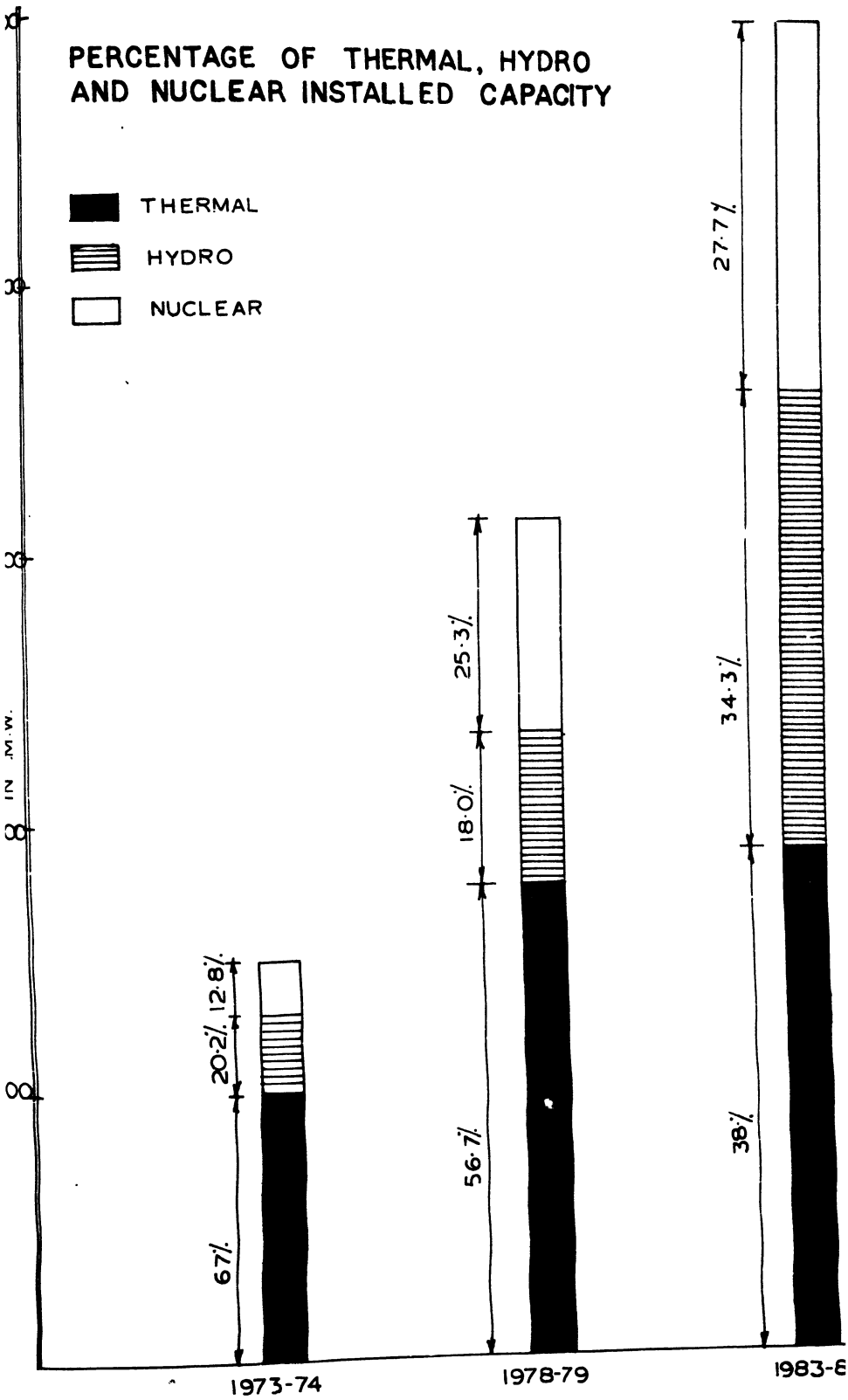
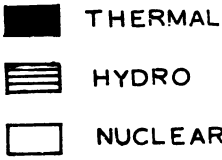
TABLE 18

Name of the Scheme 1	Installed generating capacity 2		Estimated cost (Rs. in crores) 3
1. North Gujarat Thermal.	2×120 MW	240 MW	42
2. Ukai Thermal Extension	2×200 MW	400 MW	60
3. Mahi Bank Thermal	3×110 MW	330 MW	66
4. Kadana Hydro	4× 60 MW	240 MW	72
5. Piparia Hydro	1× 20 MW	20 MW	6
6. Ukai Left Bank Canal	2× 3 MW	5 MW	1
7. Narmada Hydro Project	10×100 MW	1150 MW	345
	+2× 75 MW		
8. Atomic Power Station	4×300 MW	1200 MW	Cost will be borne by the Govt. of India
		3585 MW	592
		— 190 MW retirement	
Generating capacity planned during 1974-84		3395 MW	
Available at the end of 1973-74		+1607 MW	
Total generating capacity available at the end of 1983-84		5002 MW	

Atomic Power Station

7.3.118. As mentioned earlier, the demand for power in Gujarat has been steadily increasing on account of accelerated rate of industrialisation as well as rapid strides in the field of agricultural production and rural electrification. The existing thermal power stations and those which will come into being will require huge quantities of coal. This requirement of coal for projects will have to be imported from

PERCENTAGE OF THERMAL, HYDRO
AND NUCLEAR INSTALLED CAPACITY



other States over distances varying between 1000 and 2000 Kms. Haulage of coal to this extent will be a difficult proposition as the rolling stock and track facilities as well as the break in gauge for Saurashtra area present a major bottle-neck in course of time. Gujarat grid is largely fed by thermal power stations at present. In a thermal station, the cost of power generation is governed chiefly by the cost at which the fuel is made available. Collieries being situated hundreds of kilometres away from the power stations, the cost of haulage of coal is, indeed, prohibitive. For this reason, the cost of power generation in Gujarat compares unfavourably with that in places like Bombay, Madras, etc. Cost of generation of power in different States is shown below :—

<i>Name of the State</i>	<i>Cost in paise per KWH</i>
Tata/Koyna in Maharashtra	2.50
Punjab	2.90
Maharashtra	3.00
Bihar	4.00
West Bengal	4.00
Tamil Nadu	4.00
Mysore	4.00
Madhya Pradesh	4.30
Gujarat (for new thermal stations like Bhat)	7.60

7.3.119. The cost of coal is going up day by day. The cost works out to Rs. 60 to Rs. 70 per tonne at the power stations and the cost of generation varies from 7.5 to 8 paise per unit. At present, about 40 per cent of Gujarat coal requirements are drawn from West Bengal-Bihar belt (a distance of about 2000 kms.) and 60 per cent from Madhya Pradesh (a distance of about 1000 kms). The above cost analysis distinctly highlights that it will not be economical to plan to meet the future power requirements from thermal stations based on coal which is required to be transported over a long distance.

7.3.120. The hydro-potential which is capable of being exploited is being harnessed. It is proposed to exploit the hydro resources of the Tapi (Ukai Hydro 300 MW) during the Fourth Plan and the Mahi (Kadana Hydro 240 MW) during the Perspective Plan period. It is also being assumed that Gujarat will be able to get a share of 1150 MW atleast during the Sixth Plan period from the Narmada Project.

7.3.121. The Atomic Energy Commission has accepted in principle that nuclear energy is a necessity in the areas such as Gujarat which are

far away from coal fields and are starved of hydro-electric resources. The need for establishing an Atomic Plant in the Western region during the early part of the Fifth Plan is also accepted by the Central Water and Power Commission. The Government of India, Ministry of Irrigation and Power has also proposed for an Atomic power station in Western region in their decade plan over and above the extension of the Tarapore power station. Rich and abundant deposits of bauxite ore in the Saurashtra area are one of the many built-in advantages of setting up power intensive industries like Aluminium. The establishment of an aluminium complex is already in an advanced stage of consideration. Besides, this region offers built-in port facilities—there is a major port at Kandla and Okha—would make an excellent deep-sea port. Undoubtedly, good port facilities are critical for setting up of a nuclear plant. The existing power demand and the potential load growth in the next 5 to 10 years specially for chemical, fertilisers, aluminium and cement industries is so large that more than 50 per cent of the power generated in the proposed station will be consumed locally and the rest could be transmitted to other parts of Gujarat not far from Saurashtra region. There is no large sized project in West Gujarat or in North Gujarat. This results in lack of balance and heavy losses in transmission. If the requisite investment in the transport system for movement of coal is also taken into consideration, it appears that development of nuclear power in areas which are more than 1000 kms. away from the coal fields and which also do not have hydro-potential would be justified on purely economic grounds alone.

7.3.122. One of the specific requirements of station is that it should be base-loaded. This implies an adequate development of load in the system in such a way that the station can run at the base-load and the fluctuations in the demand can be taken care of by other units—hydro and thermal. The annual load factor of Gujarat at present is 62 to 65 per cent and the day load factor is 70 to 75 per cent. With the establishment of petro-chemical industries, fertilizers complex, the load factor of the system will further improve. At present, the night low load is about 40 to 50 per cent of the peak load but with the load growth estimated during the Fifth Five Year Plan, the ratio will progressively increase and there will be no difficulty in running the proposed nuclear station as base-load station. The following factors have a critical bearing on the location of an Atomic station :—

- (a) Adequate supply of sweet water.
- (b) Rocky foundation.
- (c) Low density of population in the area.

- (d) Facilities for transport by sea or land.
- (e) Being outside seismic zone.
- (f) Facilities for inter-connection with the existing transmission and distribution net work.

7.3.123. Taking all these factors into consideration, Saurashtra coast offers a good site for the location of the proposed Atomic Power Station. With the Narmada scheme under dispute and the coal supplies being so distant, there is no alternative but to set up Atomic Power Stations to meet the ever-growing demand for power in the State. It is necessary to set up nuclear plants of 1200 MW to be spread over the Fifth and Sixth Five Year Plans, as visualised in the Perspective Plan. In this context, it is also necessary to evolve a National Fuel Policy so that States like Gujarat which are far away from coal fields but which have residual fuel oil and gas produced in the State are not handicapped in the development of power resources.

Transmission and Distribution Schemes.

7.3.124. It is necessary to plan adequately for the transmission facilities for transmission and distribution of the additional generating capacity that would become available in the State during the Perspective Plan decade by way of suitably augmenting the transmission system and sub-stations capacity. The decade plan envisages establishment of transmission lines of various voltages ranging from 220 KV to 500 KV.

7.3.125. With the outlay of Rs. 250 crores in the Fifth Plan and Rs. 610 crores in the Sixth Plan for power schemes within the overall Plan size of Rs. 1000 crores and Rs. 2000 crores respectively, the achievements envisaged are given in the table given below:—

TABLE 19

Item	Unit	Targetted level of achievement at the end of					
		Fourth Plan 1973-74		Fifth Plan 1978-79		Sixth Plan 1983-84	
		Additional		Cumulative		Additional	
1. Installed capacity	MW	1607	1265	2872		1830	4702
2. Villages electrified	No.	5407	1993	7400		5500	12900
3. Pump sets energised	No.	1,26,000	54000	1,80,000		1,20,000	3,00,000
4. Tubewells electrified	No.	1005	245	1250		600	1850

7.3.126. On the basic of availability of additional resources, the alternate Plan sizes for the Fifth and Sixth Plan periods have been envisaged at Rs. 1200 crores and Rs. 2400 crores respectively. Within these increased limits, the outlay for power schemes in the Fifth Plan would be Rs. 350 crores while that for the Sixth Plan it would be Rs. 653 crores. With these outlays the programme for development of power envisaged is as under during the Fifth and Sixth Plans.

TABLE 20

Item	Unit	Targetted level of achievement at the end of				
		Fourth Plan 1973-74	Fifth Plan 1978-79		Sixth Plan 1983-84	
			Additional	Cumu- lative	Additional	Cumu- lative
1	2	3	4	5	6	7
1. Installed capacity	MW	1607	1375	2982	2020	5002
2. Villages electrified	No.	5407	3393	8800	5422	14222
3. Pump sets energised.	No.	1,26,000	84,000	2,10,000	1,16,000	3,26,000
4. Tubewells electrified	No.	1005	420	1425	575	2000

ANNEXURE—I

*Overall picture of industrial development during the
Fifth and Sixth Plans.*

	During Fifth Plan			During Sixth Plan		
	Addi- tional va- lue of pro- du- ction (Rs. in crores)	Addi- tional in- vest- ment (Rs. in crores)	Addi- tional em- ploy- ment	Addi- tional value of pro- duction (Rs. in crores)	Addi- tional in- vest- ment (Rs. in crores)	Addi- tional em- ploy- ment.
	(1)	(2)	(3)	(4)	(5)	(6)
(A) Chemical and non-engineer- ing Industries.						
(i) Large Scale	406.40	482.20	67745	506.90	432.45	58025
(ii) Small Scale.	142.35	39.10	49700	186.60	51.40	64000
(B) Petro-chemicals Refinery.	113.00	75.20	2710	183.40	156.70	4925
(C) Engineering,						
(i) Large Scale.	354.50	196.30	45000	773.00	400.62	101225
(ii) Small Scale	207.62	30.53	73890	200.64	46.49	90085
(D) Textile Industries	240.00	120.00	..	400.00	200.00	31800
(E) Agro-Industries	25.50	20.40	5830	21.75	17.40	2870
(F) Cottage Industries	5.00	4.78	26300	6.00	6.81	44900
Grand Total :	1494.37	968.51	2,71,175	2278.29	1311.87	3,97,630

ANNEXURE—II

Statement showing the investment outlay on various industries envisaged during the Perspective Plan decade—(1974-84)

(Rs. in crores)

No.	Item	Investment envisaged during the Perspective Plan decade
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I. Chemicals and Non--Engineering Units

1.	Fertilizer (i) Nitrogenous (ii) Phosphate	325.00
2.	Caustic Soda	35.50
3.	Paper and Pulp	112.50
4.	Cement	100.00
5.	Dye-Stuff and Pharmaceuticals ..	100.00
6.	Sugar	30.00
7.	Soda Ash	24.00
8.	Polyphosphate.	4.50
9.	Glass	17.00
10.	Heavy Water.	15.00
11.	Auto Tyres and Tubes.	8.60
12.	Flourine Chemicals	7.60
13.	Ceramic and Refractories.	6.00
14.	Cigar/Cigarettes	4.95
15.	Vanaspati	4.70
16.	Industrial Explosives	4.00

1	2				3
17. Alcohol	..	..	..	..	3.50
18. Vegetable Oil	..	..	..	..	3.50
19. Salt	..	..	..	..	2.30
20. Acetic Acid	..	..	..	..	1.00

II Petro-Chemicals

1. Vinyl Chloride	..	..	..	..	19.50
2. Polyester Fibre	..	..	..	..	18.50
3. Polybutadiene	..	..	..	..	15.00
4. Polystyrene and Copolymer (Themoplasts)				..	12.50
5. Polythelene (H.D.) (Themoplasts)			..	..	12.00
6. Acrylic Fibre	..	..	..	..	12.00
7. Caprolactum (Intermediates for Plastics and Synthetic fibres).	..	..	..	..	12.00
8. Nylon-6 Filament Yarn			..	..	10.00
9. Methanol (Chemical)	..	..	..	..	9.75
10. Polyester Filament	..	..	..	..	9.00
11. Polyethylene (L. D.)	..	..	..	..	9.00
12. 2-Ethyl Hexanol	..	..	..	..	7.50
13. Butyl Rubber (Synthetic Rubber)	..	..	..	..	6.00
14. Polyvinylchloride	..	..	..	..	5.30
15. Phthalic Anhydride (Chemical)	..	..	..	..	5.30
16. Melamine	..	..	..	..	5.00

1	2			3
17. Polypropylene Fibre	..	..	..	5.00
18. Synthetic Glycerine	..	..	..	5.00
19. Detergent Alkylate	..	..	..	4.50
20. T. D. I... ..	..	..	..	4.10
21. Polypropylene ..	..	..	..	4.00
22. Styrene ..	..	..	..	4.00
23. Ethylene-Glycol/Oxide	..	..	..	4.00
24. Polymethyl Methacrylate		..	..	3.50
25. Acrylonitrile	..	..	..	3.50
26. Carbon Black	..	..	..	3.00
27. D. M. T.	..	..	..	3.00
28. Polyester Film	..	..	..	3.00
29. Propylene Glycol/Oxide	..	..	..	2.60
30. Phthalate Plasticizer	..	..	..	2.50
31 Methyl Methacrylate	..	..	..	2.50
32 Dyestuff and Pharmaceutical		..	..	2.00
33 Insecticides and Pesticides		..	..	2.00
34 Maleic Anhydride	..	..	..	2.00
35 Nylon Tyre Cord	..	..	..	1.50
36 Epichlorohydrine	..	..	..	0.70
37 Synthetic Detergents ..	..	..	..	0.40
38 Nylon Moulding Power/Chips		..	..	0.35

1	2	3
III. Engineering Industries		
1 Alumina, Aluminium Smelter, Rolling Mill and Fabrication.		130.00
2 Commercial Vehicles		50.00
3 Sponge Iron		40.00
4 Heavy Electrical Complex		30.00
5 Alloy and Special Steels Finished		30.00
6 Zinc Smelter		30.00
7 Pig Iron		21.20
8 Steel Strips including Alloy Steels		20.00
9 Steel Fabrications including Chemical Plants and Vessels		20.00
10 Cars, Jeeps and Station Wagons		20.00
11 Ball and Roller Bearing Complex		20.00
12 Agricultural Tractors		15.00
13 Steel Pipes and Tubes including Stainless Steel Pipes.		11.00
14 Steel Casting and Forging		10.00
15 Cast Iron Pipes		10.00
16 Ship Building		10.00
17 Machine Tools		6.00
18 House Service Meters		5.10
19 Mild Steel Finished including Steel Skelp		5.00
20 Control Gear and Switch Gear.		5.00
21 Components and Dye Manufacturing Unit		5.00

1	2	3
IV. Agro-Industries		
1	Tractor and Agricultural Implements Manufacturing	7.00
2	Cold Storages	5.00
3	Oil Extraction Units	4.00
4	Protein, Flour and Isolates	4.00
5	Compost Manure Plant	3.50
6	Cattlefeed Factories	3.20
7	Rice/Pulse Mills	2.00
8	Furfural from Agricultural Waste	2.00
9	Agro Service Complex	1.80
10	Dehydration of Fruits and Vegetables	1.60
11	Guar gum Processing	1.20
12	Canning of Fruits and Vegetables	1.20
13	Agro Service Centres	1.20

4. TRANSPORT AND COMMUNICATIONS

Road Development

7.4.1. The Road Development Programmes in the first two Plans were formulated in the perspective of the Post War Road Development Plan popularly known as the Nagpur Plan which was drawn up as far ago as in 1943. The Nagpur Plan period is considered to have been over on 31st March, 1961. All India and Gujarat State figures for the Nagpur Plan targets and actual achievements are as under :—

TABLE 21

(All India)

Classification.	Nagpur Plan targets (kms.)	Length existing in 1943 (kms.)	Length existing in 1961 (kms.)
Major Roads (National Highways, State Highways and Major District Roads)	1,98,000	1,41,680	1,98,250
Minor Roads (Other District Roads and Village Roads)	3,22,000	2,12,520	5,11,157
Total..	5,20,000	3,54,200	7,09,407

TABLE 22

(Gujarat State)

Classification	Nagpur Plan targets (kms.)	Length existing in 1943 (kms.)	Length existing in 1961 (kms.)
Major Roads (National Highways, State Highways and Major District Roads.	15,712	4,408	11,117
Minor Roads. (Other District Roads and Village Roads.)	23,435	3,214	
Total ..	39,147	7,622	

7.4.2. Thus, while India as a whole exceeded the targets of the Nagpur Plan by 36 percent, Gujarat remained in deficit by 42 percent at the end of the Nagpur Plan period. This was mainly due to the fact that while India started with a deficit of 33 per cent of the Nagpur Plan target Gujarat had a deficit of 81 per cent at the start.

7.4.3. As the Nagpur Plan was near its end in 1961, a second integrated road development plan for next twenty years, 1961-81

was drawn up. This Twenty Year Road Plan lays down a comprehensive formula for arriving at the kilometerage required for National Highways, State Highways, Major District Roads, Other District Roads etc.

7.4.4. The objectives of the Twenty Year Road Plan are to provide a network of highways as under :—

- (i) to provide 32 Kms. of roads per 100 Sq. Kms. of area on an average.
- (ii) to bring every village :—
 - (a) in a developed and agricultural area, within 6 Kms. of a metalled road and 2 Kms. of any road.
 - (b) in a semi-developed area within 12 Kms. of a metalled road and 4 Kms. of any road; and
 - (c) in an underdeveloped and uncultivable area within 18 Kms. of a metalled road and 7.5 Kms. of any road.

7.4.5. On the basis of the principles laid down in the Twenty Year Road Plan prepared by the Chief Engineers, the Kilometerage targets for India and Gujarat are as under :—

TABLE 23

Category	Target of kilometerage on 31st March, 1981.	
	India	Gujarat
<i>Major Roads</i>		
National Highways	51,520	3,602
State Highways.	1,12,70	6,168
Major District Roads.]	2,41,500	14,382
Total ..	4,05,720	24,152
<i>Minor Roads</i>		
Other District Roads	2,89,800	16,441
Classified Village Roads	3,62,250	17,035
Total ..	6,52,05	33,476
Grand Total ..	10,57,770	57,628

7.4.6. In order to get the average target of 32 Kms. of roads per 100 Sq. Kms. of area in the Twenty Year Road Plan, the kilometerage target of India as a whole is required to be increased from 7,09,407 to 10,57,770 Kms. *i.e.* by 49 per cent, whereas the kilometerage target of Gujarat State is required to be increased from 22,628 Kms. to 57,628 Kms. *i.e.* by 150 per cent. In order to achieve the kilometerage target of 57,628 Kms. it would be necessary to construct 35,000 Kms. of roads in Gujarat during the Twenty Year Road Plan period.

7.4.7. It is pertinent to indicate the position of road construction in Gujarat *vis-a-vis* all-India under the Twenty Year Road Development Plan. Against the all-India target of 10.58 lakh Kms. envisaged in the Twenty Year Road Plan, the achievement by the end of March, 1966 was of the order of about 8.35 lakh Kms., which works out to about 79 per cent of the Twenty Year Road Plan target. In Gujarat, against the Twenty Year Road Plan target of 57,628 Kms. the kilometerage available by the end of March, 1966 was 26,029 Kms. which works out to only a little over 45 per cent. Even by the end of March, 1970, the State has achieved a kilometerage of 33,333, which is only about 58 per cent of the Twenty Year Road Plan target.

7.4.8. The detailed comparative position of Gujarat *vis-a-vis* all-India in respect of the progress of achievement of Twenty Year Road Plan targets for different categories of roads is given in the table below :—

TABLE 24

(Length in Kms.)

Category of roads	India		Gujarat		
	Target of Twenty Year Road Plan	Achievement upto March 1966	Target of Twenty Year Road plan	Achievement upto March 1966	Achievement upto March 1970
1	2	3	4	5	6
Major Roads					
National Highways	51520	23960	3602	1033	1056
State Highways	112700	72972	6168	5125	8003
Major District Roads	241500	124605	14382	7132	6599
	405720	221537	24152	13290	15658

(Contd.)

1	2	3	4	5	6
<i>Minor Roads.</i>					
Other District Roads	289800	137048	16441	7065	8532
Village Roads	362250	476180	17035	5674	9143
	652050	613228	33476	12739	17675
Total ..	1057770	834765	57628	26029	33333

7.4.9. A massive programme is necessary to wipe out the road deficit from which the State suffers. The Perspective Plan envisages a programme so as to make good the deficit of Gujarat in the field of Road Development.

7.4.10. One of the objectives set out in the Perspective Plan is that no village should be left untouched by a road by the end of the Sixth Plan. In the context of this objective, apart from making good the deficit in the overall length of roads in the State, greater emphasis will have to be laid on roads in rural areas. Roads in rural areas are necessary to feed villages with hybrid seeds, fertilizers etc. and to take-out marketable surpluses quickly.

7.4.11. The total outlay earmarked for road development programme during the Perspective Plan is Rs. 338 crores comprising of Rs. 88 crores for the Fifth Plan and Rs. 250 crores for the Sixth Plan. Out of these outlays of Rs. 88 crores and Rs. 250 crores, outlays of Rs. 30 crores and Rs. 168 crores have been earmarked for roads in rural areas during the Fifth and Sixth Plans respectively.

7.4.12. The breakup of the above allocations for roads in rural areas and other roads in Fifth and Sixth Five Year Plans is as under :—

TABLE 25

(Rs. in crores)				
Period	Outlay for rural roads	Outlay for other roads	Total	Percentage for rural roads to the total
1	2	3	4	5
Fifth Five Year Plan	30	58	88	33
Sixth Five Year Plan	168	82	250	67
Total Perspective Plan	198	140	338	58

7.4.13. The Perspective Plan also envisages supplementary outlays of Rs. 22 crores and Rs. 30 crores for Fifth and Sixth Plans respectively, depending on the availability of additional funds.

7.4.14. The following are the major aims of the Perspective Plan for Gujarat State :—

- (i) Connect all villages in the State by roads.
- (ii) Complete the road development net-work in Gujarat as proposed in the Twenty Year Road Plan.
- (iii) Provide a four-lane Express-way between Ahmedabad-Bombay or at least between Ahmedabad and Baroda.
- (iv) Provide missing links and diversions on all State Highways, by-passing congested towns.
- (v) Provide Roads to meet the special needs of Tourism, Archaeological sites, Mining, Industries, Ports etc.
- (vi) Provide roadside amenities such as travellers' bungalows, hotels, parking facilities, lay-byes, canteens etc.
- (vii) Replace important level-crossings by under or over bridge.
- (viii) Widen State Highways into two lanes.
- (ix) Develop arboriculture and road side parks.
- (x) Provide adequate road safety measures.

7.4.15. The following table gives the length of roads of various categories at the commencement of the Fourth Plan and as anticipated in 1973-74, 1978-79 and 1983-84.

TABLE 26

(Length in Kms.)

Year	National Highways.	State High Ways	Major District Roads	Other District Roads	Village Roads	Total
1	2	3	4	5	6	7
As on 31-3-69	1056	6983	7127	8417	8628	32211
As on 31-3-74 (Anticipated)	1056	8423	7173	9817	9988	36457
As on 31-3-79 (Anticipated)	2000	7479	10174	12867	13188	45708
As on 31-3-84 (Anticipated)	3602	6168	14382	17341	20035	61528

Road Transport

7.4.16. Gujarat State Road Transport Corporation is functioning in the State with the object of providing co-ordinated, economic and efficient passenger road transport services. The passenger road transport services in the State have been fully nationalised. The problem is now of keeping pace with increased traffic demands consequent upon the increased and improved road kilometrage and general improvement in the economy of the State.

7.4.17. During the last eleven years, the Corporation has taken over 261 routes, which were operated by private operators and has completed 100 percent nationalisation in the State, as against nationalisation to the extent of only 40 percent in the Country. The number of routes operated have increased from 1688 in May 1960 to 5504 in May 1971. As a result of the rapid expansion of services, bus services have been provided directly to 61.3 percent of the towns and villages in the State, covering 85.5 percent of the State population. Besides, 21.6 percent of the villages covering 8.5 percent of the State population are provided with bus facilities within a distance of 3 kms. Thus, nearly 83 percent of the towns and villages in the State with a population covering about 94 percent are provided with bus facilities within a distance of 3 kms.

7.4.18. The Corporation gives high priority for extending the network of its services throughout the State, by opening of new routes even in remote areas. At present, the Corporation provides direct services to 11,499 towns and villages in the State. It is proposed to provide direct services to the remaining 7,266 villages during the Perspective Plan period.

7.4.19. The following table shows the expected growth of operations and amenities at the end of the Fifth and Sixth Plans:—

TABLE 27

Item 1	Unit 2	1970-71 3	1973-74 4	1978-79 5	1983-84 6
Divisions	No.	10	12	19	30
Depots	"	85	102	163	263
Schedules	"	3223	4060	6538	10529
Fleet	"	4057	5108	7027	11113
Effective	Kms (in crores)	24.53	31.09	45.82	77.56
Staff employed	No.	27897	35687	57469	92550

(Contd.)

1	2	3	4	5	6
Permanent bus stations	No.	38	50	80	110
Staff quarters.	"	1127	1600	3167	9404
Capital expenditure on fixed assets, at cost (Rs. in crores)	"	31.90	47	93.62	168.

7.4.20. In addition to the programmes narrated above the following are the other measure proposed to be taken up during the Perspective Plan:—

Provide more luxury coaches on important routes.

Provide more facilities to the passengers and especially to tourists.

Provide more repairs and maintenance facilities such as workshops, plants and equipment.

Provide more amenities for employees such as quarters for staff.

Greater attention to training, research and management development.

Provide adequate safety measures.

Provide better telephone and other communications facilities between important traffic centres.

Free movement of goods vehicles at the State check posts.

Ports and Harbours

7.4.21. Gujarat is an important maritime State with long and rich marine traditions. It has 1 major, 11 intermediate and 28 minor ports along the 1600 kilometers of its coastline. The major port of Kandla is administered by the Board of Trustees under the Major Port Trusts Act, while the ports at Daman and Diu are under the administrative control of the Government of Diu, Daman and Goa. The remaining ports are under the administrative control of the State Government. Of these, 11 are termed as intermediate ports and 26 as minor ports. Two of the intermediate ports are direct berthing ports and the rest are lighterage ports. Six are all-weather ports and the remaining seasonal ports.

7.4.22. The development programme of ports covers the improvement of the existing facilities as well as the creation of additional facilities. During the Third Five Year Plan, landing facilities

such as jetties and wharves were constructed. The cargo handling equipment such as cranes were also procured and the lighterage fleet was augmented. During the three Annual Plans, the tempo of progress slowed down, which affected the efficient handling of cargo, though the traffic at the ports increased substantially. Some of the schemes which were taken up in the Second and Third Plans spilled over into the Fourth Plan.

7.4.23. In view of the industrial expansion in the State, the ports such as Porbandar, Dahej, Bhavnagar, Okha will have to be developed on a large scale. The development of Porbandar into an all-weather port has been taken up under the Centrally Sponsored scheme. The development of Dahej is very important in view of the needs of Petro-chemical complex and other industries in this region. The lighterage Port at Dahej is nearing completion. The down stream facilities at Bedi are also in an advanced stage of completion and the dredger is likely to be delivered by the end of 1971-72 at a cost of Rs. 125 lakhs. The work on the break-water at Porbandar is also progressing and it is already completed upto a length of 1000 metres. The third stage work has commenced.

7.4.24. The volume of traffic at the ports increased from 1.60 million tonnes at the beginning of the First Five Year Plan to 3.20 million tonnes by the end of the Third Five Year Plan, showing a rise of 100 percent. The main reason for this growth in traffic was on account of the large volume of imports of foodgrains and fertilizers. The original targets of the volume of traffic of 5.50 million tonnes of cargo by the end of the Fourth Plan period has, however, been scaled down to 3.50 million tonnes of cargo, because of the stoppage of the import of foodgrains and fertilizers, on account of the adequate production in the country. There will be reduction in the import and export of other commodities also. The projections of traffic required to be handled by our ports in the Fifth and Sixth Plans have been made after taking into account these factors. It is estimated that our ports will be required to handle 6 million tonnes of traffic and 7.50 million tonnes of traffic by the end of the Fifth and Sixth Plans, respectively. This takes into account the growth of traffic on account of major industries likely to be established near the ports.

7.4.25. There are prospects of increased industrial activity in the vicinity of the ports of Okha, Porbandar, Salaya, Pipavav, Bedi Bhavnagar and Veraval. New industries likely to be established will

generate a large volume of traffic of both imports of raw materials and exports of manufactured goods. The important industries likely to be established are the fertilizer project near Mithapur, pig iron plant at Bhavnagar, cement plant at Porbandar, increase in the capacity of the Koyali refinery, Cement and Soda-Ash Plant at Pipavav, Petrochemical complex at Baroda, nuclear power plant in Saurashtra, etc. The development Plans are drawn-up keeping in view the expected traffic to be handled at these ports. The details of the programme are:—

- (i) Development of new deep water sheltered ports.
- (ii) Schemes to increase the efficiency of present port working, harbour expansion, electrification of cranes, better transport facilities etc.
- (iii) Mechanical handling of bulk cargo such as salt, bauxite.
- (iv) Navigational aids for night navigation.
- (v) Providing lighters and tug/launches for quick transport of goods between ship and shore.
- (vi) Dredgers and dredging for maintaining water depths.
- (vii) Marine surveys and investigation, model testing, research etc.
- (viii) Modernisation and expansion of port workshops, purchase of modern equipment and appliances, drydock and slipway facilities.
- (ix) Approach roads, railway sidings, water supply and electrification etc.
- (x) Training of personnel.
- (xi) Labour welfare and housing..

7.4.26. Important ports which are proposed to be taken up for development are Navlakhi, Bedi, Salaya, Okha, Porbandar, Veraval, Pipavav, Mahuva, Bhavnagar, Port of Narmada. The development of Salaya as a Deep Water Port is proposed under Central Sector during the Fifth Plan. Similarly, provision has been made for spill over works of Porbandar all-weather port. During the Sixth Plan the

development of port of Pipavav as a Deep Water Port has been proposed under the Central Sector.

7.4.27. The traffic is steadily increasing, imposing additional burden on the existing facilities which are already working beyond their capacities. This situation affects the overall efficiency of the ports. It is, therefore, necessary to provide for additional ancillary works such as renovation, modernisation, replacement of old machinery and equipment.

7.4.28. The following table shows the details of expenditure during the Second, Third, Three Annual Plans and provision for the State sector and Central sector:—

TABLE 28

[Rs. in crores]

Item	Second Plan	Third Plan	Three Annual Plans	Fourth Plan
State Sector	2.47	2.97	1.82	5.00
Central Sector	3.50	1.72	1.36	6.92
Total	6.97	4.69	3.18	11.92

7.4.29. During the Fifth Plan and Sixth Plan, it is proposed to earmark Rs. 10 crores and Rs. 18 crores respectively for the development schemes for Ports and Harbours under the State Sector. Outlay of Rs. 6.50 crores and Rs. 7 crores are proposed for schemes under the Central Sector during the Fifth and Sixth Plans respectively.

Inland Water Ways

7.4.30. Inland water transport is among the cheaper modes of transport. Once occupying a place of prominence in the Indian transport system, it has come to be neglected during the past decades. It is necessary to undertake the development of this system of transport.

7.4.31. In Gujarat, Narmada, Tapi, Mahi, Mindholo, Ambic and Purna offer some scope of navigation near their confluence with the sea and for a considerable distance upstream. There are no canals where navigation is possible. Even rivers where navigation is possible, are silting up rendering them unsuitable for navigation but with the construction of multi-purpose river projects, there are bright chances of improving facilities for inland navigation in our State.

7.4.32. During the First and Second Plan periods, the development of Inland Water Transport was neither considered nor executed. During the Third Five Year Plan period, in accordance with the recommendations of the Gokhale Committee, development schemes were taken up for execution in rivers Tapi and Narmada. The ports of Broach and Surat situated on the banks of Narmada and Tapi respectively have been provided with landing places to connect them with other areas at an estimated cost of Rs. 8.0 lakhs. Narmada is navigable for a distance of 150 Kms. from its mouth. Similarly, Tapi is navigable upto 50 Kms. from its mouth.

7.4.33. In Gujarat, the growth of Industries and Agriculture products is appreciable. Gujarat is also rich in minerals. However, there are certain regions which are under-developed and have no proper and adequate means of communications. The region of South Gujarat on banks of Narmada and Tapi are rich in mineral wealth, agriculture and forest products. It is, therefore, considered necessary to undertake scheme for the development of Inland Water Transport in the next two plans on the basis of the recommendations of the Bhagwati Committee. The Schemes of the Fourth Plan are still not implemented and as such they will spillover into the Fifth Plan. In order to take up the spillover schemes and to undertake new schemes, a total outlay of Rs. 1 crore and Rs. 0.75 crore have been proposed for the Fifth and Sixth Plans respectively. The schemes proposed are for providing facilities for the movement of cargo and passengers from one place to another on the river banks.

7.4.34. The schemes proposed for the Fifth and Sixth Plans are given in the following table:—

TABLE 29

Sr. No.	Name of scheme.	(Rs. in lakhs)	
		Outlays during 1974-84.	
		Fifth Plan.	Sixth Plan.
	Landing facilities at various places on rivers Narmada. Tapi and Purna (spillover schemes) ..	6.00	..
	Purchase of Dredging equipment (spillover scheme) ..	60.00	5.00
	Hydrographic Survey (Spillover scheme) ..	2.00	..
	Development of Ferry service between Dahej and Gogha (Spill-over Scheme) ..	12.00	2.00
	Purchase of Flotilla craft: ..	15.00	63.00
	Inland Water Transport Cell ..	5.00	5.00
	Total	100.00	75.00

Tourism and the Development of Places of Archaeological Importance

7.4.35. Gujarat has a number of places which, if properly developed can attract tourists from other States in India as well as from abroad. Places associated with national leaders such as Mahatma Gandhi would attract students of modern history. Lothal would interest students of archaeology and ancient history. Places such as Palitana, Modhera and Shamlaji may be visited both by religious pilgrims as well as by those interested in art, history and archaeology. The only surviving habitat of the Asiatic Lion at Sasan Gir is a rare attraction and so is the bird sanctuary at Nalsarowar. A number of places such as Dwarka, Somnath, Ambaji, Mira Datar, Udwarda and Gadhada could be further developed for pilgrims as well as for tourists. In addition to all these, there are the dam sites and the reservoirs, the long sea coast, the Jungles of the Dangs and other places which can serve as hill stations, holiday homes, picnic spots, or health resorts. There is a good deal of scope for the development of all these and other places, some of which can be of international importance with enough potential to earn foreign exchange.

7.4.36. The first two plans had practically no tourist schemes as such for Gujarat region, which formed a part of the former State of Bombay. In the Third Plan, a few schemes were included which formed a base for development of tourists activities in the State. The Schemes to promote Tourism in Third Five Year Plan were divided into three parts. Schemes contained in Part I were entirely financed by the Central Government. Generally, such schemes were of all India importance and likely to earn foreign exchange. In Part II, the schemes were on cost sharing basis *i.e.* on 50 : 50 to be shared between State Government and Government of India. Part III schemes were fully financed by the State Government and were of importance mostly for Home Tourists. During Third Five Year Plan, under Part I Schemes, a sum of Rs. 1.88 lakhs was spent for providing transport facilities for tourists visiting Keshod and Sasan Gir-Lion Sanctuary, improvement of Sasan Forest Bungalow and water supply at Lothal. In Part II schemes, the total sum of Rs. 4.34 lakhs was spent for the construction of canteen-*cum*-retiring rooms at Lothal and Porbandar, improvement of a holiday home at Chorwad and cafeteria at the Nalsarowar bird sanctuary. In Part III schemes, a sum of Rs. 7.85 lakhs was spent for development, improvement and addition of facilities at Lothal and Porbandar such as canteen-*cum*-retiring rooms, water supply, etc. development of Ahmedabad complex by

planning a tourist bungalow and Sound and Light project at Sabarmati Ashram, development of Nalsarowar bird sanctuary by providing more accommodation, canteen facilities and additional boats, picnic spots such as Unai and Kanelao were also developed. Facilities at existing holiday homes were added by providing refrigerators, and other amenities.

7.4.37. By the end of the Fourth Five Year Plan, a sum of Rs. 50 lakhs will be spent for implementing 16 tourism schemes. The major achievements will be the completion of the Tourist Bungalow, at Ahmedabad, Veraval and Sasan, Holiday homes at Hajira, dormitories at Dwarka, Tulsishyam, Picnic Spots such as Galteshwar, Balaram, and Lasundra, the sound and light project at Sabarmati Ashram, and the development of Saputara Hill Station. The survey for new places for tourist attraction and the development of dam sites such as Nava-gam, Ukai, Shamlaji etc., will also be completed.

7.4.38. The Perspective Plan for tourism covers international as well as domestic tourists. It also envisages the integration of home and foreign tourism.

7.4.39. There is great scope for home tourism in Gujarat not only because it is based on sound and centuries old pilgrim traditions but also because an increasing number of Gujaratis who have settled all over the world come to Gujarat on a regular basis. A well developed infrastructure for all these tourists, whether they are returning Gujaratis or low income pilgrims, will be of value in giving a spurt to foreign tourist traffic also. In their need for a basic infrastructure, the two are to be closely integrated.

7.4.40. During the plan decade, since Gujarat cannot hope to become a centre of *destinational* foreign tourism, its promotional strategy should concentrate on *side-trip* or transit tourism by those who have come or plan to come to New Delhi (for Agra, Udaipur, Jaipur, Banaras, Katmandu etc.) or Bombay (for Goa, Ellora, Ajanta, etc.). Later in the decade, with its infrastructure sufficiently developed, Gujarat can make a bid for one of the PATA workshops to be held at one of its prime tourist spots such as the Gir sanctuary. With this, it can bag worldwide publicity.

7.4.41. For promotional efforts internationally, a sufficient provision is necessary for publicity literature of the highest international standard and advertising abroad. State participation by deputing

officers to international conventions and conferences of travel agents and tourist associations and arranging cultural programmes at such places are of great educative value, and through such contacts local officers can become aware of standards now required by international tourists and tour promoters abroad. Promotional efforts should also be made in the domestic field within the country by maintaining constant touch with all interested in development of tourism.

7.4.42. Even for transit tourism, a book or a film with a Gujarati locale such as say Somnath or Patan or Champaner could do more for Gujarat than all the promotional efforts put together. It should be possible to commission two or three such books. One may be a success.

7.4.43. Tourist Information Centres should be opened at almost all the airports and important centres. Efficient guide service for attending to tourist, as well as training of guides, etc. is also necessary.

7.4.44. For developing a sound infra-structure the cooperation of the public is of great importance. The right attitudes will not be there if the public does not understand why tourism is important for India as also for Gujarat and why tourists should be welcome.

7.4.45. Encouragement for development of hotel industry, and transport facilities provision for entertainment programmes especially for foreign tourists, should also be provided.

7.4.46. The Perspective Plan envisages the augmentation of tourist facilities and the development of places of archaeological importance. Several places of tourist importance situated in Gujarat State attract sizeable tourist traffic even now. It is desirable that without spreading the expenditure of scarce resources too thinly, these and other places should be further developed by providing hotels, motels, transport facilities, etc. To satisfy the recreational needs of the growing population, more holiday homes need to be provided and the existing ones modernised and improved.

7.4.47. A Tourist Corporation is also proposed to be setup, so that this important activity can be expanded in the most efficient manner. A bold and imaginative approach to this sector will have a significant impact on earning foreign exchange besides providing local employment and furthering integration.

7.4.48. An outlay of Rs. 4 crores for tourism and development of places of archaeological importance is proposed for the period of

pective Plan. Depending on the availability of additional funds, supplementary outlay of Rs. 1 crore is also envisaged in the respective Plan period.

7.4.49. For the development of places of archaeological importance, it is necessary to provide approach roads, directional and other signs and fencing of the required strength as well as other security arrangements so that the surroundings of the monuments and the trees, shrubs, gardens, etc. around them are secured. Trained English speaking guides at some of the important monuments visited by foreign tourists will also be required. A fresh survey of all such places in Gujarat is necessary so that this work can be completed during the Fifth Plan, before the monuments deteriorate further due to the elements and the attentions of souvenir hunters.

7.4.50. The physical programmes envisaged during the Perspective Plan are briefly itemised below:—

- (i) Establish Gujarat Tourist Corporation.
- (ii) Develop Sasan complex.
- (iii) Develop Ahmedabad complex.
- (iv) Ropeway and tourist bungalow at Palitana.
- (v) Tourist bungalow, Canteen etc. at Dwarka.
- (vi) Dormitories, etc. at Modhera.
- (vii) Develop Shamlaji.
- (viii) Develop picnic spots, dharmashalas, new holiday homes, etc.
- (ix) Ropeway at Girnar, Pawagadh, etc.
- (x) Facilities for coastal conducted tours.
- (xi) Develop hotels and motels.
- (xii) Develop Malsamot in Broach district or any other suitable location as a hill station.
- (xiii) Tourist offices at Jaipur, Calcutta etc.
- (xiv) Urgent attention to development of places of archaeological importance and expansion of Directorate of Archaeology.
- (xv) Immediate steps for the protection and preservation of Wildlife.

Telecommunications

7.4.51. Telecommunications, Railways and Civil Aviation are central subjects. The future plans for these facilities will, therefore be a matter for the Government of India. However, since the State Government is interested in the development of these vital needs, it has been making suggestions to the Government of India for its consideration.

7.4.52. Gujarat occupies a prominent place on the industrial map of India. An efficient telecommunication service is a primary necessity for economic development and particularly for the development of industries and commerce. The following measures are, therefore suggested:—

(i) *Modernising and increasing installed capacities of local exchanges in important cities.*—In Gujarat, telephone facilities are woefully inadequate. The installed capacities of the telephone exchanges in many cities have been fully utilised and the demand for telephone connections is increasing. In Ahmedabad City alone, the telephone waiting list in January 1972 was 24,500. About 7,500 applications for small industries are pending. The outmoded equipments at Ahmedabad and other cities require to be modernised to meet the demands of a developing society for speedy communication facilities. Small sized cables reducing overhead alignments and intensive patrolling as well as improved repairs are required in greater measure. To keep pace with the rapid rise in industrial development in Gujarat during the period of Perspective Plan, it is necessary that the Telephone Department strives hard to ensure the strengthening of the existing exchanges, opening new exchanges, procuring sufficient stores etc. An industry with Rs. 10 lakhs investment would need three telephone connections. On this basis, Gujarat would need 23,000 telephones during the Fifth Plan over and above the present backlog of 7500 telephones and 32,000 telephones during the Sixth Plan for small scale industries, over and above the requirements of large scale industries.

(ii) *Linking Ahmedabad with other cities in India and providing STD Services linking important cities in the State with others cities.*—(a) Ahmedabad has at present, point to point subscriber trunk Dialling facilities to Delhi, Rajkot, Bombay, Poona and Surat via Trunk Automatic Exchange at Bombay. The installation of the Ahmedabad Baroda point to point STD has also been completed recently.

(b) Ahmedabad is fast developing and quick communication facilities connecting other important cities of the State as well as of the country are of paramount importance. The present availability of circuits between Ahmedabad and Delhi is limited because the capacity of the Coaxial cable is more or less exhausted. In order to augment the capacity in regard to highgrade circuits between Delhi-Ahmedabad and Ahmedabad-Bombay, a microwave scheme has been proposed to link Delhi-Ahmedabad-Bombay. This work is in progress and with the installation of this link, a number of stable circuits will be available and it will be possible to connect Ahmedabad to various important cities in India *via* micro wave.

(c) Ahmedabad is not connected on STD lines with other District Headquarters except Surat, Rajkot and Baroda. It is necessary to provide STD service connecting Ahmedabad with all District Headquarters and also to provide such facility for connecting District Headquarters with one another.

(d) A direct STD facility between Ahmedabad and Gandhinagar is also required on a very high priority.

(iii) *Telephones required for Gujarat Industrial Development Corporation areas/estates.*—In addition to general expansion programme of telephone facilities, special telephone facilities are required for Gujarat Industrial Development Corporation areas and estates.

7.4.53. The following table gives details of the additional requirement of telephones for Fifth and Sixth Plans for engineering and other industries for different regions of the State.

TABLE 30

Engineering Industry :— Petrochemical, Chemical and Non-engineering Industry.

Name of Area	Telephones required		Total
	Engineering Industry	Petrochemicals, Chemicals and Non-engineering Industry	
<i>Fifth Plan -</i>			
Ahmedabad Area. ..	457	187	644
Baroda Area ..	290	748	1038
South Gujarat Area ..	350	285	635
Saurashtra Area ..	470	308	778
Total for the State of Gujarat	1567	1528	3095 (@.@)

(Contd.)

Name of Area	Telephones required		Total
	Engineering Industry.	Petrochemicals, Chemicals and Non-Engineering Industry.	
<i>Sixth Plan :—</i>			
Ahmedabad Area	553	216	769
Baroda Area	450	1087	1537
South Gujarat Area ..	549	350	899
Saurashtra Area ..	531	349	880
Total for the State of Gujarat.	2083	2002	4085

@@Telephone requirements for small Industries will be in addition to the figures.

Telex and Tele-printers Services

7.4.54. Adequate telex and teleprinting services should be provided at important cities in the State for meeting the needs of growing industrial and commercial activities.

Railways

7.4.55. The following Railway lines are proposed in the order of priority for being taken up during the Perspective Plan period

- 1 Ahmedabad-Gandhinagar Broad Gauge line (New)
- 2 Bhavnagar-Tarapur Broad Gauge line (New)
- 3 Gandhidham-Lakhpur Broad Gauge line (New)
- 4 Mahuva-Talaja-Bhavnagar Conversion from Narrow Gauge
Metre Gauge.
- 5 Ankleshwar-Rajpipla Conversion from Narrow Gauge
Broad Gauge.
- 6 Ahmedabad-Delhi Conversion from Metre Gauge
Broad Gauge.
- 7 Udhna-Magdalla Broad Gauge (New).

7.4.56. A phased programme for conversion of narrow gauge lines in the State into Broad Gauge as also improvement of marshalling yards to cope with the increasing traffic have also been proposed.

Aviation

7.4.57. In Gujarat there are at present nine airports, out of which one Major airport is at Ahmedabad and the remaining eight intermediate airports are at Baroda, Bhavnagar, Bhuj, Kandla, Keshod, Porbandar, Rajkot and Jamnagar. The airport at Jamnagar is under the Indian Air Force. In addition to these, there are twelve airstrips at Amreli, Dhrangadhra, Surat, Khavda, Limidi, Mehsana, Morvi, Parsoli, Radhanpur, Rajpipla, Wadhwan, Wankaner. One airstrip belonging to Tata Chemicals is at Mithapur in Jamnagar district. It is necessary to take up the programme of lengthening and strengthening of the existing runways of almost all airports in the State so as to develop airtravelling facilities in the State and to attract tourist traffic.

7.4.58. The programmes during the period of Perspective Plan relate to the modernisation of the marginal airport of Keshod or its alternate Veraval, improvement of Ahmedabad airport and the provision of a new Terminal complex. developments of the airport at Diu, development of Surat as a fullfledged airport and connecting some airports in Gujarat with airports in the neighbouring States, such as Rajasthan, Madhya Pradesh and Maharashtra. The State's Perspective Plan includes provision for the improvement of State owned airstrips and providing new airstrips at all District headquarters, near places of tourist importance, major project sites etc. To these airstrips, small aircraft, the purchase of which has been proposed in the Plan, can operate on a regular basis serving the needs of the administrator as well as of tourism apart from providing standby services during calamities such as floods, earthquakes etc. The airstrips and aircraft will also be of use in the massive plant protection drive in which agroaviation will play an increasingly important part in the future. The appointment of an Honorary Aviation Adviser to the Government of Gujarat is contemplated in the Perspective Plan. Financial assistance to flying and gliding clubs is also envisaged.

5. EDUCATION AND MANPOWER PLANNING

Planning is a process of knitting patterns of programmes round a central thread of objectives. The Educational Planning has to be viewed as an integral part of overall developmental planning. The development in terms of economic growth is largely a result of human efforts and depends in its ultimate analysis on the determination to develop and efficiently utilise the innate capabilities of the people. Formation of a human capital is a function of the educational system. The country's educational system is, therefore, a critical factor in economic development and an important ingredient of a manpower programme. It is the role of education to train the manpower according to needs so that right type of persons, for right type of jobs are made available at the right moment for balanced and uninterrupted development. Educational reconstruction is necessary to raise the vocational competence, civic effectiveness and cultural levels of the people as a whole. This can be done through the programmes of adult education, universal free and compulsory school education at primary stage, a programme of higher education to cover all who desire and deserve it, adequate opportunities for the talented children to grow in full and the development of research. Economic development implies diversification and reconstruction of the labour force with its consequent impact upon the educational and skill requirements of the working force.

Education

7.5.2. The educational policy for a few decades to come may be based on socio-economic and personal objectives. Amongst Socio-Economic objectives stress may be laid on:—

- (i) Modernisation and social change
- (ii) Development of science and technology
- (iii) Agriculture and industrial growth
- (iv) Overall economic efficiency
- (v) Vocationalisation and
- (vi) National integration and international understanding.

7.5.3. In the context of personal objectives, emphasis may be laid on:—

- (i) Achieving vocational fitness
- (ii) Consciousness of civic duty

- (iii) Development of democratic values
- (iv) Development of ethico-cultural values
- (v) Pursuit of excellence in subject areas and
- (vi) Development of vital personality.

7.5.4. With a view to developing human resources, and creating conditions of equal opportunities for all, it is necessary to devise effective and speedy means of expanding facilities for education at all levels. The progress achieved by Gujarat State in the field of education is impressive. The literacy rate has gone up from 21.7 percent in 1951 to 35.7 percent in 1971 and State ranks fourth amongst the States in India, the first three States being Kerala, Tamil Nadu and Maharashtra. Gujarat which ranked third in 1961, now occupies the fourth place, while Maharashtra which ranked fourth in 1961 has moved up to the third rank. In the literacy of females, Gujarat occupies the fifth rank yielding place to Punjab which occupies the fourth rank. These aspects will have to be given due consideration while planning for education.

7.5.5. The following table gives the break-up of financial outlays, for various categories of schemes under "education" for the Fourth, Fifth and Sixth Plans.

TABLE 31

(Rs. in crores)

Sr. No.	Group of Schemes	Fourth Plan Outlay	Fifth Plan Outlay	Sixth Plan Outlay
1.	Elementary Education	8.51	40.00	43.84
2.	Secondary Education	6.32	17.00	23.86
3.	University Education	3.90	6.50	9.75
4.	Teachers' Training	0.86	0.90	1.25
5.	Social Education	0.15	0.30	3.60
6.	Technical Education	2.56	5.00	10.00
7.	Other educational programmes (including cultural programmes)	6.30	6.30	22.70
	Total	28.00	76.00	115.00

7.5.6. In addition to this, supplementary outlay of the order of Rs. 20 crores is envisaged for the Fifth Plan and Rs. 23.5 crores for the Sixth Plan, subject to availability of the additional funds.

7.5.7. Gujarat is ahead of all-India average in enrolment as can be seen from the following table:—

TABLE 32

Estimated percentage of enrolment by the end of 1968-69 to the estimated population in respective age-groups.

Classes	All India			Gujarat		
	Boys	Girls	Total	Boys	Girls	Total.
I-V	95	59	77	102	64	83
VI-VIII	45	19	32	50	28	40
IX-XI	29	10	19	32	17	25

(Source : Country's Fourth Five Year Plan p. 375-78)

7.5.8. Though the progress achieved is satisfactory, much still remains to be done in this field. There is a wide disparity between the enrolment of boys and girls at all stages of education. It is necessary to bridge this gap as early as possible. It is expected that the introduction of free Secondary education for girls will help to bridge the gap to a considerable extent.

Primary Education

7.5.9. The facilities for primary education have been provided to 98 percent of the population in the habitation or within one mile from it, as early as in 1965. The programme of universalising facilities is, therefore, almost completed in Gujarat. The main problem in primary schools is the low enrolment of girls and adivasi children. The Perspective Plan for the decade 1974-84 aims to provide free and universal education to all children upto the age of 14.

Secondary Education

7.5.10. The expansion of education facilities at the secondary stage would involve establishment of new secondary schools, planning

of enrolment and training of teachers. For establishment of Secondary Schools, the recommendation of Kothari Commission regarding optimum-sized institutions which tend to be more economical and efficient, need to be considered. So far as enrolment is concerned, it should be governed broadly by the needs for trained manpower. In order to make the education more purposeful and 'Work oriented' a well planned programme of work experience and vocationalisation needs to be stressed. The programme of craft oriented and vocational education is going on in basic and multipurpose schools in the State. Most of the multipurpose schools are single stream and in a few cases more than one multipurpose stream is taught in one and the same school. Out of 2074 secondary schools in the State, 206 schools provide craft oriented and/or vocational education. The break up of such schools is as under:—

TABLE 33

Description of Schools	Number			
1	2			
1. Schools teaching Home Science	..	..	..	27
2. Schools teaching--Agriculture	..	..	..	36
3. Schools teaching--Commerce	..	..	..	54
4. Schools teaching--Fine Arts	..	..	..	19
5. Schools teaching--Technical subjects (through common workshop).	..	..	..	47
6. Schools teaching--Technical subjects (workshop attached to school.)	..		..	—

7.5.11. In order to evolve specific programmes and courses in vocational subjects, the State Government had appointed a committee which has given its report. The recommendations of the Committee are under the consideration of State Government. A pilot project for action programme on "work experience" and vocationalisation has been launched in Baroda District. The pilot scheme is intended as action research programme, the results of which will be evaluated. For effective use of available material and human resources of the State, schemes of work experience and vocationalisation will have to be given high priority in the Perspective Plan. Emphasis will also have to be laid on the proper development of education in Fine Arts, in Drama and Music.

7.5.12. The enrolment during the Perspective Plan period on the basis of normal rise, is estimated to be as under:—

TABLE 34

(figures in lakhs)

Classes			At the end of Fourth Plan.	At the end of Fifth Plan.	At the end of Sixth Plan.
I-V	..	..	.. 35.20	41.00	49.98
VI-VIII	..	..	.. 8.97	16.97	21.98
IX-XI	..	..	.. 4.90	5.08	7.58
Total enrolment			.. 49.07	63.05	79.54

7.5.13. The programme for elementary and secondary education will have to take care of additional enrolment of 13.98 lakhs during the Fifth Plan period and of 16.49 lakhs during the Sixth Plan period

7.5.14. The major programmes to be undertaken in the field of primary and secondary education during the Perspective Plan period will be:—

(1) Providing facilities for free and universal education upto the age of 14.

(2) Introduction of work experience and vocationalisation of education at school stage.

(3) Improvement of physical facilities in educational institutions.

(4) Adoption of improved methods of teaching and evaluation.

(5) Revision and upgrading of curricula.

(6) Improvement of science teaching at school stage.

(7) Training of teachers.

(8) Improvement of physical education, games and sports.

University Education

7.5.15. University education is a powerful instrument of Social, Economic and Political change. The Universities should be an important functionary of the welfare activities and in building up an egalitarian society based on democratic principles. One of their chief function is to provide the nation with leaders in all walks of life-political administration, the professions-commerce and industry and to train scientists and technologists who can help the country to exploit its natural resources for increasing its material wealth.

7.5.16. There has been considerable expansion in the number of colleges and the students entering the colleges and Universities in undergraduate and post graduate studies. There is also expansion of professional education in engineering, medicine, agriculture, pharmacy etc. The arts and commerce colleges have sprung up in large number and in mofussil areas also. The expansion has resulted in deterioration of standards. The Arts Colleges have served to produce graduates who have preference for white collared jobs only and such jobs are limited. Expansion in higher education unrelated to employment opportunities, leads to unemployment, waste and frustration.

7.5.17. The trend of unplanned expansion in higher education needs to be checked and a definite enrolment policy adopted. The State Government has already decided not to give grants to Arts and Commerce Colleges, except in backward talukas. A system of selective admission seems inescapable and needs to be examined in details. The admissions may be regulated keeping in view manpower needs of the economy, with due regard to the natural talents of the students, their achievements at earlier stage and principles of social justice. The introduction of vocationalisation and other measures for improving the structure at the secondary education levels during the Perspective Plan period, will help the universities in reducing the wasteful expansion in higher education.

Adult and continuing education

7.5.18. Education is a life long process. The new strategy of education has, therefore, to cover:—

- (1) Basic minimum education including literacy
- (2) Professional refresher education and
- (3) Cultural valuation education.

7.5.19. Adult literacy programme is carried on, at present through the State Social Education Committee in collaboration with the Panchayats. This Programme will have to be continued in the Perspective Plan period. The State Government have initiated training programmes to up date the skill of various groups of adults. The various activities of the State Government to mitigate the acuteness of the problem of unemployment among educated youths need to be mentioned. The objectives and salient features of the training programmes are as under :—

(i) The programmes are designed to cover the full spectrum of the educated unemployment from graduates in Arts, Science, Agriculture, Commerce and Engineering upto S. S. Cs. and Non-S. S. Cs. (upto IX standard Pass);

(ii) On-the-job training is the built-in-provision in the course-structure. This will make the trainees exposed to real work-environments;

(iii) About 60 percent of the training period is assigned to the on-the-job training;

(iv) The programme will offer opportunity to employers for selecting promising and capable trainees to work in their establishments;

(v) The practical training in real work-situations will create confidence in the trainees and will enable them to face the responsibility of their assignments;

(vi) Class-room instruction is designed as an essential backing-up component of the total programme which is well integrated;

(vii) Some of the programmes are craftsmanship oriented and work-experience-based. They are also designed to provide opportunities for self-employment;

(viii) Some of the programmes provide for continuing of education for those who want to enrich their knowledge by drawing upon new techniques and new environmental forces.

(ix) The programmes are aimed at promoting employment potential of the participants.

7.5.20. The short-term career development programmes started under educated unemployment scheme need to be reviewed to meet the specific requirements of the economy for immediate and long-term needs of trained manpower.

Teachers' Training

7.5.21. As a part of quality improvement programme, stress should be laid on teachers' training. During the Perspective Plan period 1974-84, it is estimated that more than 15,000 teachers will be required to be trained and refresher courses and in-service programme will have to be arranged. The State Government has constituted a State Board of Teacher Education. The Board will undertake several activities for inservice training programmes for the teachers and funds will be available from the National Council of Education, Research and Training, for the purpose.

Technical Education

7.5.22. Technical Education has an important role to play in achieving rapid industrialisation and in economic development in general. In this field, Gujarat has made rapid progress during the two decades of Planning. The progress of training facilities available in Engineering Colleges and Polytechnics in the State is given below :—

TABLE 35

Item	Year		
	1950-51	1960-61	1973-74
1	2	3	4
<i>I. Degree Courses.</i>			
Engineering Colleges			
No. of Institutions.	3	4	7
Intake ..	300	950	1790 (including part time)
<i>II Diploma Courses.</i>			
No. of Institutions (excluding girls' polytechnics)	6	11	16
Intake ..	455	1475	3075 (including part time)
<i>III Craftsman Training.</i>			
No. of Institutions	..	9	18
Intake ..	..	1432	5900

7.5.23. Adequate capacity has been created in the State degree and diploma level. With the discovery of oil, the State entered into the new field of refinery and petro-chemicals. The next few years will witness rapid industrial development of the State which will need diversification of technical education courses. This will necessitate training of technical personnel in various disciplines. The technical institutions will have to cater to new areas of studies such as nuclear engineering, technology of petro-chemicals, plastic technology, technology of fertilizers, electronics and telecommunications, computer technology, television engineering, agricultural engineering etc. Another aspect that will need emphasis in the Perspective Plan is the quality of higher technical education.

Manpower Planning

7.5.24. The processes and methods by which manpower is developed, utilised and distributed are numerous and complex. Manpower planning is the process of developing and determining objectives, policies and programmes that will develop, utilise and distribute manpower so as to achieve economic and other goals. The effective use of the manpower is an important pre-requisite of successful industrial development of the country. Human resources constitute a valuable asset for the development of the country and their optimum utilisation is one of the main objectives of the Planning. The Manpower planning is, therefore, a very important aspect of planning. Manpower, particularly high-talent manpower, is the key resource required for economic development.

7.5.25. Material, equipment, power and money resources can be effectively used only if there is manpower capable of processing them into goods and services. Of these resources, the manpower resource requires the longest time for its development on desired lines. For the rapid economic development, the State should plan for development of its manpower resources as an integral part of the planning for the development of other resources. The availability of the requisite manpower resources in appropriate balance with the other physical inputs, would determine the extent to which the goal adopted could be achieved. The State Government has, therefore, to ensure an adequate supply of professional and technical manpower for its economic development. A proper assessment of requirements and the resources of the trained personnel and the prompt steps to ensure the availability of personnel with the needed experience and

skill in requisite number and at the right time in any sector of development is essential for the fast growing and changing pattern of employment.

7.5.26. The State Government has been considering various measures to link the educational programmes with the future trends of the economy, so that adequate stock of properly trained personnel become available during the Perspective Plan period 1974-84. As education and training of technical and professional personnel take a considerable time, appropriate machinery for advance planning of manpower, is necessary. A Directorate of Employment, Manpower and Training has been recently set up, with a view to integrate the aspect of employment and training and to conduct the manpower studies in different segments of economy. The Manpower planning aims at ensuring not only the adequate availability of trained personnel, but also the proper deployment of surplus personnel in gainful occupations.

7.5.27. At All-India level, the Institute of Applied Manpower Research has been set up during the Third Plan for conducting research on manpower problems. The Directorate of Manpower, in the Ministry of Home Affairs, which also functions as a Manpower Division of the Planning Commission, co-ordinates the manpower aspects at All-India level and provides guidance to the State Governments. In Gujarat, a small co-ordinating Cell in the Planning Section of the General Administration Department at the Secretariat level assists the Institute of Applied Manpower Research, the Directorate of Manpower and other agencies of Government of India in collection of data in respect of their studies and surveys from the State and provides liaison between various departments of the State Government.

7.5.28. A general resume of the manpower situation as obtaining in the State in respect of agriculture and allied personnel, engineering and health services is presented in the subsequent paragraphs.

Agriculture and allied personnel

7.5.29. The Department of Agriculture requires personnel with the post-graduate qualifications in agriculture for the schemes of Research and Education. For extension and other activities, generally agriculture graduates are required. At the field level, the personnel with diploma in agriculture are recruited to work as village level workers and agricultural assistants.

7.5.30. Shortages of agricultural and veterinary personnel in higher cadres requiring post-graduate and doctorate qualifications for manning the various research and training programmes are experienced in the State. The out-turn of post graduates from the existing institutions is likely to be short of requirements. Besides, the personnel already in position are required to be trained in specialised subjects of entomology, plant pathology, botany, horticulture, agricultural engineering etc. In order to achieve the objectives of rapid agricultural research, development of proper agricultural education and improving agricultural extension work, co-ordinated and integrated approach is necessary. This will be achieved by an institutional structure such as Agricultural University proposed to be set up in the Fourth Plan. Agricultural education system has to be modernised keeping in view the increasing demand for persons with specialised training for manning the programmes of research, education etc. The educational institutions should evolve specific syllabi for different categories of personnel such as research, extension and vocational training in agriculture.

7.5.31. In Gujarat State, three agricultural colleges with an intake capacity of 450 seats are functioning. It is estimated that sufficient number of agricultural graduates would be available for manning the programmes. All-India studies indicate the surplus of agricultural graduates and has suggested measures for proper deployment of personnel in gainful occupations. The State Government is alive to the problem of surpluses and have decided to accord priority to agricultural graduates in the allotment of Government waste land for undertaking farming and encouraging agricultural graduates for gainful self-employment. The State Government and the State Bank of India have also formulated "Farm Graduate Scheme" for promoting self-employment among agricultural graduates.

7.5.32. For evolving agricultural manpower policy on scientific basis, the State Government is conducting agriculture manpower survey in collaboration with the Institute of Applied Manpower Research (IAMR) to ascertain the quantitative and qualitative characteristics of the existing personnel, pattern and utilisation of agricultural personnel and the factors that would contribute towards ensuring the optimum utilisation of such personnel in the fields of agriculture development, research and education. The results of this survey would provide guide-lines for future manpower planning in the sphere of agriculture.

Veterinary and Dairying Services

7.5.33. Veterinary graduates, and Dairy technologists are important categories of technical personnel required for the implementation of the development programmes of the Animal Husbandry and Dairying. Prior to the starting of Veterinary college in the Third Plan, the State was completely dependent on the availability of personnel from the Veterinary colleges of other States. In order to create training facilities in the State, a veterinary college was started

Anand in June, 1964. The first batch of the successful candidates was out in 1968. The research programmes are necessary for improving the various veterinary and live stock services. The Perspective Plan envisages to equip the veterinary college for post graduate training in different subjects.

7.5.34. The importance of establishing a well organised dairy industry is recognised and the well knit programmes are proposed for the Perspective Plan period 1974-84. The trained technical manpower is required for manning the technical posts in milk dairies and for implementing dairying and milk supply schemes of the department. To meet the requirement of dairy personnel on a long-term basis, one dairy science college at Anand was started in 1961-62. The College provides facility for degree and diploma courses in dairy technology. During the Perspective Plan period, it is proposed to strengthen the existing courses and to introduce post graduate courses. A Technicians' Training Centre will be set up at Mehsana for ensuring continued supply of the required number of technicians for the dairy plants in the State.

Forest Services

7.5.35. Gujarat has only 9 percent area under forest which needs to be increased. The aim in the Perspective Plan is to raise this to 12 percent. For achieving this target, proper scientific management is essential. Research programmes need to be strengthened for development of good forests. The personnel for the superior forest services are trained at the Indian Forest College, Dehradun. For the lower cadre posts of Range Forest Officers, Forestors and Forest Guards' training facilities are provided in the Forest Rangers' Training College, Forestors' Training Class and Forest Guards' Training School in the State.

Fisheries

7.5.36. For effective and efficient handling of Fisheries Project trained personnel is a basic necessity. Looking to the need of number of trained personnel required for efficient handling mechanised crafts and trawlers, it would be necessary to have separate unit of Central Institute of Fisheries Organisation (CIFO) the basis of Ernakulam unit established in Gujarat where instruction in training in the regional language can be imparted.

Engineering Personnel

7.5.37. Engineering personnel have an important role to play the process of achieving rapid industrialisation and economic development in general. They play a useful role also in the defence organisations. The State Government departments and Semi-Government organisations employ civil, mechanical and electrical engineers. The requirements of the engineering personnel depend on the investment pattern and on the development of technology. The number engineering colleges has increased from 3 in 1950-51 to 7 when the intake has increased from 300 to 1790 (including part time). Similarly, the number of polytechnics has increased from 6 to with the increase in intake capacity from 455 to 3075 (including time). Varied courses in new branches of engineering have been started during the last few years to meet the demand of industries. Though the requirements of personnel in the State Government departments and Semi-Government Agencies are limited the overall situation would need to be under constant review in relation to the Perspective of development in industrial, scientific and technological spheres of the economy. Temporary set back in growth rate of the economy, created a problem of underutilisation of available engineering personnel. However now, that the economy shows perceptible signs of improvement, it is expected to provide opportunities for gainful utilisation of engineering personnel. Adequate number of institutions have been established during the period planned development.

7.5.38. The demand for technical personnel in petro-chemical industries is expected to increase. For meeting the requirements, training of middle level technicians has been envisaged under M. S. University Technicians' Training programmes under U.S.S. aid. The facilities for imparting technical training courses in chemical technology and engineering are organised at Nadiad. With

expansion of heavy industrial activities and the development of petrochemical complex, the modern technology needs to be developed with local talents. There is need for an institution like Indian Institute of Technology (I.I.T.) to be set up in Gujarat State.

7.5.39. The recent past has shown that the out-turn of the engineering graduates and diploma holders from the existing training facilities has gone beyond the absorbing capacity of the State Government departments and the investment envisaged in the private sector. This has created the problem of unemployment among engineering personnel, both for degree and diploma holders. The problem of unemployed engineers/technicians has been engaging the attention of

Government. Several measures have been adopted by the State Government, so as to relieve the situation. In addition to the measures adopted by the State Government, various Corporations and Statutory Boards of the State have come forward with their schemes for providing gainful self-employment to the unemployed engineers. The Central Government have also evolved the schemes such as Practical Training Stipendiary Scheme, Apprenticeship Training Programme, etc. to equip unemployed engineers with needed practical experience for their placement. The important measures are summarised below :—

(i) Enrolment of engineering graduates and diploma holders as registered contractors in C. and D classes respectively, at any time during the year, even if they do not possess past actual experience.

(ii) Registered contractors are required to employ on their staff, qualified engineers in specified number. The fresh enrolment, promotion in the higher category of contractor-ship and the renewal of contractor-ship is subject to the fulfilment of these requirements.

(iii) Building up capabilities of educated unemployed through intensive short-term job-oriented training programmes which can bring quick results. One of these schemes is for the unemployed graduates and diploma-holders in civil engineering to be taken up as apprentices by A, B and C class contractors on a fixed stipend for a period of one year. Also an *ad-hoc* training programme for specialised training in industrial engineering and management is contemplated.

(iv) The Gujarat Electricity Board is arranging the training of engineering graduates and diploma holders who have come through the practical training stipendiary scheme of the Central Government. The training is for 12 months in different fields of activities of the Board. The Board has also evolved a scheme granting registration to electrical engineers as contractors for rural electrification.

(v) The State Government grants financial assistance up to Rs. 10,000/- to unemployed engineers and technicians on personal security and on easy terms for starting a small scale industry. The Gujarat Industrial Development Corporation provides factory sheds while machinery and equipment are provided on hire purchase basis by the Gujarat Small Industries Corporation without collateral security or third party guarantee.

(vi) The Gujarat Industrial Investment Corporation jointly with the Gujarat Industrial Development Corporation and the Gujarat State Financial Corporation has evolved a scheme for helping entrepreneurs by providing them necessary training in all aspects of factory management to enable them to make a success of their new venture.

(vii) The Gujarat Industrial Investment Corporation and the Gujarat Industrial Development Corporation is implementing the "Technicians' Scheme" under which assistance is offered to any person who may be a qualified engineer or technician with or without experience and who is competent to own and manage a factory. Also persons without any academic qualification but who possess skill are eligible for assistance under this scheme.

(viii) For special scheme involving higher technical skill and large investments, the Investment Corporation gives assistance when a project is found technically sound after thorough scrutiny by the Corporation and the technicians and engineers have considerable technical experience, skill and knowledge. The entrepreneurs assisted under this scheme would be expected to employ one or more fresh engineers/technicians.

(ix) The Gujarat Industrial Development Corporation gives on hire-purchase basis to selected technicians, factory sheds within built up area.

(x) The Gujarat Industrial Investment Corporation in collaboration with the Gujarat Industrial Development Corporation has evolved a scheme for constructing a large number of rural workshops and service centres which can be leased out to technicians for repairs and maintenance of tractors, agricultural implements, automobiles, cycles, etc.

7.5.40. Programmes mentioned in the preceding paragraphs need to be reviewed from time to time for the proper deployment of qualified and trained personnel in the productive sectors of economy. However, as the economy is picking up, it is estimated by the Institute of Applied Manpower Research in their study that at All-India level, the shortage of diploma holders in civil engineering is likely to be experienced by 1973-74, while there will be a shortage of both the categories degree and diploma holders in civil engineering by 1978-79. In Gujarat, the shortage of civil engineering graduates is being felt at present, as is evidenced from the fact that the Public Works Department has not been able to fill in all the vacant posts and the Employment Exchanges of the State have not been in a position to recommend the personnel for filling in the vacancies.

7.5.41. Due to rapid progress of industrialisation in the State, the requirement of technical 'Know-how' have not only increased but technique and planning of technical education also call for revised and progressive outlook and approach so as to suit the changing needs of the time. The State Government has set up an Industry Liaison Board to ensure close co-operation and co-ordination between the industry and technical institutions to evolve training in skills which adjust themselves constantly to the varying needs of the industry.

7.5.42. The State Government is, thus, constantly watching the employment situation of engineering personnel. The studies should be undertaken on varied aspects of engineering manpower in the State in relation to the industrial and construction programmes envisaged during the Perspective Plan period 1974-84, and in relation to expected out turn from the training institutions so as to regularise the training programmes under technical education and to initiate such other measures that may be useful to avoid large-scale surpluses/shortages of these personnel in the next decade.

Health Personnel

7.5.43. The expression 'professional education' as applied to Medicine and Public Health may be broadly defined as education

comprising those courses of training which are necessary for the proper preservation of health of the nation. It includes the training of doctors, public health personnel, para medical personnel so essential for the proper co-ordination of all aspects of Medical and Public Health care. Medical and Health Personnel are required in large numbers for implementation of medical and health programmes. In the training institutions and medical research, doctors, teachers and specialists with post-graduate qualifications in various branches of the subjects in medicine and surgery are required. Para medical personnel viz. Nurses, Technicians, etc. play a vital role in serving the people as well as assisting the doctors and specialists.

Doctors (M.B.B.S.)

7.5.44. Before commencement of the Five Year Plans, Gujarat had two medical colleges. As a result of steady expansion in the training facilities, the number of medical colleges has gone up to 5 with an intake capacity of 725. As recommended by the Health Survey and Planning Committee (Dr. Mudaliar's Committee) there should be doctor-population ratio of 1:3000 to 3500 as against which Gujarat would attain a ratio of 1:4200 by the end of the Fourth Plan. According to normatic requirement of one doctor for 3500 persons, the requirement of doctors works out at 8400 whereas net availability is placed at 7000 doctors, resulting in the shortfall of about 1400 doctors. On the basis of projected population of the State in 1983-84, two more medical colleges would be necessary in addition to the five colleges in the State.

Nursing Personnel.

7.5.45. There is an acute shortage of nursing personnel in the State and this will have to be rectified by increasing training facilities. The annual outturn of general nurses is about 300 and that of auxiliary nurses midwives is about 350. The shortage of over 2000 nurses is proposed to be covered by increasing the number of seats in the general nursing schools at teaching institutions as per requirements laid down by the General Council of Health and Indian Nursing Council for teaching and non-teaching institutions.

Technicians

7.5.46. The category of personnel known as 'X'-Ray Technicians and Laboratory Technicians are generally classified as

technicians. In order to meet the requirements of Government Institutions in respect of these categories of personnel, the training programme is framed every year. The training for both these categories of personnel is imparted in Government medical colleges at Ahmedabad, Baroda and Jamnagar. During the Perspective Plan period, the programme of training X-Ray technicians, laboratory technicians and physio-therapists will be in conformity with the needs arising out of availability of equipment and requirement from year to year.

General

7.5.47. In view of the widely varying demographic, educational, cultural and employment patterns, sociological and motivational attitudes differ from place to place, which emphasises the need for district manpower studies. The demand assessment may be made by using various approaches viz. direct enquiry, production to personnel ratio, investment to personnel ratio, etc. It is felt that the assessment of engineering manpower should be made at the micro-levels. More attention needs to be given to the quantitative aspects of manpower assessment and to integrate the technical education system more closely with the pattern of utilisation of engineers and technicians in Industry. With a view to undertake surveys and studies in various sectors from time to time, it is suggested that a special Manpower Study Cell may be set up at State level in the Directorate of Employment, Manpower and Training.

6. PROBLEM OF POLLUTION OF AIR AND WATER

The industrial development of Nations has been accompanied the problem of pollution. The public demand for action against pollution is growing in developed countries and the lesson for the developing countries would be to take timely measures to tackle the pollution problem along with planning for economic development. The pollution problem is the direct result of man's activities—the concentration of large populations due to urbanisation and industrialisation, his improved agricultural practices, manufacture of sophisticated new materials for his life and comfort and the disposal of their waste products.

7.6.2. The planners and the administrators in the country have so far been pre-occupied with the programmes for increased agricultural and industrial production for the growing population and creation of infrastructure and the health and education facilities. Lately, the family planning programmes have received high priority. However, upto now the problem of pollution has received little attention in the country. No attempt has so far been made to indicate the size of the problem and the measures necessary for controlling it. However, pollution control is very intimately connected with the maintenance of a clean and healthy environment for mankind and for its existence. This is the first time when the State has attempted to go into the question of pollution to some depth as one of the serious problems that it will have to deal with with rapid industrial development and trend towards urbanisation. The time has come, when it is necessary to evolve suitable remedial measures in a planned and systematic way before the problem gets out of control.

7.6.3. At present, the problem of air pollution in the State is relatively less acute than that of water pollution. Nevertheless, it demands immediate attention. Air pollution is produced from factory stacks, chemical and other industries, vehicles running on petrol and diesel oil, thermal power stations, railway yards, burning of household refuse, burning of fossil fuel in residential houses etc.

7.6.4. Atmospheric air pollution results in increase in morbidity and mortality. Persons living in badly affected localities are prone to cardiac and respiratory diseases. Populations living in thickly populated areas in low standard of living conditions become the first victims of pollution. Though accurate information on the levels of atmospheric pollution in the State is not available, it is apparent that some areas in Ahmedabad experience air pollution during some part of the year due to smoke from railway yards, textile mills, exhausts from

thermal station, automobiles etc. With the rapid growth of industries around Baroda, certain areas near that city are also affected. With a large investment in industry during Perspective Plan period, the problem is likely to assume greater proportions.

7.6.5. Available information indicates that Gujarat has serious water pollution problem. There is now an increasing use of fertilisers, herbicides and pesticides which drain into rivers. Use of D.D.T. and synthetic detergents has also increased. These undegradable wastes create problems of quality of receiving waters. Chemical and other industrial plant effluents produce waste waters which are difficult and uneconomical to treat by conventional processes and some of them are highly toxic and dangerous to man and animals. Water from oil refineries and offshore drilling operations as well as leakages from oil pipes and tanks further deteriorate the situation. These wastes are fatal to fish life. Some other organic wastes create problems of excessive growth of weeds and algae in lakes and make them unserviceable. With improvement in living standards, water consumption which has already increased in main urban areas, is expected to rise rapidly in future. This would mean that greater quantity and more difficult quality of waste water will be discharged. At present, there are 11 towns, in the State which have drainage facilities. Sewage, including whatever wastes are introduced into the sewerage, is mostly let out on land for irrigation after primary or secondary treatment in most of the towns. Water not required for irrigation goes to rivers, creeks, streams and such other water courses. Rest of the urban areas do not yet possess drainage system. The problem of land pollution due to people not using sanitary latrines in villages is also of a large magnitude.

7.6.6. Water pollution has posed a serious health hazard in recent years. There are several reported cases of large scale intestinal diseases in epidemic form and outbreak of hepatitis every year. Because of the effluents discharge in river Mahi, there has been acute pollution of Mahi water. The State Government had, therefore, to formulate a scheme for 22 villages on the river banks to provide an alternative protected water supply. Fish kills have also been reported and there are cases of gradual elimination of biological life. Majority of rivers of Gujarat are not perennial. The flow in the rivers and streams depletes during summer and there is little or no water available for dilution of waste waters. On the other hand, population is increasing at a fast rate and new industries are coming up which will increase wastes of different categories.

Pollution of land and its effect on crops as well as increase in salt content of land has also received little attention. Entire area around

Nal Sarovar known as Nal Kantha area is ruined because of accumulation of alkaline salt.

7.6.7. Considering the existing situation and future problems, is proposed to make a serious beginning to control the pollution problem. As adequate data on the subject for the State is not presently available, it is proposed to make arrangements for collecting and analysing the information on pollution as early as possible. For this purpose the services of existing research institutions are proposed to be advantageously used. Efforts will be made to achieve uniform legislation on pollution control in the State. Government of India should also make the law relating to water pollution uniform all over the country. Legislation on air pollution on the lines of Government of India Draft Bill on air pollution will have to be passed by the State Government as early as possible.

7.6.8. It is proposed to set up interim Advisory Committee for air and water pollution with experts, representatives of Industries etc which will advise on the correct location of new industrial units and general planning for industrial development from the point of view of water and air pollution control. The Committee would be replaced by Air and Water Pollution Control Boards which would be set up after necessary legislation on pollution control is passed.

7.6.9. With a view to accelerate the implementation of various water supply, sewerage and sewage disposal schemes, water and sewage Boards will have to be set up. It is proposed to work out schemes for subsidies and grants to be given to local bodies to finance their pollution control schemes.

7.6.10. The problem of treatment of industrial wastes is a complex one and many a times, large cost is involved in disposal of wastes. It is, therefore, proposed to initiate schemes of financial assistance to deserving industrial units through loans in the case of large units and subsidies to medium and small scale units.

7.6.11. It will be necessary to establish well equipped laboratories at different levels. The proposed laboratories and Boards will require highly trained personnel. At present, there is a shortage of sufficiently qualified and experienced personnel. It is, therefore, proposed to take up the programme for training of personnel in the fields of water and air pollution and to start Post-graduate degree, diploma and short-term technician courses at suitable places.

7. RURAL URBAN DEVELOPMENT

Urbanisation is an important aspect of the process of economic and social development and is closely connected with other problems such as migration from villages to towns, provision of housing, provision of facilities like water supply, sanitation, transport, power, location of industries etc. Rapid urbanisation leads to unplanned growth and distorts patterns of relationship between the rural and urban sectors. Piecemeal, half-hearted, isolated measures can never provide adequate solutions to a host of problems created by rapid urbanisation and semi-urbanisation. Only a comprehensive programme of development in all sectors of the economy can provide the correctives progressively over a period of time.

7.7.2. The problem of defining the pattern of rural-urban development is essentially a problem of evolving a pattern of harmonious inter-relationship between all sectors of human activity.

7.7.3. The size and the nature of available natural resources will have to be adequately surveyed for an understanding of the present pattern distribution of natural resources. A detailed scientific study of resources distribution may have to be undertaken on a regional basis in different parts of the State. The implications of physiography and climate, underground water resources, soil, forests and minerals will have to be carefully worked out before integrated balanced regional plans are drawn up for the exploitation of the natural resources. These regional plans in turn will have to be mutually reconciled and fitted into an overall pattern of State development.

Urban growth

7.7.4. The population of Gujarat State during the last 70 years have increased by 193 per cent. The decennial rate of increase in population during 1961-71 was 29.34 per cent which is higher than the rate of growth for the country as a whole. In 1961 the proportion of urban to the total population was 25.4 per cent which increased to 28 per cent in 1971. In terms of rapid urbanisation, Gujarat takes its place among the more progressive States of India. An analysis of the rates of urban growth of the bigger cities and towns in Gujarat indicates that the higher rates of growth have been in the bigger cities of Gujarat. The magnitude of the problem thrown up by urban development in large metropolitan centres like Ahmedabad, Baroda and Surat is quite high and unless the metropolitan development of these cities are well planned right from now, they are likely to face difficult problems in the years to come.

Transport

7.7.5. Transportation routes are the forerunners of urbanisation and therefore the largest urban concentration of population in Gujarat have come about on the main transportation routes. Major industrial centres at Mehsana, Kalol, Ahmedabad, Nadiad, Anand, Baroda, Surat Navsari, Billimora, Bulsar and Vapi are all in one urban corridor. urban concentration is thickest between Ahmedabad and Baroda, while Broach, Panchmahals, Sabarkantha and Banaskantha are least urbanised. In Saurashtra along the National Highway No. 8B urban areas Surendranagar, Rajkot, Gondal, Jetpur and Porbandar have been developed. In view of the large sea coast, urban concentration in Saurashtra is noticeable in the port towns of Jamnagar, Veraval, Bhavnagar and Porbandar.

7.7.6. Transportation is one of the powerful means of urbanisation. A good net work of transport facilitates quicker movement of ideas, men, goods and services, agricultural and industrial raw materials. In a sense the major highways and major rail routes are the carriers of civilisation. A net work of transportation can go a long way in quickening the process of linking non-monetised sections of the rural areas to the market economy. Since the demand for transportation increases at a much faster rate than the rate of economic growth, there must be a well thought out Perspective Plan for the implementation of an integrated net work.

Housing

7.7.7. The problem of raising the standard of living is basically a problem of providing adequate food and adequate shelter. The problem of housing is becoming grave in many parts of the country. In Gujarat as well, this is taking a serious turn in cities like Ahmedabad, Baroda, Surat, Rajkot, Bhavnagar and Jamnagar. The problems of slums are equally challenging.

7.7.8. In every 1000 households living in the city of Ahmedabad 2 have no regular room, 653 live in single room tenements, 230 occupy 2 rooms, 55 have 3 rooms each and 60 have more than 3 rooms. The State average of 601 single room tenement in every 1000 is exceeded in the cities of Ahmedabad and Rajkot, but appreciably reduced in Jamnagar, Baroda, Surat and Bhavnagar. The largest proportion of single room households is to be found in Rajkot city (702) and the least in Baroda (415). The housing condition appears to be comparatively better

in Jamnagar, Baroda and Surat where less than 50 per cent of the households occupy one room as against 70 per cent in Rajkot, 65 per cent in Ahmedabad and 58 per cent in Bhavnagar. The acuteness of living conditions in cities can be better studied by considering the proportion of households living in 2 rooms and less. The percentage of such households varies from 75.1 in Baroda to 90.7 in Rajkot and is nowhere less than 75. These are very acute conditions which reveal the great dearth of accommodation and increasing pressure of population, reducing living space available to an individual in highly urbanised centres.

7.7.9. The total housing deficit is estimated at 1.76 lakh dwelling units for all the six major cities in the State in the year 1961. The maximum deficit is in the city of Ahmedabad. The city having least deficit is Bhavnagar.

7.7.10. The slums in metropolitan areas are the biggest challenge for the local authorities. The growth of slums symbolises a deterioration in the economic and social environment. The problem of slums is very acute in the cities of Ahmedabad, Baroda and Surat. In Ahmedabad the slums are located in 15 out of 29 wards. Nearly 91 per cent of the households living in slums inhabit 1 room tenement. 7.44 per cent live in 2 room tenement. Over 44 per cent of the total households in slums have 4 to 6 members in the family and over 16 per cent of the households have 7 to 9 members in the family. The problem of overcrowding and the social evils arising thereof can be well imagined. The problem of housing for the middle class and the lower middle class and the problem of slum clearance are the two major issues that will have to be faced by the local authorities in the decade 1974-84.

Land Policy

7.7.11. The speculation in land prices in all metropolitan areas has brought about such an escalation in the price of urban estates that it has become impossible for an average middle class or lower middle class employee to own a house. The problem of providing adequate and cheap housing facilities is closely linked up with a bold and imaginative land acquisition policy for housing.

Regional Planning

7.7.12. The variation between regions and between localities are so large in the country that there is a need for formulating regional plans which can be reconciled and fitted in terms of the organisational and

operational requirements of each State in a manner consistent with the formulation of the National Plan.

7.7.13. The Perspective Plan envisages initiation of planning studies with a view to formulate a plan for the spatial and temporal organisation of population and socio-economic activity in the State of Gujarat consistent with regional objectives of harmonious physical optimum use and development of resources, and of planned rural and urban development with due regard to the objectives of the National Plans.

7.7.14. It is the State Government which can play a key role in correcting regional imbalances and in developing the backward tract of the State by formulating well thought out regional plans which apart from reducing economic inequalities between regions, can prevent dissipation of human and natural resources arising from unplanned, uncoordinated efforts. It is desirable to divide the State into functional planning areas for purposes of detailed study. The six manageable planning areas may be as under :—

(1) Already intensely developed urban corridor along the Bombay-Delhi rail-road route comprising of the urban area of Vapi, Bulsar, Surat, Baroda, Nadiad and Ahmedabad.

(2) The under-developed eastern belt of the State comprising of parts of Dangs and Panchmahals district.

(3) The coastal region comprising of all coastal areas, Dahej to Cambay to Kandla.

(4) The Saurashtra region comprising of Junagadh, Rajkot etc.

(5) The under-developed areas of northern Saurashtra including Kutch.

(6) The northern Gujarat region comprising of Gandhinagar, part of Mehsana, Sabarkantha and Banaskantha.

7.7.15. It is suggested that the various regional and area plans can be fitted into a composite whole within the broad framework of the State Plan. Apart from the formulation of the regional plans, the work of preparing plans for such urban complexes like Ahmedabad metropolitan area, Kandla Port Free Trade Zone and future metropolitan cities of Baroda, Surat etc. is also of great importance. An integrated

Plan of development of these regions and areas will have to be initiated during the Perspective Plan period. Loans will have to be given to local bodies for roads and creation of utilities like water supply, drainage, electricity etc. for development of these areas. It may also be necessary to constitute an Urban Development Corporation to tackle the problems of these areas in an integrated way.

7.7.16. The distribution, composition and character of rural and urban settlements largely hinge on the social and economic policies and objectives of the State. The population of Gujarat is expected to rise from the present 2.67 crores to 3.73 crores in 1986. The present urban population in Gujarat which is about 75 lakhs is likely to increase by about 42 lakhs by the end of the Perspective Plan period. It is, therefore, of crucial importance as to how and in what form of urban and rural settlements, the additional growth of population is to be accommodated over the next few years. The techniques of Regional planning should be utilised to identify the locations where the best opportunities exist for major urban growth, to suggest the public policy that will promote development of such growth centres as are identified and agreed upon and resolve conflicts and rivalries regarding location of growth points and evolve yardsticks that would facilitate the planning process on a regional basis. For the development of backward areas, Government will have to adopt area development approach which may necessitate the setting up of an Area Development Corporation in the State.

8. HOUSING PROGRAMMES

Housing

Housing is one of the basic necessities of life next only to food and clothing. It constitutes one of the major requirements of the people and it assumes special significance as an integral part of development.

7.8.2. The problem of housing has assumed urgency due to (i) the growth of population, (ii) rapid industrialisation and (iii) migration of population from villages to the cities in search of employment. The migration has created the problem of slums also. Acute shortage of housing is felt in villages also on account of growth of population and comparatively stagnant housing construction activity. Various housing schemes are under implementation as part of the State plans. Progress achieved under the different housing schemes in Gujarat can be seen from the table below:—

TABLE 36

Period	No. of tenements constructed under				Total
	Industrial subsidised housing scheme	Low income group housing scheme	Slum clearance housing scheme	Rural housing scheme	
1	2	3	4	5	6
1. During the Second Plan (1956-61) ..	5237	2000	2406	338	9975
2. During the Third Plan (1961-66) ..	1182	1585	2930	431	12128
3. During the three Annual Plans (1966-67 to 1968-69) ..	1302	500	2714	205	4754
					26857

7.8.3. The impact of the housing construction activity undertaken so far has, however, not been commensurate with the rising need in this regard. The magnitude of housing problem is so large that it is hardly possible for any single agency to solve it in a short period.

7.8.4. The housing policy, therefore, needs to be set in the context of economic and industrial development and the problems

likely to emerge over the next decade. There should also be proper co-ordination among public, private and co-operative agencies. The housing programmes will have to be evolved so as specially to serve the needs of the low and middle income groups.

7.8.5. It is also important that the cost of tenements is reduced so that the low and middle income group people may be able to take full advantage of housing schemes. Only then, will it be possible to achieve notable progress under the housing programmes. For this purpose, research has to be carried out so as to provide cheaper houses.

7.8.6. In addition to about 10,290 tenements proposed to be constructed under various schemes during the Fourth Plan period, the Gujarat Housing Board will also construct 10,000 houses during the Fourth Plan with the additional finance likely to be available from various other sources.

7.8.7. Recently, Government has started a new scheme outside the State Plan for the weaker sections of the community. For this purpose, the Life Insurance Corporation of India will provide Rs. 1.5 crores to the Gujarat Housing Board. The scheme aims to assist the weaker sections of the society whose monthly income does not exceed Rs. 400. The ceiling cost of a house ranges from Rs. 8,500 to Rs. 10,500. The Gujarat Housing Board will construct 1,400 houses at various places in the State. These houses will be given on hire-purchase basis.

7.8.8. The housing programmes contemplated in the State's Perspective Plan relate to the development activities confined mainly to the following housing schemes:— (i) Integrated Subsidised Housing Scheme, (ii) Low Income Group Housing Scheme, (iii) Slum Clearance Scheme, (iv) Rural Housing Scheme (Village Housing Project), (v) contribution to the share capital of the Gujarat Co-operative Housing Finance Society Ltd., (vi) Land Acquisition and Development Schemes, (vii) Middle Income Group Housing Scheme. The item Nos. (vi) and (vii) are outside the State Plan for which funds are provided from the open market borrowing, loan from the Life Insurance Corporation of India and the Housing and Urban Development Corporation Ltd.

7.8.9. The Perspective Plan envisages acceleration of the housing programmes through the Gujarat Housing Board in particular, and

other agencies in general. Besides the State Plan outlays, additional funds are expected to be obtained from other sources, for Low and Middle Income Group Housing Schemes. The outlays and targets envisaged during the Perspective Plan under various housing schemes in the State Plan are given in the table below :—

TABLE 37

Name of the Scheme	Fifth Plan		Sixth Plan	
	Provision (Rs. in lakhs)	Target (No. of houses)	Provision (Rs. in lakhs)	Target (No. of houses)
1. Integrated subsidised housing scheme	295.00	4500	600.00	8000
2. Low income group housing scheme ..	430.00	3500	860.00	6000
3. Village housing scheme ..	70.00	2500	140.00	4500
4. Slum clearance scheme ..	200.00	3000	395.00	5000
5. Share Capital for Gujarat Housing Finance Co-operative Society Ltd.	5.00	..	5.00	..
Total ..	1000.00	13500	2000.00	23500

7.8.10. In addition, the Gujarat Housing Board is expected to receive funds from the following agencies to undertake its activities during the Fifth and Sixth Plans.

TABLE 38

		Fifth Plan (Rs. in lakhs)	Sixth Plan (Rs. in lakhs)
1. Loan from Life Insurance Corporation (Direct) ..	..	500.00	1000.00
2. Open Market Borrowing ..	..	1900.00	3700.00
3. Loan from Housing and Urban Development Corporation ..	..	200.00	500.00
Total ..	..	2600.00	5200.00

7.8.11. With the funds likely to be available from the above sources it will be possible to construct 13,000 tenements during the Fifth Plan and 24,000 tenements during, the Sixth Plan under Low and Middle Income Group Housing Schemes.

7.8.12. Emphasis must be laid on aesthetically pleasing designs for all housing, such attention being paid to both the exterior and interior of the houses. The housing must also be located in a setting of publicly maintained or corporate maintained lawns, shrubs and trees, irrespective of whether it is for low income groups or part of a slum clearance scheme. Special care is required to see that in clearing slums further ugliness is not created by poorly designed and ugly tenements set in dusty and treeless surroundings.

Water Supply and Sanitation

Urban Areas

7.8.13. According to 1961 census, there were 172 urban areas which are exclusive of 3 municipal corporation towns. Out of these, water supply schemes have been completed in 74 towns, of which 35 towns are non-municipal areas. Urban water supply programme is mainly implemented by payment of grant-in-aid to local bodies for undertaking water supply schemes. The remaining urban areas are proposed to be covered by water supply schemes by the end of the Perspective Plan.

7.8.14. By the end of 1970-71, 11 towns consisting of 3 towns with municipal corporations, 6 municipal towns and 2 non-municipal towns possessed underground drainage facilities. As per targets fixed for the Fourth Plan, 18 towns are to be covered. It is proposed to cover all small and big towns by drainage facilities by the end of the Perspective Plan.

Rural Areas

7.8.15. There are 18,584 villages in the State. Because of frequent occurrence of scarcity and erratic rainfall, many villages face difficulties in respect of sweet water supply. The State Government has, therefore, laid down, definite criteria for the 'no source' villages as under :—

1. In case of villages having no public well and where the population as per 1961 census is less than 350 souls, a scheme for providing a public sanitary draw well should be undertaken.

2. For villages having population of more than 350 souls (as per 1961 census), piped water supply schemes are proposed under 'National Water Supply and Sanitation Programmes'.

3. In the case of villages with a population of less than 350 souls (as per 1961 census) having a public well but where such well dries up in summer season and people have to bring water from a distance of more than 1 Km., the well should be deepened to improve water supply or a bore should be provided in the well, where sub-artesian conditions exist and the scheme should be proposed under 'Simple Well Programme.' When the population is more than 350, the village should be dealt with separately under piped water supply programme and proposed under 'National Water Supply and Sanitation Programme'.

4. Villages having a source of water located beyond 1 Km., from a village site and having a population of less than 200 persons as per 1961 census may be included under 'Simple Well Programme' as it may not be possible for the villages to meet with the capital as well as maintenance expenditure required to be contributed by them. Simple wells are to be constructed in such villages even though the source of water is located at a distant place. Similar villages with population of more than 200 souls (1961 census) are to be included under 'National Water Supply and Sanitation Programme' and piped water supply scheme with cisterns are to be proposed for them.

5. For villages, where draw wells are not possible, but water is required to be drawn from deep tube wells, piped water supply schemes are to be proposed, irrespective of the size of population as tube wells may be feasible within the village site. As far as practicable, such villages should be suitably grouped together to be served by regional piped water supply schemes.

6. For villages, where a source of water is created under other programmes such as local development, scarcity programmes etc. but further work could not be carried out due to non-availability of funds, they are also classified as 'no source' villages.

7.8.16. Government has given high priority to 'no source' villages for water supply schemes. There are about 3,000 villages falling in this category. Out of these, 800 villages will be covered by the end of the Fourth Plan. The aim is to cover the remaining villages by the end of the Fifth Plan.

7.8.17. Over and above 'no source' villages, a large number of villages in the State are considered as specially backward villages as

more than 60 percent of the population of these villages belong to backward classes. Most of the villages in this category are situated in the border and hilly areas and are without any modern basic amenities. The people rely on natural streams or springs for their daily needs of water supply. These villages number about 3,250. All these villages are proposed to be covered by hygienic water supply facilities during the Perspective Plan period.

7.8.18. Yet, there is another category of about 3,200 villages which are situated in arid zone, with water supply less than the normal human requirements. These villages are also proposed to be covered by water supply facilities during the Perspective Plan period.

7.8.19. Out of the remaining villages, many are such where unwholesome water supply will have to be upgraded and brought to a minimum level of hygiene. This category of villages will be partially covered during the Perspective Plan period.

7.8.20. Government has a special programme to abolish the practice of carriage of night soil by human beings. Special efforts have been made during the Gandhi Centenary programme viz. the 'Bhangi Kasta Mukti Programme' in the year 1969-70 which is to be continued during forthcoming years. This is mainly a problem of urban areas where there are basket type latrines. The problem in rural areas is that the people are not accustomed to use any latrines and use open land for defecation. This leads to problems of land and water pollution and spreading of certain diseases.

7.8.21. The problem will have to be solved through latrine promotion programme which needs evolving suitable latrines for villages, evolving suitable health education and construction methods for latrine acceptance by villages and imparting training to sanitary inspectors in constructing rural latrines and motivations for acceptance and notification of rural latrines by rural households. Large scale extension work will also be necessary. A beginning will be made during the Perspective Plan period to tackle this huge problem.

7.8.22. Taking into consideration, the vastness of the problems related to water supply and sanitation facilities, the department in charge is proposed to be expanded considerably and provision is proposed to equip it with materials, tools, plants, vehicles, pumping machinery, etc.

9. HEALTH AND FAMILY PLANNING

Before independence, in 1943, Government of India had appointed the Bhore Committee to study and indicate the health needs of the country. The Committee suggested both long and short-term measures. Thereafter, in 1959, Government of India appointed the Health Survey and Planning Committee popularly known as Mudaliar Committee. The recommendations of the Mudaliar Committee embrace the whole programme of health. Health Programmes since 1961 have been formulated on the basis of the report of the Committee. Following are some of the norms suggested by the Committee.

- (a) One doctor per 3000/3500 persons by the end of the Fourth Plan.
- (b) One bed per 1000 persons by the end of the Fifth Plan.
- (c) 50 beds in taluka level hospitals and 300 to 500 beds in district head quarter hospitals.
- (d) One medical college for 50 lakhs of population.
- (e) Mental hospital with about 750 beds at State level.
- (f) Cancer treatment at each district level and at least one independent cancer hospital in each State.

Programmes

7.9.2. The programmes under health sector can be broadly classified four categories viz. (i) Medical, (ii) Drugs control, (iii) Ayurved and (iv) Public health.

Medical

Medical Education

7.9.3. There were 4 Government medical colleges at the beginning of the Fourth Plan at Ahmedabad, Baroda, Surat and Jamnagar with admission capacity of 555. This is exclusive of the Municipal Medical College at Ahmedabad with in-take capacity of 100. In 1971, the admission capacity of Government and Municipal Colleges together has gone upto 725.

7.9.4. The qualified doctors registered with Medical Council were about 6200 in 1971. According to the normatic requirement of one doctor per 3500 persons, the present requirement of doctors works out at 7625. Hence, there is a shortage of about 1400 doctors at present. By the end of the Fourth Plan, the net availability of doctors can be placed at 7000 after making allowance for retirement from profession, death, migration etc. The available stock of doctors would fall short by 1400 doctors in 1973-74, on the basis of the criterion of one doctor for 3500 persons.

7.9.5. The Mudaliar Committee has recommended one medical college for a population of 50 lakhs. On the basis of the projected population of the State in 1983-84, two more medical colleges would be necessary in addition to the five colleges in the State. This would also be necessary on account of the anticipated shortage of doctors already referred to earlier. It is, therefore, proposed to establish two additional medical colleges in the State during the Perspective Plan period.

Training Programme

7.9.6. Nurses—At present, Gujarat has 9 General Nursing Schools and 26 Auxiliary Nurse-Mid-Wives Training Centres. The intake in General Nursing Schools is about 370 and that of Auxiliary Nurse-Mid-Wives Centres is 375. The annual outturn of general nurses is about 300 and that of auxiliary nurse-mid-wives is 350.

7.9.7. The number of nursing personnel at the end of the year 1970 registered with the Gujarat Nursing Council was as under:--

<i>Category</i>	<i>Number</i>
1. Nurses-mid-wives (registered nurses and mid-wives) i.e. fully qualified	1798
2. Nurses	514
3. Mid-wives (18 Months' Course)	503
4. Auxiliary nurse-mid-wives	1369
5. Health visitors	248
	4432

7.9.8. The norms laid down by the Mudaliar Committee are as under :—

<i>Category</i>	<i>Year</i>	<i>Ratio</i>
1. Nurses (short term)	1971	1:5000
2. Nurses (long term)	1981	1:3000
3. Auxiliary nurse-mid-wives	1976	1:5000

7.9.9. For the population of 267 lakhs in 1971, there should be approximately 5300 fully qualified nurses but the present number falls short to a very large extent (about 2000). By the end of the Sixth Plan, taking into consideration the population in 1984 and the norm of one nurse to 3000 persons, the requirement would be of the order of about 12000 nurses.

7.9.10. The shortage is proposed to be covered by increasing the number of seats in the existing general nursing schools at teaching institutions and also by increasing the number of sanctioned posts of staff nurses at various teaching institutions as per requirement laid down by the General Council of Health and Indian Nursing Council for teaching and non-teaching institutions so that the rate of outturn may be increased to about 500 during the Sixth Plan.

7.9.11. *Para Medical Personnel.*—During the Perspective Plan period, the programme of training X-Ray technicians, laboratory technicians and physiotherapists will be in conformity with the needs arising out of availability of equipment and requirement from year to year.

7.9.12. It is also proposed to continue the schemes like Research Cell in teaching hospitals, strengthening of libraries in medical colleges, specialised units in teaching hospitals, construction of staff quarters etc.

Beds

7.9.13. The number of beds in Government and grant-in-aid hospitals and dispensaries is expected to be about 15000 by the end of the Fourth Plan. This roughly works out at half a bed for 1000 of population as against the norm of 1 bed for 1000 persons. The

requirement of beds at the end of the Fourth, Fifth and Sixth Plans can be seen from below :—

<i>Year</i>	<i>Population (in lakhs)</i>	<i>Number of beds required</i>
1973-74	293	29300
1978-79	331	33100
1983-84	360	36000

7.9.14. The above figures indicate that some 21000 beds would have to be added during the decade after 1973-74. Within the financial allocation for the Perspective Plan, it is proposed to add about 11,500 beds in the Government institutions during the Perspective Plan.

Drugs Control.

7.9.15. With the expansion of the pharmaceutical industry and trade, the work and responsibility of the Drugs Control Administration has increased substantially. Fourth Plan, therefore, provided for expansion of staff in certain branches of the Drugs Control Administration. It also proposed expansion of Drugs Laboratory at Baroda and building of staff quarters in the premises of the laboratory. Provision has also been made for training of pharmacists which includes payment of grant-in-aid for establishing one degree and one diploma pharmacy college in the State.

7.9.16. The existing training facilities for diploma, degree and post-graduate pharmacists are not enough to meet the requirements of hospitals, dispensaries, industry, trade, educational institutions and administration. The man-power requirement will increase considerably in future. Keeping this in view, it is proposed to establish one additional college for degree and two colleges for diploma courses during the Perspective Plan period. It is also proposed to upgrade some of the centres for post-graduate pharmacy education.

7.9.17. Administrative section will have to be strengthened to enforce, effectively, legislations pertaining to drugs, cosmetics, poisons, dangerous drugs etc. The public will have to be protected from misleading advertisement. The drug laboratory is also proposed to be expanded and equipped sufficiently.

Ayurved

7.9.18. It is proposed to add 9 ayurvedic hospitals during Perspective Plan, so that by the end of 1983-84 the total Government ayurvedic hospitals would number 22. The proposals also include schemes for expansion of existing hospitals. It is also proposed to start a separate section of *Panchkarma* in 5 existing ayurvedic hospitals and in those which will be opened in the coming years.

7.9.19. There were 250 ayurvedic dispensaries in rural areas of the State in 1968-69 and the number is expected to increase to 280 by the end of 1973-74. By the end of Fifth and Sixth Plans, the total number of dispensaries in rural areas would go upto 340 and 460 respectively.

7.9.20. At present, nursing course in ayurved is being run at Akhandanand Government Ayurvedic Hospital, Ahmedabad. The strength of students admitted in the first year of the course is five. With the expansion of ayurvedic activities, the demand for nursing staff has increased. It is, therefore, proposed to establish a nursing school in ayurved. With a view to refresh the knowledge of medical practitioners, it is proposed to start ayurvedic refresher course in the State. This will enable the practitioners to keep them abreast of new inventions and methods of medical treatment.

7.9.21. The other important schemes suggested relate to grant-in-aid to ayurvedic teaching institutions, taking over of ayurvedic colleges by Government, expansion of existing ayurvedic colleges, development of Ayurved University at Jamnagar, starting of post graduate training centre in Government ayurvedic colleges, upgrading the post of professors, upgrading and expanding the pharmacy college of Rajpipla, starting State recognised diploma course in ayurved, construction of staff quarters at State colleges and hospitals and dispensaries, construction of hostel buildings and opening of Naturopathic college and hospital in the State.

7.9.22. Ayurvedic medicines are generally prepared from various herbs containing curative and preventive elements. Certain medical shrubs grow in all parts of the State including the forest areas. Yet, no authoritative and accurate survey has been carried out. It is, therefore, proposed to undertake such a survey during the Perspective Plan period.

7.9.23. At present, there are 8 offices of District Ayurvedic Officers in the State. It is proposed to upgrade the posts and

establish the offices of the District Ayurvedic Officers in other eight districts.

Public Health

7.9.24. The Fourth Plan has sought to continue and consolidate and wherever necessary to intensify the health services laying particular emphasis on backward and tribal areas. This will continue to be the main objective of the public health services envisaged for the Perspective Plan period also. For this purpose, primary health centres have a vital role to play. All health services — curative and preventive — radiate from public health centres to various villages with the help of staff located at primary health centres and sub-centres. It is, therefore, proposed that the existing primary health centres should be strengthened suitably to provide for diagnostic services, control of communicable diseases, rural sanitation, improvement of nutritional standards and care of school going children. The aim is to achieve one primary health centre per 70,000 persons with one sub-centre for every 10,000 persons during the Perspective Plan period.

7.9.25. In spite of best efforts, it will not be possible to provide through primary health centres, special medical services, which are ordinarily available to the urban population. Services of Gynaecologists, Paediatricians and Surgeons would not be available in all the primary health centres. The referral and cottage hospitals, therefore, would form a second tier in State health services.

7.9.26. The District Health Organisation is at present not adequate to cope up with the expansion of various health programmes. It is, therefore, proposed that during the Perspective Plan period, the District Organisation should be strengthened adequately.

7.9.27. At the State level, the State Directorate will also have to be strengthened to meet the requirements on account of services like mental hygiene, industrial hygiene, nutrition, food adulteration, school health services, operations research and evaluation services etc.

Family Planning

7.9.28. Family Planning is very close to health, education of children and nutrition and care of women. It is, therefore, recognised that family planning should form part of the total welfare package for the individual and his family. For family planning programme, Government operates through the Family Planning Bureau created in the Directorate of Public Health and Medical Services.

7.9.29. The State had 101 urban and 244 rural family planning centres and 732 family planning sub-centres in the year 1968-69. By the end of the Fourth Plan, 80 family planning centres are proposed to be added in urban areas. Total number of family planning sub-centres is expected to be about 1000 by the end of the Fourth Plan.

7.9.30. The progress of family planning in the State can be seen from below:—

TABLE 39

Year	Sterilisations ('000 No.)		Percentage achievement in steri- lisation against target 4	IUCD ('000 No.)	Percentage achievement in IUCD against target	Number o. conventional contracep- tive users
	Males	Females				
1966-67	18		70.3	34	42.5	31672
1967-68	39	46	86.2	20	10.3	40990
1968-69	51	50	66.1	12	12.2	54267
1969-70	49	45	74.2	11	51.0	62859
1970-71	44	50	58.7	9	33.5	76733

7.9.31. With a view to accelerate the tempo of family planning work in Gujarat, it was decided to organise massive vasectomy campaign throughout the State during the period 15th November, to 31st December, 1971. The normal amount paid per case was substantially increased for the campaign period. The programme was launched in collaboration with panchayats and urban family planning centres of municipalities. The progress was so encouraging that the period of the campaign was extended upto 15th January, 1972. About 2.24 lakh vasectomy operations were carried out during the short period of two months against the target of 1.50 lakhs. The most encouraging part of the campaign was that in the tribal district of Dangs, the achievement has been five times the target fixed. In districts like Broach and Surat (rural), the achievement was about 300 per cent of the targets fixed for the districts.

7.9.32. This level of achievement in family planning, within a period of two months, has pushed Gujarat State in the forefront not only among the States of India but has also set a record. The success achieved highlights the role of motivation, motivators, incentives and agencies like panchayats.

7.9.33. The aim of the family planning programme in the State is to bring about a reduction in population growth from the present level of 2.8 percent to 1.6 percent by the end of the Perspective Plan period.

10. DEVELOPMENT OF WEAKER SECTIONS

Embodied in the social order that we seek to build, are the ideals of Ram Rajya cherished by Gandhiji whose spirit of dedication to the cause of the depressed, provides even to-day an inspiration to forge ahead towards the realisation of our goal. Social, economic and political stability is considered to be the first requisite for ensuring growth of productive forces and augmentation of national wealth. Besides, never can such growth be sustained without due regard to the welfare of the weaker sections of the community. In order to eliminate the possibility of stagnation and instability which could result from any severance of the vital link between the needs of growth and of distributive justice, policies have to be devised so as to reconcile the imperatives of growth with concern for the welfare of the weaker sections of the society.

7.10.2. In formulation and implementation of the plans, there is a need for greater emphasis on the common man, the weaker sections and the less privileged. Planning should result in greater equality in income and wealth, in progressive reduction of concentration of incomes, wealth and economic power and in ensuring that the benefits of development accrue more and more to the relatively less privileged classes of society and in particular, to the Scheduled Castes and Scheduled Tribes whose economic and educational interests have to be promoted with special care.

7.10.3. One of the aspects of social justice and equality is through reduction of concentration and wider diffusion of income and of economic power. This, in relation to rural areas, can be achieved through Land Reforms Legislation including the ceiling on land holdings. The other aspect of social justice and equality calls for improvement in the condition of the common man and the weaker sections especially through economic uplift, and provision of education, health and other requisite facilities.

7.10.4. Over the past twenty years of planned development, the country has endeavoured to harness natural resources and the energies of the people to the tasks of national development. The State Government has taken a number of measures in furtherance of the declared social and economic policy. In the course of our planning, emphasis has been laid on the extension of infrastructural facilities to different areas as also on the extension of educational, medical and health as well as other facilities which reach as large a number of people as possible. Nevertheless, having regard to constraints on resources for

development, the benefits of activities under the plan have not reached the weaker sections in appropriate measure. Great disparities in income and wealth obtaining at the commencement of planning has been a major factor which is responsible for our not being able to narrow down the disparities to the desired level, in spite of our efforts at improving the lot of weaker sections.

7.10.5. Widely different are the problems and requirements of the weaker sections, composed as they are of a large variety of categories. Besides Scheduled Tribes and Scheduled Castes, the weaker sections of society would also include small farmers, landless labourers, village artisans and other economically backward classes. A brief resume of the various measures taken or proposed to be taken by the State Government is presented in the subsequent paragraphs.

Land Policy.

7.10.6. Gujarat is perhaps the first State in the Country to complete the programme of legislation for abolishing intermediary land tenures. The scheme of tenure abolition laws of Gujarat provides not only for abolition of intermediary tenures but also for upgrading the tenant cultivators to the status of occupants. The holder of land has thus been provided an opportunity of securing the occupancy rights. About 17 lakh persons have acquired the occupancy rights under the Act involving an area of over 57.4 lakh hectares or about 57 per cent of the total area under cultivation in the State. The programme at present is concentrated on residual items of work.

Small Farmers.

7.10.7. The problem of small farmers requires special attention. The State Government has taken several steps in this direction. Orders have been issued for remitting stamp duty chargeable under the Bombay Stamp Act on instruments in respect of transactions relating to loans and advances, mortgages, cash credit of over drafts, bonds etc., for an amount not exceeding Rs. 5000/- executed by farmers for electrification of wells and for financing of pumps and equipment in favour of Banks. Government have also given general permission to the occupants of land on restricted tenures to mortgage their land in favour of nationalised Banks as security for loans for objects under Land Improvement Act and Agricultural Land Act.

7.10.8. The three districts—Sabarkantha, Surat and Junagadh have been selected under the Small Farmers' Development Scheme. Each of

these districts have a Small Farmers Development Agency which is a registered society consisting of officials and non-officials. The society receives funds directly from the Government of India. The main function of the agency is to identify the problems of small farmers in its areas, prepare appropriate programmes, ensure availability of inputs, services and credit so as to make the small farmers viable. This will help them to improve their economic conditions and enable them to make their contribution towards increasing agricultural production. Besides, under the scheme for Marginal Farmers and Agricultural Labourers, the State has been allotted two projects in the districts of Baroda and Bulsar. The object of the scheme is to make the marginal farmer economically viable both by improving the productivity of his land and enabling him to supplement his agricultural income by taking up ancillary occupations such as poultry and dairying. It is also proposed to train them as local artisans and help them practise their trade so as to be self supporting.



Landless Labourers.

7.10.9. There is a very large class of landless labourers having no productive base and depending for their livelihood of wage employments. Under the scheme of classification of Government waste lands, the areas are located where lands are available for cultivation and reclamation and these lands are brought under the plough to settle the landless labourers. Minimum rates of wages have also been fixed in the scheduled employment of agriculture with effect from February 1968. Under the Waste Land Disposal Rules, 1960, all Government waste lands are disposed of on permanent basis to priority holders by holding Land *Kutcheries*. The priority holders are members of the armed forces, cultivators displaced by large irrigation schemes and scheduled tribe and scheduled caste persons. Out of the total of over 3,89,000 hectares of land disposed of so far, an area of over 2,74,000 hectares have been disposed of to scheduled caste, scheduled tribe and other backward persons numbering more than 1,18,000.

Industrial Labour.

7.10.10. Under the Minimum Wages Act, 1948, minimum rates have been fixed or revised in 19 scheduled employments including employment in agriculture. The Payment of Bonus Act, 1965 and the Bidi and Cigar Workers Act, 1966 have been brought into force in the Gujarat State. Hardships caused to workers who have been rendered unemployed due to closure of cotton Textile Mills have been mitigated by providing free training to industrial workers in the Government

Industrial workshops in the various selected trades and by providing freeships to the children of such unemployed workers. As a social security measure, free medical aid and cash benefits such as permanent disablement benefits, sickness benefits, etc. have been provided to 90 per cent of the labour population by bringing 14 cities under the E.S.I. Scheme.

Rural Artisans.

7.10.11. The individual artisan is financially assisted by giving loans for purchase of tools, implements and machinery and also for purchase of shares of co-operative societies, at concessional rate of interest. The co-operative societies of artisans are assisted by way of share capital contribution. Moreover, the financial assistance is also made available by way of subsidy for managerial cost, short-term and long-term loans and subsidy for purchase of tools, implements and machinery, for construction of worksheds, etc. Technical assistance is also given for improvement of their products. In order to extend marketing facilities to the village artisans and their co-operatives and in order to popularise their products, assistance in various forms is made available to them by way of advertisement, installing show cases at important places, taking part in exhibitions, celebrating special weeks and channelising the products through emporia, sales depot etc.

7.10.12. A scheme for granting loans to individual artisans and technicians has recently been put into operation. This scheme envisages grant of loans for undertaking specified industrial jobs to qualified, trained and experienced artisans or technicians for purchase of tools and equipment and for the working capital.

Rabari-Bharwad.

7.10.13. Dairying is an effective instrument for social change in rural areas. Given the right type of organisational structure they can be brought together in the co-operative fold. Under the scheme of Rabari-Bharwad rehabilitation, the cattle breeders who are usually wandering from place to place are encouraged to form their co-operative societies which are assisted by Government with a view to rehabilitating them.

Forest Labour.

7.10.14. Considerable percentage of population of scheduled tribes reside in forests. They get their livelihood by working in forests.

To ensure that the tribal population is not exploited because of their backwardness and ignorance etc., forest labour societies are organised. These societies are provided with financial assistance by way of share capital contribution, subsidies for managerial cost and subsidies for welfare activities.

Fishermen.

7.10.15. The fishermen population in Gujarat is fairly scattered and the total population is about 2.5 lakhs. Of these, the concentration is in the Umbergaon-Kolak belt in south Gujarat and the Jafrabad-Porbandar belt in Saurashtra. Of these, the number of active fishermen is about 39,000 persons. There should be co-relation between planned efforts at development of fisheries and social upliftment of fishermen. Many of the fishing villages dotted along the coast line of the State are not having proper approach roads and as a result they are cut-off from the rest of the society during monsoon. With a view to mitigating the hardships felt by fishermen in carrying out their fishing activities and marketing their fish in the interior, steps are being taken to construct the approach roads.

7.10.16. Various schemes for the welfare of fishermen are also being implemented. Amongst these, mention may be made of Development of Cooperative Societies, Loans to Fisheries' Cooperatives for marketing and grant of financial assistance for their socio-economic activities.

Physically handicapped.

7.10.17. The measures for the welfare of the physically handicapped include education, training and rehabilitation programmes for various categories. Under these measures, schools, institutions, specialised services and training centres are run by Government and voluntary agencies. By the end of 1968-69, there were 19 institutions for blind, 12 institutions for the deaf and mute, 4 institutions for orthopaedically handicapped and 1 institution for mentally deficient. During the Fourth Plan, the programme envisages addition of one institution for blind, 4 for deaf and mute, 4 for orthopaedically handicapped and 2 for mentally deficient. The programme for the Fourth Plan also envisages a scheme for supplying prosthetic and educational aid to orthopaedically handicapped who can make use of their disabled limbs. The Gujarat State Road Transport Corporation extends concessions in bus fares to blind persons and to their attendants while they travel by S.T. buses. Due preference as well as concession is also given to the physically handicapped in the matter of recruitment in the Government service.

Women and Children.

7.10.18. The approach of welfare services in the present state of scientific and technological advancement, is to look at the total development of the whole family as a unit and provide for measures for their general development instead of the past approach of extending the care and protective services for the delinquent children and deserted women. The approach now requires measures for the prevention of delinquency in children and a job oriented bias for rehabilitation of the victimised and affected women.

7.10.19. The welfare programme for women and children covers institutional and non-institutional services for implementation of different social legislation for children, youths, etc. The programme also takes into account the measures required for the protective treatment, and rehabilitation of the women who are exposed to moral dangers, victimisation and desertion. Reconciliation measures of the family and matrimonial discords also form part of the programme.

7.10.20. By the end of 1968-69 there were 46 institutions under the Children Act, and 17 institutes under the programme for Suppression of Immoral Traffic Act. The programme for the Fourth Plan envisages addition of 9 institutions under Children Act, and 2 institutes under Suppression of Immoral Traffic Act.

Scheduled Castes, Scheduled Tribes and Other Backward Classes.

7.10.21. According to 1961 census, one in every five persons in Gujarat belongs either to Scheduled Tribes or Scheduled Castes. The Scheduled Tribes alone account for 13.35 per cent of the total population of the State. The Scheduled Tribe population of the State accounts for 9.60 per cent of the Scheduled Tribe population of the Country as a whole. Though the Census figures for nomadic and denotified tribes are not available, they are estimated at about 5 lakhs in number. The State has, therefore, to pay special attention to the improvement of socio-economic condition of these tribes.

7.10.22. Under the education programmes, they are given liberal free studentships, examination fees, scholarships etc., and provided hostel facilities and Ashram Shalas or residential types of schools. Under the economic uplift programme, backward class people are given financial assistance for agricultural purposes and are imparted training in various crafts in training-cum-production centres. They are also given loans

and subsidies for raising their living standards by developing their hereditary crafts and new vocations and with a view to abolish the exploitation of tribal people by money lenders and others. Their various co-operative societies are being aided liberally. For rehabilitating sweepers and to wean them away from unclean occupation, sweeper youths are given vocational training like motor driving etc.

7.10.23. The scheduled tribes live in remote backward areas where schooling facilities at primary stage were not adequate. Tribal children are not accustomed to go to normal types of schools. The Ashram Schools are, therefore, opened in tribal areas which provide residential accommodation, books and clothes. There were about 110 Ashram Schools including 3 post-basic Ashram Schools at the end of 1968-69 and this number is expected to go up to 138 including 13 post-basic Ashram Schools at the end of 1973-74.

7.10.24. With the provision for freeships and scholarships and the increase in the number of backward class hostels, the proportion of students attending high-schools and colleges is increasing rapidly. Incentives are also provided to scheduled castes and scheduled tribes in the form of reservation of seats etc., for admission to medical and engineering colleges, polytechnics and industrial training institutes.

7.10.25. In regard to employment of scheduled tribes and scheduled castes in Government offices, specific percentages have been prescribed and steps are taken to ensure that these percentages are maintained.

7.10.26. There are at present 53 tribal blocks which cover practically all the scheduled areas and the majority of the scheduled tribe persons have benefited from them. In addition to these measures, financial assistance is given in respect of cottage industries, medical aid, supply of oil-pumps, persian wheels etc., to these classes.

7.10.27. A special provision exists in section 73A of the Land Revenue Code by which restrictions can be imposed on transfer of lands in certain areas. In order to safeguard the interests of occupants belonging to scheduled tribes, the State Government has applied the provisions of the above section to scheduled areas predominantly inhabited by members of scheduled tribes. In these areas, no transfer of land is permissible by farmers belonging to scheduled tribes whether they hold land on old tenure or new tenure, without the permission of the Collector. These restrictions ensure that scheduled tribe farmers in these areas do not easily transfer or sell away their lands under undesirable pressures.

7.10.28. These classes have also derived benefit from the measures taken by Government for the disposal of Government waste lands in respect of which priority is accorded to them.

7.10.29. House-site lands in rural areas are required to be granted to agriculturists, agricultural labourers, scheduled tribes, scheduled castes and other backward class persons. In rural areas where Government open plots or uncultivable lands near the village are not available for such grants, the private lands are acquired under the provisions of the Land Acquisition Act and then they are disposed of on no-profit-no-loss basis to the above category of persons through the village panchayat. For urban areas, the policy is to dispose of lands to the above category of persons at market price or at concessional price without holding auction. In addition to co-operative housing schemes for backward classes, the State Government has undertaken a special housing scheme for the weaker sections of Adivasis known as Halpatis. House-site plots costing not more than Rs. 450/- are provided to the Halpatis.

7.10.30. In the State Plan, special provisions are earmarked for various schemes aimed at economic uplift of backward classes and for providing facilities in respect of education, health, housing etc.

7.10.31. During the current financial year (1971-72), an additional amount of Rs. 25 lakhs over and above the provision of about Rs. 5.16 crores made in the budget for various welfare schemes, has been sanctioned with a view to further accelerate the tempo of activities for the welfare of the poorer and backward people like Bhangis, Halpatis, landless Adivasis, Nomadic Tribes, Vagharis and such other Denotified Tribes. Of this, an amount of Rs. 7 lakhs is earmarked for welfare of Bhangis and an amount of Rs. 8 lakhs is earmarked for schemes for the welfare of Nomadic and Denotified Tribes like Vagharis. An amount of over Rs. 5 lakhs is earmarked for schemes for Harijans and Adivasis while an amount of Rs. 5 lakhs is earmarked for Halpatis and Adivasis and landless Adivasi labourers.

7.10.32. These special welfare schemes include schemes for providing assistance for purchase of mechanised implements for disposal of night-soil, establishing tailoring classes, providing vocational training to members of these backward classes, granting aid to their housing societies, providing medical facilities and assistance for cottage industries. Besides, schemes for housing Adivasi agricultural labourers are envisaged to be taken on hand. Provisions are also made for drinking water supply schemes for Harijans and for the development of industrial centres.

7.10.33. The problem of the Scheduled Tribes and Scheduled Castes have some special features. The problem of Scheduled Tribes living in compact areas is essentially that of economic development of the areas and of integrating their economy with that of the rest of the State. The problem of backward areas and those of weaker sections are thus largely intertwined. Several steps have, therefore, been initiated in the State to bring about accelerated development of backward areas.

7.10.34. There are large number of individuals and families who, though high in social status, are economically depressed and their annual income is very low. To assist such individuals and families, educational, medical and other facilities are made available to them free or at concessional rates. With a view to providing education to the children of this group, full free-studentships as well as half free-studentships are given according to the prescribed income limits. Recently, monetary limits for grant of free-ships and half-freeships to economically backward classes have been raised which will benefit the weaker sections of society in a larger measure.

PERSPECTIVE PLAN

7.10.35. The problems of backward areas and the welfare of weaker sections, intertwined as they are, present a complex theme. The weaker sections of the society are the greatest source of potential strength.

7.10.36. The approach in the Perspective Plan is to strengthen socio-economic infrastructural facilities in less developed regions, as also to give special facilities and incentives for weaker sections. More attention is necessary for equitable distribution of income and provision of economic and social opportunities to different segments of Gujarat's population, particularly the weaker sections in keeping with the basic goals set out in the "directive principles of the State Policy" embodied in Constitution which emphasise that the citizens, men and women equally, should have the right to an adequate means of livelihood.

7.10.37. The Perspective Plan envisages increase in the number of Tribal Development blocks to serve the needs of the tribal population on a larger and concerted manner. The programme also envisages increase in post-matric scholarships for general courses for scheduled tribes by about 8000 sets and by about 20000 sets for scheduled caste pupils. Similarly for technical and professional courses, the sets of scholarships are proposed to be increased by about 2000 for scheduled tribes and an equal number for scheduled castes. The number of

Ashram schools is also proposed to be increased from 125 at the end of the Fourth Plan to 180 at the end of 1983-84. 27 Post-Basic Ashram Schools are also proposed to be added during the same period. The number of hostels for backward class students is proposed to be increased by about 250 and that of girls' hostels is proposed to be increased by 80 during the decade 1974-84 covering the Perspective Plan period.

7.10.38. These measures, no doubt, will benefit the scheduled tribes and scheduled castes. However, the exploitation and indebtedness of tribal population needs to be tackled in a bolder and more imaginative way than has been done in the past. Their problems are deep-rooted and cannot be met by short-term solutions. They are, therefore, required to be tackled on both fronts—social as well as economic. Although co-operative societies of tribals have been formed, they have not been able to help them because of their poverty and extreme dependence on the landlords and money-lenders. In order to prevent or atleast minimise to a large extent, the exploitation of the tribals, a Tribal Development Corporation will soon be established which can help them to plan their own development and socio-economic uplift. Establishment of such a Corporation will go a long way in ameliorating the conditions of the scheduled tribes in the State.

7.10.39. One of the other measures which can benefit the weaker sections of the society and bring them on par with other communities as early as possible, would be to provide them with the housing facilities. There are several schemes for construction of houses for members of these communities but the programme needs to be accelerated. The problem of providing even the modest type of residential facilities to all the needy persons in the State is of such a large magnitude that it is well-nigh impossible for any single agency to satisfy the huge and fast increasing demand. Hence, though there is a State Housing Board, it is not possible for it to cope up with the programmes for housing schemes to the desired extent for various classes of persons who are in need of houses in different parts of the State. It is, therefore, considered necessary that functions of the existing Board should be confined to the construction of houses in urban areas and a separate Board should be constituted for rural areas so that such a Board can devote its attention to the construction of houses, having regard to the special needs of various classes of people residing in rural areas such as persons belonging to the scheduled tribes, scheduled castes, denotified tribes, nomadic tribes, agricultural labourers and other weaker sections of the community. The Rural Housing Board which will soon be set up, is intended to meet the needs of these classes of people.

7.10.40. Apart from expansion of the existing activities which are aimed at the economic uplift and provision of facilities for education, health etc., the Perspective Plan also lays emphasis on vigorous steps for the complete eradication of untouchability in the State as early as possible, and to remove completely the system of carrying night-soil as a head load by the scheduled castes.

7.10.41. The Perspective Plan also contemplates continuance and further strengthening of the measures for welfare of other weaker sections of society. The objective of the programme for all producer classes will be to make them viable in the first instance and then to put them on the path of development. The problem of the landless labourers will have to be tackled by provision of more employment opportunities through rural works and other local programmes and integrating these works with area development plans. Some of the landless labourers can also be turned into producers by settling them on land or through animal husbandry. The basic aim of the Plan will be to direct all efforts towards removing the disparities between the different sections of the population and put the weaker sections firmly on the path of development.

EPILOGUE

Since this Perspective Plan was prepared, the Ahmedabad Management Association held a Convention on the 8th and 9th February, 1972 on the theme "GUJARAT 1984 : THE EMERGING ENVIRONMENT FOR MANAGEMENT". This is specially mentioned in this Epilogue as a unique experiment in Perspective Planning attempted in a truly multi-disciplined manner followed by discussions providing a forum for planners, practitioners and academicians to interact and exchange views on critical issues. The Convention offered a valuable opportunity for businessmen and professional managers to understand the Government thinking on the future lines of development in Gujarat, to evaluate the new proposals and to offer alternatives. It helped to create an awareness in society of the complementary roles of Government, Industry and Business and highlighted the dynamic role of Management to adapt itself fast enough to the changing needs of our social environment.

At the Convention which was inaugurated by the Governor of Gujarat who highlighted the objectives as set out in the Foreword of this document, there were three working sessions, one on each of the three aspects of the Perspective Plan on (i) Industry and Power; (ii) Agriculture and allied sectors; and (iii) Education and Manpower Planning. In each session, a spokesman of the Perspective Plan Group presented a report on the recommendations in that sector. This report was followed by a critical discussion of it by an AMA Panel, specially convened for the purpose, which had the opportunity of studying the Perspective Plan reports in advance. Leading authorities in Government, industry and education participated.

During the Convention, Dr. Sukhamoy Chakravarty, Member of the Planning Commission, gave the keynote address on Perspective Planning. This brilliant exposition of the subject is reproduced here with the kind permission of Dr. Chakravarty :

I. His Excellency the Governor, Mr. G. L. Mehta and friends,

I think the Governor in his inaugural address has already covered a very large part of the ground that I had proposed to cover. This is all to the good, because it means that I can go over that ground somewhat more quickly. He has doubtless touched on the most important problems which arise in the context of Perspective Planning.

I should also like to indicate that we feel very much gratified by the fact that the Government of Gujarat has taken this initiative in publishing the Perspective Plan document which despite its size should not prove big enough for us to master. Unfortunately, I have not had the time to look through the document in detail because it arrived a little too late for my going through in depth. However, I expect to be instructed by the discussions today. As the Governor rightly pointed out, it is of some consequence not only for Gujarat but also for the other States of the country and for the Planning Commission as well. I must say that I was initially a bit taken aback by the caption which says 'Gujarat 1984'. It has a sort of an Orwellian Ring about it but I quickly realised that the year coincided with the terminal year of the Sixth Five Year Plan which falls in 1984, if, of course, things go the way they are expected to go. Anyway, I hope that it will not end in an Orwellian future. On the contrary, let us hope that the future will correspond to the vision projected in your Perspective Plan, which will include realization of the social goals which your Governor has so clearly elaborated. My address is divided into three parts. In the first part, I will discuss the logic of Perspective Planning *i.e.*, why you need Perspective Plans at all. This may be somewhat like pushing against an open door. You must already be convinced of the necessity to produce Perspective Plans; otherwise, you would not have produced such a document. Nonetheless, some of the arguments involved in this context are well worth stating explicitly in order to draw out the inherent economic logic that may be involved. The second part will deal with the way Perspective Planning is being practised today. Finally, I shall indicate certain very important extensions which are called for urgently. The exercise that we are discussing today is an important illustration of the sort of extension that is well worth trying.

II. Why do we need Perspective Plans ?

Perspective Planning has been practised in India for quite some-time now. The First Five Year Plan gave only a global perspective of development in exclusively macro-economic terms. The main purpose that it served was largely a hortatory one. Even so, it was important in suggesting the crucial role of the marginal propensity to save out of income in achieving an accelerated growth profile for the economy. From the time the Second Five Year Plan was formulated, Perspective Planning has played an important role in the process of plan formulation itself. The greatly increased emphasis on the development of capital goods industry as well as of the basic intermediates

that marked the formulation of the Second Plan was based largely on the perspective of development that had been postulated on the basis of certain analytical considerations. In all subsequent Plan formulations, the tradition set by the Second Plan has been adhered to. Before we discuss the details of the procedure used in more recent years, it is necessary to address ourselves to a preliminary question which has been asked from time to time as to why we need a Perspective Plan at all. In fact, a feeling has sometimes been expressed that Perspective Planning typically deals with fairly remote areas and may in some cases lead to deflection of interest from the most pressing and immediate problems into channels of wishful thinking. In the opinion of these same people, Perspective Planning falls between the two stools of futurology and trend projections.

These criticisms of Perspective Planning are, in my opinion, not fair and do not reflect proper understanding of the role that Perspective Planning can play in a planning process. Perspective Planning has to be viewed not only as projections of past experience into the future nor as mere exercises in setting certain desirable norms pertaining to a future year. Perspective Planning should best be regarded as a method of inventing the future. This statement 'inventing the future' may strike one as rather paradoxical one, since it is only fair to admit that our ability to influence the future course of development of an economic system in its totality is extremely limited.

However, any comparative study of economic development processes will indicate that there are different possibilities latent in a given situation even though they cluster around a limited range. Perspective Planning is a method of picking up a certain alternative out of the cluster of possibilities which extend into the future. There are several reasons why in a country like India, it is all the more important to pay explicit attention to chalking out a plan of action extending over a stretch of time consisting of 15 to 20 years. First, there is the size of the country, measured by population and its rate of growth. Secondly, we have the relatively more modest role of foreign trade in view of the continental nature of our own economy which creates a certain built-in bias in favour of home markets. Thirdly, our natural resources have not yet been fully explored. Fourthly, certain infra-structural developments, such as power and transport are bound to play a very important role in the structural transformation of a backward economy. And finally, we have the

enormous problem of developing our vast reserves of human resources and of deploying them into increasingly productive spheres of activity.

It is clear from the description given above that in many of these areas, a lot of advance action is needed in order to achieve any specific results. Secondly, these are all areas where the market mechanism does not either function or functions very poorly. However,

may be argued that even though the market mechanism does not function in these areas, it is much better to concentrate on a number of projects of a long-term nature rather than engage in exercises like Perspective Planning which are beset with a lot of uncertainty. From this point of view, planning consists largely of short-term economic management together with evaluation of a suitable number of projects.

I think that such an approach is deficient for several reasons. First, even project analysis requires guesses regarding relative scarcities in the future and there must be a procedure for making these guesses. It may be very dangerous in this respect to guess future scarcities through extrapolating the present tendencies. Secondly, in any economic system there are several types of uncertainty. One type of uncertainty stems from the fact that one producer does not often know what the other producer may be planning by way of future expansion of capacity. The same situation applies in terms of savings intentions of individuals, classes and institutions. These and various other forms of uncertainty can get eliminated to a certain extent through careful Perspective Planning. Thirdly, the process of development in a semi-industrial economy often requires significant alternations in the inter-regional patterns of production and trade. Changes can often be highly disruptive in character. Perspective Planning can help a great deal in this matter if it succeeds in introducing a spatial perspective of development over time.

To sum up, we can say that Perspective Planning is an indispensable tool for a variety of reasons, which largely stem from the interdependence of an economic system at a given point of time and from the necessity of carrying infra-structural changes in an economic framework at a minimum cost.

III. The Perspective Plan Today :

The Perspective Plan is formulated along two principal lines. There is a part of the Perspective Plan that deals with the overall

strategy of a macro-economic nature which also indicates the magnitude and type of resource mobilization that will be called for as well as with the question of external financing that may be necessary. The other and more detailed part of the Perspective Plan deals with projected developments in a number of key sectors of the economy which have significant backward and forward linkages. The usual procedure has been to project a terminal stage configuration, which is either defined in terms of certain explicit and end objectives or as an implication from a postulated rate of growth of income over a sufficiently long period of time. For translating these desired end objectives into the list of required output levels, an input-output framework of analysis is generally adopted. For the key sectors, the conclusions arrived at on the basis of input-output analysis are further checked through drawing up a number of detailed material balance estimates. Once the key targets have been obtained, the Perspective Plan also tries to indicate a certain time-phasing of activities that will be called for if these objectives are to be realised. The current Perspective Plan which was drawn up for a twelve year period at the time the Fourth Plan was formulated was predicated on a number of assumptions. It was assumed that population growth rate would be of the order of 2.5 per cent during the Fourth Plan period. It was also assumed that it would go down to 1.7 per cent by 1980-81. This is a fairly critical assumption from the point of view of possible increase in employment opportunities as well as for improvements in levels of living. While the former set of considerations was not explicitly considered in the Plan, the possible improvement in the level of living that could take place within the growth rate that was postulated in the Plan was discussed.

It was shown that if national income could be expected to grow at an average rate of 6 per cent per annum over the 12 year period beginning from 1968-69 to 1980-81, then the per capita consumption of the second poorest decile in 1980-81, would amount to Rs. 15 per month at 1960-61 prices, assuming that the pattern of distribution of consumption would stay the same. This amount would fall below the minimum level of living of Rs. 20 per capita per month which was suggested by an earlier Committee dealing with this question. Clearly if the population growth rate did not show the decline as was postulated, the conditions of the poorest sections would, in fact, be even worse.

The growth rates in the Perspective Plan were based on a sustained step up in investment from a level of 11.2 per cent of national

income in 1968-69, to 14.2 per cent in 1973-74 and to 18 per cent in 1980-81 implying thereby that investment could increase at the average rate of 10 per cent per annum during this period. The overall growth target was estimated to require a 5 per cent average annual growth in agriculture and allied activities; about 9 per cent in mining, manufacturing and construction and 6 per cent in the remaining sectors. In estimating these broad sectoral growth targets as well as the targets for key-industries, the Plan made use of input-output analysis and material balancing techniques for ensuring inter-sectoral consistency.

The projected growth of agricultural output over the next decade is certainly higher than the trend rate of growth of 3.6 per cent observed during 1955-61, or 3.1 per cent observed during 1961-65. However, there is room for some optimism. All along, there has been a rapid and continuing expansion of irrigation facilities and there has also been considerable success in the breeding of high-yielding variety of seeds and related scientific research. Problems connected with marketing, storage and distribution have also been drawing increased attention. As a result, there is a reasonably good prospect of achieving a higher rate of growth of agricultural production, even though there are signs of growing intra-sectoral imbalances within agriculture.

In the industrial field, the rate and pattern of industrial development achieved so far has not come up to the profile envisaged in the Perspective Plan. Within the industrial sector, important branches from the point of view of growth are power and fuel, fertilizers and petro-chemicals, steel, aluminium, mineral ores, machinery and transport equipment. With a faster growth of economy, demand for these products would tend to outstrip the growth in national income. In many of the areas, India is well-placed, by virtues of, both the size of the prospective market and also in terms of resources endowments. The Plan draws pointed attention to the areas where advance planning of new capacity is imperative and the need for creating organisations equipped to take up the job. Unfortunately, however, the progress registered so far has been such that unless special efforts are made during the coming years, it is not likely that the original perspective for 1980-81 would be realised. The need for taking urgent action immediately would become much clearer if one would take into account the fact that in many key areas the gestation periods of investment projects are pretty long even by normal standards.

The strategy of long term development seeks to eliminate net foreign aid by 1980-81. It was felt that through proper import substitution programmes it would be possible to restrain the demand for

imports. However, a number of products will still need to be imported on sizeable scale, such as crude oil and certain types of non-ferrous metals etc. To meet the growing needs for imports in the face of declining aid, the Plan stressed the urgent need for export promotion. Exports were assumed to increase at the average rate of 7 per cent per annum. The Plan pointed out that such export increase called for a bold approach and a considerable diversification of our exports, consistent with quality and competitiveness.

Another implication of declining aid postulated was that domestic savings will finance an increasing proportion of investment. This implies a bold programme for resource mobilisation, which has not materialized as yet.

On looking at the Perspective Plan for 1980-81 from the vantage point of 1972, it becomes quite clear that the Perspective Plan had postulated a certain pattern of relationship between industry and agriculture which has not materialised. One of the most important questions today from the point of view of planning and policy is to analyse the nature of the economic forces which have led to relative rates of growth of industry and agriculture which are very different from the ones postulated in the Perspective Plan. Simple minded explanations such as reduction in levels of real investment from the level reached in 1964-65 do not go far enough since they do not explain why investment has not picked up to any significant extent since the recessionary end of 1967-68. What is of especial worry to the planner is the fact that the traditional constraints on the growth rate such as food and foreign exchange cannot be said to have been operative over this period. To argue that the constraints would have been there if industrial production had been growing at a higher rate is no explanation since the question to which we are seeking an answer is why industrial production did not grow at a higher rate.

If we think that the relationship observed during the recent years is in the nature of a transient phenomenon, then Perspective Planning can continue along the same lines as were observed in the past subject to the extensions and qualifications discussed in the next section. If there are reasons to believe that there are some important structural factors operative in this context, then we may have to develop a somewhat different conceptual framework for dealing with problems of Perspective Planning.

IV. Some desirable extensions.

I would now address myself to some of the important extensions which may be needed for carrying out Perspective Planning exercise in a more meaningful way. First of all I have already mentioned that the time phasing of investment expenditure has to be worked out much more systematically and this is something that has not been done as carefully as one would like to see it done. Lack of an adequate phasing rule in this context may be partially responsible for the uneven distribution of shortages and excess capacities that mark the Indian economy. Secondly, we have to do the job of technological forecasting in a much better way. Here, what we need is an assessment of the way the technological input coefficients are likely to change over time. In this context, the future projection with respect to energy supplies and the adaptation of technology to use more of the plentiful sources of energy deserves the highest amount of attention since energy shortage could have a seriously adverse effect on the economy as a whole, far out of proportion to the shortage that may have taken place. Thirdly, there are problems such as employment and income distribution. They can not be adequately dealt with within the framework that has so far been used in formulating Perspective Plan. This is not to suggest that there has not been an implicit employment objective. However, it was assumed that this objective is best served by stepping up the rate of growth. The experience of the decade of the sixties, not merely in India but also in other parts of the world shows that the relationship between the growth of employment and the growth of national income or for that matter, growth of industrial production, is not a simple one-to-one relationship that we have often postulated in the past. In fact, it is not easy to postulate a simple predictable relationship between the rate of growth of employment, on the one hand and the rate of growth of output, on the other. Much depends on the composition of the output itself and the sort of government policies that have been pursued. We may, therefore, need to take a different view with respect to employment planning from the one we have done so far. From this point of view the role of additional investment in industry may turn out to be one of providing the critical inputs in greater quantities rather than one of directly providing a larger number of jobs with respect to the new entrants. I should mention here that an employment strategy must be coupled with a long term saving strategy. The process of savings is not as automatic a process as we had assumed earlier. This also requires very careful planning and may call for a variety of institutional changes in the

economy as a whole. Finally, I come to one of the crucial deficiencies facing us today, namely, that we have no explicit spatial planning as of now. We have a temporal perspective; we have a perspective for sectoral development but we do not have an explicit spatial perspective. It is somehow embedded in the plan itself and it is assumed that given all the allocative decisions somehow or the other a clear picture will emerge and the picture will in fact not be very different from our declared goal of balanced regional development. Unfortunately, the picture that emerges is much less clear and much less satisfactory and I think this is certainly an area where a great deal more of work will be called for. In this connection, I should like to mention that there are three types of problems to which one will have to address oneself. One is the data problem *i.e.* the problem of collecting information, the problem of processing this information and the problem of making information available to proper users. The second problem is conceptual and the third problem is political. The data problem, I think, is well understood. We really need to find out in much greater depth the resource potentialities of the different regions, the patterns of growth recorded in the past, the forces causing migration from the rural to the urban areas; the consequential changes with respect to housing conditions and various other kinds of infra-structural requirements that will be needed for sustaining a desired rate of growth. In collecting data, some kind of uniform methodology has to be adopted. Take State income estimates as an example. The State income estimates that we have been using for deciding on various kinds of allocative decisions are based on rather outdated figures. There have been no official State income estimates for recent years, which means we have to base our decisions on obsolete information in some sense. You will all agree that the State income estimates are very essential for getting a summary view of the economic condition prevailing in a State.

Similar other indices may also need to be constructed. To facilitate interstate comparisons, uniform concepts and procedures will need to be worked out.

The second thing is to find out what are the constraints with respect to the growth process operating in a particular State. I do not think Gujarat is constrained by lack of managerial or entrepreneurial talents. Gujarat may well be constrained by the problem of power. Now this problem of power may well be closely connected with some of our own decisions with respect of how the mix of power projects will have to be planned or how, for example, various

energy supplies in primary form will have to be made available with a view to converting them into secondary forms of energy. If power is the main problem in respect of a particular State, we should primarily concentrate our attention on power. Or, if in a certain region there is a dearth of educated people or entrepreneurial talent, we should emphasise those factors. The question of identification of constraints on the growth process in a particular State is a matter which deserves close scrutiny. The third point which I should like to mention is how you arrive at the resource position with respect to a given State. I do not mean merely the total governmental resources or the resources accruing to the State Government. I mean the total quantum of investible resources effectively available to the State in question. It is not easy to determine this magnitude in a country of this size, where capital is free to move from one part of the country to the other.

In this situation, there is a lot of open endedness with respect to the resource position of a State since it is not easy to know how much capital transfer is likely to take place from the other States. Regarding the allocation of resources between different sectors, we have to distinguish between agriculture, industry and infra-structure. With respect to agriculture we are on relatively firm ground while with respect to industry one has to distinguish between different types of industries. There are some industries for which demand and supply will have to be matched on the local level. For the national industries, demand and supply will have to be matched on the national level. Finally, there are others which may be regarded as international industries and they will have to be justified by much stricter criteria in terms of competitiveness, since one can procure them from outside as well. The whole distinction is of course connected with the transportation cost aspect of the problem and also with the problem of indivisibilities in terms of the minimum size of the plants that one may need. Infra-structure investment may be calculated once we have made some assumptions regarding the pattern of industrial and agricultural development that is going to take place.

What pattern of agricultural development to postulate can be relatively easily solved by looking carefully at the inventory of data relating to the agricultural sector. How do we decide what pattern of industrial development is the most appropriate one? That will need certain projections of either past trends or certain assumptions with respect to the growth in the rest of the world. These assumptions are in the nature of certain guesses. Then there is the problem

with respect to social services which one may be able to guess or when one has guessed the other things. Once you have got the patterns sorted out, there is the problem of securing the necessary resources. Certain plausible assumptions with respect to the likely magnitude of capital transfers involved and with respect to amount of saving that can be internally generated and their possible dispositions will be essential for solving the resource problem. Every State, for example, will have to make certain assumptions on its score. The assumptions made by the different States may be partly conflicting. The point of conflict may reflect two basic factors, one may reflect inadequate information on the part of the different States which could in fact be effectively solved by means of pooling information. This pooling of information could be done at a certain level when the State Plans are prepared and sent to the Planning Commission. The pooling can indicate internal inconsistencies which will need to be removed. In addition, there may be some duplication where several high cost products are proposed to be set up in different areas without reference to the economies of scale. Finally we have to decide on the overall quantum of investible resources at the national level. And there the political problem comes in, it concerns the pattern of distribution one envisages. I am suggesting all these problems because I think that today in India, it is not enough to merely plan from the centre. We have to initiate a multi-level planning operation with extensive interaction between the different decision making agencies involved. We have to identify the decision making agencies, identify what activities are appropriate to each, and also the pattern of interaction that will be adequate. It is only through an extended process of interaction that we can arrive at what may be regarded as the spatial plan of development which will reconcile both the requirements of efficiency as well as those of equity. In the Planning Commission, we are today trying to initiate action on setting up a multi-level planning machinery with a view to overcoming some of these important problems. In this context, Gujarat Government has performed a valuable job by taking the initiative of formulating a perspective plan. It illustrates both a method and a base for further discussion. If other States follow the example of Gujarat, it will be easier for us to arrive eventually at a mutually agreed spatial plan for development. In that way, one of the major causes of concern for the coherence of our policy will be considerably reduced in significance.

I would thank you very much for giving me this opportunity to speak to you.

STATEMENTS

STATEMENT

Sectoral outlays for Fifth and Sixth Plan period.

Head/Sub-head of Development	Third Plan		Annual Plans 1966-69		Fourth Plan 1969-74	
	Expen- diture	Percen- tage to total	Expen- diture	Percen- tage to total	Provi- sion	Percen- tage to total
1	2	3	4	5	6	7
<i>Agricultural Programmes</i>						
(1) Agricultural Production	4.98	..	5.29	..	12.51	..
(2) Land Development	0.96	..	0.75	..	1.00	..
(3) Minor Irrigation	13.44	..	21.14	..	32.01	..
(4) Soil Conservation	4.98	..	5.89	..	10.02	..
(5) Animal Husbandry	1.49	..	2.14	..	6.77	..
(6) Dairying and Milk Supply	3.80	..	2.83	..	1.75	..
(7) Forests	1.58	..	1.63	..	3.50	..
(8) Fisheries	1.85	..	1.33	..	3.50	..
(9) Warehousing and Marketing	0.44	..	0.43	..	1.00	..
Total (I) Agricultural Programmes	33.52	14.0	41.43	19.7	72.06	15.8
<i>II Community Development, Co-operation and Panchayats</i>						
(1) Co-operation	3.57	..	2.31	..	5.00	..
(2) Community Development	9.64	..	4.64	..	4.81	..
(3) Panchayats	0.30	..	0.09	..	0.20	..
Total (II) Community Development, Co-operation and Panchayats	13.51	5.6	7.04	3.3	10.01	2.5
<i>III Irrigation and Power</i>						
(1) Irrigation	45.90	19.1	45.66	21.7	103.00	22.6
(2) Flood Control	0.38	0.2	0.55	0.3	7.00	1.6
(3) Power	65.37	27.2	43.92	20.8	111.25	24.8
Total (III) Irrigation and Power	111.65	46.5	90.13	42.8	221.25	48.0

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within the Perspective Plan for 1974-84.

(Rs. in crores)

Fifth Five Year Plan 1974-79 within the outlay of Rs. 1000 crores		Sixth Five Year Plan 1979-84 within the outlay of Rs. 2000 crores		Total for Perspective Plan 1974-84 within the outlay of Rs. 3000 crores		Remarks
Outlay 8	Percentage to total 9	Outlay 10	Percentage to total 11	Outlay 12	Percentage to total 13	14
38.00	..	100.00	..	138.00	..	
2.00	..	4.00	..	6.00	..	
32.00	..	67.00	..	129.00	..	
15.00	..	40.00	..	55.00		
4.00	..	5.00	..	9.00	..	
12.00	..	34.00	..	46.00	..	
8.00	..	13.00	..	21.00	..	
9.00	..	25.00	..	34.00	..	
Included in Agricultural Production.						
150.00	15.0	288.00	14.4	438.00	14.6	
9.00	..	16.00	..	25.00	..	
4.00	..	8.00	..	12.00	..	
1.00	..	2.00	..	3.00	..	
14.00	1.4	26.00	1.3	40.00	1.3	
175.00	17.5	240.00	12.0	415.00	13.8	
15.00	1.5	17.00	0.9	32.00	1.1	
250.00	25.00	610.00	30.5	860.00	28.7	
440.00	44.00	867.00	43.4	1307.00	43.6	

STATEMENT

Head/Sub-head of Development	Third Plan		Annual Plans 1966-69		Fourth Plan 1969-74	
	Expen- diture	Percen- tage to total	Expen- diture	Percen- tage to total	Provi- sion	Percen- tage to total
1	2	3	4	5	6	7
IV Industry and Mining						
(1) Large and Medium Industries	7.21	..	9.93	..	11.02	..
(2) Mineral Development	0.67	..	1.57	..	6.00	..
(3) Village and Small Scale Industries	2.33	..	1.41	..	2.98	..
Total (IV) Industry and Mining	10.21	4.2	12.91	6.1	20.00	4.4
V Transport and Communications						
(1) Roads	17.13	..	11.92	..	29.84	..
(2) Road Transport	3.01	..	9.46	..	8.00	..
(3) Ports and Harbours	3.07	..	1.73	..	5.00	..
(4) Tourism and Development of places of Archaeological importance	0.11	..	0.05	..	0.50	..
Total (V) Transport and Communications	23.32	9.7	23.16	11.00	43.34	9.5
VI Social Services						
(1) General Education	19.00	..	6.85	..	24.97	..
(2) Technical Education	1.68	..	1.28	..	2.56	..
(3) Cultural Programmes	0.14	..	0.07	..	0.53	..
(4) Health	10.61	..	10.98	..	8.00	..
(5) Water Supply	5.41	..	4.76	..	13.68	..
(5A) Drainage and Sewerage	..	..	0.17	..	2.88	..
(6) Housing	4.97	..	1.35	..	6.25	..
(7) Urban Development	0.43	..	0.10	..	0.50	..
(8) Welfare of Backward Classes	4.14	..	1.72	..	4.00	..
(9) Social Welfare	0.29	..	0.32	..	0.72	..

I—(Contd.)

Fifth Five Year Plan 1974-79 within the outlay of Rs. 1000 crores		Sixth Five Year Plan 1979-84 within the outlay of Rs. 2000 crores		Total for Perspective Plan 1974-84 within the outlay of Rs. 3000 crores		Remarks
Outlay	Percentage to total	Outlay	Percentage to total	Outlay	Percentage to total	
8	9	10	11	12	13	14
50.00	..	135.00	..	185.00	..	
15.00	..	20.00	..	35.00	..	
5.00	..	8.00	..	13.00	..	
70.00	7.0	163.00	8.1	233.00	7.8	
88.00	..	250.00	..	338.00	..	
20.00	..	50.00	..	70.00	..	
10.00	..	18.00	..	28.00	..	
1.00	..	3.00	..	4.00	..	
119.00	11.9	321.00	16.0	440.00	14.7	
70.00	..	103.00	..	173.00	..	
5.00	..	10.00	..	15.00	..	
1.00	..	2.00	..	3.00	..	
18.00	..	36.00	..	54.00	..	
30.00	..	38.50	..	68.50	..	
8.00	..	20.50	..	28.50	..	
10.00	..	20.00	..	30.00	..	
20.00	..	60.00	..	80.00	..	
8.00	..	15.00	..	23.00	..	
1.00	..	2.00	..	3.00	..	

STATEMENT

Head/Sub-head of Development	Third Plan		Annual Plans 1966-69		Fourth Plan 1969-74	
	Expen- diture	Percen- tage to total	Expen- diture	Percen- tage to total	Provi- sion	Percen- tage to total
1	2	3	4	5	6	7
(10) Labour and Labour Welfare	1.03	..	0.55	..	0.79	..
(10-A) Employment Service and Craftsmen Training Schemes					0.86	..
(11) Public Co-operation	0.01	..	0.02	..	0.02	..
Total (VI) Social Services	47.71	19.9	28.17	13.4	65.76	14.5
VII Miscellaneous						
(1) Statistics	0.10	..	0.04	..	0.10	..
(2) Information and Publicity	0.17	..	0.13	..	0.45	..
(3) State Capital Project	..	..	7.62	..	18.25	..
(4) Special and Backward Areas	..	..	..	..	(12.55)	..
(5) Others (Employment Schemes)						
(a) Right to Work	..	..	..	..	2.50	..
(b) Educated Unemployment Relief	..	..	..	..	1.50	..
Total (VII) : Miscellaneous	0.27	0.1	7.79	3.7	22.80	5.0
VIII Other Programmes						
(1) Civil Aviation	..	..	..	..	..	..
(2) Pollution of Air, Water and Rural Sanitation	..	..	..	..	..	..
Total (VIII) Other Programmes	..	..	..	..	..	..
GRAND TOTAL (I to VIII)	240.19	100.0	210.63	100.0	455.22	100.0

-(Concl'd.)

Fifth Five Year Plan 1974-79 within the outlay of Rs. 1000 crores		Sixth Five Year Plan 1979-84 within the outlay of Rs. 2000 crores		Total for Perspective Plan 1974-84 within the outlay of Rs. 3000 crores		Remarks
Outlay	Percentage to total	Outlay	Percentage to total	Outlay	Percentage to total	
8	9	10	11	12	13	14
1.50	..	3.00	..	4.50	..	
2.50	..	5.00	..	7.50	..	
..	..	..	..	..	..	
175.00	17.5	315.00	15.8	490.00	16.3	
0.75	..	1.00	..	1.75	..	
0.75	..	1.00	..	1.75	..	
20.00	..	..	..	20.00	..	
..	..	..	..	..	..	
2.50	..	1.00	..	3.50	..	
2.00	..	1.00	..	3.00	..	
26.00	2.6	4.00	0.2	30.00	1.0	
1.00	..	3.00	..	4.00	..	
5.00	..	13.00	..	18.00	..	
6.00	0.6	16.00	0.8	22.00	0.7	
1000.00	100.0	2000.00	100.0	3000.00	100.0	

STATEMENT

Outlays and Supplementary outlays for

Head/Sub-Head of Development	Fifth Five Year Plan 1974-79		
	Outlay	Supplementary outlay	Total
1	2	3	4
<i>I Agricultural Programmes</i>			
(1) Agricultural Production	38.00	20.00	58.00
(2) Land Development	2.00	..	2.00
(3) Minor Irrigation	62.00	..	62.00
(4) Soil Conservation	15.00	5.00	20.00
(5) Animal Husbandry	4.00	..	4.00
(6) Dairying and Milk Supply	12.00	6.00	18.00
(7) Forests	8.00	..	8.00
(8) Fisheries	9.00	5.00	14.00
(9) Warehousing and Marketing	Indicated in Agricultural Production.		
Total (I) :— Agricultural Programmes	150.00	36.00	186.00
<i>II Community Development, Co-operation and Panchayats</i>			
(1) Co-operation	9.00	..	9.00
(2) Community Development	4.00	..	4.00
(3) Panchayats	1.00	..	1.00
Total (II) :—Community Development, Co-operation and Panchayats.	14.00	..	14.00
<i>III Irrigation and Power</i>			
(1) Irrigation	175.00	12.00	187.00
(2) Flood Control	15.00	..	15.00
(3) Power	250.00	100.00	350.00
Total (III) :—Irrigation and Power	440.00	112.00	552.00

Perspective Plan (1974-84).

(Rs. in crores)

Sixth Five Year Plan 1979-84			Total for Perspective Plan 1974-84			Remarks
Outlay	Supple- mentary outlay	Total	Outlay	Supple- mentary outlay	Total	
5	6	7	8	9	10	11
100.00	35.30	135.30	138.00	55.30	193.30	
4.00	..	4.00	6.00	..	6.00	
67.00	..	67.00	129.00	..	129.00	
40.00	..	40.00	55.00	5.00	60.00	
5.00	0.37	5.37	9.00	0.37	9.37	
34.00	9.04	43.04	46.00	15.04	61.04	
13.00	0.38	13.38	21.00	0.38	21.38	
25.00	19.35	44.35	34.00	24.35	58.35	
288.00	64.44	352.44	438.00	100.44	538.44	
16.00	0.60	16.60	25.00	0.60	25.60	
8.00	9.51	17.51	12.00	9.51	21.51	
2.00	1.45	3.45	3.00	1.45	4.45	
26.00	11.56	37.56	40.00	11.56	51.56	
240.00	0.41	240.41	415.00	12.41	427.41	
17.00	..	17.00	32.00	..	32.00	
610.00	43.00	653.00	860.00	143.00	1003.00	
867.00	43.41	910.41	1307.00	155.41	1462.41	

STATEMENT

Head/Sub-Head of Development	Fifth Five Year Plan 1974-79		
	Outlay	Supple- mentary outlay	Total
1	2	3	4
<i>IV Industry and Mining</i>			
(1) Large and Medium Industries	50.00	10.00	60.00
(2) Minera Development	15.00	..	15.00
(3) Village and Small Scale Industries	5.00	..	5.00
Total (IV) Industry and Mining	70.00	10.00	80.00
<i>V Transport and Communications.</i>			
(1) Roads	88.00	22.00	110.00
(2) Road Transport	20.00	..	20.00
(3) Ports and Harbours	10.00	..	10.00
(4) Tourism and Development of places of Archaeological importance	1.00	..	1.00
Total (V) Transport and Communications	119.00	22.00	141.00
<i>I Social Services</i>			
(1) General Education	70.00	20.00	90.00
(2) Technical Education	5.00	..	5.00
(3) Cultural Programmes	1.00	..	1.00
(4) Health	18.00	..	18.00
(5) Water Supply	30.00	..	30.00
(5-A) Drainage and Sewerage	8.00	..	8.00
(6) Housing (Including Rural Housing for Weaker Sections)	10.00	..	10.00
(7) Urban Development	20.00	..	20.00
(8) Welfare of Backward Classes	8.00	..	8.00
(9) Social Welfare	1.00	..	1.00
(10) Labour and Labour Welfare	1.50	..	1.50

II—(Contd.)

Sixth Five Year Plan 1979-84			Total for Perspective Plan 1974-84			Remarks
Outlay	Supple- mentary outlay	Total	Outlay	Supple- mentary outlay	Total	
5	6	7	8	9	10	11
135.00	85.60	220.60	185.00	95.60	280.60	
20.00	5.00	25.00	35.00	5.00	40.00	
8.00	0.19	8.19	13.00	0.19	13.19	
163.00	90.79	253.79	233.00	100.79	333.79	
250.00	30.00	280.00	338.00	52.00	390.00	
50.00	11.61	61.61	70.00	11.61	81.61	
18.00	..	18.00	28.00	..	28.00	
3.00	1.00	4.00	4.00	1.00	5.00	
321.00	42.61	363.61	440.00	64.61	504.61	
103.00	23.04	126.04	173.00	43.04	216.04	
10.00	0.33	10.33	15.00	0.33	15.33	
2.00	0.18	2.18	3.00	0.18	3.18	
36.00	4.51	40.51	54.00	4.51	58.51	
38.50	..	38.50	68.50	..	68.50	
20.50	..	20.50	28.50	..	28.50	
20.00	6.00*	26.00	30.00	6.00*	36.00	*Specially for Rural Housing for Weaker Sections.
60.00	31.50	91.50	80.00	31.50	111.50	
15.00	1.00	16.00	23.00	1.00	24.00	
2.00	1.32	3.32	3.00	1.32	4.32	
3.00	0.24	3.24	4.50	0.24	4.74	

STATEMENT

Head/Sub-Head of Development	Fifth Five Year Plan 1974—79		
	Outlay	Supple- mentary outlay	Total
1	2	3	4
(10-A) Employment Service and Craftsmen Training Schemes	2.50		2.50
(11) Public Co-operation	..	..	
Total (VI)—Social Services	175.00	20.00	195.00
<i>VII Miscellaneous</i>			
(1) Statistics	0.75	—	0.75
(2) Information and Publicity	0.75	—	0.75
(3) State Capital Project	20.00	—	20.00
(4) Special and Backward Areas	..	..	..
(5) Others (Employment Schemes)			
(a) Right to Work	2.50	..	2.50
(b) Educated Unemployment Relief	2.00	..	2.00
(6) Social Security Measures	..	..	..
Total (VII) Miscellaneous	26.00	..	26.00
<i>VIII Other Programmes</i>			
(1) Civil Aviation	1.00	..	1.00
(2) Pollution of Air, Water and Rural Sanitation	5.00	..	5.00
Total (VIII) Other Programmes	6.00	..	6.00
GRAND TOTAL (I to VIII)	1000.00	200.00	1200.00

II—(Contd.)

Sixth Five Year Plan 1979—84			Total for Perspec- tive Plan 1974—84			Remarks
Outlay	Supple- mentary outlay	Total	Outlay	Supple- mentary outlay	Total	
5	6	7	8	9	10	11
5.00	0.12	5.12	7.50	0.12	7.62	
..	..	..	..	..	..	
315.00	68.24	383.24	490.00	88.24	578.24	
1.00	0.50	1.50	1.75	0.50	2.25	
1.00	0.95	1.95	1.75	0.95	2.70	
..	5.13	5.13	20.00	5.13	25.13	
..	..	..	..	..	..	
1.00	11.50	12.50	3.50	11.50	15.00	
1.00	6.00	7.00	3.00	6.00	9.00	
..	53.87	53.87	..	53.87	53.87	
4.00	77.95	81.95	30.00	77.95	107.95	
3.00	1.00	4.00	4.00	1.00	5.00	
13.00	..	13.00	18.00	..	18.00	
16.00	1.00	17.00	22.00	1.00	23.00	
2000.00	400.00	2400.00	3000.00	600.00	3600.00	

STATEMENT III

Selected physical targets envisaged in the Perspective Plan, 1974-84.

Item	Unit	Estimated level of achievement at the end of					Remarks
		1968-69	Fourth Plan 1973-74	Fifth Plan 1978-79	Sixth Plan 1983-84		
1	2	3	4	5	6	7	
1 Agricultural Production (Potential)							Base level assumed for 1968-69, $\frac{1}{4}$ 29.00
(a) Foodgrains	lakh tonnes	22.54	44.00	60.00	80.00		29.00
(b) Oil Seeds	lakh tonnes	8.62	17.78	20.00	23.00		15.20
(c) Sugarcane (in terms of gur)	lakh tonnes	1.66	4.25	7.00	10.00		1.85
(d) Cotton	lakh bales of 180 kgs. each	14.25	19.00	24.00	30.00		16.00
2 Soil Conservation							
Contour bunding	lakh hectares	7.80	12.11	16.17	35.40		
3 Animal Husbandry and Dairying							
(a) Per capita consumption of milk	grams per day		175	200	240		
(b) Capacity in organised sector	lakh litres per day		15*	20	30		* Reappraised inclusive of Operation Flood investment.
(c) Wool grading	'000 kgs. per year		80	160	240		

4 *Forests*

(a) Area under quick growing species and economic plantations	'000 hectares	33.00	59.40	81.38	111.00
(b) Afforestation and soil conservation in desert, coastal and denuded areas	'000 hectares	£57.92	68.72	88.72	113.72
(c) Road side and canal side plantation	kms.		200	1200	3200

5 *Fisheries*

(a) Annual fish production	lakh tonnes	1.31	1.79	3.00	7.00
(b) Mechanisation of boats (In board engines)	number	10	1010	1250	2000
(c) Construction of improved boats and trawlers	"	640	1040	1500	2500
(d) Requisites-Nylon and others	lakh kgs.	3.90	5.90	7.90	13.00
(e) Transport facilities					
(i) Insulated refrigerated trucks/vans	number	15	50	75	200
(ii) Freezing and processing plants by cooperatives	"	1	1	5	25
(iii) Insulated/refrigerated carrier launches	"	12	25	30	40
(iv) Refrigerated containers	"	..	..	15	35
(f) Fishmeal Production	tonnes	100	500	3500	12000
(g) Canning plants	number	1	1	2	10

1	2	3	4	5	6	7
6 Co-operation						
(a) Agricultural credit						
(i) Membership	number in lakhs	12.73	15.50	18.00	22.80	
(ii) Short and Medium term advances	Rs. in crores	65.28	75.00	115.00	150.00	
(iii) Long-term advances	Rs. in crores	94.97	184.97	352.97	552.97	
(b) Co-operative Sugar Factories (Societies)	number	11*	14	22	30	*Registered Societies
7 Irrigation						
Multipurpose, Major and Medium irrigation-Potential	lakh hectares	4.6	8.2	11.7	*17.6	*Including Narmada
8 Power						
(a) Installed capacity	MW	618	1607	2872	4702	
(b) Villages electrified	number	3048	5407	7400	12900	
(c) Pumpssets energised	number	38735	126000	180000	300000	

9 Transport and Communications

(A) Roads

(i) National Highways	kms.	1056	1056	2000	3602
(ii) State Highways	"	6983	8423	7479	6168
(iii) Major District Roads	"	7137	7173	10174	14382
(iv) Other District Roads	"	8417	9817	12867	17341
(v) Village Roads	"	8628	9988	13168	20035
Total Roads	"	32211	36457	45708	61528

(B) Road Transport

(i) Villages connected by ST Bus services.	percentage	55.97			100
(ii) Fleet held (as on last day)	number	3716	5108	7027	11113
(iii) Effective Kilometrage	lakh kms.	2028.76	3108.62	4582.41	7756.47
(iv) Average number of vehicles on road	number	2326	3776	5294	8327
(v) Passengers carried per year	number lakhs	3991.80	6374.20	8038.01	14395.33

(C) Ports and Harbours

Traffic handled by intermediate and minor ports	lakh tonnes	39.68	40.00	60.00	75.00
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1	2	3	4	5	6	7
(D) Tourism and Development of places of Archaeological Importance		(i)	Tourist Corporation to be set up.			
		(ii)	Facilities at the existing centres of tourist attraction such as Sasan Gir, Palitana, Modhera, Porbandar, Dwarka, Nal Sarovar etc., to be improved.			
		(iii)	Motel/Picnic Spots to be developed at places indicated.			
		(iv)	Existing Holiday Homes to be improved and modernised.			
		(v)	New Holiday Homes to be provided at the places indicated.			
		(vi)	Places of archaeological importance to be protected and preserved and exploration work to be undertaken as indicated.			
(E) Telecommunications, Railways and Civil Aviation.						
	(i) Telecommunication	(i)	Existing local exchanges to be modernised.			
		(ii)	STD facility to be provided linking Ahmedabad with other cities in India and with District Head-quarters.			
		(iii)	Communication facilities such as telex, teleprinters etc. to be improved, especially by the provision of co-axial cables and micro-wave transmission.			
		(i)	New Railway lines to be provided and Maralling yard capacity to be increased.			
	(ii) Railways	(ii)	Some existing Meter-Gauge lines to be converted into Broad-Gauge lines as indicated			
						Telecommunications, Railways and Civil Aviation are under the jurisdiction of Government of India. The proposals made are of a recommendatory character.

(iii) Civil Aviation.

- (i) Existing airports to be modernised.
- (ii) Ahmedabad airport to be improved.
- (iii) Diu to be placed on the air map.
- (iv) Surat to be provided with a full-fledged airport.
- (v) Air strips to be provided at all District Head-quarters.
- (vi) Air services run linking Ahmedabad with the more important places in neighbouring States.
- (vii) It is visualised that by the mid-1980's domestic jet services from Bombay through Ahmedabad to New Delhi would have to be with aircraft with over 200 seats.
- (viii) On the other routes, now operated by 40/48 turboprops, the need would be for 100 seat jets i. e. between Bombay-Surat-Baroda-Ahmedabad-Bhavnagar-Rajkot, Varanasi-Jamnagar-Bhuj-Kandla and outside the State Stations such as Indore/Udaipur etc.
- (ix) Services from Ahmedabad to District Head-Quarters and to places of Tourist importance would have to be with 20 seats STOL aircraft owned either by a subsidiary of Indian Airlines or by the State Government or by a private company or by a body such as the Agro-Industries Corporation which could own/maintain a small fleet of aircraft for the purpose.

1	2	3	4	5	6	7
10 Education.						
(A) General Education						
(1) Enrolment						
(i) Classes I-V						
(a) Total	no. in lakhs	29.20	35.20	41.00	49.98	
(b) As percentage of the population in this age group (6-11)	Percentage	83.01	87.05	90.40	100.00	
(c) Girls.	no. in lakhs	10.86	13.33	17.20	23.60	
(d) As percentage of the population in this age group (6-11)	Percentage.	64.00	68.70	78.90	100.00	
(e) Teacher pupil ratio	Ratio	1:38	1:38	1:38	1:37	
(ii) Classes VI-VIII						
(a) Total	no. in lakhs	6.78	8.97	16.97	21.98	
(b) As percentage of the population in this age group (12-14)	percentage	36.07	42.04	71.20	87.00	
(c) Girls	no. in lakhs	2.20	3.07	5.70	9.00	
(d) As percentage of the population in this age group (12-14)	percentage	24.70	30.01	49.90	4.00	

(iii) Classes IX-XI

(a) Total	no. in lakhs	
(b) As percentage of the population in this age group (15-18)	3.81	7.58
(c) Girls	22.05	35.30
(d) As percentage of the population in this age group (15-18)	1.13	2.44
(iv) University/Colleges (Arts, Science and Commerce)	14.04	21.20
	108650	280000
(II) Teachers		
(a) In elementary schools	160000	220000
(b) Percentage trained	85259	140000
(c) In secondary schools	81.50	100.00
(d) Percentage trained	26310	38000
	73.	95.00

(B) Technical Education.

(i) Engineering Colleges	number	
(a) Colleges	7	8
(b) Sanctioned annual admission capacity	1790	1970
(c) Outturn.	1216	1600
		2270
		1900

Including part time.

		1	2	3	4	5	6	7
(ii) Polytechnics (Excluding girls')								
(a)	Institutions		number	16	16	16	16	
(b)	Sanctioned annual admission capacity		number	3075	3075	3525	4035	Including part-time
(c)	Outturn		number	1640	1640	2400	2800	
(iii) Girls' Polytechnics								
(a)	Institutions		number	2	2	2	2	
(b)	Sanctioned annual admission capacity		number	180	240	360	360	
(c)	Outturn		number	54	110	200	200	
(iv) Pharmacy								
(a) Degree Courses								
(i)	College		number	2	2	2	2	
(ii)	Sanctioned intake capacity		number	105	105	105	105	
(iii)	Outturn		number	90	90	90	90	
(b) Diploma								
(i)	Institutions		number	2	2	2	2	
(ii)	Sanctioned intake capacity		number	220	220	220	220	
(iii)	Outturn		number	190	190	190	190	

11 Health

	number	11869	14973	17989	26445
(i) Beds (Government Institutions)					
(ii) Primary Health Centres	number	251	251	275	383
(iii) Medical Colleges	number	5	5	6	7
(iv) Family Planning Programmes					
(a) Rural Family Planning Centres	number	244	250	272	382
(b) Family Planning Clubs (Centres)	number	532	1000	1140	1575

12 Birth Control

As a result of the programme, 1,000 women have been sterilised. All the 1000 villages now estimated to be 3000 would be covered by the end of fifth Plan.

* additional.

13 Housing

(i) Integrated suburban colonies	number of colonies	1324	1788*	1500*	3000*
(ii) Slum clearance		804	1000	3000	5000
(iii) Low Income Group Housing		418	700	3700*	6000*
(iv) Village Housing	number of villages	974	1764	2000*	4500*

In addition, the Gujarat Housing Board will create 35000 houses from other sources like P. L. C. open market borrowings etc.

1	2	3	4	5	6	7
14 Training of Craftsmen						
(a) Institutions	number	18	18	20	23	
(b) Intake	number	5900	5900	6800	8460	
15 Welfare of Backward Classes						
I Tribal Development Blocks.	number	53	53	70	75	
II Post Matric Scholarship						
(a) General Courses						
(i) Scheduled Tribes	number	1218	3900	7000	12000	
(ii) Scheduled Castes	number	3995	10080	20000	30000	
(b) Technical and Professional Courses.						
(i) Scheduled Tribes	number	371	1957	3000	4000	
(ii) Scheduled Castes	number	984	2500	3500	4500	
III Ashram Schools						
(i) Ashram Schools	number	107	125	150	180	
(ii) Post Basic Ashram Schools.	number	3	13	25	40	
IV Backward Class Hostels						
	number	333	420	500	660	
V Girls Hostels						
	number	92	122	150	180	

16 Social Welfare

(a) Institutions under:				
	number			
(i) Children Act	46	55	62	68
(ii) Suppression of Immoral Traffic Act	17	19	24	30
(iii) Prevention of Begging Act	7	8	13	18
(b) Other Institutions :				
(i) Institutions for blind	19	20	30	35
(ii) Institutions for orthopaedically handicapped	4	8	13	18
(iii) Institutions for mentally deficient	1	3	6	8
(iv) Institutions for deaf and mute	12	16	25	33

STATEMENT IV

Selected physical targets envisaged in the Perspective Plan, 1974-84 (with Supplementary Outlays).

Item	Unit	Targetted level of achievement on the basis of outlays inclusive of Supplementary outlays					Remarks
		1968-69	Fourth Plan 1973-74	Fifth Plan 1978-79	Sixth Plan 1983-84		
1	2	3	4	5	6	7	
1 Agricultural Production (Potential)							
(a) Foodgrains	lakh tonnes	22.54	44.00	60.00	80.00	Base level assumed for 1968-69	29.60
(b) Oil Seeds	lakh tonnes	8.61	17.78	20.00	23.00		15.20
(c) Sugarcane (in terms of gur)	lakh tonnes	1.66	4.25	7.00	10.00		1.85
(d) Cotton	lakh bales of 180 Kgs. each	14.25	19.00	24.00	30.00		16.00
2 Soil Conservation							
Contour bunding	lakh hectares	7.80	12.11	21.56	40.79		
3 Animal Husbandry and Dairying							
(a) Per Capita consumption of milk	grams per day		175	200	240		
(b) Capacity in organised sector	lakh litres per day		15*	20	30	*Reappraised of Operation Flood investment.	
(c) Wool grading	'000 kgs. per year		80	100	240		

4 Forests

(a) Area under quick growing species and economic plantations	'000 hectares	33.00	59.40	81.35	111.00
(b) Afforestation and soil conservation in desert, coastal and denuded areas	'000 hectares	57.92	68.72	88.72	113.72
(c) Road side and canal side plantation	kms		200	1200	3200

5 Fisheries

(a) Annual fish production	lakh tonnes	1.31	1.79	4.00	9.00
(b) Mechanisation of boats (In-board engines)	number	710	1010	1700	2500
(c) Construction of improved boats and trawlers	"	640	1040	1840	3000
(d) Requisites Nylon and others	lakh kgs.	3.90	5.90	9.90	17.00
(e) Transport facilities					
(i) Insulated refrigerated trucks vans	number	15	50	100	250
(ii) Freezing and processing plants by co-operatives	"	1	1	10	30
(iii) Insulated refrigerated carrier launches	"	12	25	35	50
(iv) Refrigerated container	"	.	.	25	50

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1	2	3	4	5	6	7
(f) Fishmeal Production	tonnes	100	500	5500	18000	
(g) Canning plants	number	1	1	5	15	
6 Co-operation						
(a) Agricultural credit						
(i) Membership	number in lakhs	12.73	15.50	18.00	22.80	
(ii) Short and Medium term advances	Rs. in crores	65.26	75.00	115.00	150.00	
(iii) Long term advances	Rs. in crores	94.97	184.97	352.97	552.97	
(b) Co-operative Sugar Factories (Societies)	number	11*	14	22	30	*Registered Societies
7 Irrigation						
Multipurpose, Major and Medium irrigation Potential	lakh hectares	4.6	8.2	11.7	17.6*	*Including Narmada
8 Power						
(a) Installed capacity	MW	618	1607	2982	5002	
(b) Villages electrified	number	3048	5407	8800	14222	
(c) Pumpsets energised	"	38735	126000	210000	326000	
9 Transport and Communications						
(A) Roads						
(i) National Highways	kms.	1056	1056	2000	3802	
(ii) State Highways	"	6983	8423	7479	6168	

(iii) Major District Roads	kms.	7173	10174	14382
(iv) Other District Roads	"	8117	12867	17341* *These will be black topped.
(v) Village Roads	"	5629	13188	20035*
Total Roads	"	32211	45708	61528

(B) Road Transport

(i) Villages connected by S.T. Bus services	percentage	55.97	100
(ii) Fleet held (as on last day)	number	3716	8020
(iii) Effective Kilometrage	lakh kms.	2028.76	5261.85
(iv) Average number of vehicles on roads	number	2526	6080
(v) Passengers carried per year	number in lakhs	3991.30	10264.86

(C) Ports and Harbours

Traffic handled by Intermediate and Minor Ports.	lakh tonnes	30.48	42.00	40 (4)	75 (4)
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	1	2	3	4	5	6	7
(D)	Tourism and Development of places of Archaeological importance						
	(i)	Tourist Corporation to be set up.					
	(ii)	Facilities at the existing centres of tourist attraction such as Sasan Gir, Palitana, Modhera, Porbandar, Dwarka, Nal Sarovar etc. to be improved.					
	(iii)	Motel/Picnic Spots to be developed at places indicated.					
	(iv)	Existing Holiday Homes to be improved and modernised.					
	(v)	New Holiday Homes to be provided at places indicated.					
	(vi)	Places of archaeological importance to be protected and preserved and exploration work to be undertaken as indicated.					
(E)	Tele communications, Railways and Civil Aviation						
	(i)	Tele communication					
	(i)	Existing local exchanges to be modernised.					Tele communications, Railways and Civil Aviation are under the jurisdiction of Government of India. The proposals made are of a recommendatory character.
	(ii)	STD facility to be provided linking Ahmedabad with other cities in India and with District Head-quarters.					
	(iii)	Communication facilities such as telex, teleprinters etc. to be improved, especially by the provision of co-axial cables and micro-wave transmission.					
	(i)	New Railway lines to be provided and Marshalling yard capacity to be increased.					
	(ii)	Some existing Meter-Gauge lines to be converted into Broad-Gauge lines as indicated.					
	(ii)	Railways					

(iii) Civil Aviation

- (i) Existing airports to be modernised.
- (ii) Ahmedabad airport to be improved.
- (iii) Dhu to be placed on the air map.
- (iv) Surat to be provided with a full-fledged airport.
- (v) Air strips to be provided at all District Head-quarters.
- (vi) Air services run linking Ahmedabad with the more important places in neighbouring States.
- (vii) It is visualised that by the mid-1980's domestic jet services from Bombay through Ahmedabad to New Delhi would have to be with aircraft with over 200 seats.
- (viii) On the other routes, now operated by 40/48 turboprops, the need would be for 100 seat jets, i. e., between Bombay-Surat-Baroda-Ahmedabad-Bhavnagar-Rajkot, Varanasi-Jaipur-Bhopal-Kanpur and outside the State stations such as Bhopal, Udaipur etc.
- (ix) Services from Ahmedabad to District Head-quarters and to places of tourist importance would have to be with 20 seats STOL aircraft owned either by a subsidiary of Indian Airlines or by the State Government or by a private company or by a body such as the Aero-Industries Corporation which could own/maintain a small fleet of aircraft for the purpose.

1	2	3	4	5	6	7
10 Education						
(A) General Education						
(I) Enrolment						
(i) Classes I-V						
(a) Total	no. in lakhs	29.20	35.20	43.07	49.98	
(b) As percentage of the population in this age group (6-11)	Percentage	83.01	87.05	95.00	100.00	
(c) Girls	no. in lakhs	10.86	13.33	18.19	23.60	
(d) As percentage of the population in this age group (6-11)	Percentage	64.00	68.70	83.20	100.00	
(e) Teacher pupil ratio	Ratio	1:38	1:38	1:38	1:37	
(ii) Classes VI-VIII						
(a) Total	no. in lakhs	6.78	8.97	19.04	22.98	
(b) As percentage of the population in this age group (12-14)	percentage	36.07	42.04	80.00	90.00	
(c) Girls	no. in lakhs	2.20	3.07	6.70	9.75	
(d) As percentage of the population in this age group (12-14)	percentage	24.70	30.01	58.30	79.20	
(iii) Classes IX-XI						
(a) Total	no. in lakhs	3.81	4.90	6.65	8.51	
(b) As percentage of the population in this age group (15-18)	percentage	22.05	24.09	30.00	38.30	
(c) Girls	no. in lakhs	1.12	1.00	0.00	0.00	

	1	2	3	4	5	6	7
(iii) Girls' Polytechnics							
(a) Institutions		number	2	2	2	2	
(b) Sanctioned annual admission capacity		number	180	240	360	360	
(c) Outturn		number	54	110	200	200	
(iv) Pharmacy							
(a) Degree Courses							
(i) Colleges		number	2	2	2	2	
(ii) Sanctioned intake capacity		number	105	105	105	105	
(iii) Outturn		number	90	90	90	90	
(b) Diploma							
(i) Institutions		number	2	2	2	2	
(ii) Sanctioned intake capacity		number	220	220	220	220	
(iii) Outturn		number	190	190	190	190	
11. Health							
(I) Beds (Government Institutions)		number	11869	14273	17939	27049	
(II) Primary Health Centres		number	251	251	273	383	
(III) Medical Colleges		number	5	5	6	7	
(IV) Family Planning Programme							
(a) Rural Family Planning Centres		number	244	250	272	382	
(b) Family Planning Sub-Centres		number	732	1000	1140	1535	

12 <i>Water Supply</i>		number		800	2200 @	@ All no source villages, now estimated to be 3000 would be covered by the end of Fifth Plan.
No Source Villages to be covered						
13 <i>Housing</i>						
(i) Integrated subsidised	number of tenements	13721	17284		4500*	8000*
(ii) Slum clearance	"	8044	10169		3000*	5000* *Additional. In addition, the Gujarat Housing Board will construct 37000 houses from the funds available from other sources like L. I. C., open market borrowings etc.
(iii) Low Income Group Housing	"	4118	7930		3500*	6000*
(iv) Village Housing	number of houses	974	1764		2500*	4500*
14 <i>Training of Craftsmen</i>						
(a) Institutions	number	18	18		20	23
(b) Intake	number	5900	5900		6900	8400
15 <i>Welfare of Backward Classes</i>						
(1) Tribal Development Blocks	number	53	53		70	75
(II) <i>Post Matric Scholarships</i>						
(a) General Courses						
(i) Scheduled Tribes	number	1218	3900		7000	12000
(ii) Scheduled Castes	number	3995	10080		20000	36000
(b) Technical and Professional Courses						
(i) Scheduled Tribes	number	371	1957		3000	4000
(ii) Scheduled Castes	number	984	2500		3500	4500

1	2	3	4	5	6	7
(III) Ashram Schools						
(i) Ashram Schools	number	107	125	150	180	
(ii) Post Basic Ashram Schools	number	3	13	25	40	
(IV) Backward Class Hostels	number	328	420	500	650	
(V) No. of girls Hostels	number	92	122	150	180	
16 Social Welfare						
(a) Institutions under						
(i) Children Act	number	46	55	62	72	
(ii) Suppression of Immoral Traffic Act	number	17	19	24	35	
(iii) Prevention of Begging Act	number	7	8	13	21	
(b) Other Institutions						
(i) Institutions of blind	number	19	20	30	40	
(ii) Institutions of orthopaedically handicapped	number	4	8	13	21	
(iii) Institutions for mentally deficient	number	1	3	6	10	
(iv) Institutions for deaf and mute	number	12	16	25	37	

STATEMENT—V

Selected Indicators of Development.

Item	Unit	Estimated level of achievement at the end of					
		1950-51	1968-69	Fourth Plan 1973-74	Fifth Plan 1978-79	Sixth Plan 1983-84	
1	2	3	4	5	6	7	
1. Agricultural Production							
(a) Foodgrains	.. lakh tonnes	16.36	22.54	44.00	60.00	80.00	
(b) Oil Seeds	.. lakh tonnes	4.67	8.62	17.78	20.00	23.00	
(c) Sugarcane (in terms of gur)	.. lakh tonnes	0.73	1.66	4.25	7.00	10.00	
(d) Cotton	.. lakh bales of 180 Kgs. each	7.32	14.25	19.00	24.00	30.00	
2. Fisheries							
Annual fish production	.. lakh tonnes	0.33	1.31	1.79	3.00	7.00	
3. Co-operation							
(i) Membership of Agricultural Societies	.. Number in lakhs	2.02	12.73	15.50	15.00	22.80	
Agricultural Credit							
(i) Short and Medium term advances	.. Rs. in crores	1.57	65.26	75.00	115.00	150.00	
(ii) Long term advances	.. Rs. in crores	Nil	94.97	184.97	352.97	552.97	
Multipurpose, Major and Medium Irrigation Potential	.. lakh hectares	0.2	4.6	8.2	11.7	17.6	

1	2	3	4	5	6	7
5. Power						
(a) Installed capacity ..	.. M.W.	142	618	1607	2872	4702
(b) Villages electrified ..	.. Number	117	3048	5407	7400	12900
6. Total Roads ..	.. Kms.	13154	32211	36457	45708	61528
7. Engineering Colleges ..	.. Number	3	7	7	8	8
Sanctioned annual admission capacity	.. Number	300	1790	1790	1970	2270
8. Polytechnics (Excluding girls')						
Institutions ..	.. Number	6	16	16	16	16
Sanctioned annual admission capacity.	.. Number	455	3075	3075	3525	4035
9. Girls' Polytechnics						
(a) Institutions ..	.. Number	Nil	2	2	2	2
(b) Sanctioned annual admission capacity	.. Number	Nil	180	240	360	360
10. Training of Craftsmen						
Institutions ..	.. Number	Nil	18	18	20	23
Intake Capacity ..	.. Number	Nil	5900	5900	6900	8400
11. Health						
Beds (Government Institutions) ..	.. Number	4329	11869	14273	17989	26445
12. Medical Colleges ..	.. Number	2	5	5	6	7

APPENDIX A

**A CONSISTENCY FRAME WORK FOR GUJARAT'S
PERSPECTIVE PLAN**

by

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APPENDIX A

A Consistency frame work for Gujarat's Perspective Plan— A Preliminary Exercise

1. The perspective planning exercises in our State have revealed in an operational manner a number of interesting features inherent in any planning process. It has been shown clearly that the process of planning involves interdependence between different sectors of the economy. The Working Groups for each sector have put in considerable effort to lay bare the operational constraints in the sector itself and show ways of overcoming such constraints. Another interesting feature of the exercise of each Working Group has been that it showed in detailed terms the extent to which the Group required information pertaining to development in other sectors of the regional economy, or the overall development of the regional economy or even the development of the national economy as a whole. Such information has in fact been used in the exercises done by different Working Groups, e.g. infra-structure development of power and transport has been related with output levels in different sectors of the economy, industrial targets have been laid down in terms of estimated demands and Gujarat's share of capacity levels, targets for dairy development have been laid down in relationship to growth of demand. The present paper is a modest preliminary exercise in bringing together the assumptions made in different groups in the perspective planning effort and in terms of some of the objectives of the exercise stated by the policy makers.

2. The approach followed in the estimation of numerical magnitudes reported in this paper is a modified version of that followed in the preparation of material balances estimated for the national economy by the Planning Commission.¹ The main features of the data assumed for this exercise are a 24 sector input-output matrix for the Gujarat economy for 1964-65², assumptions stated by the

1. Perspective Planning Division, Planning Commission, Government of India. *Draft Fourth Plan : Material and Financial Balances* (New Delhi, Planning Commission, 1966). Also see Alan S. Manne and Ashok Rudra, *A Consistency Model of India's Fourth Plan*. *Sankhya*, Series B, Vol. 27, Parts 1 and 2, September, 1965, pp. 57-144.
2. S. P. Kashyap and Yoginder K. Alagh. *Structure of Gujarat's Economy : Interindustry Flows at Producer's Prices, 1964-65* (Mimeo, Sardar Patel Institute of Economic and Social Research, 1971): to be published.

regional policy makers on growth of aggregate output and population commodity-wise expenditure elasticities of demand with respect to income changes estimated from consumer budget studies over several rounds in Gujarat³, assumptions made by the regional policy makers on growth of investment and plan expenditure and trade coefficients based on a study of Gujarat's interregional trade in 1964-65⁴. The main *results* of this exercise are output levels for different sectors for different years ending with the Sixth Plan period and forecasts of the employment potential of the proposed planning effort in Gujarat. The results of this exercise are then compared, wherever possible, with those obtained from the original Perspective Plan exercises.

3. It cannot be overemphasized that the results obtained in this paper are very preliminary. They depend on assumptions made on crucial magnitudes, which in turn depend on assumptions made by the policy planners in the overall Perspective Planning exercise. Different ways exist of incorporating the assumptions of the policy makers into the type of exercise we have done. Of these the results of two methods are reported in this paper. Other alternatives are being worked out, and the results very crucially depend on the way the details of each alternative are spelled out for incorporation into the model.

4. Before we discuss our results, it may also be mentioned that apart from a few exceptions, the detailed schemes incorporated in the *State Plans* (for the Fifth Plan and the Sixth Plan period) do not in any unique way depend on the sectoral output magnitudes reported in this paper or by different Working Groups of the Perspective Plan. *e.g.*, the incentive schemes of the Industries Department do not depend uniquely on the sectoral output levels by the Group itself or in this paper. Such a correspondence is there only for a few sectors *e.g.*, the dairy development programme in the State Plan does depend on estimates of demand for milk and milk products as reported by the Working Group for Agriculture, Irrigation, Animal Husbandry and Forests or as reported by us on the basis of estimates of per capita income growth and expenditure elasticities for these products (Similarly for electricity generation plans, output of industrial sector is crucial). In this sense, for resource allocation on the State Plan schemes themselves, informed judgements by the State planners are

3. G. V. S. N. Murthy, *The Pattern of Consumer Expenditure in Gujarat Anvesak*, December, 1971 (in press).

4. Jyoti D. Thakker, *A note on the Level and Structure of Gujarat's Interregional Trade*, *Anvesak*, June, 1971, pp. 145-156.

ipso facto, very important and exercises such as the one done in this paper are only to supplement such judgement, by working out, to the extent possible, the related overall magnitudes involved for the regional economy as a whole. Also such exercises may help by giving a preview of expected shortages so that private effort may be canalized in particular directions, as also attempts made to indicate such areas to the central planners for action.

5. Table 1 gives our forecasts for output levels of the Gujarat economy classified by 19 sectors. Forecasts are developed around two alternative assumptions on growth of regional per capita income (3.8 percent per annum and 5 percent per annum)⁵. These assumptions, as well as the other assumptions stated earlier (for details see Annexure) are fed into a complete system of inter-industrial interdependence of the regional economy and the output forecasts are derived. Although output in each sector is determined by the simultaneous operation of all the sectors of the economy, taking into account import leakages, the main determinants of output expansion in our model for important sectors have been isolated below. As Table 1 shows, the textiles and milk food and malted food sectors of the economy are significantly affected by demand factors, operating through higher per capita income generation in Alternative II. Output expansion in the textile sector is also due to its higher export quotient as related to other sectors. This is an expected result as the expenditure elasticities for these two sectors are very high (see Annexure). In addition, chemicals, non-metallic mineral products and electricity are expected to grow fast on account of inter-industry dependence and the former two sectors, also due to relatively higher export coefficients. The growth in construction, basic metals and equipment sectors is mainly due to the investment levels derived from the Perspective Plan exercise. Table 1 also indicates that as compared to 1964-65, the Perspective Plan is expected to create a very substantial growth promoting effect in all sectors of the economy. The challenge for the planners would be to translate the underlying assumptions of the Plan into reality.

6. Table 2 indicates comparisons, wherever possible of sectoral output levels forecast by different Working Groups and by the consis-

5. These assumptions are derived from the stated objective of rates of growth of 6% in the agricultural sector, 10% in the industrial sector, population projections for the State, and alternative assumptions on the rate of growth of remaining sectors of the economy.

tancy model used in this paper. The main sectors in which we expect shortages, if the investment programmes in the Perspective Plan succeed in toto are dairy products (milk food and malted food sector), textiles, non-metallic mineral products and electricity (only in Sixth Plan) sectors. A discussion of some of these differences may be useful. The differences in the forecast for dairy products are substantial. As Table A in the Annexure shows, the average citizen of Gujarat has shown a remarkable fondness for dairy products. Based on the examination of past budgetary data, the statement can be reasonably made that the percentage expansion in demand for dairy products is one and a half times that of overall expansion in consumer expenditure in the State. This coupled with the substantial increases in per capita income postulated in our model, leads to a desired output level which is a fifth to a third higher than the official estimates based on per capita physical requirements and population growth estimates. Textiles are a case that needs closer examination. Almost all perspective planning studies, including those made by the national planners derive high growth rates for the sector⁶. Our model is no exception to this pattern. The elasticity of expenditure on textile, w.r.t. total expenditure is higher than 3 (Annexure Table A). The sector also has export potential. However, in actual practice, presumably due to structural bottlenecks and policy reasons the progress of the industry is much slower. Considering that this raises issues of obvious importance, we thought it useful to present our results the way they are. Given expenditure and export patterns as postulated, our estimate of expansion of production in the industry is 30-40 percent higher than in the Perspective Plan. In electricity also we expect bottlenecks in the Sixth Plan period as shown in Table 2. The lower demands for basic metals and equipment industries derived by us as compared to the official estimates and the relatively higher demand for non-metallic mineral products in our forecasts, reflects a distinct change in product mix of the existing industrial system of Gujarat, postulated by the official estimates. This would imply a much higher substitution of machinery and basic metals, purchased from outside Gujarat, with those produced within the region, as compared to the past. Alternatively this implies that the import ratios used for these sectors in our preliminary study, require to be scaled downwards, as compared to those used in the present study, which are based on past data. Such revision will obviously need thorough industry wide studies.

6. *Op. cit.*, Manne and Rudra forecast a doubling of output in the decade of the Sixties (See p. 76, p. 79 and p. 123).

7. It may be noted that the implications of the development of the petrochemical sector have not been worked out endogenously or as a part of the model of the economy, but exogenously or on the basis of the techno-economic forecasts done independently by the industries experts as in the Working Group Report on Industries itself. This is due to the fact that past data for incorporation in the system was not available. This would to some extent explain the excess capacity in the equipment sector forecast in the present version of our model. Further, there were some inherent built in depressors in our system as compared to the official exercises. Our system was in 1964-65 prices while the official forecasts are in 1969 prices. The official forecasts are also based on an assumption of full utilization of industrial capacity. To compensate for this the terminal years in our preliminary exercise reported here, have been jacked up by one year in each case, for purpose of comparison. This is admittedly an arbitrary compensation principle. Data on capacity utilisation by industry and price movements from 1964 to 1969 can be used to improve the method in a latter exercise.

8. Table 3 reports our estimates of total induced expansion, sector by sector, of employment generated by the Perspective Plan targets. The implications on employment would be an annual growth rate of employment of 7.4 percent compounded in Alternative I and 10.8 percent in Alternative II. These are obviously high rates. However, their fulfilment depends on the basic programmes of the Plan being implemented⁷.

All Enquiries On Details of Assumptions and Methodology Used in this Paper Will Be Welcomed By The Authors At the Sardar Patel Institute Of Economic And Social Research.

7. Table 3 has been estimated through the use of wage bills in industrial output being assumed constant. This does not imply that money wages will in fact not rise, as the entire system is in 1964-65 producers prices.

TABLE . 1

Estimated Sectoral Output Levels for Gujarat's Economy for 1964-65 and Sectoral Output Projections for 1974-75, 1979-80, 1984-85 (Figures in Rs. crores in 1964-65 producers prices)

Sectors	Alternative I				Alternative II			
	(Annual Per Capita Income Growth of 3.8%)				(Annual Per Capita Income Growth of 6%)			
	1964-65 2	1974-75 3	1979-80 4	1984-85 5	1974-75 6	1979-80 7	1984-85 8	
1 Agriculture and Allied Activities	688.36	1130.56	1214.45	1985.07	1210.30	1698.94	2609.91	
2 Mining ..	2.22	5.20	8.84	15.29	5.35	9.14	15.81	
3 Construction ..	102.90	183.97	256.72	369.85	212.12	308.22	453.70	
4 Milk, Food and Malted Food ..	6.98	15.09	22.20	26.58	18.42	29.93	48.65	
5 Flour Mills and Starch ..	18.46	35.32	48.98	74.75	40.44	61.69	97.48	
6 Other Food and Agro-based ..	19.11	35.22	47.80	60.23	39.87	57.67	83.47	
7 Oil ..	121.03	233.87	323.98	450.41	240.62	339.29	478.40	
8 Salt ..	2.53	4.69	6.39	8.64	4.81	6.70	9.57	
9 Textiles ..	271.57	637.19	983.66	1475.55	736.51	1374.75	2798.54	
10 Chemicals ..	65.53	144.08	210.25	302.28	162.82	236.10	381.18	
11 Cement ..	14.61	29.91	44.08	65.83	32.38	48.04	74.72	
12 Non Metallic Mineral Products	10.17	19.86	28.28	43.11	21.79	32.23	68.33	

13	Paper and Paper Products	..	6.75	13.83	21.86	31.78	17.13	28.50	50.47
14	Basic Metals and Metal Products	..	25.37	56.19	85.37	131.91	62.06	98.58	167.91
15	Equipment	..	30.17	79.84	108.11	154.16	89.09	134.37	207.36
16	Leather and Rubber	..	3.32	7.10	11.08	16.86	8.67	14.43	24.18
17	Wood and Cork	..	2.52	5.29	7.75	11.42	5.67	8.64	13.46
18	Miscellaneous Manufacturing	..	5.15	4.69	7.42	12.66	4.37	8.72	16.06
19	Electric Light and Power	..	26.72	61.60	97.55	166.36	75.97	138.92	267.01

TABLE - 2
Comparisons of Estimated Sectoral Output Levels by Perspective Planning Groups and the Present Exercise for Fifth and Sixth Plans.

Sectors	Perspective Planning Estimates (Rs. in Crores)			Sardar Patel Institute's Estimates (Rs. in Crores)			
	Fifth Plan		Sixth Plan	Fifth Plan		Sixth Plan	
	Output increases in the terminal year over the initial year		Output increases in the terminal year over the initial year	Output increases in the terminal year over the initial year		Output increases in the terminal year over the initial year	
	2	3		Alternative I 4	Alternative II 5	Alternative I 6	Alternative II 7
1 Agriculture and Allied Activities ..	..	N.A.	N.A.	83.89 (7.42%)	488.64 (40.37%)	746.30 (61.45%)	810.97 (47.78%)
2 Mining ..	..	N.A.	N.A.	3.64 (70.06%)	3.79 (70.81%)	6.45 (73.06%)	6.67 (72.98%)
3 Construction ..	..	N.A.	N.A.	70.74	96.10	103.13	145.48
4 Milk Food and Malted Food ..	19.8%	30.8%	30.8%	7.10 (47.07%)	11.61 (62.49%)	4.38 (15.70%)	18.72 (62.55%)
5 Flour Mills and Starch ..	N.A.	N.A.	N.A.	13.66	17.81	25.77	25.80
6 Other Food and Agro-based ..	70.00	50.00	50.00	12.58	20.75	12.43	43.61
7 Oil ..	70.00	140.00	140.00	90.12	98.67	136.43	139.11
8 Salt ..	10.8	6.5	6.5	1.70	1.90	2.25	2.87
9 Textiles ..	230.00	400.00	400.00	346.47	638.25	491.89	1423.79
10 Chemicals ..	210.8	249.2	249.2	66.18	83.45	92.02	145.08
11 Cement ..	23.00	35.00	35.00	14.18	15.66	21.75	26.68

12	Non Metallic Mineral Products	6.3	9.5	8.42	10.56	14.82	36.10
13	Paper ..	6.5	40.00	8.04	11.37	9.92	21.97
14	Basic Metals ..	273.7	276.1	29.18	36.51	46.42	59.33
15	Equipment ..	289.8	688.2	28.27	45.28	46.06	72.99
16	Leather and Rubber ..	16.00	16.25	3.98	5.76	5.78	9.75
17	Wood and Cork ..	N.A.	N.A.	2.46	2.98	3.65	4.82
18	Miscellaneous Manufacturing ..	50.35	23.75	2.73	3.85	5.24	7.34
19	Electric Light and Power ..	105.35%	51.52%	35.95 (52.36%)	62.94 (92.85%)	58.73 (80.21%)	191.09 (92.21%)

TABLE 3

Employment Implications of Output Projections During Fifth Plan and Sixth Plan

Sectors	Alternative I		Alternative II	
	Fifth Plan	Sixth Plan	Fifth Plan	Sixth Plan
	Percentage increase of terminal year over the initial year	Percentage increase of terminal year over the initial year	Percentage increase of terminal year over the initial year	Percentage increase of terminal year over the initial year
1	2	3	4	5
1 Agriculture and Allied activities	7.42	61.82	40.37	47.73
2 Mining	70.49	72.12	69.84	72.90
3 Construction	39.55	40.16	45.31	47.20
4 Milk Food and Malted Food	47.25	19.40	62.16	62.78
5 Flour Mills and Starch	38.60	52.53	51.91	58.29
6 Other Food and Agro-based	33.64	26.28	44.54	42.80
7 Oil	38.66	39.03	41.10	41.03
8 Salt	36.51	35.17	39.00	43.06
9 Textiles	54.38	50.00	86.66	103.57
10 Chemicals	45.93	43.75	54.44	61.51
11 Cement and Cement Products	47.37	49.33	48.33	55.53
12 Non Metallic Mineral Products	42.57	52.37	47.85	112.07
13 Paper and Paper Products	58.26	45.42	66.36	76.97
14 Basic Metals and Metal Products	52.05	54.50	58.86	60.14
15 Equipment	35.42	42.60	50.86	54.80
16 Leather and Rubber	56.25	52.00	67.11	67.82
17 Wood and Cork	45.45	47.66	52.18	55.94
18 Miscellaneous Manufacturing	58.03	70.49	79.00	84.36
19 Electric Light and Power	58.23	60.36	82.77	92.16
All Sectors	35.54	50.59	60.15	73.42

ANNEXURE

The Model Used and Derivation of Exogenous Vectors.

1. The Model used for forecasting in the paper is an open Leontief inter-industry system.¹ The particular version of the model used in this exercise can be compactly stated in matrix notation as follows :—

$$X = (I + b^{-1} A) [F + (I + b^{-1}) E]$$

X = vector of output levels of dimension $n \times 1$.

I = unit matrix of dimension n

b = diagonal matrix of dimension n ,

$$\text{such that } b_{ij} = \frac{M_i}{X_i - E_i}$$

for all $i = j$ and $b_{ij} = 0$ for $i \neq j$

$i = 1, 2, \dots, n; j = 1, 2, \dots, n$

A = Matrix of input coefficients such that $a_{ij} = \frac{X_i}{X_j}$ where X_i equals interindustry flow from sector i to sector j

F = vector of domestic final demands of dimension $n \times 1$
(final demand equals use of commodity for domestic consumption plus domestic investment plus government expenditure)

E = Vector of Exports to the rest of the country and rest of the world of dimension $n \times 1$.

M_i = Import from Rest of the world into region of i th commodity.

2. The original interindustry matrix of 24 sectors had to be

1. See H. Chenery and P. Clark, *Interindustry Economics* (New York, Wiley, 1959), Ch 1-3, for details.

aggregated to 19 sectors for the purpose of this study. The inverse of $(I + b - A)$ was computed at the IBM 1620 computer at the Physical Research Laboratory, Ahmedabad, by Shri G. V. S. N. Murthy of the Sardar Patel Institute of Economic and Social Research.

3. Sector-wise expenditure elasticities, for Gujarat, computed from different rounds of the N. S. S. by Shri Murthy, were used for generating consumption expenditures in final demand, wherever available. Sectoral elasticity estimates used are given in Table A. The policy makers had assumed an income generation target of 6% per year for the agricultural sector and 10 percent per year for the industrial sector of State income. Given these estimates and population projections for Gujarat², per capita income projections were worked out on two assumptions on the growth pattern of income of the rest of the economy. In one alternative the rest of the economy grows in terms of its trend growth as displayed from 1960-61 to 1968-69 (Alternative I). In the second alternative the rest of the economy grows as a constant weighted proportion of the agricultural and industrial sectors (Alternative II). Consumption expenditures for each sector are generated with the estimated expenditure elasticities and per capita income projections as derived above.

4. The ratio of investment in commodities to State Income was estimated from the 1964-65 study³. This proportion was assumed constant for the target years⁴ and commodity-wise investment targets were worked out with the aid of the State income projections. An indirect check on our estimates using the Perspective Plan projections, is as follows: Of the total investment of Rs. 3144 crores in the regional economy, through the ten year period (1974-1983) postulated in the Perspective Plan (excluding petrochemicals, which are not included in our analysis), our estimate of investment in the last year of the period is Rs. 495 crores. This implies a very realistic stock-flow conversion factor of 15 percent which in turn implies a smooth growth of investment of 8.7 percent per annum⁵.

2. Bureau of Economics and Statistics, Government of Gujarat, *Population Projections for Gujarat 1961-1986* (Gandhinagar, Government Press, 1969).

3. *Op. cit.*, Kashyap and Alagh.

4. The same method is followed by the Planning Commission study on material balances, *op. cit.*

5. For definition of stock-flow conversion factor and methods of derivation of our estimates, see *op. cit.*, A Consistency Model of India's Fourth Plan, 61-62.

5. Government expenditures on commodities were forecast by extrapolation using the time trend of such expenditures, estimated from the Economic and Functional Classification of the Gujarat Budgets, prepared by the *Bureau of Economics and statistics*, Government of Gujarat.

6. The *bij s*-the sectoral import proportions to net output (output minus exports) as defined in 2 above were estimated for 1964-65 and assumed as constants through the projections.

7. Sectoral export levels from Gujarat were estimated on the assumption that commodities exported from Gujarat maintained stable proportions to similar commodities generated at the national level. The proportions for 1964-65 were estimated by taking exports of Gujarat as derived by Jyoti Thakkar⁶ and output levels for India were taken from Saluja's Interindustry study⁷. These proportions were multiplied with the sectoral output projections made by Perspective Planning Division for the country as a whole for 1975-76 to derive Gujarat's sectoral exports levels at two points of time⁸. This enabled us to work out the sectoral compound rates of growth for Gujarat's exports, and the growth rates thus worked out were applied for projecting the export levels for different periods. It may be pointed out that output projections at all India level had to be aggregated in certain cases to maintain sectoral conformity with the Gujarat study.

6. *Op. Cit.*

7. M. R. Saluja, "Structure of Indian Economy : Interindustry Flows and Pattern of Final Demands 1964-65," *Sankhya*, Series B, Vol. 30, Appended Table.

8. Planning Commission, *Op. cit.* Of the four alternative projections made for each sector by the Planning Commission we took the least ambitious one for our purpose, this being more in line with the trend witnessed so far at the all-India level.

TABLE A
Sector Wise Expenditure Elasticities

<i>Sectors</i>				<i>Expenditure Elasticities</i>
1				2
Agricultural and Allied activities*	..	..	..	0.4469
Milk food and Malted food*	..	..	..	1.4848
Flour Mills and Starch	..	..	..	1.0115
Other food and agrobased*	..	..	..	1.0274
Oil Industry	..	..	..	0.8845
Salt	..	..	..	0.2353
Textiles*	..	..	..	3.4434
Drugs	..	..	..	0.7454
Paper and Paper products	..	..	..	1.9943
Basic metals and products	..	..	..	1.5947
Machinery	..	..	..	2.0098
Leather and Rubber	..	..	..	1.7499
Wood and Cork	..	..	..	1.5460
Miscellaneous Manufacturing	..	..	..	2.9240
Electric Light and Power	..	..	..	2.3570

* Estimated from expenditure data for Gujarat by Murthy, *op. cit.* Remaining elasticities derived from all India estimates, See N. S. lyengar and L. R. Jain, Projections of Consumptions, Rural/Urban India : 1970-71 and 1975-76. *Economic and Political Weekly*, Review of Management, November 29, 1969.

APPENDIX B

**THE RATE OF GROWTH IN GUJARAT 1974—84
TARGETS AND THEIR FEASIBILITY**

by

**OPERATIONS RESEARCH GROUP,
BARODA.**

APPENDIX B

The Rate of Growth in Gujarat 1974-84 targets and their feasibility

1. Introduction.

At a meeting held in Gandhinagar on 4th December, 1971 between Mr. K. T. Satarawala, Adviser to the Governor of Gujarat, and Mr. D. V. N. Sarma and Mr. B. R. Deolalikar of Operations Research Group, ORG were asked to help in the preparation of the Perspective Plan document for the State of Gujarat. Subsequently, on Saturday, 18th December, 1971 a meeting was held in the office of Mr. R. Parthasarathy at which ORG were specifically asked to examine the provisional figures of planned public and private investment for the 5th and 6th Perspective five-year Plans provided by the Planning Section, in order to give an opinion on their feasibility and their consistency with the declared target rate of growth of 7 per cent.

Accordingly it was decided to subject the data provided to two tests which would answer the following questions.

(1) What is the financial feasibility of the plans, given the target rate of growth of 7 per cent?

(2) What is the likely balance of rates of growth in the three major sectors of the economy, and what is their likely effect on inflation?

It should be noted that in view of the time and data constraints no consideration was given either to the optimisation of allocation or to the problems of shortages, bottlenecks and inter-industrial balance.

2. Test number 1—Financial Feasibility.

On the basis of data obtained from the Reserve Bank of India Bulletin (R.B.I.B.), the Central Statistical Office (C.S.O.) and Gujarat State Government Socio Economic Review, a static model was built of the 1968/69 patterns of allocation of State Domestic Product (S.D.P.). The model as shown in Figure 1 and Annexure 1, enabled us to determine the flows allocated to new capital formation and hence to determine both the inherent rate of growth for a given "Input Capital Output Ratio" (ICOR) and the extra capital required to achieve a 7 per cent growth rate.

2.1. *Base Case : Rate of growth assuming unchanged structure and no inflow of exogenous capital.*

Table 1 shows how the flows of private investment and that part of development expenditure that is allocated to new capital formation (both of which are shown in the model, Flows nos. XIII, XVIII) automatically give rise to a rate of growth of S.D.P. of 5.4 per cent. We call this the natural rate of growth.

2.1.1. *Comparison between Base Case and Planned State Government Outlays.*

It will be observed that in Table 1 the present structure permits an allocation to State Government Investment of Rs. 974 Crores over the 5th Plan period and Rs. 1270 Crores over the 6th Plan period. These numbers were calculated on the basis of the proposed policy of allocating 70 per cent of State Government Development expenditure to new capital formation (*i.e.* Investment). Therefore, the existing structure permits a total public sector outlay for development of Rs. 1391 Crores over the 5th Plan period (of which 974 is 70 per cent) and Rs. 1814 Crores over the 6th Plan period (of which 1270 is 70 per cent). It is now clear that the lower two of the three levels of public sector outlays in development expenditure under consideration for the 5th Plan period (*i.e.* Rs. 1000 Crores and Rs. 1200 Crores) are lower than the level permitted by the existing structure of the system. Since the existing structure permits only 5.4 per cent rate of growth, the area of interest lies above rather than below this level. It should also be noticed that the highest figure for the proposed state development expenditure for the 5th Plan period (*i.e.* Rs. 1500 Crores) and both figures for the 6th Plan period (*i.e.* Rs. 2000 Crores and 2335 Crores) imply the availability of additional (exogenous) capital.

2.1.2. *Comparison between Base Case and Predicted Private Sector Investment.*

It will also be observed from Table 1 that the present structure of the system permits Rs. 947 Crores and Rs. 1232 Crores of private investment over the 5th and 6th Plan periods respectively. It seems therefore, that a considerable amount of exogenous capital has to flow into Gujarat or additional savings are required to raise these figures to the levels of approximately Rs. 1250 Crores (5th Plan) and Rs. 1500 Crores (6th Plan) predicted by the Planning Section.

2.2. *The Determinants of the Rate of Growth.*

The natural rate of growth would change in response either to changes in the assumed structure or to exogenous provision of investment capital.

2.2.1. *Changes in the assumed Structural Parameters.*

In this group there are four possible types of change:

(a) Changes of policy parameters at State Government level.

- (i) Tax rates.
- (ii) Non-tax revenues.
- (iii) Proportion of development expenditure allocated to new capital formation.

(b) Changes in policy parameters at Central Government level

- (i) Tax rates.
- (ii) Non-tax revenues.
- (iii) Shares of taxes redistributed to States (including financial commission award).
- (iv) Loans to States.
- (v) Direct investments (assumed to be nil when calculating the natural rate of growth).

(c) Economic behavioural parameters.

- (i) Propensity to save (private sector only).
- (ii) Proportion of savings going into private investments and into purchases of Government securities.

(d) Input Capital Output Ratio : partly a policy parameter and partly a technological parameter.

2.2.2. *Exogenous Provision of Investment Capital.*

In the latter type of change mentioned in 2.2 one may include any inflow of capital into Gujarat from the rest of the world minus any outflow of capital from Gujarat to the rest of the world. Owing to the impossibility of measuring these flows they have been ignored

in this study. However, all such flows may contribute (over and above the Central Government direct Investment) to the additional investment capital required to achieve the target rate of growth whenever this is larger than the natural rate of growth.

As shown in Table 1 the present natural rate of growth falls short of the target rate of growth by 1.6 percent. Therefore, we next consider alternative changes of the two types described in Para 2.2.1 and 2.2.2 that would bridge the gap between the present natural rate of growth and the target rate of growth.

2.3. *Effects on the natural rate of growth caused by changes in various parameters.*

The sensitivity of the present natural rate of growth to changes in some of the structural parameters (as mentioned in 2.2.1) has been measured in order to determine the feasibility and the magnitude of changes required to increase the present natural rate of growth up to a level closer to the target rate of growth.

2.3.1. *Effects of Investment policy parameter (i.e. percent of development expenditure allocated to new capital formation).*

Table 2 shows the natural rates of growth and the additional new capital formation required to achieve a 7 per cent growth rate for a range of values of the proportion of State development expenditure allocated to new capital formation (a). Since all the remaining parameters of the model have been held constant at the values used in the base case, the sensitivity of the growth rate to changes in the value of (a) can be readily determined from column 2, Table 2. The base case, as previously said, assumed that 70 per cent of the total State Development expenditure goes into new capital formation. This assumption entails a change in the degree of growth orientation of the State Government since the historical proportion of new capital formation out of development expenditure is approximately 40 per cent. The likelihood of increasing the proportion from 40 per cent upto 70 per cent or higher would require a detailed study of the nature and composition of the proposed mix of development projects envisaged over the 5th and 6th Plan period : It may however be said that although 70 per cent is within the realm of feasibility, higher percentages would require rather drastic changes in the mix of development projects. As an indicative conclusion only, bearing in mind the sensitivity results in Table 2, it can therefore be said that in this area the scope for closing the gap between the base case natural rate of growth (5.6 per cent) and the target rate of growth of 7 per cent is very limited.

2.3.2. *Effects of alternative State Taxation rates and propensities to save.*

Table 3 shows, for alternative State taxation rates and propensities to save, the natural rates of growth and the additional new capital formation required to bridge the gap between the natural rate of growth and the target rate of growth. (The method of calculation is described in Annexure 1. The cell in the upper left hand corner represents the base case. It shows that, if the propensity to save (expressed as a percentage of disposable income) and the State taxation rates (expressed as a percentage of S.D.P.) remain unchanged, the natural rate of growth is 5.45 per cent as already shown in Table 1 and the additional new capital formation required over the 5th Plan period to achieve a growth rate of 7 per cent is Rs. 604 Crores. As the State Taxation rate and propensity to save increase, the natural rate of growth obtainable approaches the desired level of 7 per cent while there is a corresponding reduction in the additional capital requirement. The cells of the diagonal of the matrix depict combinations of State Taxation rates and propensities to save capable of generating a natural rate of growth close to 7 per cent. In order realistically to match the rate of taxation with the target rate of growth a prediction of the propensity to save would be required. The marginal propensity to save is usually regarded as a stable behavioural parameter which is subject only to very small changes over time. Several empirical studies could be mentioned showing the reluctance of the propensity to save to increase even in economies that have experienced rapid growth in income per capita. It should be added that the propensity to save has shown a greater sensitivity to changes in income distribution than to increases in income per capita. If one can assume that the results of such empirical studies hold good in Gujarat one is forced to the conclusion that it is hardly realistic to consider marginal propensities to save greater than 14/15 per cent. Once and for all increases in the total amount of savings can however be achieved through suitable fiscal and monetary policies. In the former group one can mention an increase in income tax rebates on some forms of savings (purchases of Government Securities or other equities) or the debated issue of tax on expenditure; in the second group the manipulation of the structure of the rate of interest of the public debt is the method most commonly followed to induce shifts in the saving schedule. However, the above can only be regarded as very rough indications; the question of responsiveness to savings inducements is a very complex matter requiring specialised basic research which is outside the scope of this study.

Referring again to Table 3, the upper row in the matrix shows the total tax burden (State tax plus Central Government Tax). It is worthwhile mentioning that the total tax burden in Gujarat is not particularly heavy when compared to that of other Indian States. Many States have a tax burden 30 per cent higher. In any case there seems to be scope for increasing direct tax revenues, without increasing the overall rate of taxation, by widening the base of direct taxes. This is an argument often put forward and substantiated by comparing the structure of tax receipts in developed and developing countries. In the former the contribution of direct tax to total tax is usually very large not only because rates are higher but mainly because the base of direct taxes is much wider. It can therefore be expected that the process of development may require a widening of the tax base in order to extend direct taxation to a larger section of the population. In this way tax receipts could be considerably increased without necessarily increasing the tax rates. It seems therefore, that some scope for achieving an increase in the rate of growth exists if suitable fiscal policies were introduced. Furthermore it is interesting to note that the usual argument against increases in taxation rates, which tends to put great emphasis on the detrimental effect that taxation has on incentives, can easily be countered by mentioning cases where increases in taxation not only have failed to constrain the level of economic activity but on the contrary have contributed to increased net output by stimulating people to work harder to maintain their level of disposable income. As a general point, however, this is controversial and one on which the empirical evidence is not decisive.

2.4. *Warnings.*

2.4.1. *Criticality of ICOR.*

The Tables and the results discussed above are based on a value of the input capital output ratio (ICOR) of 2.5. An earlier study showed the considerable sensitivity of the results to changes in the value of the ICOR. It is, therefore, necessary to draw attention to the fact that the figures presented could undergo substantial changes if the actual value of the ICOR were to depart from the estimated value (See Annexure 1 for mathematical treatment of the changes; even a difference of 0.5 would cause considerable variation). The value of the ICOR depends both on Government policies and on the level of technological sophistication of the economy. The selected value of 2.5 is usually regarded as fairly representative (on the optimistic side) for an economy at the level of technological sophis-

tication of India and for an economy still engaged in the process of basic infrastructure construction. A more realistic value of the ICOR could be obtained only by analysing in detail the nature and composition of the proposed public and private capital formation, bearing in mind the technological changes likely to take place during the plan period.

2.4.2 *Nature and limitations of the model.*

The model used is *not* a growth model. It can be defined as *State accounting model based on the structure of income flows as observed in 1968/69* (most recent year for which State accounts are available). The model can be used only to assess the feasibility of the rate of growth and to measure its sensitivity to changes in particular income flows, given the 1968/69 structure.

The model therefore does not

(1) attempt to take into account indirect effects of growth (e.g. learning by doing);

(2) look at any of the equilibrium conditions usually taken into account by growth models;

(3) give any indication of interindustrial balances of inputs and outputs;

(4) give any indication of whether the pattern of capital formation proposed by the working parties is near to an optimum;

(5) indicate the timing of capital formation.

An adequate treatment of the above factors would require a very substantial increase in the sophistication of the model, the construction of an input/output matrix and a large data collection exercise, all of which have been beyond the scope of the present study.

3. *Test number 2-Balance of growth rates between sectors.*

It is a well known rule of development planning to make sure that the growth rates between output-producing sectors (primary and secondary) and the non-output-producing sector (tertiary) are in balance in order to avoid a situation of excess demand leading to demand-pull inflation.

3.1. *Assumptions.*

In order to submit the target rate of growth to this test and hence determine the inflation potential of the target rate of growth the following assumptions have been introduced :

(i) that the total State Domestic Product (SDP) would grow over the period of the 5th and the 6th Plans at the target rate of 7 per cent.

(ii) that the breakdown of SDP by sector, which was in the ratio (40, 28, 32) for the decade ending 1970, would be modified with the increasing maturity of the economy to (37, 30, 33) for the period in question; and

(iii) that the rates of growth of the primary and secondary sectors, which were approximately 2 per cent and 4 per cent respectively for the decade ending 1970, would rise to 4.5 per cent and 8 per cent respectively for the period of the 5th Plan and would further rise to 5 per cent and 10 per cent respectively for the period of the 6th Plan. Under normal circumstances, these would be considered highly optimistic estimates.

3.2. *Required rate of growth in the tertiary sector.*

On the basis of the above assumptions it was then possible to draw up in tabular form the annual output of the primary and secondary sectors and the total State Domestic Product for each year of the two plans. The output of the tertiary sector could then be determined as a residual figure and its rate of growth calculated. This is shown in Table 4.

3.3. *The Risk of inflation and the threshold of tolerability.*

In developing economies it is usually assumed that the rate of growth of services (*i.e.* the tertiary sector) should not exceed the composite rate of growth of commodities (*i.e.* the primary and secondary sectors) by more than 1 per cent, or at the most 1.5 per cent, since this would create an excess demand (by creating more income without a corresponding increase in the output of commodities) and thereby increase the inflationary pressures at work in the system. If we assume for the sake of simplicity that the breakdown of SDP by sectors forms three equal amounts *i.e.* (33 1/3, 33 1/3,

33 1/3) instead of (37, 30, 33), then the composite growth rate for the primary and secondary sectors is the average of the two rates of 4.5 percent and 8.0 per cent, *i.e.* 6.25 per cent. The difference between this and the required growth rate of the tertiary sector (8.8), is 2.55 per cent, much higher than the normal 1.5 per cent threshold. We have called this difference the Inflation Risk Factor.

Figure 2 demonstrates more clearly the relationship between the Inflation Risk Factor and the composite rate of growth of the primary and secondary sectors, *given an overall rate of growth of 7 per cent.* If the target rate of growth is reduced then the line on the graph will move to the left while retaining the same gradient, so that for a target of 6 per cent the line would cut the horizontal axis at 6 per cent and the vertical axis at 18.

3.4. *A decision tool for revision of the rate of growth.*

The foregoing argument raises the question of revision of the target rate of growth, and in order to assist such a decision a ready-reckoner was devised as shown in Table 5. The left-hand column represents the possible composite rates of growth of the primary and secondary sectors and the row following each figure contains the overall target rate of growth that is compatible for a given level of the Inflation Risk Factor.

However, the decision on a trade-off between the Inflation Risk Factor and the rate of growth is in reality very complex. It may be, for instance, that the inflationary pressure caused by the imbalance of growth between sectors is offset by monetary and fiscal policies outside the control of the State Government. The level of the Inflation Risk Factor should therefore be considered in the context of a wider framework taking into account other forces at work that may compound or discount the inflationary pressures caused by sectional growth imbalance.

The two tests described above were designed and carried out in a short period of time in order to indicate the kind of thinking that is required for a truly problem-solving approach to the Planning Process. It was not intended that they should be taken as sufficient, either in scientific sophistication or in the range of relevant Problems that they bring into perspective.

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January 10, 1972.

TABLE 1

Determination of the Rate of Growth of S.D.P.

Base Case : (1) Structure held constant.

(2) 0.7 proportion of planned expenditure going to new capital formation.

(3) All figures in current prices (1971).

Year	State Govt. Investments $6.9 \times \text{SDP}$ $t-1$	Private Investments $6.7 \times \text{SDP}$ $t-1$	Total Investments $1+2$	Additional annual output $1/2.5(1+2)$	S.D.P.	Rate of Growth
	(1)	(2)	(3)	(4)		
1974/75	175	170	345	138	2673	5.4%
75/76	184	179	363	145	2818	
76/77	194	189	383	153	2971	
77/78	205	199	404	162	3133	
78/79	216(974)	210(947)	426	170	3303	
1979/80	228	221	449	180	3463	5.4%
80/81	240	233	473	189	3672	
81/82	253	246	499	200	3872	
82/83	267	259	526	210	4082	
83/84	282(1270)	273(1232)	555	222	4304	

Sources of data.-

According to the Gujarat Fourth Development Plan the S.D.P. in 1973/74 at 1968-69 prices is expected to be Cr. 2256. The predicted S.D.P. has been expressed in current prices on the assumption of a 6% rate of inflation. Calculations have therefore been based on a figure of 2535 on the estimated S.D.P. for 1973/74 at current prices.

TABLE 2

Effect of Investment Policy Parameter

i = Proportion of State Government Development Expenditure allocated to Investment (i.e. Capital Formation).

g = % rate of Growth

I = Quantity of new capital formulation required from external sources to achieve 7% growth.

(Assuming 1968/69 Structure)

(a)	(r)	Annual amount as % of S.D.P.	Total amount for 5 years in Crores of Rupees
(1)	(2)	(q) (3)	(4)
0.3	3.8	8.0	1248
0.35	4.0	7.5	1170
0.4	4.2	7.0	1092
0.45	4.4	6.5	1014
0.5	4.6	6.0	936
0.55	4.8	5.5	858
0.6	5.0	5.0	780
0.65	5.2	4.5	702
0.7	5.4	4.0	624
..	..	..	..
..	..	..	..
..	..	..	..
..	..	..	..
..	..	..	..
..	..	..	..
..	..	..	..
1.0	6.6	1.0	156

TABLE 3

Rates of Growth of S.D.P. for different levels of State Taxes and Propensity to save.

r = Rate of Growth.

c = Addition of new capital formation in Crores of Rupees (during the 5th Plan Period only) to achieve a 7 percent growth rate.

Total tax burden (State + Central Govt. Taxes)	14.2	15.2	16.2	17.2	18.2	19.2	20.2
State tax	5.4	6.4	7.4	8.4	9.4	10.4	11.4
Prop. to Save							
12.8	$r = 5.45$ $c = 604$	$r = 5.69$ $c = 510$	$r = 5.93$ $c = 416$	$r = 6.17$ $c = 322$	$r = 6.41$ $c = 228$	$r = 6.65$ $c = 134$	$r = 6.89$ $c = 42$
13.8	$r = 5.71$ $c = 503$	$r = 5.95$ $c = 410$	$r = 6.19$ $c = 318$	$r = 6.43$ $c = 225$	$r = 6.67$ $c = 133$	$r = 6.91$ $c = 41$	$r = 7.15$
14.8	$r = 5.97$ $c = 402$	$r = 6.21$ $c = 310$	$r = 6.45$ $c = 220$	$r = 6.69$ $c = 128$	$r = 6.93$ $c = 38$	$r = 7.17$	$r = 7.41$
15.8	$r = 6.23$ $c = 301$	$r = 6.46$ $c = 210$	$r = 6.69$ $c = 122$	$r = 6.92$ $c = 31$	$r = 7.15$	$r = 7.38$	$r = 7.61$
16.8	$r = 6.49$ $c = 200$	$r = 6.72$ $c = 110$	$r = 6.95$ $c = 24$	$r = 7.18$	$r = 7.41$	$r = 7.64$	$r = 7.87$
17.8	$r = 6.75$ $c = 99$	$r = 6.98$ $c = 10$	$r = 7.21$	$r = 7.44$	$r = 7.67$	$r = 7.90$	$r = 8.13$
18.8	$r = 7.01$ $c =$	$r = 7.23$	$r = 7.45$	$r = 7.67$	$r = 7.89$	$r = 8.11$	$r = 8.33$

- Assumptions :* (1) The marginal propensity to save (private sector only) is measured as a proportion of disposable income (subtract 1.9 to obtain the propensity to save expressed as a proportion of S.D.P.)
- (2) The taxation rates are expressed as a proportion of S.D.P.
- (3) The increases in Government revenues through increases in taxation or the increase in private investments through an increase in the propensity to save are assumed to be allocated entirely to new capital formation.
- (4) $a = 0.7$ where "a" is the proportion of development expenditure allocated to new capital formation.
- (5) $ICOR = 2.5$
- (6) r = Rate of growth of S.D.P. over 5th and 6th Plan given the State taxation rate and the propensity to save.
- (7) c = Additional capital required (at current prices) during the 5th Plan only to achieve 7% rate of growth of the S.D.P. given the State taxation rate and the propensity to save.

TABLE 4
Rates of Growth of Sectors

Year	Primary (37%)	Secondary (30%)	Tertiary (33%)	S. D. P.
1974/75	1003	814	895	2712
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
78/79	1196	1107	1252	3555
5th Plan				7%
1979/80	1256	1218	1330	3804
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
83/84	1526	1783	1678	4957
6th Plan				6.0%

(1) S. D. P. expressed at 1971 prices.

TABLE 5
Feasible Overall Growth Rate for given Primary and Secondary Growth Rate (r) and given Risk of Inflation

r	0	1	1½	2	3
7	7	-	-	-	-
6½	6½	6½	7	-	-
6	6	6½	6½	6½	7
5½	5½	5½	6	6½	6½
5	5	5½	5½	5½	6
4½	4½	4½	5	5½	5½
4	4	4½	4½	4½	5
3½	3½	3½	4	4½	4½
3	3	3½	3½	3½	4

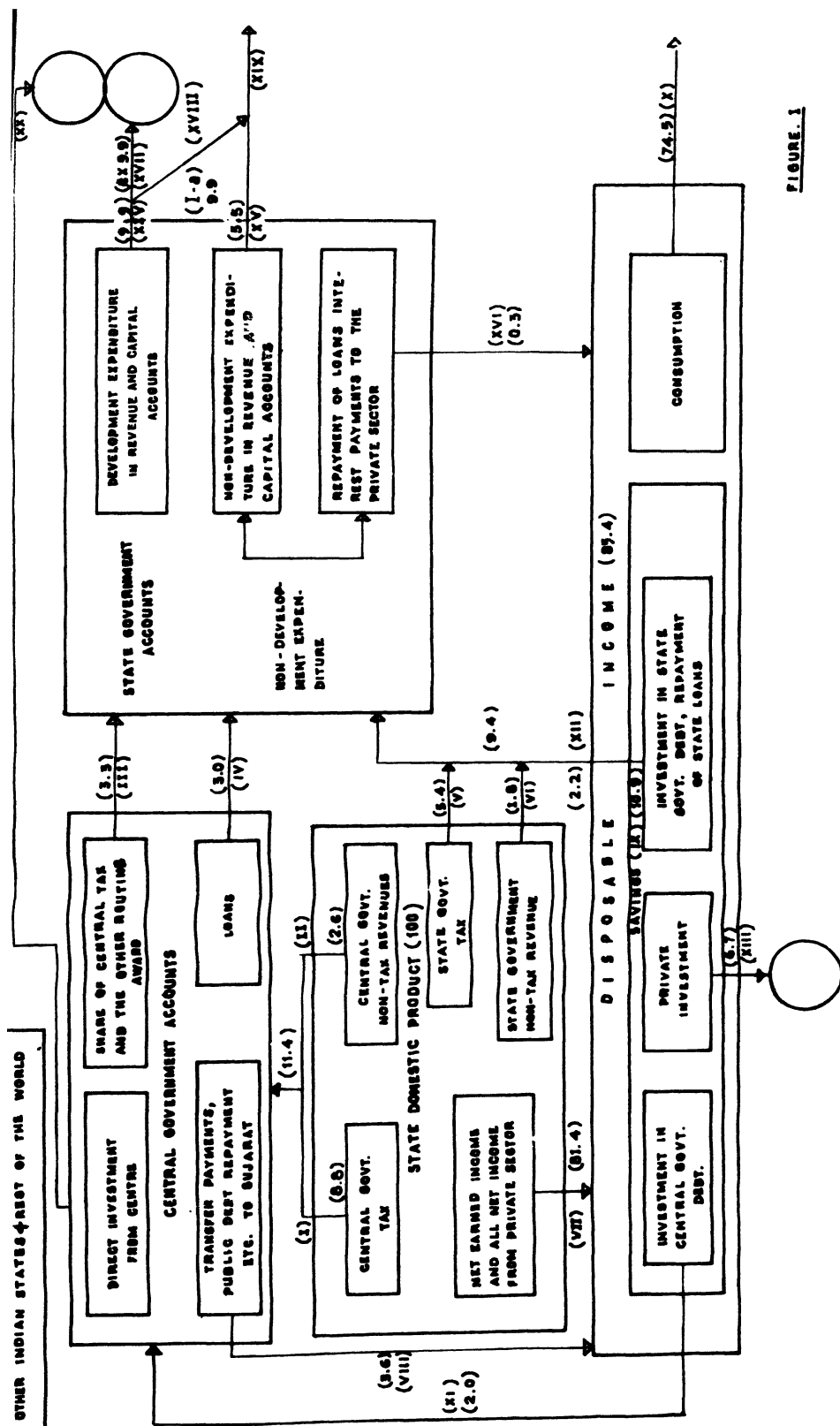
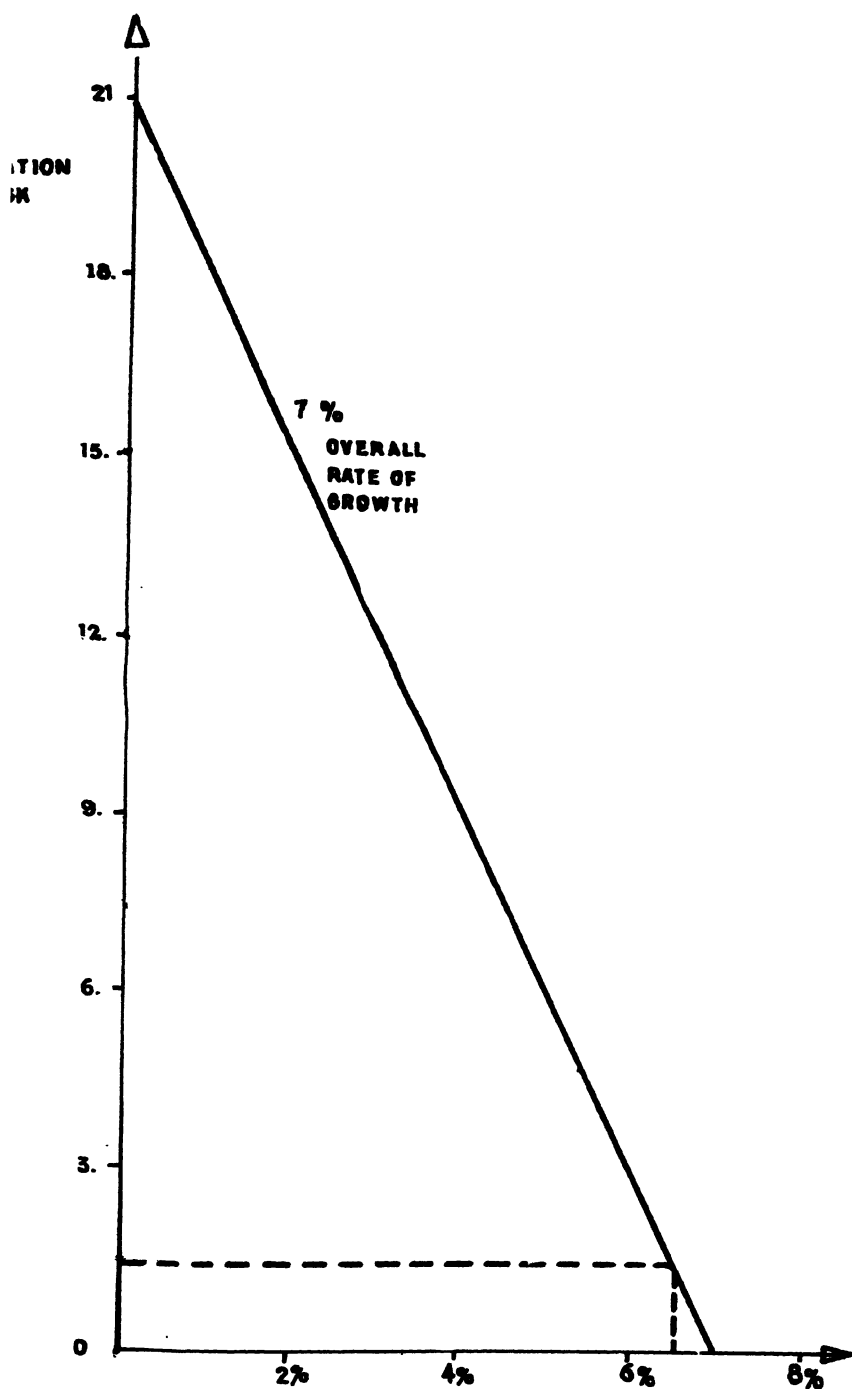


FIGURE. 1



COMPOSITE RATE OF GROWTH
(PRIMARY & SECONDARY SECTORS)

FIGURE

ANNEXURE 1***The Model***

This annexure should be read with reference to the diagrammatic form of the model shown in Figure 1. All measures are given as percentages of State Domestic Product (S.D.P.).

Notation.

ICOR	=	Input Capital Output Ratio.
P	=	Propensity to Save $0 \leq p \leq 1$
T	=	State Tax.
N	=	State Non-Tax revenues.
a	=	Proportion of State Government Development Expenditure allocated to investment. $0 \leq a \leq 1$
r	=	Rate of growth (<i>i.e.</i> extra output capacity created).
q	=	Quantity of extra capital coming into the State.

Assumptions

(1) The structure of the system, *i.e.* the flows of wealth and their relative proportions, are assumed to remain constant except where specifically stated otherwise. The structure has been determined from the figures for 1968/69 and all source material is quoted in Annexure 2.

(2) Any extra income acquired by the State Government above the 1968/69 level as percentage of S.D.P. will be allocated wholly to development expenditure.

(3) The tax and non-tax revenues of Central Government remain a constant proportion of S.D.P., so that any increase in State Government tax or non-tax revenues will bring about a corresponding decrease in disposable income.

(4) Stocks (inventory) have been ignored. The figures for S.D.P. are already net of depreciation so that investment is equivalent to new capital formation.

Constructing the Model.

Consider Disposable Income; it consists of three flows:

Transfer Payments from Central Government	= 3.6 (Flow VIII)
Transfer Payments from State Government	= 0.4 (Flow XVI)
Residual (net earned income and net private sector income)	= 81.4 (Flow VII)

We assume that the first two flows remain constant, and that any change in disposable income consequently arises from a change in the third flow.

Consider the distribution of State Domestic Product:

Central Taxes	= 8.8 (Flow I)
Central Government Non-tax revenue	= 2.6 (Flow II)
State Taxes	= 5.4 = T (Flow V)
State Government Non-tax revenue	= 1.8 = N (Flow VI)
Residual (to disposable income)	= 81.4 (Flow VII)

We assume that the first two flows remain constant, and that the remaining three flows therefore have a constant total.

Since the residual in both the above is the same flow, it follows that $(T + N + \text{Disposable Income})$ will be a constant, equal to $5.4 + 1.8 + 3.6 + 0.4 + 81.4 = 92.6$.

Disposable Income can now be written as $92.6 - T - N$. It follows that savings in the Private Sector will be $P(92.6 - T - N)$. Now consider the distribution of Private Sector Savings:

Investment in Central Government Securities	2.0 (Flow XI)
Investment in State Government Securities	2.2 (Flow XII)
Investment in Private Sector	6.7 (Flow XIII)
Total Private Savings	10.9

We assume that the relative proportions of these three flows remain constant.

Thus the amount of Private Savings being invested in the Private Sector can be expressed as $\frac{6.7}{10.9} \cdot P(92.6 - T - N) \dots (A)$ (Flow XIII) and

the amount of Private Savings being invested in State Government securities is, similarly, $\frac{2.2}{10.9} \cdot P(92.6-T-N)$.

Now consider all sources of State Government Income :

1. Share of Central Taxes and Financial Commission Award	3.3	(Flow III)
2. Loans from Centre	3.0	(Flow IV)
3. State Tax	T	(Flow V)
4. State Government Non-Tax revenues	N	(Flow VI)
5. Private Sector investment in State Government Securities	$\frac{2.2}{10.9} \cdot P(92.6-T-N)$	(Flow XII)

Thus, State Government Income is $6.3 + T + N + \frac{2.2}{10.9} \cdot P(92.6-T-N) - (B)$

Consider next the State Government Expenditures :

Development Expenditure (9.9)	(9.9)	(Flow XIV)
Consumption (Non-Development) expenditure	5.5	(Flow XV)
Loans/Repayment of Loans to Private Sector	0.3	(Flow XVI)

The latter two flows are assumed to be constant, so that any increase in the percentage of S.D.P. flowing into State Government Income will be allocated to Development Expenditure.

Development Expenditure is therefore (B) — (5.5 + 0.3).

Since a is the Proportion of Development Expenditure allocated to capital formation, it follows that State Government investment in New Capital Formation is:

$$a[(B) - (5.5 + 0.3)] \quad (\text{Flow XVII})$$

Substituting for (B) :

$$= a \left\{ 6.3 + T + N + \frac{2.2}{10.9} \cdot P.(92.6 - T - N) - 5.5 - 0.3 \right\}$$

$$= a \left\{ 0.5 + T + N + \frac{2.2}{10.9} \cdot P.(92.6 - T - N) \dots (C) \right\}$$

The total amount of investment in New Capital Formation is thus (A) + (C) (Flow XIII plus Flow XVII)

Since all figures are expressed as a percentage of S. D. P., it follows that the increase in output capacity is also the rate of growth. This can be found by dividing the total quantity of investment by the Input Capital Output Ratio.

$$\frac{1}{\text{ICOR}} \left\{ (A) + (C) \right\}$$

or, substituting for (A) and (C) :

$$\frac{1}{\text{ICOR}} \left\{ \frac{6.7}{10.9} \cdot P.(92.6 - T - N) + a \left\{ 0.5 + T + N + \frac{2.2}{10.9} \cdot P.(92.6 - T - N) \right\} \right\}$$

Finally,

For completeness, we must add to the amount of investment the quantity of exogenous investment capital q (Flow XX). Thus we have:

$$r = \frac{1}{\text{ICOR}} \left\{ \frac{6.7}{10.9} \cdot P.(92.6 - T - N) + a \left\{ 0.5 + T + N + \frac{2.2}{10.9} \cdot P.(92.6 - T - N) \right\} + q \right\}$$

$$\text{or } r = \frac{1}{\text{ICOR}} \left\{ \frac{6.7 + 2.2a}{10.9} \cdot P.(92.6 - T - N) + a \{ 0.5 + T + N \} + q \right\}$$

$$\text{and } q = r \text{ ICOR} - \left\{ \frac{6.7 + 2.2a}{10.9} \cdot P.(92.6 - T - N) + a \{ 0.5 + T + N \} \right\}$$

The rates of growth shown in Table 3 were obtained from the above formula for r when $q = 0$, $a = 0.7$ and $\text{ICOR} = 2.5$. By regarding q as a quantity or required extra capital, the capital requirement figures in the same table were obtained from the formula for q when $r = 7$, $a = 0.7$, and $\text{ICOR} = 2.5$.

The effects of a change in any one of the variables on the rate of growth or on the extra capital requirement can be quickly determined from the following partial derivatives :

$$\frac{dr}{dp} = \frac{1}{ICOR} \left\{ \frac{6.7+2.2a}{10.9} - (92.6-T-N) \right\}$$

$$\frac{dq}{dp} = - \left\{ \frac{6.7+2.2a}{10.9} - (92.6-T-N) \right\}$$

$$\frac{dr}{dN} = \frac{dr}{dT} = \frac{1}{ICOR} \left\{ a - \frac{6.7+2.2a}{10.9} .P \right\}$$

$$\frac{dq}{dN} = \frac{dq}{dT} = - \left\{ a - \frac{6.7+2.2a}{10.9} .P \right\}$$

$$\frac{dr}{da} = \frac{1}{ICOR} \left\{ \frac{2.2}{10.9} .P. (92.6-T-N) + (0.5+T+N) \right\}$$

$$\frac{dq}{da} = - \left\{ \frac{2.2}{10.9} .P. (92.6-T-N) + 0.5+T+N \right\}$$

$$\frac{dq}{dICOR} = r$$

For the effect on r of a change $ICOR$ it is more convenient to consider the reciprocal of $ICOR$, so that

$$\frac{dr}{d(ICOR)} - 1 = \left\{ \frac{6.7+2.2a}{10.9} .P(92.6-T-N) + a(0.5+T+N) + q \right\}$$

All the above formulae are valid for changes in $ICOR$, P , T , N , a , r , and q *provided* that the remaining structure of the system is unchanged. In other words, the following are assumed to remain constant.

All Central Government Policy (except for direct investments)
 All State Government Consumption Expenditure
 The distribution of Private Savings between the three types of investments.

ANNEXURE 2*Estimates of the flows and data sources*

(ALL FIGURES IN CRORES OF RUPEES. FIGURES FOR 1968/69
EXCEPT WHERE OTHERWISE STATED)

Flow I : Central Government Tax Receipts

- | | |
|--|---|
| (i) Central Government Tax Receipts | 2,510 (RBIB, May 1970,
P. 726). |
| (ii) National Income | 28,583 (CSO, Estimates of
National Product, August 1970) |
| (i) as percentage of (ii) = 8.8 Percent. | |

Assumption

The contribution of each State to Central taxation revenues will be proportional to its contribution to National Income, and therefore this figure of 8.8 percent can be taken as an estimate of the State contribution to Central taxes as a percentage of State Domestic Product.

Flow II : Central Government Non-tax revenues from States

- | | |
|--|----------------------------------|
| (i) Central Government Non-tax
Revenues | 741 (RBIB, May 1970,
P. 726). |
| (ii) National Income | 28,583 (As above) |
| (i) as percentage of (ii) = 2.6 percent. | |

Assumption :

The contribution of each State to Central Non-tax Revenues, as a percentage of State Domestic Product, can be estimated by this figure on similar grounds to those of the previous assumption.

Flow III : Gujarat State Share of Central Government Revenue Account

- | | |
|------------------------------------|--|
| (i) Routine share in Central taxes | 26.99 (RBIB, August
1970, P. 1303). |
|------------------------------------|--|

(ii) Grants in Aid and other Contribution	20.16 (RBIB, August 1970, P. 1315).
(iii) Gujarat State Domestic Product	1437.00 (Socio-Economic Review, Gujarat State, 1970-71, P. 7).

(i) + (ii) as percentage of (iii) = 3.3 percent.

i. e. Routine revenue from Central Government to State Government as percentage of S. D. P.

Flow IV : Loans from Central Government

(i) Loans	42.61 (RBIB, August 1970, P. 1333)
(ii) Gujarat S. D. P.	1437.00 (As above)
(i) as percentage of (ii)	= 3.0 percent.

Flow V : State Taxes

(i) Tax Receipts (Gujarat)	77.83 (RBIB, August 1970, P. 1297)
(ii) Gujarat S. D. P.	1437.00 (As above)
(i) as percentage of (ii)	= 5.4 percent.

Flow VI : State Government Non-tax Revenue

(i) State Government Non-tax Revenue	25.41 (RBIB, August 1970, P. 1303)
(ii) Gujarat S. D. P.	1437.00 (As above)
(i) as percentage of (ii)	= 1.8 percent.

Flow VII : Net earned income and all net income from Private Sector

This is calculated as a residual :

Central Tax Revenue	8.8 % (Flow I)
Central Non-tax Revenue	2.6 % (Flow II)
State Tax Revenue	5.4 % (Flow V)

State Non-tax Revenue	1.8 % (Flow VI)	
Net income (as defined)	81.4 % Residual***	
S. D. P.	100.0 % Total	

Flow VIII : Transfer Payments, Capital repayment and interest on Public Debt Paid by Central Government to Private Sector

Interest on Public Debt	204	(CSO, Estimates of National Product, Revised series, P. 14).
Subsidies	430	(„ „)
Transfers	358	(„ „)
Capital Repayment	39	(„ P. 22)
(i) Total	1031	
(ii) National Income, 1967/68	28356	(„ P. vii)

(i) as percentage of (ii) = 3.6 percent.

Assumption :

The total amount of Transfer Payments etc. expressed as a percentage of National Income can be taken as an estimate of the quantity of such payment made to the Private Sector within Gujarat expressed as a percentage of Gujarat S. D. P.

As with Flows I and II, a constant proportion between State and National levels is assumed.

Flow IX : Private Savings

The model is so built that a total amount of Private Savings is derived from Disposable Income by means of an Average Propensity to Save. The historical Average Propensity to Save, calculated from CSO figures, was 9.2 percent of National Income (10.8 percent of disposable income). A simple regression equation revealed, however, that the historical Marginal Propensity to Save was 14.1 percent of National Income. The difficulties of adjusting the model to incorporate the Marginal Propensity to Save, and the data requirements (*e. g.* for identification of the income threshold where the Marginal Propensity to Save comes into effect and distribution of rises in income above and below this threshold) were beyond the Scope of the Present Study

However, to avoid the risk of underestimating the Saving Potential of the system, the Average Propensity to Save in the model was given a value of 10.9 percent of National Income (12.8 percent of Disposable Income), a rise of one third of the difference between the average and the Marginal Propensities to Save.

Data Source : CSO, Estimates of National Product, (Revised Series) August, 1970.

Flow X : Private Consumption

This is determined as a residual

Private Savings	10.9 % Flow IX
Private Consumption	74.5 % Residual***
Disposable Income	85.4 % Flows VII, VIII and XVI

Flow XI : Private Investment in Central Government Debt

(i) Central Government Total Internal Debts	1968-69 6800 (RBIB, May 1970, P.735)
(ii) Central Government Total Internal Debts	1967-68 6555 (RBIB, May 1970, P.735)
(iii) Central Government debt increment	245 (i) minus (ii)
(iv) Central Government other internal liabilities	1968-69 4122 (RBIB, May 1970, P.735)
(v) Central Government other internal liabilities	1967-68 3903 (RBIB, May 1970, P.735)
(vi) Central Government increment to other liabilities	219 (iv) minus (v)
(vii) Total debts incurred by Centre	564 (iii) plus (vi)
(viii) National Income	1968-69 28583 (As Flow I)

(vi) as percentage of (viii) = 2.0 percent.

Assumption :

As with Flows I, II and VIII, the assumption of constant proportion between State and National Levels is made

Flow XII : Investment in State Government Debt and Repayment of State Loans

Permanent Debt	13.44 (RBIB, August 1970, P.1333)
Loans from autonomous bodies	0.91 (RBIB, August 1970, P.1333)
Unfunded debt	2.01 (RBIB, August 1970, P.1339)
Repayment of loans given by State	4.33 (RBIB, August 1970, P.1339)
Deposits and advances	15.62 (RBIB, August 1970, P.1339)
Balance of inter-State loans	4.24 (RBIB, August 1970, P.1339)
(i) Total	<u>32.07</u>
(ii) Gujarat S. D. P.	1437.00 (As in Flow III)

(i) as percentage of (ii) = 2.2 percent.

Flow XIII : Private Investment in Private Sector

This is found as a residual :

Private Investment in Central Government	2.0 %	Flow XI
Private Investment in State Government	2.2%	Flow XII
Private Investment in Private Sector	6.7	Residual***
Private Savings	<u>10.9 %</u>	Flow IX

Assumption :

It is assumed that this residual represents the amount of investment made by the Private Sector in New Capital Formation. The possibility of significant cash holdings has been ignored owing to lack of data.

Flow XIV: Total Development Expenditure of State Government:

Revenue Account : Direct	42.84 (RBIB, August 1970,P.1321)
thro' local bodies	39.87 (RBIB, August 1970,P. 1327)
(i)	<u>82.71</u>
Capital Account : Direct	39.12 (RBIB, August 1970,P. 1345)
thro' local bodies	19.81 (RBIB, August 1970 P.1351)
(ii)	<u>58.93</u>
(iii) Total Development Expenditure.	141.64 (i) plus (ii)
(iv) Gujarat S. D. P.	1437 00 (As Flow III)
(iii) as percentage of (iv) = 9.9 percent.	

Flow XV : Total Non-Development Expenditure of State Government:

Revenue Account : Direct	57.93 (RBIB, August 1970, P.1321)
Less permanent	
Debt interest	
thro' local bodies	8.56 (RBIB, August 1970, P.1327)
Capital Account : Repayments to Centre	13.26 (RBIB, August 1970, PP. 1345 and 1351)
Less State Trading Surplus	
(i) Total	<u>79.75</u>
(ii) Gujarat SDP	1437.00 (As above)
(i) as percentage of (ii) = 5.5 percent.	

Flow XVI : Repayment of loans and interest payments State Government to Private Sector.

Discharge of Permanent Debt.	0.92 (RBIB, August 1970, P.1345)
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Repayment of loans to autonomous
bodies 0.59 (RBIB, August 1970, P.1351)

(i)	1.51
(ii) Gujarat S.D.P.	1437.00 (As above)

(i) as percentage of (ii) 0.4 percent.

Flow XVII : State Government Investment (New Capital Formation)

a is the proportion of total State Development Expenditure allocated to New Capital Formation. The quantity of investment is therefore $a \times$ Flow XIV.

(5th and 6th Plans assume $a = 0.7$)

Flow XVIII : Amount of total State Development Expenditure allocated to Consumption.

$(1 - a) \times$ Flow XIV.

i. e. the remainder of Flow XIV after allowing for Flow XVII

Flow XIX : Total Government Consumption

Non-Development Expenditure 5.5% Flow XV

Development Consumption Expenditure 9.9%(1-a) Flow XVIII

Total $\left\{ 5.5 + 9.9 (1-a) \right\} \%$

Flow XX : Direct Investment by Central Government.

This is a residual category for the total system, allowing for the in-flow of exogenous Capital. In Annexure 1 this is the quantity q . In calculating the present natural rate of growth, it is assumed to be nil.

APPENDIX C

PLANNING IN A MIXED ECONOMY —

PRESENT PLANNING METHODOLOGY

AND

FUTURE DEVELOPMENT

by

OPERATIONS RESEARCH GROUP,

BARODA.

APPENDIX C

Planning in a mixed Economy— Present Planning methodology and Future Development

1. Planning under uncertainties

The difficulties of planning are, in fact, due to the multiplicity of factors to be taken into account, and the inadequacy of the tools for coping with them. This gives rise to numerous uncertainties of various types, some types becoming confused with other types, so that it is difficult even to know how or where to use the limited analytical techniques available. For this reason it is worth taking a brief look at the nature of the uncertainties. Friend and Jessop* have classified planning uncertainties in the following three categories.

Uncertainties about the Environment, including “all uncertainties relating to the structure of the world external to the decision making system and also all uncertainties relating to expected patterns of future change in this environment, and to its expected responses to any future interventions by the decision-making system”. The nature and extent of benefits that are likely to accrue for a given amount of investment in a particular sector reflects this type of uncertainty.

Uncertainties about Related Fields of Choice, including “all uncertainties relating to the choices which might simultaneously or in future be taken, within the decision-making system itself, in respect of other fields of discretion beyond the limited problem which is currently under consideration”. Decisions to invest in one or more sectors of the economy may create imbalances in other sectors because of the inter-sectoral demand and supply relationships. This type of interdependence may be termed as economic interdependence. Another type of interdependence that has to be considered is the phasing over time of inter-related or independent projects and its impact on the need and the availability of resources.

Uncertainties about Values, including “all uncertainties relating to the relative degrees of importance the decision-makers ought to attach to any expected consequences of their choice which cannot be

*Local Government and Strategic Choice J. K. Friend + W. N. Jessop.

related to each other through an unambiguous Common Scale-either because the consequences are of a fundamentally different nature, because they affect different sections of the community, or because they concern different periods of future time".

Clarification of the last category of uncertainties is the substance of political choice, and the problems of formulating policies. It is not within the domain of the planner to resolve uncertainties such as these. What is possible, however, is to separate the different types of uncertainty, apply, and if necessary devise the appropriate analytical techniques for coping with the first two types of uncertainty, and present to the decision-makers a clear statement of the alternative courses of action that are open to them and the consequences of each course. In this way the effectiveness of political decision-making should be enhanced and the danger of value-decisions being taken by design or by accident, by planners averted.

In the study of complex planning situations, much of the information required to resolve the uncertainties will concern not the past or the present, but the future. To some extent one can compensate for the impossibility of acquiring information about the future with the use of forecasting techniques, but, while they are perfectly valid in themselves, and often useful, these techniques sometimes fail to tell the planner the one piece of information that is vital—"what do I lose by postponing this decision, or postponing part of it, until I can observe the relevant events that are yet to occur?" One of the crucial concepts of planning methodology that must be mentioned in this context is robustness. In so far as a decision involves a choice of one option and a rejection of the alternative options in the same decision-area, it is in the nature of a decision that some options are closed. Even the decision to postpone a decision may close certain options, not only because it inevitably postpones action and the option of "acting now" is therefore lost, but also because options that are available now may cease to be available with the passage of time. Time, in fact, is the taker of many decisions.

Nonetheless, in the interests of flexibility a strategy that can be successful, if judiciously employed, is that of keeping open as many options as possible. This involves a trade-off between the risk of diseconomies resulting from premature and irreversible commitment and the risk of opportunities being lost through procrastination. The lost opportunities must of course be taken to include the opportunities

for growth in the private sector that may be lost if postponement of decisions by the Government creates excessive uncertainty about their environment for entrepreneurs.

What is already emerging is the fact that planning does not consist of a single set of once-and-for-all decisions, but is a continuous dynamic process that takes place in response to a changing environment. It is essentially a co-ordinating function and this has implications for methodology, for the information needs of such a function and for the type of organisation that is appropriate to the function.

In light of the foregoing, the starting point of a planning exercise is a statement by the decision-makers, of the objectives that the economy should attempt to meet at the end of the plan period. It is a fact of life that several objectives may conflict amongst themselves or that similar objectives may be achieved following different paths of development. It is the task of the planners to discover and to present to the decision-makers the largest possible number of alternative courses of action that can be followed leading the economy towards the stated objectives. The planning process should therefore be designed in such a way that a large number of possible alternatives should be analysed, grouped into policy packages and presented to the decision-makers. In order to achieve a satisfactory and systematic analysis of the alternatives open to the decision-makers, the planning process should be approached in a systematic way using analytical tools capable of quantifying the effects of alternative policies and capable of tracing the impact of different courses of action on the likelihood of achieving the targets of the Plan.

The following sections present comments on some aspects of the present planning process as revealed to us during the preparation of the above feasibility exercise. These comments are then developed in the context of a proposed alternative planning process. Finally the data and analytical tools required to follow the suggested planning process are discussed, together with a brief outline of the structure of a permanent planning group which would carry out the suggested planning procedure.

2. Present Planning Methodology and some Suggestions

At present the planning process starts with the appointments of special Working Groups whose task is to analyse specific sectors of the economy and report back to the planners the necessary courses

of action that should be taken to achieve the desired targets. The total cost of the development schemes suggested by the Working Groups is then compared with the expected amount of resources that the economy can allocate to new capital formation over the Plan Period. This, by and large is the correct procedure; a few comments however may be useful.

(a) Great emphasis and rightly so has been put on Government financial resources available for new capital formation; very little however has been said about the necessary financial resources that should come forth from the private sector. The Working Groups have investigated the opportunities for development attempting to discover feasible schemes bearing in mind the institutional areas of Government intervention. An alternative to the above approach is that of starting off from a clear slate and investigating the opportunities that the economy offers ignoring the institutionalised division between private and public sectors. This first stage of the planning process is that of discovering feasible alternative courses of action designed to achieve certain goals. Constraining this search by analysing with different degrees of detail private and public sector areas of responsibility and intervention may mean overlooking some important alternatives. The search of feasible schemes of development should therefore include all possible alternatives both in the traditional areas of Government responsibilities and in the conventional area of private sector activity. The separation of development projects between public and private sectors should then be carried out according to policy decision and according to the estimates of private and public resources available for new capital formation. From here stems the necessity of estimating the private sector capacity and willingness to invest. This is an area partly overlooked by the present planning methods.

(b) The task assigned to the Working Groups and the information they feed back to the planners is obviously of the utmost importance. A systematic planning process would require both the analysis of a larger number of alternative schemes than has been done at present, and more detailed estimates of costs on physical input structures. It is useful to expand this area. The number of alternatives considered is important because there may be several ways of achieving the same targets. The targets may be achieved by improvement in the output from present investments, by technological improvements, by better manage-

ment methods or by setting up new production units. The alternatives considered should not be restricted to the achievement of a given level of additional output or to catering for a given level of demand but should include examination of threshold levels beyond which superior technology is economically justified. Careful evaluation of the alternatives can only take place at the co-ordinating, dovetailing stage with a comprehensive view of the economy. If the Working Groups were allowed to select amongst the alternatives available, the choice would be done on the basis of sectoral considerations only and important alternative paths of development may never be fed back to the planners. Information about input absorbed both by the processes of capital formation and by the actual production processes, are indispensable if interindustrial and intersectoral balances are to be considered at all. It is felt that the present planning procedure could be improved in both these areas.

(c) A systematic study of the alternative courses of actions that can be followed to achieve certain targets is best done if careful consideration is given to the inter-relations that exist between economic activities. If these inter-relations are ignored no assurance of availability of inputs necessary for certain outputs exists and the economy may be affected by shortages, bottlenecks or a general imbalanced development. There are several degrees of sophistication at which these inter-relationships may be taken into account. At present it appears that they are taken into account through informal communications between the Working Groups investigating various sectors of the economy. It is felt, however, that a substantial improvement could be achieved if they could be taken into account formally and in more systematic manner by using a well experimented technique *i.e.* Input Output Analysis.

(d) Estimates of savings and Government revenue should be derived from careful analysis of alternative projections of income. It is obvious how the nature of the targets of the plan and the selected paths of development to achieve them deeply affect the growth and distribution of disposable income which in turn determine the savings potentials and the weight and structure of the tax burden that the community can bear. The circular cause and effect nature of plan targets and way of achieving them on the one hand and resources available for investment on the other calls

for a deeper understanding of the structure and the functioning of the economy of Gujarat. A systematic approach would require a series of studies designed to determine some economic behavioural parameters with a view to discovering the necessary information capable of giving some indications to the decision-makers about trade offs between alternative policies.

3. An Alternative Planning Methodology

In this section a brief outline of an alternative planning methodology is attempted. As will be noticed, the planning methodology suggested requires several analytical tools that at present are not available. The next section will analyse the effort required to obtain the missing tools.

For convenience the term "Working Groups" is used throughout this section to refer to the role of data collection and analysis within particular sectors of the economy. In Section 5 an organisational distinction is suggested between this role and the more discretionary role that is also at present given to the Working Groups.

The term "Planners" is used to refer to all those concerned with the co-ordination of the work of the different Working Groups in order to give technical and professional advice directly to the decision-makers. At present this role is allotted to the Steering Group.

The task of the Planners should begin by attempting to translate the objectives of the plan, usually stated in very broad terms, into economic operative concepts which would be expressed in terms of final output or value added targets. This stage of the plan already identifies a very important function of the planners *i.e.* that of helping the policy makers to formulate precise and operative concepts rather than vague common places. Assuming the existence of an Input Output Tableau (I/O) of the economy of Gujarat the Planners would be able to feed into the tableau the target of the plan expressed in terms increased of levels of outputs. This would reveal the required output capacity that each sector of the economy should produce if the targets of the plan are to be met. The comparison of the capacity of the economy at the beginning of the Plan with that of an economy capable of producing the target outputs would reveal the areas where expansion of the present level of output capacity would have to take place. This would provide to the Planners sufficient information to instruct and direct the Working Groups towards investigating certain areas of economic activity revealed by the Input Output Tableau as

providing an inadequate volume of output. The Working Group after having studied the sector of activities in question, would feed back to the planners a set of feasible alternatives of how to achieve the desired increases in output capacity. It is necessary to emphasize that the Working Groups would have to investigate all the possible available ways, feeding back to the Planners estimates of costs and estimates of the inputs required for the implementation of each of the alternatives considered. Furthermore, every time the development programmes suggested are not merely expansions of existing plants but involve a change in the type of technology and in the patterns of production, it is necessary for the planners to receive information about the structure of inputs of the new production processes. In this way the Planners would be able to keep the Input Output Tableau up-to-date and check the economy as a whole for consistency and interindustrial balances for every combination of alternative strategies suggested by the Working Groups. The emphasis put on the fact that the Working Groups should analyse several alternative ways of achieving a certain increase in output is motivated by two important considerations. First, the strategy which seems to be best, when only sectoral considerations are allowed to enter the judgment, may in fact turn out to be sub-optimum when seen in a macro context. It would therefore be difficult for the Working Groups to suggest a ranking order or to select or reject feasible alternatives without running the danger of over-looking paths of development that would not come to light unless the Planners receive a complete picture of the feasible alternatives available. The second reason why the Working Groups would have to feed back information about all feasible alternative strategies is connected with the principle that planning and decision-making are two functions that should be kept as far apart as possible. The Planners should not become technocrats, since they are not constitutionally entrusted by the people at large to take decisions. Their task is to present feasible alternatives (as many as possible so that the number of decisions contained in their work is minimised) to the decision-makers who are entrusted by the people at large with the power to take decisions.

It is for this necessary democratic principle that the Working Groups at a very early stage of the planning process, and the Planners, at a later stage, should consider a large number of alternatives, order them into feasible policy packages, test, using the Input Output Tableau, each policy package both for consistency with the targets of the plan and for intersectoral balance, and present them to the policy makers who will take the final decisions. It is obvious that one of the most difficult tasks of the Planners is that of ordering and grouping

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the alternative strategies suggested by the Working Groups into consistent, feasible and optimum policy packages. We have given three attributes to the policy packages, *i.e.* consistency, feasibility and optimality. Consistency should be understood in terms of choosing a subset of strategies amongst all the strategies suggested by the Working Groups which are similar in terms of the type of technology used and in terms of emphasis on certain targets of the Plan. Feasibility can be assured by the Input Output Tableau. Optimality can be obtained by altering the format of the Input Output Tableau and reformulating the structural equations in a format suitable for the application of an optimising technique.

Following the above procedures the Planners would be in a position to present to the decision-makers a set of policy packages differing amongst themselves in terms of technology used and emphasis on different targets of the Plan. By so doing the Planners would leave a large part of decisions to the individuals to whom the power of decisions is entrusted by the people at large.

It is important to realise that the planning process started off by translating the objectives of the plan into economic operative concepts—ideally expressed in terms of gross output or value added for each sector of the economy. The planning process then determined in a systematic way the alternative ways in which the targets may be achieved.

It will be noticed that, up to now nothing has been said as to whether the economy is capable of producing a level of income capable of generating savings and taxation revenues to secure the required level of new capital formation, nor anything has been said about business expectations so important in the growth of capital formation.

It is clear therefore that the overall targets of the plan and each policy package will have to be assessed in terms of its feasibility not only in terms of its interindustrial balances but also in terms of its consistency with a set of predictions about income, savings, tax revenues and business expectations. It is at this stage of the planning process that each policy package would be split into private and public sector responsibilities for the execution of the development projects suggested. Only at this stage, when consistency, feasibility and optimality are determined and the implied savings, tax revenues and expectations are quantified or estimated, can the separation of private and public sector activities take place without artificially

cutting down the number of alternative strategies that can be materially termed. It is obvious that for several of the development programmes suggested it will be clear from the beginning as to whether they will be the responsibility of the private or public sectors, the above argument therefore only applies to schemes that may either go to public or private sectors depending on the particular policy package considered.

The test of feasibility of the plan targets and policy packages, in terms of predicted savings, tax revenues and business expectations, can only be carried out if a deeper understanding of the nature and behaviour of the State economy is obtained. There the planners should organise a series of studies designed to discover functional relationships amongst economic variables and designed to estimate important behavioural parameters and their sensitivity to policy variables. Ideally a growth model should be attempted in order to study the potentiality for growth, discover the constraints (both of physical and institutional nature), reveal the most sensitive areas where policy could increase the rate of growth and, possibly, study various equilibrium conditions and their implications for policy.

4. Data and analytical tools required for an improved planning process.

The additional data requirements for an improved planning process may be divided into three separate but interlinked categories :

- (a) Data required for improving the estimates of S.D.P.
- (b) Data required for the construction of an Input Output Tableau
- (c) Data required for studying the process of economic growth in a more dynamic context.

Table 1 briefly summarises the areas where data collection would be required in order to improve the present estimates of S. D. P. Table 1 also attempts a few preliminary indications as to what studies would have to be undertaken in these areas in order to improve current methodologies or in order to generate basic information for some of the uncovered sectors.

Table 2 indicates the data requirements that are more directly connected with the construction of an Input Output Tableau. It should be understood that the measurement of S. D. P. and the construction of an Input Output Tableau are interlinked activities to the extent that if the S.D.P. were to be measured wholly in terms of

value added then the Input Output Tableau could be directly derived from the data used to generate the S.D.P. in the various sectors. The two data categories (a) and (b) therefore refer to one pool of data, which should be collected with two purposes in mind, *i.e.* that of improving the estimates of S.D.P. and that of providing the the information necessary to build an Input Output Tableau.

As mentioned in Section 3 the planning process starts off on the assumption that an Input Output Tableau already exists. It is obvious, therefore, that the first step towards an improved planning process is that of constructing the tableau. The construction of such an analytical tool is a major task indeed. Input Output techniques, however, have been widely used both in developing and developed countries. There exists a wide and comprehensive literature and some examples can be quoted of how this analytical tool has helped in planning. The size of the tableau is crucial, both in terms of effort required in the data collection and in terms of its usefulness. Experience in other countries has proved that tableaux including less than 70/80 sectors are of limited practical use. As a first approximation it is felt that if one desires to approach the planning process analytically and systematically at least 80 to 100 sectors should be considered. The above indications however must be taken as general rules only and the actual size of the tableau is, in practice, determined by the degree of diversification of the State economy and by the degree of industrial interdependence. The data requirement for the construction of such a tool is enormous and the present data availability is insufficient. It would be necessary therefore to start a grass root collection of data on a survey basis designed to build, piece by piece, a picture of the interindustrial and intersectoral relationships of the economy of Gujarat. Concurrently an analysis should be carried out of the flows of goods in and out of the State. The Input Output Tableau can be considered as a snapshot of the structure of the economy at a certain point in time. It is obvious that, as development takes place and new technologies are introduced, the intersectoral and interindustrial relationships change. Continuous updating of the snapshot is therefore crucial. The updating of the tableau would be part of the planning process and it would not require additional and separate data collection. This could be obtained by expanding and co-ordinating the activities of the Working Groups, whose task would become that of discovering new potentials and feeding back to the Planners both the inputs necessary for the formation of new capital and changes in the structures of the relationships amongst various production processes. The Input

Output Tableau would therefore become a living entity reflecting changes in technology and helping the Planners to test alternative courses of actions by altering, adding or deleting the vital statistics (input structures) of the production processes under inspection. The above description pinpoints a very important characteristic of the planning process *i.e.* its continuity. The planning process is not an activity to be undertaken on the eve of the new plan period but is, on the contrary, a continuous activity involving a continuous watch on the potentials of the economy, supplying vital information to the decision-makers, updating, exploring new possibilities and carrying out studies and data collections to bridge the information gaps revealed by previous exercises.

Table 3 contains a list of suggested studies capable of supplying the necessary information to analyse the planning process in a more dynamic context. The suggestions brought forward are of an indicative nature only, the purpose of Table 3 being that of indicating the directions towards which the available research resources should be guided in order to increase the understanding in the following broad areas :

- (1) Economic behavioural parameters (*e.g.* propensity to save, people's reaction to saving incentives etc.)
- (2) Relationships between policy parameters and related economic variables.
- (3) Relationships between behavioural parameters and policy parameters.

The results of studies such as those mentioned in Table 3 could be used to test the targets of the Plan, in a more dynamic way, taking into account the circular process of economic growth (increases in supply induce increases in demand and increases in demand generate increases in supply) which so much depends on the response patterns of different groups of economic operators (businessmen, consumers, savers etc.). In this area scope would exist for attempting the construction of a growth model based on econometric techniques capable of indicating not only the major constraints and areas where policy interventions may have direct effects on growth, but also some of the equilibrium conditions required for a balanced path of growth.

5. Organisational structure required for the improved Planning process.

(i) *The three types of uncertainty and the corresponding organisational functions*

In section 1 three types of uncertainty requiring resolution during the planning process, were identified :

Uncertainty about the Environment	(Type 1)
Uncertainty about Related fields of choice	(Type 2)
Uncertainty about Values	(Type 3)

Furthermore it was also stated that resolution of uncertainties of type 3 was essentially the task of political decision-makers. It can also be seen, from the description of the present planning process, that there are in fact three organisational strata, each with the task of resolving one type of uncertainty :

<i>Organisational Group</i>	<i>Function</i>	<i>Type of uncertainty to be resolved</i>
Decision-makers	Political	Type 3
Steering Group	Co-ordinating	Type 2
Working Groups	Sector analysis	Type 1

In this list the order has been reversed to indicate what appears to be the logical hierarchy. This is to say, information is filtered upwards through these three groups and the final decision is taken at the top. To the extent that this is true, it follows that the task of each group is set by the needs of the group above it, the lower two groups constituting an information system for the decision-makers. If this were the whole truth the implication for organisational structure would be that of an authority hierarchy. However, this is discussed further in paragraph (iii).

(ii) *Information Requirements*

Regarding the functions of the Steering Group and the Working Groups as a two-tier system providing an information service to the decision makers, it is obviously important that the information received at each level should allow maximum flexibility in resolving the appropriate type of uncertainty. For this reason the information required to be passed from the co-ordinating to the political roles must be of the kind described earlier, a statement of alternative

courses of action that are economically and technologically feasible and a statement of the social and economic consequences of each course of action. A course of action might refer to a complete set of decisions (*i.e.* a policy package) or to a robust subset that could leave certain policy decisions open for a period of time. What must have been resolved by this stage is all the uncertainty about interdependence of decision-areas (*i.e.* what combinations of decisions are compatible). To resolve such uncertainties, the co-ordinating group must be provided with information about the full range of feasible actions in the different sectors. It would be an impossible task to cope with such interdependence if only partial information about each field of choice were available at one time. As far as possible, then, this information should be an indicator of the range of choice, the scales of costs and benefits or the thresholds where significant changes occur in any relevant scale. Thus a considerable degree of analysis is required at the lowest level before the information can be transformed into the form most useful at the level of co-ordination.

(iii) *Dual Functions*

So far the discussion has considered only the information functions of the organisational groups. In reality, however, their functions are more complex, for each Working Group consists of members of the community whose experience in particular fields is judged to make them especially suitable to participate in the planning of those fields. It is for this reason that they, rather than full-time administrators, are invited to serve on the Working Groups. In other words, the Working Groups are constituted to perform one kind of representative function, which necessitates the inclusion of a considerable discretionary element in their role. If they are to contribute to the discretionary content of decisions they cannot also be constrained by the tasks of an information service. On the other hand, as has been explained above, decisions taken at an early stage in the information process limit the flexibility of the final planning decisions. It would therefore seem that a distinction must be made between the two functions.

In fact, much of the necessary data for the information system must exist already in the appropriate department of the administration and it is there that may well be the appropriate organisational location for the basic planning information system. A permanent information service for planning could then be instituted within the existing organisational frame work. The co-ordinating role should also be given a permanent base in the administration through which

a dialogue with the decision-makers can take place and awareness of their information needs maintained. The role of temporary invited members of the planning team could then be determined in parallel with the information system and should be concentrated around the co-ordinating role where the dialogue with the final decision-makers takes place. This is not to say that such temporary advisers should not have access to any part of the information system. It would be entirely healthy that they should and that the information system should be periodically exposed to their scrutiny, but their primary role as discretionary advisers can be properly fulfilled only through direct dialogue with the decision-makers.

What is proposed, then, is not drastically new, but offers a new way of looking at the planning process. In particular, it is suggested that there should be a permanent organisational structure to provide for the information needs of planning decisions.

(iv) *Resources Required*

It is not possible at this stage to be precise about the composition of the organisational units carrying out the sector analysis and the co-ordination. General indications can however be given.

The sector analysis should be carried out by several permanent groups, each investigating a particular sector of the economy. Each group should consist of professionals with experience in the relevant field. Taking as an example the group responsible for Transport and Communications, one can predict the need for two civil engineers and two economists with supporting technical and clerical staff. This does not necessarily imply a large increase in the existing establishment, since the tasks to be performed may require little more than the redirection or re-orientation of existing skills and effort.

The co-ordinating function should be carried out by a larger group who are primarily required to be decision-oriented in their approach, but who will need to possess the skills of Economics, Statistics and Operations Research. This group will have to grow as it establishes in practice its role in the planning process. While initially it should be the responsibility of a small group of three or four professionals, one can foresee an increase to a team of about a dozen within a decade, possibly including further disciplines such as sociology. It will be essential for this group to have access to computer facilities.

T A B L E 1

Data Requirements for some Improvement in the Estimation of State Domestic Product

INFORMATION GAPS	OBJECTIVES	PROPOSED SURVEYS OR STUDIES
(A) Value added for the following sectors : 1. Unregistered manufacturing industries 2. Transport (excluding railways) 3. Construction 4. Retail and wholesale trade. 5. Real estate and ownership of dwellings	For the purpose of having a uniform and direct approach to estimate SDP and also for the purpose of having the basic data for input-output methodology a complete account of input structures is a necessary requirement.	A series of samples surveys should be undertaken for each of the 5 sectors mentioned.
(B) Working force by sector and by employment categories 1. Professional services 2. Personal services 3. Educational services 4. Medical & Health services 5. All other services 6. Other categories where productivity changes are crucial for measurement of development.	For the service sector income approach may be more suitable than value added approach. This requires estimates of changes of the working force during inter-census periods.	1971 Census data should be used as a bench-mark. Sample surveys or careful time-trend projections could be used to estimate inter-census changes.
(C) Estimates of production costs for agriculture and allied activities 1. Identification of the structure of input costs. 2. Depreciation cost 3. Other costs	Output figures are available on a continual basis. But input costs for agriculture are estimated from <i>ad-hoc</i> studies by NSS, RBI etc. and occasional agro-economic surveys. In view of fast changing technology in Agriculture intensive surveys on cost of production are needed, first for the purpose of having a better estimate of value added and second for identifying input structures.	Apart from utilising the past and current studies a sample survey other at household level or on the basis of area sampling is proposed. Regional variation should also be adequately reflected. Updating at regular intervals of some of the major aspects of this sector may be necessary.

TABLE 2

Additional Data Requirements for the Construction of a Detailed Input Output Matrix

INFORMATION GAPS	OBJECTIVES	PROPOSED SURVEYS OR STUDIES
(A) Imports and exports by sectors both in terms of interstate and international movements of goods and services	Input-output methodology not only describes the present structure of the state economy, but provides one of the best analytical tools for projections of the economy at a disaggregate level. The current attempts at construction of Input-Output matrix are limited by inadequate data for most of the sectors, other than large scale industry and mining. Furthermore the estimate of final demand as a part of the Input-output matrix is lacking in data on commodity flows.	Most of the data will be generated by the sample surveys proposed in Table 1 integrated by currently available data on large scale industry, agriculture and mining. Depending on the level of disaggregation and accuracy desired input details and commodity flows data for different sectors should be incorporated. Alternatively estimates of imports and exports may be obtained from secondary level data maintained by different state Government Departments.
(B) Details of private consumption by sectors.		The updating of the input output tableau and the construction of the capital coefficient matrix would be carried out using the information and data furnished by the sectoral studies carried out by the Working Groups.
(C) Complete details of input co-efficients (including labour) for sectors like Small-scale industry, Transport, Construction etc.		
(D) Capital co-efficient matrix		
(E) Estimates of alternative input co-efficients for selected sectors whenever technological changes take place.	For a better understanding of the future structure of the economy and for an effective testing of the feasibility of the growth targets the Input-Output Tableau should also be kept updated in terms of technological changes and capacity constraints.	
(F) Capacity utilisation studies for key sectors		

TABLE 3

Data Requirement for Studying the Process of Economic Growth in more a dynamic context

INFORMATION GAPS	OBJECTIVES	PROPOSED SURVEYS OR STUDIES
(A) Estimation of some macro economic magnitudes	For the purpose of estimating the savings potential of the State and understanding the impact on demand caused by changes in the level and distribution of income detailed studies on such magnitudes are necessary.	A sample survey of households covering the entire State is proposed. This may be procured as a supplement to NSS studies or organised on an independent basis. Income and expenditure information together with occupational and educational details should be incorporated.
1 Propensity to save (Private)		
2 Distribution of personal disposable income		
" Elasticity of demand for different commodities.		

INFORMATION GAPS	OBJECTIVES	PROPOSED SURVEYS OR STUDIES
4. Average earning by occupation and by socio-economic classes		
5. Unemployment by categories		
(B) Effects on growth of policies determining State resources	In order to base the planning process on sounder assumptions, it is felt that the absolute amount of resources that can be raised both in the Public and Private sectors should be carefully estimated. Furthermore the inter-actions between savings, taxation and growth should be investigated.	(a) Effect of functional relationship between the growth of the sectors) and the taxes, which will be required to meet the revenue.
1. Additional Revenues from (a) Direct Tax (b) Indirect Tax		(b) Estimate of additional revenues on the basis of alternative tax measures.
2. Increment to Private Sector for Investment in State Government securities.		(c) Impact of changes of the tax structure on the disposable income and private savings.
3. Proportion between current outlays and investment under development expenditure.		(d) Impact of changes of alternative public sector investments to State Government securities and private sector investments.
4. Revenues from State Government undertakings		(e) Assessment of the market capacity of absorption of State securities.
5. Central Government investment in the State.		
6. Ratio of Private/Public sector investment by type of industry.		(f) Detailed analysis of the composition of Government expenditure pattern with a view to obtaining a larger availability of funds for productive investments.

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