

DRAFT



**GOVERNMENT OF INDIA
PLANNING COMMISSION**

FOURTH FIVE YEAR PLAN

A DRAFT OUTLINE

Part II—Programmes of Development

AUGUST 1966

1414

D.S.

7539

GOVERNMENT OF INDIA
P L A N N I N G C O M M I S S I O N

FOURTH FIVE YEAR
PLAN

DRAFT OUTLINE

(2) PROGRAMMES OF DEVELOPMENT

1414

F O U R T H F I V E Y E A R P L A N

D R A F T O U T L I N E

C _ O _ N _ T _ E _ N _ T _ S

Approach and Policy

Introduction

- I Approach to the Fourth Plan
- II Self Reliance and Perspective of Development
- III The Fourth Plan in Outline
- IV Financial Resources for the Plan
- V Development of Foreign Trade
- VI ~~Employment~~ and Rural Manpower
- VII Manpower Requirements and Resources
- VIII Land Reforms
- IX Cooperation
- X Implementing the Fourth Plan

Programmes of Development

- XI Agriculture and Allied Sectors
- XII Irrigation and Power
- XIII Village and Small Industries
- XIV Industries and Minerals
- XV Transport and Communications
- XVI Education
- XVII Scientific Research
- XVIII Health and Family Planning
- XIX Urban and Regional Development
- XX Social Welfare
- XXI Welfare and Development of Backward Classes
- XXII Labour Policy and Programmes
- XXIII Rehabilitation
- XXIV Public Cooperation and Participation
- XXV Other Programmes

1414

CHAPTER XI

Agriculture and Allied SectorsI. AgricultureProgress in the First Two Plans

Agricultural development programmes introduced in the first decade of planning made a significant impact on the size and character of Indian agriculture. The growth rate in this sector represents a marked improvement over the performance in the preceding decades when the agricultural output grew by less than one per cent per annum. By contrast in the First Plan the annual rate of growth rose to 2.8 per cent. It increased further to 3.9 per cent in the Second Plan period. The index of agricultural production moved up from 96 in 1950-51 (base: 1949-50) to 142 by the end of the Second Plan. Foodgrains production improved from 61 million tonnes in 1949-50 to 82 million tonnes in 1960-61. During this period, the production of cotton was doubled from 2.6 million bales to 5.3 million bales, jute production increased from 3.1 million bales to 4.1 million bales and oilseeds from 5.2 million tonnes to about 7 million tonnes. In the initial years of planning, additions to agricultural output were secured more from extension of the area under cultivation than from increase in production per acre. Since the middle fifties, however, the increase came more from higher yields than from additional acreage.

The Third Plan

2. The performance in the Third Plan has, in contrast, been disappointing. Although a great deal was done to create

potential for higher production, successive years of bad weather conditions as well as shortfalls in individual programmes adversely affected production. The index of agricultural production either remained around the 1960-61 level or actually fell except in 1964-65, when, with favourable weather conditions, agricultural output increased substantially. Foodgrains production registered a nominal advance in 1961-62 but declined in 1962-63 and 1963-64 to levels lower than that at the end of the Second Plan. It showed a sharp and welcome increase in 1964-65, reaching nearly 89 million tonnes. The last year of the Plan coincided with one of the worst droughts in living memory and production fell to a level of 72.3 million tonnes. In the case of cotton, production remained more or less at the 1960-61 level. Jute production, improved to more than 6 million bales except in 1962-63 and ~~1965-66~~ when it fell to around 5 million bales. Oilseeds registered a marginal increase in the first three years but in 1964-65 production rose sharply to 8.5 million tonnes.

Lessons and Tasks ahead

3. In 1963 the Planning Commission published a Mid-Term Appraisal of the Third Five-Year Plan, which brought into sharp focus the deficiencies in Plan formulation and implementation, particularly in the agricultural sector. An important point made was that proper planning for agriculture covers a much wider segment of the economy than the agricultural sector of the Plan alone. Although lapses occurred in agriculture itself, part of the failure was due to the inability of industry to supply the targeted output of

fertilisers. Partly also, it was the absence of an agricultural oriented policy on the part of the authorities in charge of the distribution of power. Another point was the time-lag in the utilisation of the potential created by the irrig irrigation projects. In preparing an agricultural plan, attention has, therefore, to be given to a host of supporting activities which are essential to agricultural development. If "top priority" for agriculture in the Fourth Plan is to be really meaningful and effective, it is not only necessary to bring together the various targets and programmes in the agricultural sector but also to identify and give preference to those activities in other sectors which bear on the implementation of the agricultural Plan. The Fourth Plan seeks to ensure in the first instance that provision of material inputs and other supporting services which condition and stimulate agricultural growth should receive top priority. In industry, for example, the production of fertilisers, pesticides, tractors and agricultural machinery will be given first call on the nation's resources. In power, rural electrification programmes which energise tube-wells and pumps for irrigation purposes will get precedence. Similarly, in transportation, education and research, programmes which have their impact on agricultural development will receive greater attention.

Irrigation

4. The existing irrigation practice in many parts of the country is to apply water thinly in order to extend the benefits of irrigation and afford protection against drought to as large

an area as feasible. This does not serve the needs of intensive agriculture for securing high yields per acre. There is need for re-orientation of this policy. Where the intensity of irrigation in canal irrigated areas is low, it has become necessary to supplement it to the extent practicable from underground or surface water resources to make the supplies adequate, dependable and timely for intensive agriculture. It was found that many old minor irrigation projects, such as tanks and derelict wells, were in need of extensive repair. As these fell into disuse, the total irrigated area was reduced though this was not apparent in the statistics of the area under minor irrigation. To rectify this, a massive programme for the restoration of old tanks and wells was initiated. There was also a wide gap between the irrigation potential created and its utilisation. This was mainly due to a time-lag between the completion of the main irrigation projects on the one hand and the taking-up of the construction of field channels and the levelling and preparation of the land on the other. The Area Programme in the Third Plan and the Ayacut Development Programme of the Fourth Plan have been introduced specially with a view to ensuring speedy and full utilisation of facilities created at considerable cost.

Price Policy

5. A third factor which contributed to slow growth in agricultural production was the absence of an effective price policy. Price support policy in the past was aimed at eliminating distress. But this did not provide the incentive needed for a dynamic agricultural growth. Accordingly, in

1964, minimum support prices on a more realistic basis were fixed for rice and wheat in certain States. Since January 1965, an Agricultural Prices Commission has been set up to keep the price situation under constant review and to advise the Government on price policies. Price and marketing policies will assume added significance during the Fourth Plan period in the context of a massive effort for securing rapid increases in production. As such, well-conceived marketing, storage, transport, credit and other arrangements are being worked out. It is hoped to put them into operation without delay to cater for large surpluses expected from the intensive areas.

Intensive Agricultural Programmes

6. The object of the Intensive Agricultural District Programme which was undertaken in 1960-61 is to induce the cultivator to adopt a package of improved agricultural practices in order to bring about a significant increase in yields per acre. Altogether, I.A.D.P. now covers 308 blocks and 5 per cent of the total cultivated area in the country. Evaluation done so far has shown that with the exception of some districts, progress has not matched expectation. At the same time, there is no doubt either about the validity of this approach or the impact it is making on production. In addition to the IADP or package districts as they are sometimes called, the Third Plan also saw the introduction of the Intensive Agricultural Area Programme (IAAP). Under this programme initiated in 1964, 643 blocks in 75 districts have been selected for paddy, 356 blocks in 54 districts for millets and 200 blocks in 30 districts for wheat. What is sought to be done here is more or less the same as in IADP districts except that the intensity

of effort is less. The programme in the Fourth Plan is to cover the entire area in the IADP and IAP districts with improved package of practices and tackle their total crop economy instead of only their predominant crops.

The New Strategy

7. The Mid-Term Appraisal showed that the agricultural production programme itself had to be re-vitalised. If our dependence on imported foodgrains has to cease, it is necessary to make far greater use of modern methods of production and to bridge the gap between demand and production by the application of the latest advances in the science of agriculture. A new strategy or approach is needed if we are to achieve results over a short span of time. During the last four years as a result of the trials conducted in several research centres in India on exotic and hybrid varieties of seeds, a break-through has become possible. These varieties are highly responsive to a heavy dosage of chemical fertilisers.

8. The necessity for concentrated and integrated efforts on specific production programmes in areas where the assured availability of water can facilitate the use of large quantities of fertilisers needed for high-yielding varieties of seeds, has not arisen suddenly. It is the culmination of certain trends hastened by the break-through in the matter of seeds and the change in the attitude of the Indian cultivator towards chemical fertilisers. The long-term objective is to organise the use of high-yielding seeds together with a high application of fertilisers over extensive areas where irrigation is assured. It will be operated mostly in the IADP and IAP areas as these offer the

maximum potential for production and are already better provided with staff and other facilities. It may be stated that though priority in the allocation of essential inputs will be given to these areas, there is no question of ignoring the non-intensive areas in provision of inputs and administrative and technical personnel. It may be added that in the areas selected for concentrated effort, there is to be no discrimination between cultivators on the basis of resources or the size of holdings.

9. There is another facet to the new approach which has far-reaching implications for Indian agriculture, namely, the introduction of short duration crops which enable the same land to produce larger yields. The importance of cropping patterns has often been emphasised in the past; but it was not possible to make it a central theme of the agricultural production programme, partly for want of suitable short duration varieties and partly because the irrigation system and the procedures under it were not attuned to dynamic and flexible cropping patterns. Suitable short duration varieties have now been evolved. Also, the spread of minor irrigation schemes in recent years and their use in reducing and making more effective the command area of the major irrigation projects has facilitated the introduction of short duration crops over large areas.

10. In view of the vital importance of improved seeds, the technical and administrative arrangements for supervision of multiplication, testing, promotion,

certification, purchase, storage, credit and distribution will be strengthened. A comprehensive seed law will be introduced in the interest of proper seed classification and seed control. The States have been requested to strengthen the existing seed multiplication farms, to establish new large-sized farms up to 500 acres and to set up seed villages and Seed Corporations for looking after production, certification, storage and distribution of improved seeds. The Union Ministry of Food and Agriculture is also proposing to set up large-sized Central Seed Farms for production of foundation seed. At the Centre, the National Seed Corporation will assume the overall responsibility for assuring production and maintenance of adequate quantities of the high-yielding varieties.

11. The new approach also encourages the promotion of subsidiary foods like potatoes and other tubers in order to increase quickly and substantially the calorific value of food. Even more important is the increased production of supplementary foods as the diet is seriously deficient in proteins. Special mention may be made in this connection of the importance and urgency of increasing the production of pulses. Some concrete programmes appear necessary for this purpose in the Fourth Plan. The inter-relationship of the breeding policy, production of fodder and dairy development has been recognised as the basis of the animal husbandry programme. A similar co-ordinated development of poultry, cold storage, processing of poultry products and manufacture and distribution of feeds has also been visualised.

Credit

12. The mounting of a massive agricultural production programme calls for a considerable step up in the supply of agricultural credit which can only be reached if policies are clearly defined and implemented. To achieve the high credit target, the crop loan system, in terms of full supply of credit to meet the production requirements, is being introduced in the co-operative credit structure. Under this system, the loans given to cultivators are based on the production needs of each type of crop and not on the landed assets of the borrowers. This system will have a far-reaching effect on agricultural production, particularly in the case of tenants and the small owner cultivators. Special efforts are being made to introduce this system in the area covered by High-Yielding Varieties Programme. It provides that loans for supply of material inputs, such as, seeds, fertilisers, implements and pesticides should be advanced only in kind and that attempt should be made to link credit with marketing. Procedures for the grant of loans will also be simplified in order to avoid unnecessary delays.

13. Our policy has been and continues to be to arrange for the supply of agricultural credit through cooperatives. However, in areas where the cooperative machinery is too weak to undertake the work involved in this production programme, it may be necessary to provide a supplementary line of credit through the establishment of agricultural credit corporations in some of the States. The details of...

the
 /proposal regarding agricultural credit corporations are
 under the consideration of the Government. The co-operative
 structure is also in need of assistance both for the
 extension of coverage and improvement in its functioning
 in respect of services rendered to its members.

14. In the field of long-term credit, adequate
 institutional support from the Reserve Bank, State Bank,
 and Life Insurance Corporation has been sought for
 purchase of debentures of the central land mortgage banks.

Land Reform

15. Land reform is another important instrument, by
 which the Planning Commission has always set much store,
 for creating the necessary motivational background for
 increasing agricultural production. "Land to the tiller"
 has been the basis of this programme. But the experience
 of the last 15 years has shown that, though, intermediaries
 have been abolished and a certain measure of extension
 has taken place in peasant proprietorship, there are still
 a large number of farmers who function as tenants. The
 whole question of land reform has been discussed in a
 separate chapter but it must be stressed that, in terms
 of motivation of the farmer, this programme is of significant
 importance to any rapid increase in agricultural production.
 It is also important to emphasise the need for adequate
 and appropriate follow-up action in the agricultural sector
 if full benefits are to be derived from the implementation
 of land reforms.

Drought affected areas:

16. Adverse weather conditions during the Third Plan period and particularly during 1965, have brought into sharp focus the problems of areas exposed to frequent drought. Apart from the human suffering and heavy expenditure on relief measures caused by drought, it seems that the affected areas also suffer from deficiencies in the utilisation of soil and water resources and are prone to strain the soil beyond its capacity. It is, therefore, essential to assess the resource potential of the regions and the possibilities of developing them to achieve their most effective utilisation. Diversification of agriculture and provision of alternative vocations in the shape of cottage and small scale industries also hold promise of providing a greater degree of stability in such areas.

17. A provision of Rs.40 crores has been made in the Plan for surveys and pilot programmes which would suggest the direction of action necessary for effective utilisation of natural resources based on new strains suited to the agronomic and climatic conditions.

Small Peasant Farmers:

18. An understandable criticism levelled at agricultural planning has been that it does not do enough for small peasant farmers. Lands belonging to small owners may be divided into two categories, namely, those under direct cultivation and those leased out to tenants at will. The problem which the former presents is of finance,

technical assistance and organisation of cooperative activity. Regarding the latter, measures taken to protect tenants of small owners should be simple to administer and, as far as possible, the problems which they raise should be solved at the village level by the people themselves.

19. The Fourth Plan includes programmes which are intended to help small peasants and persuade them to organise their activities on a community basis, preferably on cooperative lines. The provision of agricultural credit on the basis of production needs instead of material assets is one of these measures. Similarly, intensification of the programme of consolidation of holdings will alleviate the burden of fragmentation which affects the small peasant. Programmes of bunding, levelling of land and well-sinking will be taken up on a community basis.

20. The Government of Maharashtra have an integrated area development programme for the benefit of small holders in blocks where they predominate. A pilot scheme in Tasgaon block of Sangli district has been taken up and the programme is sought to be extended to over more blocks in the Fourth Plan. Under this scheme, an area of 20 to 30 thousand acres will be taken up for land development and small farmers will be given certain additional concessions for programmes like bunding, levelling and well-sinking on a community basis. Along with this special land improvement programme, normal agricultural schemes

will, so far as they are applicable, be introduced on an intensive basis for the improvement of agriculture in that area. A master plan for land development of such selected areas is proposed to be drawn up through the District Land Improvement Boards. Since the repaying capacity of the small holders, even with the land development measures envisaged, may not materially improve in the immediate future, schemes to provide subsidiary occupations like poultry, dairying and rural industries to supplement their income from the land will also be taken up.

Export Promotion

21. Agricultural exports have a key role to play in earning foreign exchange; and agricultural commodities or manufactures broadly based on agricultural raw materials are expected to continue to hold a predominant position in the export trade in the immediate future. As such, an all-out effort is needed to provide surpluses for expanding the export trade.

22. Since commercial crops like jute, groundnut and tobacco occupy a pivotal position in the export trade, special programmes are being undertaken to achieve higher production targets for these commodities. For speedy implementation of development measures some of the schemes for jute, groundnut and tobacco are being taken up as Centrally sponsored schemes. Jute production will be increased through the introduction of its cultivation in

the newly irrigated areas of Kosi and Hirakud, its cultivation as a second crop with paddy and potatoes in irrigated areas, introduction of high-yielding strains and improved practices and foliar spray with urea (which will be supplied free by the Government of India). For groundnut, an export-oriented development scheme is proposed to be taken up over an area of 32 lakh acres by the end of the Fourth Plan. Production of tobacco is also proposed to be stepped up from 350 million kgs. under the Third Plan to the level of 450 million kgs. by the end of the Fourth plan.

23. The total area under cashewnut cultivation by the end of the Third Plan is expected to be 13.36 lakh acres in Maharashtra, Mysore, Kerala, Madras, Andhra Pradesh and Goa. It is proposed to bring an additional area of 4.5 lakh acres of land under cashew cultivation in these States. Production of pepper is proposed to be raised by 5,000 tonnes by the last year of the Fourth Plan. The production of lac which too occupies an important position in export trade, is proposed to be raised from the present level of 50 thousand tonnes to 60 thousand tonnes.

24. Special programme for stepping up agricultural exports in commercial and plantation crops is being introduced and additional funds are being provided for this purpose.

Coordination

25. One of the most important lessons that we have learned from our failures in the past has been the lack of coordination between different departments and institutions dealing with complementary aspects of the same programme. This has generally been accompanied by the absence of a single organisational unit having responsibility and authority over the basic factors of production, extension and cooperative services in the rural areas. If success is to be assured in the future, the administrative and technical services at various levels have to work together as a team with the duties and responsibilities of each member clearly defined. Some progress has already been made. At the national level closer coordination has been achieved between the Ministries concerned with agricultural production. In the States, agricultural production sub-committees of the Cabinet presided over by the Chief Ministers and administrative coordination committees headed by Chief Secretaries have been set up. A number of other steps have also been taken in the States, in varying degrees, in accordance with the recommendations of the high-level working group on Inter-departmental and Institutional Coordination for Agricultural Production. A great deal, however, remains to be done. It is necessary that, at each State headquarters, (some States have already introduced this) an integrated Department of Agriculture Production comprising Agriculture, including Animal Husbandry, Fisheries, Irrigation (distribution of water as distinct from construction of works), Community Development,

Panchayati Raj and Cooperation should be set up, and the responsibility for coordination be placed on a senior officer functioning as Secretary-cum-Commissioner. This officer should concentrate exclusively on all aspects of agricultural production and, to that end, be relieved of all functions relating to industries, amenities, social services and general planning. At the district level, a wholetime Agricultural Production Officer should be assigned the responsibility for coordinating the work of the department and institutions concerned with agricultural production. He should act both as the secretary of the Agricultural Production Committee of the Zila Parishad and as the lieutenant of the District Officer, who should have overall charge for coordination, in respect of all development departments, including irrigation. The idea is to underline the District Officer's role as a coordinator while relieving him of day-to-day operational responsibility for the agricultural production programmes. At the block level, the B.D.O. should function primarily as an Agricultural Production Officer and should act as Secretary of the Agricultural Production Committee of the Block Samiti. His other duties should be entrusted to the Social Education Officer or the Panchayat Extension Officer.

26. In implementing major agricultural development programmes, the role of the Centre and the States is one of the partnership. In particular, in programmes such as supply of fertilisers and pesticides, agricultural machinery

and nucleus seeds for high yielding and hybrid varieties, as part of the scheme of implementation, it is useful to work out in advance the precise contribution to be made by various agencies at different levels.

District, Block and Village Plans

27. Agricultural development has suffered on account of incomplete planning, particularly at the local levels. The central fact to be kept in view is that agriculture lies, almost entirely, in the private, unorganised sector. Agricultural production is, in consequence, primarily the result of individual planning or decisions taken and efforts put in by about 66 million families of farmers spread over 5.6 lakh villages, who control the actual production process. The role of Government and cooperative and other institutions sponsored by it is to assist farmers to take the right decisions consistent with national goals and policies and to ^{implement them to} ~~their~~ utmost capacity and resources. An agricultural plan becomes a plan in the true sense of the term and the targets acquire real meaning, validity and sanction, only if the national goals or broad targets are concretised into a set of specific programmes through village, block and district plans and are accepted by the farmers as their own and there is a joint commitment on the part of the farmers, their institutions (cooperatives and panchayati raj), the State Governments and the Centre to play their respective roles. The crux of planning for agricultural development is to make village, block and district plans a reality and to build up, in keeping with the decisions of the National

Development Council, the agricultural targets from below through detailed work, area by area, at the local levels culminating in fully worked out and coordinated plans for agricultural development at the block, district, State and national levels.

28. The fact that we were unable to do this in the Third Plan is partially responsible for the shortfall in agricultural production. In the Fourth Plan, an attempt was made in May 1965 to indicate production goals, programme targets and outlays to each State. The intention was that each State would break them up into district programmes and targets and the latter would further break them up into blocks programmes and targets. It was also proposed that an agricultural planning cell should be set up at each State headquarters with whole time officers of the various departments concerned to work out clearcut programmes and give technical guidance for the further break-up to block level. Some work has already been done in the States along these lines, specially in relation to intensive agricultural areas and areas selected for propagation of high-yielding varieties. When the overall plans of States for the Fourth Plan period were formulated, within the framework which they provide, steps should be taken to draw up district and block plans for agriculture and other sectors. These will serve as the basis for intensifying production effort at the village level.

Crop Insurance

29. Severe distress is caused to the farmers by crop failure resulting from drought, floods, and other natural calamities. This risk is likely to get accentuated under conditions of large investments on fertilisers, pesticides, improved seeds and other inputs which are proposed to be used on a large scale during the Fourth Five-Year Plan, especially under the high yielding varieties programme. One of the important means of alleviating distress arising from natural calamities could be the organisation of crop insurance. In return for stipulated annual payments (viz., premia), the farmers could be assured of certain minimum compensation to cover the risk of loss from such calamities. Under the Third Five-Year Plan it was proposed to undertake a pilot scheme to study the feasibility of introducing crop insurance in the country. The Government of Punjab, which agreed to undertake this pilot scheme in a few areas, have already taken preliminary action in this direction, by way of collection of requisite data. Enabling legislation for the introduction of crop insurance on compulsory basis by the States is under preparation. A pilot scheme for crop insurance has been included in the Fourth Five-Year Plan and will be implemented in Punjab initially. It will be extended to other States which show their readiness to implement it.

Demand Projections

Foodgrains

30. The aggregate demand estimates by the end of the Fourth Plan had been worked out by different organisations on the basis of projected growth in income and population, nutritional standards, likely changes in dietary habits and after making allowance for non-human consumption, i.e., for seed, feed and wastage. The Working Group set up for this purpose estimated the demand at 122.8 million tonnes, the Perspective Planning Division of the Planning Commission came to a figure of 122 million tonnes, the National Council of Applied Economic Research proposed 115 million tonnes; and the Institute of Agricultural Research Statistics 117 million tonnes. After reviewing these estimates and taking into account a lower rate of growth that was envisaged in the Third Plan, the estimates of foodgrains production for 1970-71 is being envisaged at 120 million tonnes. The actual production of foodgrains in 1949-50 was 61 million tonnes.* It increased in 15 years to 89 million tonnes in 1964-65 which was a favourable year for agricultural production. This shows an increase of 28 million tonnes in fifteen years. With 120 million tonnes as the estimated production and assuming a potential of 90 million tonnes by the end of the Third Plan, an increase of 30 million tonnes in five years is envisaged.

*Adjusted for statistical changes.

Commercial Crops

31. The per capita consumption of cloth in the Fourth Plan is estimated to be 16.7 metres. Requirements of cloth on this basis as well as for meeting the demands of defence and industrial consumers during the Fourth Plan period are estimated at 10060 million metres or 77.4 lakh bales of cotton. In addition, exports of cotton and extra-factory consumption of cotton will be of the order of 4 lakh bales and 3.37 lakh bales respectively. Thus the total requirements of cotton would amount to nearly 85 lakh bales. The estimates of cotton production for the Fourth Plan is put at 86 lakh bales. In regard to jute, the Jute Committee (Srivastava Committee) estimated in 1963 the consumption requirements for the Fourth Plan at 98 lakh bales besides 3 lakh bales for village consumption. The estimates of production of jute and mesta for the Fourth Plan period are placed at 90 and 20 lakh bales respectively. The Directorate General of Technical Development have estimated the requirements of major oilseeds at 101.25 lakh tonnes. Besides, there will be requirements for minor oils and oilseeds. The estimate of oilseeds production for meeting these requirements is envisaged at 107 lakh tonnes. Lastly, the requirements of sugar for domestic consumption and exports as well as those of gur and khandasari are worked out at 119.1 lakh tonnes. After making an allowance for chewing, seed, etc., at the usual rate of 12 per cent, the estimate of sugarcane,

production in 1970-71 for meeting these requirements is contemplated at 135 million tonnes. It will thus be seen that the estimates of production of the important commercial crops earmarked for the Fourth Plan are related to internal demand and exports. But in case of cotton, looking to the present trend of production and consumption it would not be possible to do away with imports of long staple cotton during the Fourth Plan period.

Estimates of Production

32. The estimates of production proposed for the Fourth Plan in respect of foodgrains and various commercial crops along with their anticipated achievements (in terms of production potential) at the end of the Third Plan are given in the following table:-

Table I

Estimates of Production of selected agricultural commodities at the end of Fourth Plan.

Commodity	Unit	Base level 65-66.	Additional production Fourth Plan.	Estimates of production at the end of Fourth Plan.	Percentage increase over the base level.
1	2	3	4	5	6
Foodgrains.	million tonnes.	90.0	30.0	120.0	33
Sugarcane(gur)	"	11.0	2.5	13.5	23
Oilseeds	"	7.5	3.2	10.7	43
Cotton	million bales.	6.3	2.3	8.6	37
Jute	"	6.2	2.8	9.0	45

1	2	3	4	5	6
Mesta	million bales	1.8	0.2	2.0	11
Pepper	'000 tonnes	30.0	5.0	35.0	17
Cardamom	"	3.3	0.5	3.8	15
Ginger	"	22.0	5.0	27.0	23
Cashewnut	"	136.0	192.0	328.0	141
Tobacco	"	350	100	450	28
Coconut	million nuts	4713	400	5113	8
Arecanut	'000 tonnes	101.9	8.5	110.4	8
Lac	'000 tonnes	50	10	60	20

Physical Programmes

33. The targets of selected programmes of agricultural development for the Fourth Plan to achieve the production estimates of various crops, along with anticipated achievements of the Third plan are indicated in the following table:-

-/-

Table II.

Targets of Selected Programmes for
Agricultural Development.

Programme:	Unit	Third Plan(1961-66)		Fourth Plan Target.
		Target	Achieve- ment.	
1	2	3	4	5
I. <u>Irrigation</u>				
(a) major.	million acres.	12.80	5.40	9.0
(b) minor.	"	12.80	13.10*	17.0**
II. Soil Conservation.	"	11.80	9.80	20.0
III. Land Reclamation.	"	3.60	4.20	2.5
IV. <u>Chemical Fertilisers.</u>				
(a) Nitrogenous (N)	million tonnes.	1.02	0.60	2.0
(b) Phosphatic (P ₂ O ₅)	"	0.41	0.15	1.0
V. <u>Organic Manures & Green Manuring</u>				
(a) Urban compost.	million tonnes.	5.10	3.40	5.4
(b) Green Manuring.	million acres.	41.00	21.50	64.0
VI. <u>Area under Improved Seeds</u>				
(a) High-yielding varieties.	"	-	120.00	32.5
(b) Other improved seeds.	"	204.00	120.00	241.5
VII. Plant Protection.	"	50.0	41.0	137.0

*Includes 9.16 million acres newly irrigated area, besides area under drainage, flood control, etc. Similar break-up for Third Plan Target is not available.

**Includes 12.0 million acres newly irrigated area, besides area under drainage, flood control, etc.

Financial Outlays

34. Details of projected Fourth Plan outlays in the agricultural sector, along with the estimated expenditure under the Third Five-Year Plan are given in the following table:-

Table IIIOutlays of Development Programmes.

			(Rs. crore)
Head of Development.	Third Five-Year Plan		Fourth Plan.
	Allocation.	Estimated expenditure.	
1	2	3	4
I. <u>Agricultural Programmes</u>			
1. Agricultural Production (including Ayacut Development).	226.1	206	720@
2. Minor Irrigation.	176.8	263	520
3. Soil Conservation.	72.7	78	218
4. Animal Husbandry.	54.4	44	142
5. Dairying & Milk Supply.	36.0	34	59
6. Forestry.	51.4	47	122
7. Fisheries.	26.4	24	113
8. Warehousing, Marketing and Storage.	41.5	35	50
<u>Total-I</u>	<u>685.3</u>	<u>731</u>	<u>1944</u>
II. <u>Cooperation, Community Development and Panchayats</u>			
9. Cooperation.	91.4	78	206
10. Community Development & Panchayats.	322.0	290	260
<u>Total-II</u>	<u>413.4</u>	<u>368</u>	<u>466</u>
<u>GRAND TOTAL: I + II</u>	<u>1098.7</u>	<u>1099</u>	<u>2410</u>

drought
@Includes Rs. 40 crores for chronically/affected areas.

35. The National Development Council at its twenty-second meeting held in September, 1965 approved an outlay of Rs.2,372 crores for agriculture and allied programmes. This has now been revised to Rs.2,410 crores. This includes Rs.40 crores for programmes in the chronically drought-affected areas of different States. Besides, some changes in the outlays of different agricultural programmes have been made in the light of upward revision of prices of imported items in rupee terms due to devaluation and the need for undertaking Centrally-sponsored programme for the development of export-oriented commercial crops as well as for the high-yielding varieties programme. The outlay for minor irrigation programme has also been increased. A general decision has been taken to effect economy in the building component of all development programmes. This has also been taken into account in revising the outlays for agricultural programmes.

Programmes of development.

Minor Irrigation

36. The long-term potential for the development of minor irrigation has been estimated at 75 million acres (gross), made up of 30 million acres from surface water and 45 million acres from groundwater resources. The

actual level of development expected to be reached at the end of the Third Plan period is about 50 million acres. The target for minor irrigation in the Fourth Plan has been fixed at 17 million acres, including one million acres to supplement irrigation from major and medium projects for providing more intensive irrigation. This would include 12 million acres of new irrigation, about 2 million acres of irrigated area over which irrigation is improved, 1 million acres benefited by water conservation-cum-ground water recharging schemes and 1 million acres of area benefited from drainage, flood protection and anti-sea water intrusion works.

37. Area plans for minor irrigation would be prepared to reach the optimum level. These plans will be closely linked with a rural electrification programme designed to provide electricity to clusters of wells or tube-wells. The programme will also insist on consolidation of holdings wherever feasible. The small holders would be helped through community masonry wells constructed and maintained on behalf of the panchayats or cooperatives and hired or sold out on instalment to farmers. The areas brought under minor irrigation would be properly serviced with extension, credit and supply facilities. In fact,

each cluster of pump-sets would be treated as a project and special area treatment would be given to the areas served by these pumpsets.

38. Other important features of the minor irrigation programme are the strengthening of existing organisations for surveys and investigations and intensification of research and extension in water use and management. As the minor irrigation programme has progressed, increasing emphasis is being laid on ground-water schemes. It is, therefore, of basic importance that along with arrangements for scientific surveys for groundwater potentialities, the technical organisation responsible for exploiting these potentialities should be adequately strengthened.

39. The problem of maintenance of minor irrigation works needs to be tackled on a more systematic basis. The State Governments have been requested to make a quick review of the maintenance programme of all existing minor irrigation works and to follow it up by action to secure future maintenance. They have also been requested

to take steps, from the beginning, for maintenance arrangements of new minor irrigation works. Priority has to be given to desilting and repair of existing tanks that may have either gone out of use or are working much below capacity. In order to ensure that minor irrigation works are properly maintained, it is essential that the responsibility should be clearly assigned to the beneficiaries or institutional agencies like panchayats. It is also essential to strengthen the rural organisations and enhance the rate of annual grants in different States.

Ayacut Development

40. In order to ensure speedy and full agricultural benefits from irrigation projects, a programme of ayacut development is proposed as Centrally sponsored programme. This programme envisages an integrated approach, use of improved agricultural practices in relation to irrigated farming, cooperation and development of rural industries. It is intended to cover about 2 million acres of unutilised irrigation potential. The programme will, as far as possible, be implemented in compact blocks, each covering about 5000 hectares. Although the programme would vary in detail from region to region and project to project, its essential ingredients would be crop planning, regulation of irrigation supplies, proper distribution and application of irrigation water, land shaping and consolidation of holdings, soil survey, arrangements for supply of inputs, extension and demonstration, credit, cooperatives storage and marketing,

communications and agro-industrial development. To start with, 20 blocks would be taken up for development. In the selection of blocks, priority is being given to 8 projects, namely, Kosi, Nagarjunasagar, Chambal Valley, Rajasthan Canal, Tungabhadra, Ghataprabha, Sone Valley and Bhakra Nangal. Apart from these programmes, State Governments are also undertaking similar programmes for fuller utilisation of irrigation potential in other areas. In regard to credit, the Agricultural Refinance Corporation will have an important part to play in the programme of ayacut development.

Improved Seeds

41. At present improved seeds of foodgrains are estimated to cover about 120 million acres of land. A target of 274 million acres is envisaged for 1970-71. The approach will be to develop seed villages with guaranteed off-take and certification as a step towards area saturation.

42. The National Development Council Committee on Agriculture and Irrigation made the following recommendations in connection with improved seeds:

- (a) The Ministry of Food and Agriculture should encourage each State to set up pilot seed villages for the Fourth Plan. Seed villages should be selected carefully with due regard to the suitability of soil, irrigation and other human and organisational factors.
- (b) Since small holders producing good seed may not be able to produce enough for sale, arrangements should be made to collect their seed quality produce by giving them an equivalent quantity of non-seed quality grain.

- (c) Where a State can set up a Corporation or large farms, the size of a farm should be determined with care. For economic production of good seed, farms should be between 300 to 500 acres.
- (d) The question of price and subsidy for seeds calls for reconsideration. The economics of production including the cost of processing, should be worked out and taken into account in regard to each category of seed.
- (e) The arrangements for testing and certification of seeds need to be strengthened and will call for periodic review.

43. The technical and administrative arrangements for supervision of multiplication, testing, promotion, certification, purchase, storage, credit and distribution will be strengthened. Distribution of uncertified seeds from Government and institutional seed stores including cooperative seed stores will be banned, area by area, in a phased manner. A comprehensive seed law will be enforced in the interest of seed classification and seed control.

44. The States have been requested to strengthen the existing seed multiplication farms and to establish new large-sized farms up to 500 acres, to set up seed villages, and to put up seed corporations for looking after production, certification, storage and distribution of improved seeds. The Ministry of Food and Agriculture is also proposing to set up large-sized Central seed farms for production of foundation seed.

45. One of the important developments in the field of agricultural technology in recent years is the discovery of some very high-yielding fertilizer-responsive and non-lodging varieties of wheat and paddy and hybrid varieties of maize, jowar

and bajra. The Ministry of Food and Agriculture has drawn up a comprehensive programme for these high-yielding varieties of crops to cover an area of 32.5 million acres. This programme will be taken up, as far as possible, in the I.A.D.P. and I.A.A.P. districts. Even areas falling outside these districts could be taken up on account of their special suitability for growing these high-yielding varieties. In such cases the necessary organisation and other facilities will have to be built up on the pattern obtaining in the Intensive Agricultural Districts. The main feature of this programme is to saturate with improved seeds of significant high-yielding and fertilizer-responsive varieties about 8 million acres for wheat, 12.5 million acres for paddy and 4 million acres each for hybrid bajra, hybrid jowar and hybrid maize, making a total of 32.5 million acres.

46. At the Centre, the National Seeds Corporation will take the overall responsibility of ensuring production and maintenance of adequate quantities of these high-yielding varieties. The Corporation will also set up processing plants for drying, cleaning and grading of seeds and will be required to certify seeds produced by various farmers as well.

Chemical Fertilisers

47. The present level of fertiliser consumption per hectare in India is only one-seventh of that of the world average. The likely consumption at the end of the Third Plan is estimated to be of the order of 0.60 million tonnes of nitrogen, 0.15 million tonnes of P_2O_5 and 0.09 million tonne of K_2O . For the Fourth Plan

targets of 2.0 million tonnes of nitrogen, 1.0 million tonnes of P_2O_5 and 0.85 million tonnes of K_2O have been proposed. The intensive programme for high-yielding varieties in particular will require a large supply of fertilisers. Unless special steps are taken, supplies are likely to be a major impediment. It would be essential to make arrangements for the speedy establishment of requisite number of factories with sufficient capacity to produce as much fertiliser as possible indigenously. Import from abroad would have to be arranged to make good the shortage of indigenous supply. It would be necessary to improve internal distribution arrangements by providing storage accommodation at vantage points and by making available timely and adequate credit.

Organic and Green Manures

48. The area under green manuring is likely to be 21.5 million acres in 1965-66. It is felt that 64 million acres should be under green manuring by the end of the Fourth Plan. The short supply and high cost of green manure seed will have to be overcome. Suitable cropping patterns should be popularised so that the loss on account of growing the green manure crops is compensated by growing other crops on the same land.

49. Increased emphasis on utilisation of local manurial resources like cattle dung, farm waste and night soil would be given. Utilisation of water hyacinth, green leaves of shrubs and trees, tank silt, cattle urine, etc. would be stressed. Cow dung gas plants suitable for farmers' use have been devised.

These would be popularised in the Fourth Plan on a large scale.

A number of agencies including Khadi and Village Industries

Commission have already been working on cow-dung gas plants. It is proposed to instal about 5000 family-size gas plants, on the fields of well-to-do farmers around 50 workshop wings in the course of the next five years.

50. The target of urban compost for the Fourth Plan has been fixed at 5.4 million tonnes. For proper and fuller utilisation of urban waste, two new schemes, viz., mechanical sieves for sieving compost, and mechanical composting plants, were sanctioned under the special development programme during the Third Plan period. This programme will be continued in the Fourth Plan as a regular plan scheme.

51. Under the special development programme, a large number of sewage and sullage utilisation schemes have been undertaken and these will be continued in the Fourth Plan. So far, sewage has mostly been used on ^{farms} and acquired by the Municipal Committees. With the increase in the number of sewage schemes and the difficulty in acquiring lands, it is proposed that in the Fourth Plan, instead of the Municipal Committees acquiring land for sewage farm purposes, sewage should be supplied to the farmers' fields on payment of reasonable charges.

Plant Protection

52. The plant protection programme consists of seed treatment, control of field rats, control of soil and polyphagous insects and disease control measures on annual and perennial crops. This programme has a vital role to play in the intensive agricultural programme. A target of 137 million acres (gross) to be covered by the third year of the Fourth Plan has been proposed for Plant

Protection. This includes an area of 50 million acres under seed treatment, 20 million acres under Rat control, 20 million acres under polyphagous and soil insects treatment, 40 million acres under intensive treatment and 7 million acres under weed control. These areas might be overlapping to a certain extent. The present proposals contemplate special emphasis on plant protection measures for the high-yielding varieties programme.

53. The State Governments would provide mobile spray units for undertaking spraying for epidemic control and prophylactic treatment. The State services would be supported by individual and community efforts in the villages with the help of power and hand sprayers and dusters. Air spraying would also be taken up through Government maintained aeroplanes in addition to air spraying units in the private sector. Further, special mobile squads, fully equipped with necessary materials are being provided to deal with pests and diseases, especially in the intensive agricultural areas.

54. Experience has brought out the basic problem that plant protection measures fail to bear effect unless they are carried out swiftly and at short notice on a compact area. It is, therefore, necessary to take up these measures as a compulsory contributory plant protection service (treating crop pests and diseases at par with human and cattle epidemics), reduce the cost of materials and equipment, make them available in requisite quantities, provide the necessary credit facilities, strengthen the extension service, equip them with the necessary audio-visual aids and carry out promotional and educational activities to ~~other~~ maximum extent. The Panchayat Samiti, in consultation with the extension staff and

local population, will be made responsible for determining the area over which plant protection measures should be carried out. If a farmer fails to carry out the programme, the plant protection staff would be free to carry out these operations and recover the cost from the defaulting farmer.

55. The price of plant protection materials including pesticides and equipment has to be reduced and they have to be made available in requisite quantity at the proper time. It is, therefore, proposed to extend the production capacity of these materials in the public sector and to import and distribute pesticides through Government or cooperative institutions.

Agricultural Implements

56. The programme for improved agricultural implements has seriously lagged behind in the first three Plans. It is largely due to shortage of iron and steel, lack of suitable designs of implements, high cost of manufacture, lack of adequate and timely credit at reasonable rates to farmers for purchase of implements, lack of repair and maintenance facilities, difficulty in obtaining spare parts and lack of competent extension machinery to demonstrate the effectiveness of improved implements.

57. A Board for Agricultural Machinery and Implements was formed to review and expedite the work of manufacturing and popularisation of improved agricultural implements. Further, the Committee on Plan Projects also set up an Agricultural Team in 1962 to undertake the study of improved agricultural implements and machinery in India. This Team has completed studies for

eight States - Punjab, Madras, Mysore, Maharashtra, Bihar, Himachal Pradesh, Assam and Uttar Pradesh. The team has observed that the existing arrangements for research, manufacture, distribution, extension and training in respect of agricultural implements are far from satisfactory. It has recommended that the programme for research, extension and training pertaining to agricultural implements has to be re-organised, keeping in view the urgency of the problem and the requirements of the States. The Team has also made recommendations in regard to administrative set-up and coordination, selection of implements, supply of raw materials, training, extension and popularisation. All these points have been taken into consideration while formulating the Fourth Plan proposals.

58. In each block, a workshop under the charge of a farm mechanic will be set up to repair, maintain and popularise agricultural implements in collaboration with the V.L.Ws. and necessary guidance will be given to village artisans and farmers. Two of the 17 research, testing and training centres already set up during the Third Plan will be upgraded into Regional Design and Research Centres for handling complicated problems of the regions. Training of village artisans and mechanics will be intensified at the workshop wings, the tractor testing and training centres, and package programme workshops. Service cooperatives will be made responsible for keeping large stocks of improved agricultural implements and supplying them to cultivators on loan.

Soil Conservation

59. So far, soil conservation has been limited to erosion control measures in widely dispersed cultivated areas. The soil

conservation programme in the Fourth Plan is, however, proposed to be taken up on the complete watershed basis. A target of 20 million acres, which will be defined by areas treated in each watershed, preceded in each case by necessary standard soil survey, has been fixed in the Fourth Plan. Priority will be given to those areas where consolidation of holdings has been completed or is proposed to be done. In the watersheds which comprise agricultural, forest and pasture lands, the work will be closely coordinated among the concerned departments. In ravine lands major emphasis will be given to the treatment and protection of agriculturally productive table lands and stabilisation of marginal lands. In the reclamation of saline, alkaline and waterlogged lands work will be taken up on easily reclaimable areas as might be justified by economic and practical considerations. In the watersheds of river valley projects, the programme of soil and water conservation is at present being executed in 13 such projects. It is proposed to extend it to cover an area of 2.5 million acres. Watersheds or subwatersheds which have greater sedimentation hazards will be given priority. A master plan approach would be adopted for this programme.

60. In arid and semi-arid areas which are subject to frequent drought, the minor irrigation programme should be effectively correlated with soil and moisture conservation programmes. Where the soil conservation programmes are expected to result in an appreciable rise in the water table, the linked programme of masonry well construction should be undertaken. Special emphasis should be put on composite programmes of contour bunding, controlled grazing and pasture development in such areas. An intensive programme should be

undertaken for developing and introducing special drought resisting varieties of food, fodder and other crops in these areas. The recent drought has highlighted the importance of special attention being paid to such areas.

61. For undertaking the soil conservation programme, it is estimated that about 1550 officers, 8300 assistants and 24000 sub-assistants would be required. The training programmes at the existing two officers' training centres and four assistants' training centres, run by the Government of India, would be intensified. The State Governments which are at present looking after the training of sub-assistants, should suitably step up the programme and in addition should take up the training of assistants. They should fully utilise the capacity of the existing training centres and open new centres where required.

62. The Soil Conservation laws have not yet been enacted in some of the States, namely, Assam, Bihar, Orissa and West Bengal. Similarly, Assam and Bihar have not set up Soil Conservation Boards. It is essential that both these measures are taken up at an early date.

Land Reclamation and Development

63. The target for land reclamation during the Fourth Plan period is fixed at 2.5 million acres. Besides the survey of wasteland for blocks exceeding 250 acres carried out earlier, another survey for locating wastelands in smaller blocks is at present in progress. So far, an area of nearly 2.55 million acres of wastelands has been located. These areas will be reclaimed and

families of landless labourers will be settled on them. The cost of resettlement would be shared equally by the Centre and the States. This programme will go a long way in favour of weaker section of the agrarian structure and has, therefore, to be pursued with vigour.

Horticulture

64. In providing food to the people, horticulture is as important as agriculture itself. In the Fourth Plan, the area under fruits is proposed to be raised to 40 lakh acres. Particular attention will be paid to the production of fruits like banana, citrus, mango and pine-apple for export purposes. For implementing the programme of fruit development as well as for providing malis for helping in kitchen gardening in cities 10,000 gardeners will be trained. It is also proposed to develop orchards on scientific and modern lines with the help of persons interested in horticulture, establish garden colonies in compact areas (each covering 2000 acres or more in the plains and 100 to 200 acres in the hills), establish additional progeny orchards-cum-nurseries and give financial assistance to private and cooperative organisations for development of fruits and vegetables.

65. The present production and consumption of vegetables is inadequate to meet even the minimum nutritional requirements. The proposal is to double the production of vegetables i.e. to raise it to 102 lakh tonnes during the Fourth Plan for meeting at least 50 per cent of the minimum per capita requirements. Some of the important schemes contemplated for achieving this target are laying out of demonstration trials on extensive basis, increasing the production of onions (an export crop) by providing

short-term crop production loans, setting up of vegetable processing units to take care of surplus vegetables and establishment of foundation vegetable seed farms and multiplication of seed by registered growers. Further, ~~the~~ package approach will be adopted for increasing the per acre yield of potatoes in different States. Cold storage facilities will also be provided for this programme.

Commercial Crops

66. Apart from meeting the needs of the growing population, the production programme for commercial crops has been designed to save on the imports of some commodities like cotton and copra, to increase the volume of export so as to augment foreign exchange earnings and to meet the increasing requirements of raw materials for industry. The provision in the State plans for development of commercial crops will be supplemented by allocations from the Central plan for selected intensive cultivation schemes. In addition, the cess on certain commodities is being increased to support the larger development efforts.

67. For achieving the estimated production of cotton, package programmes covering particular potential tracts in various cotton growing States are being taken up. Further, production of nucleus and foundation seed of cotton will also be taken up. For this purpose, the State Governments' Farms will be strengthened through provision of adequate staff and contingencies. Also, for meeting the requirements of cotton of varieties ~~staple of~~ 1-1/16" and above, the production of sea-island

cotton is proposed to be taken up as a Centrally sponsored scheme. In regard to jute, increased use of fertilisers including foliar spray of urea, improved seeds, measures for plant protection, weed control, line sowing and improved cultural practices would be adopted. It is also proposed to introduce jute cultivation on a larger scale in the deep tubewell areas in West Bengal and newly irrigated areas in the command of Kosi and Hirakud projects. Cultivation of jute as a second crop in rotation with paddy and potato in irrigated areas and replacement of existing strains of jute with high-yielding and fertiliser-responsive varieties are also envisaged. Further, for improving the quality of jute fibre, the State Governments have been requested to take up the scheme of jute retting tanks. Greater attention will also be given to the development of supplementary fibres, such as mesta, sisal, ramie, etc. In case of oilseeds and sugarcane also, the main strategy will be to adopt the package programme approach involving simultaneous use of inputs in appropriate quantities in selected areas.

Agricultural Education & Training

68. The total requirement of agricultural graduates in the Fourth Plan has been estimated at 29,000. This takes into account not only the requirements of personnel to man the extension, teaching and research services of the States, but also the needs of the industry and private services.

The requirements of the Fifth Plan would be 44,750 on the basis of 10 extension officers per block. To produce this number, the rate of admission would have to be extended from 8,900 to 9,500 in the first year of the Fourth Plan and to 11,500 towards the close of the Fourth Plan. The increase in the number of graduates can be achieved either by extending the existing colleges or by starting new colleges. To increase the local availability of agricultural graduates, West Bengal, Madras and Gujarat made a provision for starting a college each in the Third plan. No new college need be provided in the Fourth Plan except where it is required to complete the agricultural university campus. It would be cheaper to increase the admission capacity in the existing colleges rather than to open new ones. It is also proposed to start 300 vocational agricultural schools for sons of farmers.

69. The agricultural universities already set up will be fully developed. The question of setting up new universities will be considered in due course depending upon the experience gained. Under the Third Plan 20 Gram Sevak Training centres were upgraded to impart higher training to selected gramsevakas and improve their professional competence and effectiveness. In the Fourth Plan, the rest of the 80 centres will be upgraded. It is inherent in the process

of transformation of traditional agriculture into modern agriculture that the primary producer - the farmer - should be enabled to understand and adjust himself to new technology. With this objective in view the Fourth Plan will provide special facilities for the farmers' education. This will be done in the form of courses of varying durations for practising farmers as well as young farmers at Farmers' Education Centres, some of which will be located at Gran Sovk Training centres and others at seed farms or agricultural universities. Linked to this will be a programme of production demonstration camps and farmers' study groups at the village level.

Agricultural Research

70. Research has to form the backbone of development of agriculture on scientific lines. It is particularly so in the context of the Fourth Five-Year Plan wherein High Yielding Varieties Programme is the major plank of the policy for achieving self-sufficiency in foodgrains. In this context, agricultural research work is being re-oriented drastically. The Indian Council of Agricultural Research has been re-organised and placed under the charge of an eminent agricultural scientist. All agricultural research stations have been centralised under the control of this body. Coordinated research schemes dealing with all the problems of important food and cash crops are being taken up. Functions of the Central Research Institutes and Research Institutes at the State and lower levels are being streamlined. The Commodity Committees have been abolished and the research work dealt with by them has been centralised under the control of I.C.A.R.

71. Already coordinated trials have been conducted all over the country to determine the adaptability of different strains of rice, maize, jowar and bajra. Hybrid strains have been developed and released in crops like maize, jowar and bajra. A Central Varietal Release Committee has been constituted to recommend varieties on an all-India basis for various crops. Important varieties of vegetable crops are being evolved and new strains are being developed. New varieties of fodder have been developed and released. Research efforts in all those directions are proposed to be further strengthened and expanded. Most of the research programmes will be organised as coordinated schemes as in the case of maize breeding. A special emphasis will be given to the development of drought resisting varieties of crops for areas which are susceptible to frequent drought and cannot be provided with irrigation facilities.

72. A significant aspect of developing scientific agriculture is proper soil and water management. Measures for tackling problems of water logging and salinity have to be strengthened. For this purpose, scientific studies of soil and water management practices for each area are essential. It is also proposed that the soil testing facilities may be built up and put into operation for carrying out soil analysis for each area of intensive cultivation. The knowledge thus gained would be used for judicious land use planning and crop planning to the best advantage of the country and the farmers.

73. In order to convince the agriculturists about the efficiency and superiority of scientific agricultural practices a large scale programme of scientific fertiliser tests in farmers' fields and of fertiliser demonstrations has already been in progress during the earlier years. It has provided valuable quantitative information on the responses of various crops under a range of farming conditions in different parts of the country. This programme is proposed to be strengthened further. Along with fertilisers, improved crop varieties and other cultivation practices are to be included in tests planned to be conducted on cultivators' fields, in order to assess how far the efficiency of fertiliser use can be increased by associating it with other scientific practices. The demonstrations will also be made more comprehensive and will be organised more systematically. Agricultural scientists, research workers in the universities and Agricultural Research and Experimentation Stations would work in the selected areas to demonstrate on the cultivators' fields the benefits which could accrue from the application of the knowledge of science and improved technology. In 1966-67, 2000 demonstrations including 1000 for paddy are proposed to be laid. In the succeeding years, the programme will be further expanded.

Agricultural Statistics and Economics

74. At the beginning of the First Five-Year Plan, the land use and crop area statistics in India were based on complete enumeration in respect of about 47 per cent of

the geographical area and on rough conventional estimates in respect of 22 per cent of the area, the balance of 31 per cent forming what is called non-reporting area. As a result of the efforts made under the three Plans, the percentage area covered by complete enumeration has now increased to over 75 per cent and another 5 per cent area is accounted for by sample survey. The area for which only conventional estimates are available and the non-reporting area have now shrunk to about 10 per cent each. Similarly, crop cutting surveys by the random sampling method are now carried out annually to determine the average yield on 95 per cent area covered by cereals, 75 per cent of the area under pulses, 90 per cent under sugarcane, 60 per cent under oilseeds and 95 per cent under cotton and jute. Extension of these crop cutting surveys is necessary to improve the coverage under small millets, pulses and oilseeds. For extending land utilization and crop area statistics by systematic enumeration to the remaining areas, for further improving the accuracy and timeliness of statistics in areas already covered and for extending crop cutting surveys to new crops and new areas, some strengthening of primary reporting and supervisory land records agencies is essential. The sample method must also be extended for determining area and yield of important export crops like pepper, ~~cardamom~~ and cashewnut and of protective foods like fruits and vegetables. Scientific techniques have now been evolved for this purpose. These programmes will be taken up in the Fourth Plan.

75. Statistics in animal husbandry, forestry and fishery require far greater attention than they have received in the past. Except the quinquennial livestock census, no systematic data are being collected in animal husbandry. No reliable annual estimates of fish catches, marine or inland, are yet available. Scientific methods have now been evolved to estimate the production of milk, poultry and eggs, wool and catches of fish. It is important and urgent that regular statistics should be collected by the application of these methods by the States. For this purpose, statistical cells manned by qualified statisticians need to be set up and strengthened in State departments of agriculture, animal husbandry, fishery and forestry.

76. Data on cultivators' holdings are needed in considerable detail for planning, especially at the district and block levels. A programme of agricultural census as recommended by FAO has to be implemented for this purpose. Statistics of adoption of improved agricultural practices by farmers are an important indicator of the progress of programmes of agricultural development and have to be systematically collected. Statistics of agricultural prices and cost of production of agricultural commodities are required as an aid in the formulation and execution of agricultural price policies. Certain steps have been taken for collection of these statistics in the earlier Plans and these will be further augmented. The Agro-economic research centres will be strengthened and studies on the economic problems of agriculture intensified.

II. Animal Husbandry

77. The accelerated development of animal husbandry, dairying and fisheries during the successive plans is essential in view of the over-whelming importance of protective foods, such, as, milk and milk products, meat, eggs and fish. With urbanisation and rise in the per capita income, the consumption of animal proteins is likely to go up. India has a large livestock population consisting of various species. The large productive potential of animal resources offers good scope for exploitation. The scope for increasing fish production is also large, since marine resources are extensive and inland waters substantial.

78. The programmes in animal husbandry have a three-fold objective, namely, to increase the supply of protective foods; to provide draught power for farm operations and to improve the output of certain products of commercial importance, such as, wool and hides. They meet the need for improving nutritional standards and enriching the rural economy. However, efficient animal husbandry has to be pursued as an integral part of a sound system of agriculture. The combination of crop production with livestock raising enables fuller utilisation of farm by-products, increase in income, conservation of soil fertility and fuller employment all the year round.

79. A co-ordinated development of poultry, cold storage, processing of poultry products and manufacture and distribution of poultry feeds has also been visualised. The importance of development of animal husbandry in areas which are susceptible to frequent drought conditions has been recognised so as to provide requisite security to the local farmers.

80. Although significant results have been achieved in certain fields during the Third Plan period, a vast potential of animal resources still remains to be tapped. The programmes envisaged during the Fourth Five Year Plan are larger in scope with a view to having a greater impact on the rural economy. The objectives of the programmes remain largely the same. Schemes which are of special significance in increasing production will receive greater attention.

Cattle Development

81. The need for organizing cattle development programmes on the lines of intensive package programme of crops and linking cattle development with dairy schemes has been recognised. The salient features of the revised cattle breeding policy are: selective breeding in recognised breeding tracts, increase in milk production among the draught breeds, upgrading of non-descript with recognised dairy breeds and cross breeding with exotic breeds in hilly and other areas having facilities for rearing and maintaining high-yielding milch animals. In view of increased demand for milk and milk products, it has been considered essential to take up 30 intensive cattle development projects in addition to 100 new key village blocks

and to expand the 209 existing ones. It is also proposed to establish 27 bull rearing farms, expand 60 existing livestock farms and to develop 390 ~~or~~ ushalas into breeding-cum-milk production centres. To meet the increasing demand of exotic animals the two Jersey farms will be expanded. Extensive areas will be covered with important breeds like Haryana, Tharparker, Gir, Sindhi and Sahiwal.

Feed and Fodder Development

82. Adequate and proper feeding of livestock is fundamental to their economic production. However, the position has not been satisfactory. In order to bridge the gap between the demand and supply of feeds and fodder a number of programmes have been proposed. Production on modern lines of fodder crops and grasses will be encouraged. As a result of research, a number of superior types of grasses and fodder crops have been identified. Their production will be economical and helpful in providing proper nutrition. It is proposed to undertake intensive fodder development in intensive cattle development and key village blocks. It is also proposed to establish 50 seed production farms and 25 mixed farming units, develop 25 grass birs and to exploit forest grasses, pasture development and controlled grazing will be given high priority in semi-arid areas suitable for cattle and sheep rearing.

Sheep & Wool Development

83. The main objective in sheep development would be to increase the supply of wool and improve the quality of clip. Sheep development will also help to improve meat supply.

For improved breeding of sheep, local breeds are being crossed with rams of exotic fine woolled types in the Western Himalayan region and in selected areas of the Deccan plateau. For North Indian plains, selective breeding among the existing types is being emphasised. A Central Sheep and Wool Research Institute has been established in Rajasthan with two sub-stations, one in Kulu (Himachal Pradesh) and the other at Kodaikanal (Madras). To introduce systematic methods of sheep shearing, grading and preparation of wool for the market, a special project has been undertaken in Rajasthan.

The programmes of improvement in shearing, grading and marketing will find an important place under the Fourth Plan.

Poultry Development

84. Poultry farming is the quickest way of producing rich animal protein and creating employment opportunities for a large section of the people without involving heavy investment. It is, therefore, proposed to develop poultry under the Fourth Plan, in an intensive way, especially around urban consuming areas. For the organisation of poultry development on modern lines, effective arrangements will have to be made for transport, distribution and processing of eggs and poultry meat. Development of cold storage, refrigerated transport, poultry dressing plants, organisation of feed manufacturing units, credit supply and distribution of production requisites will also be given attention. Further, attention will be paid to the formation of poultry farming societies in compact areas selected for intensive development.

Piggery Development

85. Pigs are prolific breeders and can be easily improved and multiplied. In view of the experience gained it has been suggested that piggery development in future should be carried out in compact areas to establish pockets of improved broods. In order to provide marketing incentives to producers, it is proposed to establish bacon factories in the vicinity of these areas.

Disease Control

86. A special feature of the disease control programme will be the establishment of animal quarantine and certification service at four stations. For effective control of diseases among livestock, increased production of sera and vaccine and the establishment of diagnostic and investigation laboratories at important district headquarters are proposed.

87. A scheme for the modernisation of slaughter houses and improving the meat markets has been included in the Fourth Plan.

Research & Education

88. With increasing tempo of livestock development, the demand for research and training connected with breeding, management and disease control are continuously increasing. The Third Plan provided for the establishment of one livestock research station in each State, but only preliminary steps could be taken in most of the States. The need for statistical investigation in regard to the production of important livestock products is considered essential. During the Third Plan, it was proposed to set up suitable statistical units in

the States for undertaking work of this type. However, only a few States did undertake this work. Emphasis would be laid on this programme during the Fourth Plan.

III. Dairy and Milk Supply

89. In spite of large cattle population, per capita availability of milk is low. The units of milk production are small and scattered. There is large variation in the price of milk in rural and urban areas. This resulted in the cities attracting milkmen who keep milch animals under unhygienic conditions. The various dairy projects included under the Five-Year Plans have to-fold objectives, namely, to provide remunerative market for the producer and assured supply of wholesome milk to the consumer at reasonable price.

90. In the light of the experience gained, it has been considered desirable to evolve a national milk policy. With this objective in view, the approach in the Fourth Plan would take into consideration the following:

- (a) completion and consolidation of milk supply schemes already established to ensure maximum utilisation of the installed capacities of the different milk plants;
- (b) collection of milk should be organized through primary co-operative milk societies or service co-operative societies. The primary societies should form themselves into milk unions which should, as far as possible, own and operate the pasteurisation plants and other processing units;
- (c) Expansion of the milk supply schemes to the extent possible;

- (d) Setting up of rural dairy centres and the intensive development of milk production in selected areas by taking up well-knit programme for dairy extension and cattle improvement. Areas offering good potential for dairy development under better climatic and other factors will be given preference so as to achieve the creation of dairy zones in the State;
- (e) Setting up of milk plants in areas offering good scope for marketing and developing the hinterland for milk production;
- (f) To extend the indigenous manufacture of dairy machinery and equipment;
- (g) To undertake measures and adopt such policies as may be conducive to the development of cattle;
- (h) To achieve rapid growth of co-operatives in the dairy sector.

Milk Supply Schemes

91. The new milk supply schemes will each have a handling capacity from 5,000 to 10,000 litres of milk per day and the rural dairies will have a capacity ranging from 500 to 4,000 litres daily.

92. It is envisaged to set up 34 milk supply schemes, expand 57 existing ones and to complete 36 spillover ones. In addition it is proposed to establish 26 milk product factories/creameries, 196 rural dairying centres and 12 cattle feed compounding factories in conjunction with large dairy plants. The dairy extension programme like assisting the formation and organisation of cooperative societies, granting of loans for purchase of milch animals, setting up of feed supply units and providing extension staff to help farmers in increasing the production of milk and its hygienic handling would form an integral part of the dairy development programme.

Research & Training

93. Main features of dairy research will be the expansion, consolidation and stabilization of research programmes and augmentation of activities initiated earlier. Under the central sector, the National Dairy Research Institute would be expanded. Similarly, dairy training facilities would be expanded to cater to the needs of the expanding dairy industry,

IV. Fisheries

94. Though fish is an accepted item of consumption in several parts of the country and its place in a balanced diet is well recognised, the gap between the production and requirements of fish for the purposes of an adequate standard of nutrition is still substantial because of the low level of exploitation of the country's vast resources in fisheries. In recent years the development of marine, estuarine and fresh water fisheries resources has centred on improving the scientific and technological bases of catching operations, culture, preservation, processing and marketing of fish and subsidiary products.

95. At the beginning of the Third Plan the base-line production was estimated to be 14 lakh tonnes. This was sought to be raised to 18 lakh tonnes by the end of the Third Plan period. In 1961-62, however, the estimate of base-line production was revised to 9.73 lakh tonnes and the target of production for 1965-66 was set at 11.5 lakh tonnes consisting of 3.5 lakh tonnes of inland water fish and 8 lakh tonnes of marine fish. The outlay for fisheries is

proposed to be increased to Rs 113 crores. The production of fish is expected to increase from 11.55 lakh tonnes in 1965-66 to 15.3 lakh tonnes in 1970-71.

96. Deep sea fishing has undergone extensive and rapid technological progress abroad. As India's marine resources are rich in fish, stress was laid in the Third Plan on introducing technological changes to improve marine fishing capabilities. In the Fourth Plan, further stress will be laid on raising the technological status of the industry and expanding the fisheries cooperatives so that they may play an increasingly important role in production and marketing. In particular, it is proposed to acquire 200 trawlers, construct 8,000 mechanised boats and increase the output of other ancillary equipment for off-shore and deep sea fishing. It is proposed to develop fishing harbours, set up more ice and cold storage plants and provide refrigerated vans for long distance transport from the points of landing to the points of consumption. In respect of inland fisheries, the major part of the increase in production is expected to be derived from presently unutilised but potentially rich water areas, intensive exploitation of existing culturable waters, reclamation of derelict water area and other measures.

97. Facilities for research and training as important adjuncts to development, will be expanded to accelerate the pace of conversion from traditional methods to modern mechanised methods of exploitation of fisheries. These

include strengthening of the Central Marine Fisheries Research Institute at Mandapam, the Inland Fisheries Institute at Barrackpore, the Fisheries Technological Institute at Ernakulam and the Off-shore Fishing Stations at several places. The Central Fisheries Operatives Institute at Cochin and the Institute for Fisheries Training at Bombay will be enlarged to provide greater training facilities for personnel engaged in different areas of the industry.

V. Forestry

98. The demand for various forest products both for industrial use and for fuel purposes has been rapidly increasing. As against the current production of 8 million cubic metres of industrial wood, the demand has been estimated to be 11 million cubic metres in 1965-66, 17 million cubic metres in 1970-71 and 24 million cubic metres in 1975-76. With improved logging techniques the current production may go up by 0.5 million cubic metres and an additional one million cubic metres may be obtained by clearing some of the old forests. But there will still remain a considerable gap between demand and supply.

Plantation Schemes

99. In order to meet this deficiency three important schemes, namely,

- (i) plantation of quick growing species;
- (ii) plantation of economic species (teak, sissoo, semul, etc.) and
- (iii) plantations to be raised under the scheme of rehabilitation of degraded forests,

will be taken up in the Fourth Plan. In addition, it is

proposed to raise extensive wood plantations including the farm forestry and afforestation schemes for the soil conservation programmes.

100. This plantation programme will not appreciably affect the supply of industrial wood before 1980-85 since the plantation of even quick growing species takes about 15 years to mature and the plantation of economic species would take between 30 to 60 years. However, the forests which would have to be cleared to raise the plantations proposed in the Fourth Plan are expected to make available approximately 4.8 million cubic metres. Thus, against the requirement of 17 million cubic metres in 1970, the total supply expected is 14.3 million cubic metres. This deficit can be met to some extent by the increased use of secondary species of timber after suitable seasoning and preservative treatment. These species are at present being wasted to a large extent and could replace the conventional ones for building construction, packaging and railway sleepers. A large number of seasoning and preservative plants would, therefore, be required and the aim should be to have at least one for every 10,000 cubic metres of timber produced.

101. For raising the production of fuel woods, greater attention will have to be given to the farm forestry programme. The State Forest Departments should undertake a large scale programme for raising plantations on all waste lands

contiguous to the forests and in large blocks of 50 acres and above. Where Panchayats and individuals are willing to undertake fuelwood plantations, the Forest Department would provide the planting and fencing material. The Forest Department would also be responsible for the extension work in Panchayats and in blocks to stimulate the local bodies to take up farm forestry in small village blocks.

Pre-investment Survey and Improved Logging

102. Two schemes, namely, pre-investment survey of forest resources and establishment of logging and training centres have recently been put into operation with financial assistance from the U.N. Special Fund. The pre-investment survey scheme has as its objective the assessment of existing forest resources and the site potential in order to meet the growing needs of the country. Under the scheme for the establishment of logging and training centres, it is proposed to set up four centres at Dehradun, Coimbatore, Guwahati and Chanda.

Training

103. The development programmes for forests proposed in the Fourth Plan cannot be implemented without adequate technical staff. The Indian Forest College at Dehradun, which is the only college in the country for training forest officers could, with great difficulty, cope with the training of officers in the Third plan. Since the number of officers to be trained would considerably increase in the Fourth Plan, it would be necessary

to strengthen both the officers' and the rangers' colleges at Dehradun. Provision for this has been made in the Fourth Plan. A new ranger's college is also proposed to be started in central India, in addition to the existing colleges at Dehradun and Coimbatore.

Communications:

104. Quite a large area under forest is at present inadequately served with communications, with the result that the cut-turn of the produce is reduced and the cost of extraction becomes expensive. If all these areas are opened up with a good road system capable of use throughout the year, it would be possible to increase the forest output. It has, therefore, been proposed that the existing roads should be properly maintained and a phased programme spread over 10 years for construction of new roads should be formulated. This scheme would have considerable developmental potential, particularly, among the tribal people, since a large part of the programme would be in tribal areas.

Targets

105. The important targets for the forestry programme in the Fourth Plan are given in the table below:-

Table IV
Physical targets of Forestry Programmes

	Unit	Third Plan		Fourth Plan targets
		Target	Achievement (anticipated)	
Plantation of quick-growing species.	Lakh acres	1.37	1.60	10.00
Economic Plantations	"	7.00	6.00	8.40
Rehabilitation of Degraded Forests.	"	5.20	5.20	5.00
Communications				
(a) construction of new roads	'000 miles	11.00	7.00	10.00
(b) maintenance of old roads	"	2.80	2.80	7.50
Forest Consolidation	'000 sq. miles.	45.82	25.00	32.00
Farm Forestry	Lakh acres	12.00	0.60	3.90

VI. Agricultural Marketing and Warehousing

Agricultural Marketing

106. Legislative measures designed to regulate the marketing of agricultural produce have sought to establish, improve and enforce standards of marketing practices. Of 2500 wholesale markets in the country, the number of regulated markets has increased from 470 at the end of the First Plan to 725 at the end of the Second Plan and to about 1600 at the end of the Third Plan. Though the remaining markets were proposed to be brought

within the scheme of regulation during the Third Plan, it was not possible to do so as some States had not enacted the necessary legislation.

107. Besides extending the scheme of regulation, it is proposed to enlarge its scope to cover more commodities and aspects of marketing. As standardised grading helps to ensure adequate returns to the producer-seller and establish quality standards, it is proposed to establish 600 more grading units. Special grading facilities are proposed to be provided for commodities like cotton, jute, fruits, vegetables and animal products. The 'Agmark' system of grading established by the Department of Agriculture covers ~~citrus and other fruits~~ sugar, cotton, potatoes, eggs, citrus and other fruits. In the Fourth Plan period, it is proposed to extend it to all important food articles. Agmark emporia will be organised in important cities. As far as possible, these emporia will be linked with consumers' cooperative stores.

108. Quality control of agricultural products is of special significance in the export trade. At the end of the Third Plan, compulsory quality control for export covered sann-hemp, tobacco, essential oils, spices, myrobalan, walnuts, wool, bristles, goat hair, ginger, turmeric, onions, garlic, pulses, potatoes, tendu leaves, senna leaves and pods, edible mushrooms and animal casings. As some commodities with sizeable export potential are not yet subject to quality control, it is proposed to extend compulsory quality control, to cover as many commodities as possible.

109. The system of packaging in vogue for agricultural products is still heterogenous and apt to be wasteful. It is suggested that appropriate steps be taken to develop suitable packaging materials, standards and practices to enhance conservation and safety of contents, ensure quality and weight and simplify handling of transportation.

110. The development of scientific marketing through regulation and voluntary effort will require substantial augmentation of trained marketing personnel. It is estimated that the additional personnel required will include 200 marketing officers and inspectors, 600 market secretaries and 900 graders and assessors. Facilities for training in marketing would be expanded to meet increasing demands for training.

Storage and Warehousing

111. Adequate and well distributed availability of scientific storage and warehousing facilities are essential for effective conservation, more even disposal and systematic marketing of agricultural products in general and foodgrains in particular. The plans of development of storage have, therefore, aimed at providing the requisite facilities in both the rural and urban areas.

112. In the Third Plan, the Food Department had planned to increase its storage capacity from 2.5 million tonnes to 5 million tonnes. The capacity owned by the Department was planned to be increased from 8.3 lakh tonnes to 3.5 million tonnes. Due to difficulties in the acquisition of sites, shortage of construction materials, delays in the construction of railway sidings and in drawing up specifications of the equipment needed, there has been a shortfall in establishing the storage capacity envisaged. The total owned capacity with the Department at the end of the Third Plan was 2 million tonnes. As during the Fourth Plan, it is proposed to build up buffer stocks of foodgrains of the order of 6 million tonnes, the storage capacity owned by the Department is scheduled to be increased to 4 million tonnes.

113. During the Third Plan, the Central and State Warehousing Corporations increased their warehousing capacity by over one million tonnes, i.e., from 3.5 lakh tonnes to about 1.38 million tonnes. The Plan target was 1.60 million tonnes. The target for the Fourth Plan is 2.23 million tonnes. The bulk of the additional capacity proposed to be established would be owned by the Corporations.

114. The utilisation of capacity created by the Warehousing Corporations needs to be watched. Though the occupancy rate for the Central Warehousing Corporation improved from 53 per cent at the end of 1964-65 to 87 per cent at the end of 1965-66; that for the State Warehousing Corporations

showed a decline from 60 per cent at the end of 1964-65 to 55 per cent in September, 1965. With a view to increasing the utilisation of capacity, the Central Warehousing Corporation has offered special facilities to cooperatives, the Central and State Governments, the State Trading Corporation and the Fertiliser Corporation of India and concessions in storage charges to cooperatives during the off-season. The list of commodities which the Corporation is permitted to store has also been extended to include several non-agricultural commodities.

115. During the Third Plan, the cooperative societies increased their storage capacity from 8 lakh tonnes to about two million tonnes. During the Fourth Plan period, they are expected to establish 1,500 mandi godowns, 10,000 rural godowns of 100 tonnes each and 10,000 smaller rural godowns of 50 tonnes each. This will raise the storage capacity in the co-operative sector to about 4 million tonnes. The total storage/accommodation owned by the institutional agencies is expected to increase to about 9 to 10 million tonnes by the end of the Fourth Plan period excluding the capacity available with the State Governments.

116. To promote the development of scientific storage by private trading agencies handling large quantities of foodgrains, it is proposed to establish facilities for research and training in scientific storage.

VII Food Policy and Administration

Strains on the Food Economy:

117. Food prices showed a rising trend from about the middle of 1963 and, with seasonal fluctuations, continued to rise through 1964 and 1965. A striking feature has been that food articles such as groundnut oil, mustard oil, fish, eggs and meat have registered higher price levels than the prices of the major cereals - rice and wheat. Some of the coarse grains such as jowar, bajra, maize and ragi have also registered price levels higher than those of rice and wheat.

118. The market arrivals of rice in 94 markets, for which information is available were less in 1963-64 than in the previous two years despite an increase of 5 million tonnes in the production of rice in 1963-64. This trend continued in 1964-65, although it was a year of record production of rice and other foodgrains. Likewise, the arrivals of wheat in 60 selected markets showed a declining trend. This progressive decline in market arrivals indicates an improvement in the producer's capacity to withhold grain from the market and wait for higher prices. The steep fall in production of foodgrains in 1965-66, created a critical situation which made the extension and tightening of their distribution and procurement unavoidable. The imports of foodgrains increased from an annual average of 3.8 million tonnes during the Second Plan to more than 6 million tonnes during the Third Plan.

Controlled distribution of foodgrains

119. Throughout the period of the Third Plan, it was felt necessary to sustain an informal system of controlled distribution

to ensure the supply of foodgrains at reasonable prices. This was done through a country-wide network of fair price shops. In 1965, there were about 1.1 lakh fair price shops serving about 89 million people. They supplied 8.2 million tonnes of foodgrains and helped to meet the requirements of the bulk of the urban population, particularly persons in the low income groups. Free markets in foodgrains were permitted to operate alongside the fair price shops. In 1965, it was decided to bring the larger urban areas under statutory rationing. By May 1965, statutory rationing covered 25.5 million people while fair price shops covered 84 million people. 120. The responsibility for meeting the requirements of 110 million people through a system of public distribution necessitated intensification of internal procurement of foodgrains by the Government to supplement imports. The pattern of procurement has varied from state to state and time to time and involved acreage levy on producers, levy on millers and dealers, open market purchases and monopoly procurement at controlled prices. In 1965, internal procurement amounted to a little over 4 million tonnes as compared to 1.4 million tonnes in 1964.

Food Corporation of India:

121. The establishment of the Food Corporation of India in January, 1965, marked a distinct stage of development in the management of our food economy. Procurement and distribution of food are essentially business operations of large dimensions in terms of value and the number of farmers, dealers, transporters, consumers and public servants involved and should be managed as such. To the extent that public sector a/commercial corporation like the F.C.I. is increasingly involved in the management of the food economy, it would offer help in dealing with the problems of the transition from a deficit economy to a surplus economy.

Buffer Stocks:

122. Though the average annual production of foodgrains during the Third Plan (80 million tonnes) was higher by 6 million tonnes (8 per cent) than during the Second Plan and imports too were at higher levels as indicated, it was not possible to build up buffer stocks as contemplated owing to fluctuations in output and the operation of factors impinging on the demand for and availability of foodgrains. Establishment of adequate buffer stocks continues, however, to be an important plank of food policy during the Fourth Plan. It is proposed to build up buffer stocks of six million tonnes by the end of the Fourth Plan.

Long terms food problem:

123. It is important to assess the long term food problem in its proper perspective. The food problem has come to be identified with shortages of foodgrains because cereals and pulses constitute the staple diet of the people and imports have consisted mainly of cereals. The programme for self-sufficiency in food has in consequence laid stress on increasing the production of foodgrains. It is significant to note in this connection that while by world standards the current availability of cereals in India does not compare unfavourably, the levels of consumption of food other than foodgrains are very low. For example, the consumption of meat is about one-sixteenth of the world average; of fish one-fourth; eggs one-twelfth and fruits and vegetables one-third. Though from the nutritional angle this situation reflects the absence of balanced diets and adequate standards of nutrition, in the context of the food situation it suggests that the long-term

food problem is not one of increasing the domestic production of foodgrains only. It calls for a simultaneous reduction in the pressure of consumption on cereals by increasing the production of other foods, especially vegetables and animal proteins.

VIII. Community Development and Panchayati Raj

124. Community Development blocks have been established throughout the country and every village has been brought under their aegis. ~~Their~~ major contribution has been in stimulating an integrated total approach to rural development based on local initiative and community action - and working through representative institutions of the people. Given the following conditions, these agencies can play an important role in the attainment of self-sustaining economic growth in general and the maximisation of agricultural production in particular:

- (a) improvement in the skills and knowledge of the extension services;
- (b) quick and effective diffusion of improved practices in agriculture;
- (c) routing of funds of other development departments through the block agencies to supplement the outlay under the schematic budget; and
- (d) concentration on clearly defined programmes in specific areas, having regard to the fact that the entire country is now covered with a minimum frame of development.

It will be necessary to ensure an integrated approach to rural development, deployment of extension services over manageable area units and a coordinated field agency linked purposefully with the Panchayati Raj organisations on the one hand, and various development departments and their field staff on the other.

125. With regard to the activities covered under the C.D. schematic budget, a clear distinction has to be made between programmes of nation-wide coverage and those of local relevance and need. Programmes of nation-wide importance will include those for agriculture and family planning. Local programmes would be mainly welfare and community schemes. Priority should continue to be given to agricultural and allied programmes, and States should be free to select appropriate development schemes for various blocks depending on local conditions and potential resources. Family planning should be an integral part of the community development programme, particularly for motivating the rural population and inducing individuals to accept approved methods.

126. The applied nutrition programme should be implemented as part of a general long-term nutrition plan allowing for local variations in food habits and levels of nutrition. In selecting new blocks, preference should be given to tribal blocks and areas which are backward both from economic and nutritional point of view. A minimum feeding programme for the age group 0-1, organisation of group activities of children in the age group 0-5, lessons in cleanliness etc. should form part of a composite child welfare programme. It will also be necessary to lay emphasis on special programmes for women which should relate to health, education, nutrition, improved methods of cooking and food preservation. Youth clubs should be activated involving them in agricultural and other economic activities of practical value and benefit to the people.

127. The rural manpower programme should be further strengthened.

The content of the programme should include labour intensive schemes which benefit agricultural production or improve the rural infra-structure. Considering the character of the programme and its special focus on community assets, panchayati raj institutions should be responsible for its implementation. The programme should be concentrated in backward areas, including tribal areas and those specially vulnerable to recurring drought.

128. The three-tier Panchayati Raj system has been accepted as the pattern of local development administration and introduced in all but three States in the country. At each level, there is a link between the administrative organisation and elected representatives. Wherever there is a gap in the structure, early steps will have to be taken to make good the deficiency. The middle level organisation would be the integrated primary unit of the community development block. Although this organisation would be the chief implementing agency, the district level body, with its greater technical and administrative competence, will play a major role in planning and organisation. All development and welfare schemes capable of execution at the district level should be transferred to zila parishads who should be responsible for both programme planning and programme implementation.

129. With the emergence of panchayati raj institutions as partners of the Centre and the States in the task of national development, it is necessary that these institutions should be induced in every way to step up their resource mobilisation.

Appropriate schemes of matching incentive grants, already in vogue in some States, should be introduced in all States so that panchayati raj institutions at all levels may exploit their sources of taxation to the full. Local resources should be used for implementing local projects as well as for maintaining the assets created.

130. Integration of different field services into a unified staff structure, headed by a coordinator, should be achieved both at the district and block levels. Duplication of staff between various government departments and panchayati raj institutions for performing the same or similar tasks should be avoided. As the VLW is required to devote his entire time to agricultural work, an extension agent at the panchayat level may be necessary to look after other aspects of development. The arrangement for imparting training at other levels should be reviewed closely with a view to ensuring that extension functions are efficiently discharged and adequate emphasis is given to needs of current programme priorities.

CHAPTER XII
IRRIGATION AND POWER

I. Irrigation, Flood Control and Anti-sea Erosion

1. Irrigation facilities are essential for successful agriculture in most parts of the country. The harnessing of the available water resources for irrigation purposes has, therefore, been given high priority in the five year plans. The available river water resources in the country have been estimated at about 1,360 million acre-feet but owing to physiographical conditions only about 450 million acre-feet can be used for irrigation. Up to 1951, only about 76 million acre-feet or 17 per cent of the usable annual flow were utilised. This increased by the end of the Third Plan to about 150 million acre-feet or 33 per cent of the usable flow. Another 50 million acre-feet are likely to be added in the Fourth Plan. This will bring the total up to 200 million acre-feet or about 45 per cent. of the usable flow.

2. The area which can be ultimately irrigated by major and medium irrigation schemes is about 112 million acres (gross). At the beginning of the First Plan in 1950-51, the gross area irrigated from all sources was about 56 million acres, of which 24 million acres was from major and medium schemes. With the creation of irrigation facilities for an additional area of 18 million acres from such schemes in the three Plans, the area left over for future development through major and medium schemes is about 70 million acres.

Outlay in the first three Plans

3. The outlay in the First and Second Plans and the likely expenditure in the Third Plan on major and the medium irrigation and flood control schemes are shown below:

	(in crores)			
	First Plan	Second Plan	Third Plan	
			Provision	Likely Expenditure
Irrigation	300	380	600	572
Flood Control	14	49	61	85
	314	429	661	657

The shortfall in the outlay on irrigation in the Third Plan is due to the shortage of resources in some States. Excess expenditure on flood control proved unavoidable in certain States. The major irrigation schemes taken up in the first three Plans are shown in Annexure I and the accompanying index map.

Benefits in three Plans

4. Considerable irrigation potential has been created during the three Plans. But there is a lag in its full utilisation:

(Gross area in million acres -
cumulative from First Plan)

<u>At the end of</u>	<u>Potential</u>	<u>Utilisation</u>
First Plan (actual)	6.5	3.1
Second Plan (actual)	11.7	8.3
Third Plan (anticipated)	18.0	13.8

Not all the additional potential that is created in a year is available for utilisation in that very year. The utilisation in a year should therefore be viewed in

relation to the potential in the previous year. The table below shows the potential created and utilisation at the end of the Second Plan and year-wise position in the Third Plan, as also the percentages of utilisation as compared to the potential created in the previous year:

B e n e f i t s	million acres (gross) - cumulative from First Plan					
	To end of					
	Second Plan 1960-61	1961-62	'62-63	'63-64	'64-65	'65-66 (antici- pated)
Potential	11.7	12.2	13.3	14.3	15.8	18.0
Utilisation	8.3	9.0	10.1	11.0	12.1	13.8
Percentage utilisation compared to potential created in the previous year	77	77	83	83	85	87

Lag in utilisation

5. There has been appreciable and steady increase in the percentage of utilisation from the First Plan onwards. Yet there is a considerable gap left. It is important that every effort should be made to derive the maximum and speedy benefit from the large investments that have been made on irrigation projects. The more important of the measures which have to be taken are:

- (i) There should be synchronisation in the programme for the construction of head-works, canals, distributaries, water-courses and field channels so as to ensure that the irrigation

waters can be passed down to the cultivators' fields about the same time as they become available at the head-works;

- (ii) In order to eliminate delay in the excavation of field channels, their alignment should be marked out by the project authorities on village maps. These maps should be supplied to the district and block authorities for getting the field channels excavated in good time by the beneficiaries. The excavation of field channels should be completed at the same time as the canal system.

- (iii) Along with the construction of an irrigation project, a large number of developmental activities have to be carried out in order to secure optimum benefits expeditiously. These include soil surveys, setting up of experimental farms for determining the most suitable cropping patterns and evolving new varieties of crops, and farms for demonstrating scientific irrigation practices particularly the economical use of water. The Agriculture Department has to advise on irrigation practices suited to different crops, conditions of cultivation and should undertake the necessary investigations in each area;

- (iv) It is also essential for the Departments to undertake advance planning in their respective fields, for instance, for the supply of improved seeds and fertilisers and development of local manurial resources, provision of larger credit and marketing facilities, establishment of warehouses and godowns and improvement of communications in the areas commanded by irrigation projects. In order to ensure speedy and full agricultural benefits from irrigation projects, a programme of Ayacut development is proposed in the Fourth Plan. This has been described in the chapter on Agriculture;
- (v) Concessional water rates are allowed in several States in the initial two or three years of a new irrigation project. This is a useful promotional measure and helps in speedy development of irrigation.

Approach in the Fourth Plan:

6. The Fourth Plan will concentrate on consolidation of irrigation schemes already completed. A project should be considered completed only when all the actions necessary for securing optimum benefit have been taken. The Committee of the National Development Council on Agriculture and Irrigation suggested that the completion of continuing schemes right up to the cultivators' fields, including construction of field channels should receive first priority

III C

in the Fourth Plan, and that where a fresh scheme is sponsored for inclusion in the Plan, it should be fully investigated and a complete project report prepared with firm estimates of costs and benefits. In preparing new irrigation projects, due attention should be paid to the possible effect they would have on drainage and water-logging, and the need of lifting roads given due consideration. Also that a properly worked-out and financially phased agricultural development programme aimed at rapid and optimum agricultural production in the project area should invariably be prepared by the State Agriculture Department simultaneously with each irrigation project report prepared by the Irrigation Department. They further suggested that concerted action should be taken by both the Irrigation and Agriculture Departments of State Governments with a view to synchronising the construction of field channels and levelling of fields with the construction of irrigation works. These suggestions will be acted upon during the Fourth Plan.

Priorities:

7. Priorities assume special significance when maximum results are sought with limited resources. With this in view, the emphasis in the Fourth Plan will fall on the following categories of schemes:

- i) The completion of continuing schemes right up to cultivators' fields, (i.e. including field channels);
- ii) drainage, anti-waterlogging and anti-sea erosion schemes; and
- iii) taking up of a few new major and medium schemes, judiciously selected for securing phased and early benefits.

8. The carry-over of outlay into the Fourth Plan on approved continuing schemes, excluding the schemes which require only marginal outlays to complete them, is of the order of Rs. 870 crores. A few of the larger of these schemes will spill into the Fifth Plan, the amount of carry over being of the order of Rs. 200 crores. A few new schemes will have to be taken up in the Fourth Plan to keep up the pace of the irrigation programme, as also to meet special needs of scarcity areas.

9. It is of utmost importance that projects should be correctly phased. This will lead to economy in construction costs and will make it possible to secure benefits at different stages even before the actual completion of a project. It will prevent unnecessary locking up of capital on items of work in advance of actual need. Careful coordination in planning and execution is, therefore, necessary.

Supplementing supplies

10. The existing practice in many parts of the country regarding the use of irrigation water is to spread it out

extensively to afford protection against drought to as large an area as feasible so that a larger number of people receive benefits from it. Where the intensity of irrigation in canal irrigated areas is low, or sufficient water is not available for securing high yields per acre, it is necessary to supplement it, to the extent practicable, from underground or surface water resources to make the supplies adequate, dependable and timely for intensive agriculture. Large storage reservoirs and tubewells provide a more dependable source of supply than other surface water schemes and open wells, as the latter sources are apt to dwindle in drought years when needed most. With the advent of intensive agriculture and increased use of irrigation water, action will simultaneously have to be taken for providing adequate drainage so that waterlogging does not develop in the area.

Outlay in the Fourth Plan

11. The outlays proposed for irrigation and flood control in the Fourth Plan are

	(Rs. crores)
Irrigation	849
Flood Control	115
Total	<u>964</u>

The provision of Rs. 849 crores includes Rs. 24 crores for Tenughat Dam which is being constructed primarily for supply of water to the Bokaro Steel plant. After making full allowance for the equipment available from indigenous sources, the requirement of foreign exchange for this programme is estimated at Rs. 150 crores.

Benefits in the Fourth Plan

12. With the above outlay, it is estimated that the additional irrigation potential in the Fourth Plan would be of the order of 13 million acres (gross) and the additional utilisation 9 million acres (gross). With closer coordination between the Agriculture, Irrigation and other concerned departments, and their concerted efforts it should be possible to secure better utilisation.

Water Rates:

13. Irrigation projects are not giving adequate financial returns. Most of them are working at a loss at present. Water rates should ordinarily cover working expenses and debt charges. Outside scarcity areas, irrigation schemes should not involve loss to general revenues. The existing water rates in most States are relatively low. While there has been considerable increase in the value of crops produced as a result of irrigation and maintenance costs have also greatly increased, there has not been commensurate increase in the water rates. These require upward revision. A committee of State Ministers, under the chairmanship of Shri S. Nijalingappa, Chief Minister, Mysore was set up in 1964 to look, inter alia, into this matter. The Committee recommended that water rates should be levied on the basis of a suitable percentage of the additional net benefit to the farmer from an irrigated crop and might be fixed at 25 to 40 per cent of that benefit, keeping in view factors like rainfall,

water requirement, yield and value of crop; and where it was not feasible to work out the additional net benefit, water rates might be fixed at 5 to 12 per cent of the gross income to the farmer from the irrigated crop. The recommendations of this Committee have already been commended to State Governments and are to be acted upon.

Flood Control and Anti-waterlogging

14. According to the available statistics, the maximum area affected by floods in any one year during the decade 1953 to 1962 was 275 lakh acres in 1955. It is, however, not the same area which gets affected by flood each year, and the total area liable to flood is much larger. In certain States the flood problems are formidable, as in Assam. In the first two Plans, an area of about 70 lakh acres benefited from flood control measures costing Rs. 63 crores. An additional area of 45 lakh acres has benefited in the Third Plan with an outlay of Rs. 85 crores. Flood control, drainage and anti-waterlogging are closely related to irrigation and have to be viewed together. Schemes for these have to be formulated in an integrated manner so that measures taken in one place do not accentuate the problem in a neighbouring area. Waterlogging has increased in recent years in certain parts of the country, particularly in Punjab, and extensive anti-waterlogging measures were taken in the Third Plan. These will be continued in the Fourth Plan.

Anti-sea erosion schemes in Kerala:

15. The problem of beach erosion exists in several States. In Kerala, it has assumed serious proportions and about 200 miles of the coast line require protection. Anti-sea erosion schemes in Kerala would be a Centrally-sponsored programme.

Integrated River Basin Plans:

16. For integrated development of water and land resources, master plans have to be prepared for long-term development of irrigation in each river basin, including inter-State rivers. In preparing these plans, the optimum economical development of a river basin as a whole has to be kept in view, covering various aspects such as irrigation, flood control, navigation and soil conservation. Such development would often transcend State boundaries. In some cases works would need to be executed in a State other than the one in which the benefit is desired. Preparation of basin-wise plans will be taken up in the Fourth Plan, so that future schemes fit into these plans.

Soil conservation in river valley catchments:

17. Large sums of money are being invested in creating storage reservoirs for irrigation and power generation. It is important that the life of these reservoirs is not unduly shortened by excessive flows of silt and sediment from the catchment areas. The programme of soil conservation was being executed in 13 river valley catchments in the Third Plan. By the end of the Third Plan, the area

covered by the programme was 8.5 lakh acres and the outlay incurred Rs. 12 crores, of which only Rs. one crore had been incurred by the end of the Second Plan. It is proposed to extend the programme to cover an area of 25 lakh acres in the Fourth Plan with an outlay of about Rs. 19 crores under the Agriculture sector.

Research:

18. Research in the field of irrigation and hydraulic engineering is being conducted in the Central Water and Power Research Station at Poona and nineteen other research stations in the States. These stations are engaged in research on applied engineering and on problems connected with irrigation works, hydraulics and soils, as well as fundamental research. The research programmes are coordinated by the Central Board of Irrigation and Power. With the larger programmes of development now being undertaken, the activities of these organisations have expanded and will be further broadened in the Fourth Plan.

II POWER

Performance in the three Plans

19. Since the commencement of the Five Year Plans, there has been a significant increase in the growth of electric power. The installed generating capacity which was 2.3 million kW in 1950 rose to 3.4 million kW in 1955, 5.6 million kW in 1960-61 and 10.17 million kW at the end of the Third Plan. This includes 0.99 million kW of old and obsolete plants which are due for retirement. The target set for the Third Plan was 12.69 million kW. Shortfalls in the achievement of the target has been due to difficulties of foreign exchange and delays in completion of some projects. It is expected that about 2 million kW capacity would be realised in 1966-67. Power stations of a capacity of 50 MW and above in operation or under construction at the end of the Third Plan are listed in Annexure II and shown in the accompanying map.

20. Rural Electrification continues to make steady progress. Before the commencement of the First Plan the number of towns and villages electrified was 3687. This rose to 7400 by the end of the First Plan, and to 24209 by the end of the Second Plan. In the Third, the target of 43,000 towns and villages was exceeded, the actual achievement being 52,300 villages. The number of irrigation pumping sets electrified during the Third Plan increased from 1.6 lakhs to 4.8 lakhs.

21. Investments in the electricity undertakings have also increased steadily. At the commencement of the First Plan the

total investment was of the order of Rs.190 crores, of which Rs.70 crores was in the public sector, Rs.80 crores in the private sector and Rs.40 crores in self-generating establishments.

The outlay during the First Plan was Rs.292 crores, made up of Rs.260 crores in the public sector, Rs.32 crores in the private sector and Rs.10 crores in self-generating establishments. The corresponding figures for the Second Plan were Rs.460 crores, Rs.37 crores and Rs.23 crores.

During the Third Plan, against a Plan provision of Rs.1012 crores in the public sector, the investment is expected to be Rs.1252 crores. The investment in the private sector, during this period is anticipated at Rs.72 crores, as against Rs.50 crores envisaged in the Plan. The increase in the outlay in the Third Plan was mainly due to larger carry-over on some projects from the previous Plan and inclusion of certain additional generation and transmission schemes. Also larger amounts have been spent on rural electrification for extending power supply for agricultural pumping.

22. During the Third Plan period, the power supply position in different parts of the country was constantly under review. Several short-term and long-term measures were taken, as found necessary. Special committees were set up for the purpose. As a result of their recommendations several new power schemes not originally included in the Third Plan were accepted. Notable additions were made in West Bengal and Assam.

23. One outcome of the recommendations of a study team for augmenting power supply to coal fields was the inter-connection of Rihand Power system in Uttar Pradesh with the Bihar-DVC-West Bengal power systems. The power supply in the latter region was causing concern in 1961 on account of the large increase of demand in vital sectors and breakdowns in certain power supply plants. Arrangements were made to divert surplus power available from the Rihand power station to the Bihar-DVC-West Bengal region. Although the available surplus was only 20 MW continuous, the inter-connected and parallel operation of the two grids enabled DVC to avail of over 100 MW of peaking power. This, as also supply of 10 MW from Hirakud considerably eased the power position in the area. Similarly, to overcome the power shortages in Andhra Pradesh, Madras and Kerala during 1965-66, arrangements were made for supply of power from Mysore to these three States. This supply exceeded 100 MW.

Modes of generation

24. The primary sources available in India for generation of electricity are: coal and lignite, water resources, oil, natural and refinery gases and nuclear fuels. Poor quality coal with high ash content and middlings from coal washeries cannot be transported economically over long distances. They are best burnt in stationary boilers of power stations. Hydro-electric generation provides a cheap source of power as unlike other modes of generation, no fuel is consumed and the flowing water provides an

inexhaustible source of energy. With increasing exploitation of oil resources in the country and the setting up of a number of oil refineries, the use of furnace oil, refinery wastes and natural gas for power generation has been found economical near oil fields and refineries. The cost of generation of power in diesel power stations is high and this type of generation is to be confined to isolated locations or to meet special requirements. In locations which are far removed from the collieries and where suitable hydro-electric sites are not available, nuclear power is tending to become competitive. This is particularly so where the station is required to be operated on base load at high plant factor.

25. The Energy Survey Committee, set up by the Government of India in 1963, made a comparative study of the investment per kilowatt and the cost of generation per kilowatt hour in typical hydel, thermal and nuclear stations in the country. The study was based on the costs obtaining in 1963-64 and a rate of interest of ten per cent. Their estimate of investment per kilowatt, with these assumptions, was Rs.1375 for storage hydel designed for 60 per cent plant factor, Rs.1343 for thermal plant and Rs.2222 for nuclear plant. With 60 per cent plant factor and an assumed cost of Rs.24.5 per tonne of coal of 4400 kcal/kg, the cost per kilowatt hour worked out to 2.9 paise for hydel, 4.6 paise for coal based thermal and 5.8 for nuclear stations. Nuclear stations generally operate at a higher plant factor, and for

a factor of 75 per cent the cost gets reduced to 4.7 paise. This compares well with coal based stations located far away from collieries.

Hydro-electric stations

26. Storage hydel is thus the cheapest method of generating electricity. Hydel plant lends itself to considerable flexibility of operation. At low plant factor it has great advantage over other methods of generation and is very suitable for carrying peak loads. It would thus be advisable to exploit hydel resources wherever there are suitable sites available.

27. The installed generating capacity of hydro-electric stations at the end of the Third Plan totalled 4.14 million kW. During the Fourth Plan, 3.54 million kW is expected to be added. A number of hydro schemes will be in progress at the end of the Fourth Plan. These, on completion, will provide an additional installed capacity of 4.08 million kW. Considering that the total hydro-electric potential of the country is of the order of 41 million kW at 60 per cent load factor, this would still leave a large potential to be developed in future plans.

28. Major hydro-electric projects take considerable time to investigate and take appreciably longer to construct than conventional thermal or even nuclear stations. A large number of hydel projects are under investigation. It is important that detailed project reports are prepared for as many of them as possible so that a choice can be made of the most economical and suitable ones for meeting further requirements.

Thermal Power Stations

29. An important consideration in setting up thermal power stations is the need to use up the surplus middlings from coal washeries and other inferior coals with high ash content which it is uneconomic to transport for use elsewhere. Thermal stations are best located near the pit heads. This relieves strain on transport and saves on cost. But a departure from this rule sometimes becomes necessary for reasons of ensuring system stability and the high cost of transmission of a relatively small block of power over long distances.

30. In recent years the increase in the size of steam turbo-alternators operating at higher temperatures and pressures has resulted in sizeable reduction in capital costs and a marked increase in thermal efficiency all over the world. In line with these trends, power development in India has also tended towards bigger steam turbo-alternator units. This trend will be maintained.

31. The thermal generating capacity including oil plants at the end of the Third Plan totalled 6.03 million kW. During the Fourth Plan, 5.71 million kW is expected to be added. Work on a number of thermal stations will be in progress to provide additional power in the early part of the Fifth Plan.

Atomic Power Stations

32. Work on the establishment of the first atomic power station at Tarapur in Maharashtra, with a sent out power

capacity of 330 MW, was taken up towards the end of the second Plan. The power supply from this station is expected to commence towards the middle of the Fourth Plan. Work on the second atomic power station at Rana Pratap Sagar in Rajasthan with a capacity of 200 MW started in 1965-66. This is expected to be commissioned towards the end of the Fourth Plan. Another unit of 200 MW has been sanctioned for this station and is expected to come into operation in the early part of the Fifth Plan period. Proposal to build a third atomic power station with an installed capacity of 400 MW at Kalpakkam in Madras has been accepted by Government. This project will be designed and constructed to a large extent indigenously and is expected to be completed in the Fifth Plan period. Thus, at the end of the Fourth Plan, 530 MW of generating capacity is expected to be available from the atomic power stations, with an addition of 600 MW in the Fifth Plan period from schemes already approved.

Transmission and distribution

33. For the economic operation of any power system it is important to have adequate transmission and distribution network. Investment in transmission can save considerable amounts of investment in generation. The transmission network of 11 KV lines and above has been steadily expanding from 58400 circuit kilometres in 1955 to 134,400 kilometres in 1960-61 and to about 250,000 kilometres at the end of the Third Plan. Notwithstanding this expansion, the transmission system is inadequate. Also with the rapid growth of demand for electricity, the distribution system in most of the cities is seriously overloaded.

34. Interconnection of power systems has become increasingly important. The advantages and economies of interconnection are many. They make it possible for load to be met at the lowest overall production cost; enable mutual assistance to be given in case of break-down; make it possible to adopt larger generating units with corresponding economies of capital and operating costs; give advantage of greater diversity of loads; save on standby capacity; permit exchange of power; enable integration of thermal, nuclear and hydro-stations and better utilisation of seasonal power from the latter stations. In the Third Plan some progress was made in laying interconnecting lines but this work has to be pursued with greater vigour in the Fourth Plan.

Perspective of Power Development

35. The Power Plan has to fit into a broad perspective of energy supply for the country. The Energy Survey Committee has made a survey of the probable requirements of commercial and non-commercial energy and other aspects of energy production and utilisation upto 1981. It has gone into past trends in energy growth in relation to industrial production and national income and arrived at projections of aggregates of energy demands for the next three Plan periods. The aggregates were analysed sectorwise for oil, coal and electricity.

36. The table below gives the Energy Survey Committee's assessment of the requirements of installed capacity consistent with 6 per cent and 7 per cent growth in

the national income:

	(Million kW)	
	<u>For growth of national income</u>	
	6%	7%
Period ending March		
1961	5.6	5.6
1971	19.2	21.41
1976	28.7	33.90
1981	46.2	55.70

The perspective figures provide an indication of the magnitudes involved. But the actual power target to be set for a Plan has to be worked out by a detailed examination of the load requirements of various categories of demand, especially in the industrial sector. From various considerations a target of 20.0 million kW of installed capacity has been set for the Fourth Plan.

Approach in the Fourth Plan

37. It is important that industry should be reasonably assured of power supply. This would call for realistic estimates of load, adequate margins in installed generating capacity to meet new demands, inter-connection of power stations within a State, establishment of regional grids among neighbouring States, and strengthening and modernisation of distribution networks. Owing to financial constraints, in the Third Plan adequate provision was not made for transmission and distribution. In the Fourth Plan, the provisions for generation and transmission and distribution are more balanced.

38. The power plan is based on the integrated operation of power systems of neighbouring States and establishment

of regional grids. For integrated operation it becomes necessary to set up a few centralised load despatch stations and interconnecting extra high voltage transmission lines. The inter-State tie lines should be financed, constructed and operated by the States concerned to the extent these lie within the boundary of the State. The cost of load despatching stations should be shared by the States concerned.

39. Five Regional Electricity Boards have already been set up, consisting of representatives of State Electricity Boards and the Central Electricity Authority. The Regional Electricity Boards are required to advise on planning of power systems in the region and their integrated operation, prepare a coordinated programme of overhaul and maintenance of generating plants, and determine the quanta of power available for exchange from time to time and the tariff structure for such exchange of power. These Boards will need to be equipped with adequate authority if they are to function effectively.

40. Power planning has to keep in step with the requirements of growing economy. It is important to have a proper time phasing for new projects in order to avoid large surpluses or shortfalls in any year. In each Plan, work on a number of schemes should be taken up for providing phased benefits in the next plan period. Each year there should be a review of the requirements and programmes for the next few years.

Investment in the Fourth Plan

41. An outlay of Rs. 2030 crores is proposed in the public sector for power in the Fourth Plan. The distribution

of this outlay is as under:

	(Rs. crores)
Generation	1150
Transmission & distribution	605
Rural Electrification	250
Investigations & Miscellaneous	25
Total:	<u>2030</u>

42. Of this outlay, Rs.260 crores are required for schemes to be executed by the Centre, Rs.53 crores for the Union Territories and balance of Rs.1717 crores for the States. The schemes to be executed by the Centre comprise atomic power stations, power ~~generation~~ programmes of the Neyveli Lignite Corporation and the Damodar Valley Corporation, and the establishment of a new power station at Badarpur near Delhi.

43. An outlay of Rs.50 crores is envisaged in the private sector. This will be to a large extent for the strengthening and expansion of their distribution network.

Physical programme in the Fourth Plan

44. In the Third Plan the addition to the generating capacity was 4.52 million kW. This brought the total installed capacity at the end of the Plan to 10.17 million kW.

In the Fourth Plan it is proposed to add more than double the capacity added in the previous Plan. A target of 120.0 million kW of installed capacity has been set. With this installed capacity a power generation potential of

80,000-00 million kilowatt hours per annum is expected to be

created. A number of generation schemes under implementation during the Plan period, will yield benefits in the Fifth Plan. Of the carry over benefits of about 5.6 million kW, about 4 million kW would be hydro, 0.6 million kW nuclear and the rest conventional thermal. In the latter part of the Fourth Plan, advance action will need to be taken on some schemes for the Fifth Plan. A perspective power plan for the Fifth and Sixth Plans is being prepared.

45. The transmission network which at the end of the Third Plan stood at about 250,000 circuit kilometers is expected to be doubled in the Fourth Plan. The emphasis would be on interconnecting and inter-State lines. The highest voltage of transmission lines at present in use is 220 KV. In the Fourth Plan, certain new lines of 400 to 500 kV will be taken up.

46. The number of electrified towns and villages rose from 24,200 to 52,300 in the Third Plan. This is expected to increase to 110,000 in the Fourth Plan. About seven lakh pumping sets are to be electrified during the period. This will bring the total number of electrified pumps to 11.8 lakh at the end of the Fourth Plan.

Rural Electrification

47. Rural electrification has special significance in the development of rural economy. Apart from providing power for agricultural purposes, small scale industries and domestic use, it helps in modernising the outlook of people living in rural areas. It has therefore been accorded increasing importance in the Plans. The

table below gives the outlays achievements in the Second and Third Plans and the proposals for the Fourth Plan

Item	Unit	Second Plan	Third Plan		Fourth Plan
			Target	Achievement	
Outlay	Crore rupees	75	105	125	250
Towns and Villages electrified	000 Nos. (cumulative)	24.23	43	52.5	110
Pumps energised	Lakh Nos. (cumulative)	1.3	N.A.	4.8	11.8

48. In furthering rural electrification the approach should be to take up areas near the transmission network, predetermine the utilisation of power for agriculture and rural industries, and pick out villages with development potential as nuclei for injecting activity. Also, wherever intensive agricultural development programmes are being implemented and there are clusters of pumps to be energised, they should receive preference for electrification. The programme of expanding transmission and distribution lines and rural electrification should be coordinated with the programme of installing irrigation pump sets. For this purpose, maps should be prepared showing locations of clusters of pumps desired to be energised and superimposed on maps showing proposals for transmission and distribution lines. These steps would secure larger benefit from the investment on rural electrification.

Growth of installed capacity

49. The growth of installed capacity on ownership basis as well as by type of plant is set out below:

(Million kW)

<u>Installed capacity by ownership</u>					
	<u>1950</u>	<u>1955</u>	<u>1960-61</u>	<u>1965-66</u> (Est.)	<u>1970-71</u> (Est.)
State-owned public utilities	0.63	1.52	3.35	7.30	~~16.7~~ 16.7
Company-owned public utilities	1.08	1.18	1.36	1.65	1.72
Self-generating industrial establishments	0.59	0.72	0.94	1.22	1.24
Total:	<u>2.30</u>	<u>3.42</u>	<u>5.65</u>	<u>10.17</u>	<u>20.50</u>

<u>Installed capacity by type of plant</u>					
	<u>1950</u>	<u>1955</u>	<u>1960-61</u>	<u>1965-66</u> (Est.)	<u>1970-71</u> (Est.)
Hydro plant	0.56	0.94	1.92	4.14	7.68
Steam plant	1.59	2.27	3.43	5.61	10.47
Oil plant	0.15	0.21	0.30	0.42	~~0.27~~ 0.27
Atomic plant	-	-	-	-	0.55
Total:	<u>2.30</u>	<u>3.42</u>	<u>5.65</u>	<u>10.17</u>	<u>20.00</u>

Bulk of the addition in generating capacity in the Plans has been in the State-owned public utilities. In the private sector, notable additions in the Third Plan were 50 MW by the Calcutta Electric Supply Company, 60 MW by the Ahmedabad Electric Supply Company and 150 MW at Trombay by Tata Hydro-electric Agencies. Hydro-electric generating capacity was 34 per cent of the total in 1960-61, 41 per cent in 1965-66 and

is expected to be 39 per cent in 1970-71. Because of the high cost of generation in oil fired power stations, additions to these have been small. Of the existing older plants some are expected to be retired before the end of the Fourth Plan.

Price Policy for Electricity Undertakings.

50. A Committee of State Ministers under the Chairmanship of Shri R. Venkataraman, Minister for Industries, Madras set up by the Government of India in 1964, examined the financial working of the State Electricity Boards. It recommended that the Electricity Boards should augment their earnings so as to earn 11 per cent on their capital base. The Committee observes: "The first phase of the objective of all the State Electricity Boards should be to aim at higher revenues sufficient to cover operation and maintenance charges, contributions to the general and depreciation reserves and interest charges on loan capital. Boards which have not already achieved this, should aim at realising this objective within a period of three to five years. In the second phase of the objective, the Boards should aim at achieving balance of revenue other after meeting all the charges indicated in the first phase, working out a net return of 3 per cent on the capital base. Boards which have already achieved the first phase should immediately proceed to realise the second phase and other Boards should aim at achieving the second phase within three to five years of their achieving the first phase". These recommendations were accepted by the N.D.C. Committee on Industry, Power and Transport. The States have been requested to implement them.

Self-sufficiency in heavy electrical equipment

51. Some thermal and hydro-generated sets will be supplied by the Heavy Electrical plants at Bhopal, Hardwar and Ramachandrapuram in the Fourth Plan. From the beginning of the Fifth Plan onwards it should be possible to sustain the entire growth of power in the country from the output of these plants. In respect of power boilers also, self-sufficiency is expected to be reached by the beginning of the Fifth Plan. Steps are also being taken to augment the manufacturing capacity of other electrical equipment such as transformers and circuit breakers so as to achieve self-sufficiency during the Fourth Plan period. These programmes have been dealt with in the chapter on Industries and Minerals.

Research, Design and Training Facilities

52. With the rapid increase in power development, research has to be directed to effect economies in generation, transmission and distribution, and also towards better performance of the supply systems. At present, basic and fundamental research on power is being carried out by six State Electricity Boards, the Indian Institute of Science, Roorkee University and Power Research Institute, Bangalore.

53. A specialised engineering organisation is being set up in the Central Water and Power Commission to render consultancy services to project authorities, in designs, preparation of specifications and layouts of large-sized thermal and hydro stations. This organisation is being developed to reduce dependence on foreign consultants and help to conserve foreign exchange.

54. A number of power stations are being established with large units employing higher temperatures and pressures. As there is dearth of suitably qualified personnel to operate such big power stations, a training institute has been established at Neyveli. In the Fourth Plan another such institute is to be established.

Names of major irrigation projects taken up in the First three Plans (numbers correspond to numbers in the index map)

Sl. No.	Name of Scheme	Plan in which accepted	Estimated cost (Rs. crores)	Ultimate irrigation potential (million acres gross)	REMARKS
1.	2.	3.	4.	5.	6.
<u>ANDHRA PRADESH</u>					
1.	Kadam	First	7.97	0.09	Completed
2.	K.C. Canal	First	7.56	0.29	Completed
	Tungabhadra Low Level Canal (see No. 41 under Mysore)	First	13.91	0.15	Completed
3.	Nagarjunasagar	First	165.33	2.05	Advanced stage of construction
	Tungabhadra High Level Canal Stage-I (see No. 42 under Mysore)	Second	17.66	0.12	Practically completed
4.	Pochampad	Third	40.61	0.57	
<u>BIHAR</u>					
5.	Kosi	First	30.52	1.41	Advanced stage of construction
6.	Western Kosi Canal	Third	18.38	0.30	
7.	Rajpur Canal	Third	6.26	0.40	
8.	Badua	Second	6.28	0.10	Completed
9.	Sone	Second	16.53	0.31	Completed
10.	Gandak	Second	89.42	2.65	
11.	Chandan Reservoir	Third	5.90	0.14	
<u>GUJARAT</u>					
12.	Kakrapar	First	18.57	0.56	Practically completed
13.	Mahi Stage-I	First	24.61	0.46	Advanced stage of construction
14.	Shetrunji (Palitana)	Second	6.60	0.11	Completed
15.	Banas (Dantiwada)	Second	11.05	0.09	Advanced stage of construction
16.	Hathmati	Second	5.70	0.08	-do-

Sl. No.	Name of Scheme	Plan in which accepted	Estimated cost (Rs. crores)	Ultimate irrigation potential (million acres, gross)	REMARKS
1.	2.	3.	4.	5.	6.
17.	Ukai	Second	46.62	0.39	
18.	Mahi Stage-II (Kadana)	Second	20.08	0.04	
19.	Narmada (Broach)	Second	43.61	1.00	Not yet started
<u>KERALA</u>					
20.	Malampuzha	First	5.80	0.09	Completed
21.	Periyar Valley Scheme	Second	6.40	0.10	Advanced stage of construction.
<u>MADHYA PRADESH</u>					
22.	Chambal Stage-I	First	35.60	0.55	Practically completed
	Ranapratapsagar (see No. 56 under Rajasthan)	Second	5.45	0.15	Advanced stage of construction.
23.	Tawa	Second	34.50	0.79	
24.	Barna	Second	5.75	0.16	
25.	Hasdeo	Third	9.00	Water supply scheme	- do -
<u>MADRAS</u>					
26.	Lower Bhawani	First	10.21	0.19	Completed
27.	Manimuthar	First	5.16	0.10	Completed
28.	Parambikulam-Aliyar	Second	38.17	0.24	Advanced stage of construction
29.	Chittar Pattanamkal	Third	7.76	0.05	
<u>MAHARASHTRA</u>					
30.	Ghod	First	5.80	0.06	Completed
31.	Vir Dam	Second	5.41	0.07	Completed
32.	Purna	Second	15.23	0.15	Advanced stage of construction
33.	Girna	Second	14.34	0.14	- do -
34.	Khadakwasla Stage-I	Second	15.68	0.04	- do -
35.	Mula	Second	16.66	0.16	
36.	Itiadh	Second	6.97	0.07	
37.	Bagh	Second	5.99	0.06	

ANNEXURE-I (Continued)

XII-52-

Sl. No.	Name of Scheme	Plan in which accepted	Estimated cost (Rs. crores)	Ultimate irrigation potential (million acres gross)	REMARKS
1.	2.	3.	4.	5.	6.
<u>MYSORE</u>					
38.	Ghataprabha Stage-I	First	5.74	0.05	Completed
39.	Ghataprabha Stage-II	Second	25.57	0.255	
40.	Bhadra	First	31.94	0.24	Advanced stage of construction.
41.	Tungabhadra Project	First	34.43	0.67	Practically completed
42.	Tungabhadra High Level Canal Stage-I	Second	4.52	0.07	Advanced stage of construction
43.	Kabbini	Second	10.20	0.05	
44.	Malaprabha	Third	20.00	0.30	
45.	Upper Krishna	Third	61.10	0.60	
<u>ORISSA</u>					
46.	Hirakud Stage-I	First	67.82	0.60	Completed
47.	Mahanadi Delta	First	34.51	1.61	Advanced stage of construction
48.	Salandi	Second	11.10	0.15	
<u>PUNJAB</u>					
49.	Bhakra Nangal	First	55.39	3.03	Completed
50.	Harike Project	First	9.15	0.03	Completed
51.	Sirhind Feeder	First	6.70	No direct benefits	Completed
52.	Western Yamuna Canal Remodelling	First	7.57	0.55	
53.	Gurgaoon Canal	Second	5.77	0.25	
54.	Beas Project-Unit-I (Sutlej Beas Link)	Third	11.79	0.80	
55.	Beas Project-Unit-II (Pong Dam)	Third	35.18	0.79	

Sl. No.	Name of Scheme	Plan in which accepted	Estimated cost (Rs. crores)	Ultimate irrigation potential (million acres gross)	REMARKS
1.	2.	3.	4.	5.	6.
RAJASTHAN					
	Bhakra (see No.49 under Punjab)	First	22.47	0.57	Completed
	Chambal Stage-I (see No.22 under Madhya Pradesh)	First	30.51	0.55	Advanced stage of construction
56.	Ranapratapsagar	Second	5.40	0.15	-do-
	Gurgaon Canal (see No.53 under Punjab)	Second	3.02	0.06	
57.	Mahi Bajajsagar (Banswara)	Second	4.93	0.08	
58.	Rajasthan Canal (Stage-I)	Second	82.51	1.30	Advanced stage of construction
	Beas Project Unit-I (Sutlej Beas Link) (see No.54 under Punjab)	Third	0.87	) Under Rajasthan Canal	
	Beas Project-Unit-II (Pong Dam)(see No.55 under Punjab)	Third	57.64		
UTTAR PRADESH					
59.	Matatila	First	7.90	0.41	Completed
60.	Sardasagar Stage-II	Second	7.32	0.18	Completed
61.	Ramganga	Second	67.61	1.71	
	Western Gandak Canal (see No.10 under Bihar)	Third	36.39	0.60	
WEST BENGAL					
62.	D.V.C. Canals	First	42.50	0.88	Practically completed
63.	Mayurakshi	First	20.46	0.61	Advanced stage of construction
64.	Kangsabati	Second	31.52	0.95	-do-

Power stations of a capacity of 50 MW and above
in operation or under construction at the end
of the Third Plan

<u>Sl. No.</u>	<u>Name of the station and State</u>	<u>Total installed capacity in MW</u>
<u>NORTHERN REGION</u>		
1.	Lower Jhelum (Jammu & Kashmir)	112
2.	Uhl hydro-electric scheme(Punjab)	93
3.	Pong Dam (Punjab/Rajasthan)	240
4.	Beas - Sutlej Link (Punjab/Rajasthan)	636
5.*	Bhakra Nangal (Punjab/Rajasthan)	560
6.	Bhakra Right Bank(Punjab/Rajasthan)	600
7.	Yamuna hydro-electric scheme Stage II(U.P)	340
8.*	Yamuna hydro-electric scheme Stage I(U.P)	84
9.	Ranganga hydro-electric scheme (U.P)	165
10.*	Harduaganj power station (U.P)	110
11.	Harduaganj Extension III and IV (U.P)	210
12.*	Kanpur Electric Supply Administration(U.P)	136.5
13.	Panki power station near Kanpur(U.P)	64
14.	Hindustan Aluminium (U.P)	125
15.*	Rihand Hydro-electric scheme (U.P)	300
16.	Obra thermal (U.P)	250
17.	Obra Hydel (U.P)	100
18.*	Delhi Electric Supply Undertaking(Delhi)	114
19.	Indraprastha thermal power station(Delhi)	242.5
20.*	Kotah(Rajasthan/Madhya Pradesh)	100
21.	Ranapratap Sagar(Rajasthan/Madhya Pradesh)	172
22.	Ranapratap Sagar Atomic power station (Rajasthan)	400

<u>Sl. No.</u>	<u>Name of the station and State</u>	<u>Total installed capacity in MW</u>
<u>EASTERN REGION</u>		
23.	Barauni Station(Bihar)	145
24.*	Sindri station (Bihar)	80
25.	Pathratta station (Bihar)	400
26.*	Maithon (DVC)	60
27.	Chandrapura, Stages I and II (DVC)	420
28.	Durgapur station(DVC)	365
29.*	Bokaro station (DVC)	255
30.	Durgapur coke oven plant(West Bengal)	435
31.	Bandul thermal station(West Bengal)	330
32.*	Calcutta Electric Supply Co.(West Bengal)	456.7
33.*	Rourkela steel plant(Orissa)	75
34.*	Hirakud Stage I (Orissa)	123
35.*	Hirakud Stage II(Orissa)	147
36.	Talcher thermal station(Orissa)	250
37.	Balimela hydro station(Orissa)	360
<u>WESTERN REGION</u>		
38.*	Gandhisagar Dam(Madhya Pradesh & Rajasthan)	115
39.*	Amarkantak (Madhya Pradesh)	60
40.	Korba thermal(Madhya Pradesh)	290
41.	Satpura thermal(Madhya Pradesh/Rajasthan)	312.5
42.*	Khaperkheda (Maharashtra)	90
43.	Bhusawal (Maharashtra)	62.5
44.	Paras(Maharashtra)	62.5
45.	Purli (Maharashtra)	60

Sl. no.	Name of the station and State	Total installed capacity in MW
46.	Tarapur Atomic Power station (Maharashtra/Gujarat)	380
47.	Vaitharna(Maharashtra)	60
48.	Nasik(Maharashtra)	280
49.*	Ghola(Maharashtra)	118
50*	Bhivpuri(Maharashtra)	72
51.*	Trombay(Maharashtra)	337.5
52.*	Khopoli (Maharashtra)	72
53.*	Bhira (Maharashtra)	132
54.	Koyna Stages I and II(Maharashtra)	540
55.	Koyna Stage III(Maharashtra)	320
56.*	Ahmedabad Electric Supply Co.(Gujarat)	217.5
57.*	Dhuvaran Stages I & II(Gujarat) Dhuvaran Stage II(Gujarat)	~~250~~ 230
58.*	Utran power station (Gujarat)	67.5
59.	Ukai project (Gujarat)	300
<u>SOUTHERN REGION</u>		
60.	Ramagundem thermal station(Andhra Pradesh)	100
61.*	Machkund hydel scheme(Andhra Pradesh and Orissa)	114.75
62.	Upper Sileru H.E. scheme(Andhra Pradesh)	120
63.	Lower Sileru H.E. scheme (Andhra Pradesh)	400
64.	Kothagudem Stages I, II & III(Andhra Pradesh)	240
65.	Srisailem hydel scheme (Andhra Pradesh)	440
66.	Sharavathi Stages I, II and III(Mysore)	891
67.*	Jog H.E. scheme (Mysore)	120
68.*	Tungabhadra Power stations (Mysore and Andhra Pradesh)	99

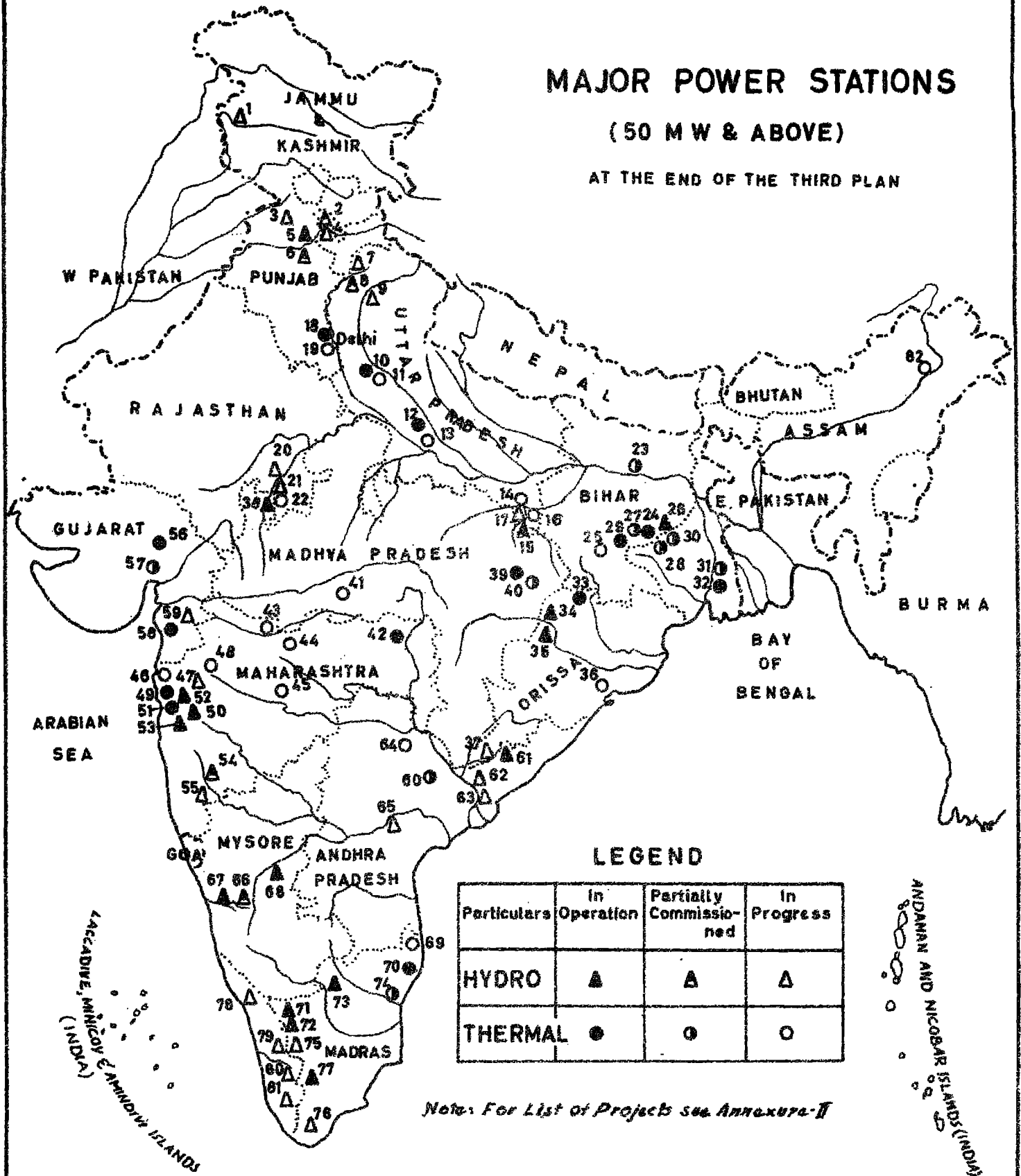
<u>Sl. No.</u>	<u>Name of the station and State</u>	<u>Total installed capacity in MW</u>
69.	Ennore thermal station (Madras)	330
70.	Basin Bridge station (Madras)	128.8
71.*	Pykara hydel station (Madras)	71
72.*	Kundah Stages I,II and III (Madras)	425
73.*	Mettur hydel (Madras)	240
74.	Noyveli Stages I,II and III (Madras)	600
75.	Parambikulam (Madras)	185
76.	Kodayar H.E. scheme (Madras)	100
77.*	Poriyar H.E. scheme (Madras)	105
78.	Kuttiadi H.E. scheme (Kerala)	75
79.	Sholayar H.E. scheme (Kerala)	54
80.	Idikki H.E. scheme (Kerala)	520
81.	Sabarigiri H.E. scheme (Kerala)	300
<u>ASSAM REGION</u>		
82.*	Naharkatiya thermal station (Assam)	69

N.B. * Schemes fully commissioned at the end of the Third Plan.

MAJOR POWER STATIONS

(50 MW & ABOVE)

AT THE END OF THE THIRD PLAN



PC/CMU/No750/66

MAJOR IRRIGATION PROJECTS
TAKEN UP IN THE FIRST THREE PLANS

The map illustrates the distribution of major irrigation projects across India during the first three Five-Year Plans. Projects are numbered 1 through 79. State boundaries are shown with solid lines, state capitals with dots, and international boundaries with dashed lines. The map includes labels for the Arabian Sea, Bay of Bengal, and various islands like Lakshadweep, Andaman, and Nicobar. Major rivers like the Indus, Ganges, Brahmaputra, and others are also labeled.

REFERENCES

- MAJOR IRRIGATION PROJECTS (For names of projects see Annexure I)
- STATE BOUNDARY
- STATE CAPITAL
- INTERNATIONAL BOUNDARY

PC / CMU / NO.749/8.66

CHAPTER XIII

VILLAGE AND SMALL INDUSTRIES

The village and small industries sector covers a wide range of industries. It extends from mechanised small scale industries with a capital investment of less than Rs. 5 lakhs to the powerlooms, handlooms, handicrafts, coir, sericulture, khadi and village industries. The programmes for their development, as implemented during the three Plan periods, have been designed to achieve the objectives of widening employment opportunities, mobilising of resources of capital and skill particularly in the countryside and providing a more equitable distribution of national income.

Review of Progress:

2. On the basis of the total expenditure incurred during the Third Plan period on development of small industries including the investment from private sources, it is estimated that part-time and fuller employment was provided for about 8 million persons and additional whole-time employment for about 6.3 lakh persons. During the period 1960 to 1965, production of cloth by the handlooms and powerlooms is estimated to have increased from 2,013 million metres to 3,056 million metres, khadi from about 59 million metres to 90 million metres, and raw silk from 1.50 million kgs. to 2.15 million kgs. Besides the new items taken up in the small scale sector, a step up in production of as much as 25-50 per cent has been recorded in several small scale industries, particularly footwear and other leather products, bicycles and parts,

sewing machines and parts, electric fans and motors, machine tools, hand tools, paints and varnishes and soap. Up to the end of 1965, nearly one lakh small-scale units had been registered on an optional basis with the States' Industries Directorates, as compared to about 37,000 units at the beginning of 1962. Since the inception of the scheme in 1957 for supplying machines on hire-purchase terms to small industries, nearly 16,000 machines, valued at Rs. 24.37 crores, were delivered by the National Small Industries Corporation up to 1965-66. By March 1965, 154 industrial estates had started functioning, providing accommodation in about 3,135 sheds to 2,585 units, with an annual out-turn of about Rs. 60 crores worth of products and providing employment to nearly 46,000 persons. The value of purchases by the Central Government Departments from small industries had increased from Rs. 6.5 crores in 1960-61 to Rs. 21.94 crores in 1965-66. Information about the exports of the products of small scale industries is not separately available, although there is evidence that this sector has made significant contribution in several lines. For certain commodities in this sector for which separate information is available, there was a sizeable increase in the exports. The value of the exports of handicrafts, coir, handlooms and silk products increased from about Rs. 25 crores in 1960-61 to nearly Rs. 54 crores in 1965-66.

3. The number of industrial cooperative societies increased from 7,105 with a membership of 0.8 million in 1951 to about 46,800 with a membership of 3 million in 1963-64. Including

the cooperatives engaged in khadi and village industries and also industrial cooperative banks, the total number of industrial cooperatives in 1964-65 was estimated at about 51,000 with a membership of 3.2 million. Considerable progress was also made in providing credit facilities to small industries from institutional agencies. The credit limit sanctioned by the State Bank increased from Rs. 8.85 crores at the end of March 1961 to Rs. 70.33 crores by March 1966. Under the credit guarantee scheme of the Reserve Bank, guarantees for loans amounting to about Rs. 97.42 crores were issued by January 1966, as against about Rs. 2 crores in April, 1961. In pursuance of the recommendations of the Rural Industries Planning Committee which was constituted in April 1962, 45 rural industries projects have been taken up in selected rural areas. According to a recent review, nearly 1,450 new units had been set up in these Project areas upto 1964-65. Recently, 4 more projects have been taken up in the vicinity of large-scale industrial complexes of Ranchi, Durgapur, Bhadravati and Bhilai.

Approach in the Fourth Plan:

4. Broadly, the approach adopted so far has been to formulate what are known as 'common' production programmes, for different sections of an industry with a view to determining the respective contributions which the large and small sectors could make towards meeting the total requirements of the community for the products of that industry, and to provide the necessary assistance to the small sector to enable it to achieve the tasks assigned to it. Besides the measures of

of positive assistance to the small sector, formulation of common production programme envisaged application of one or more of certain specific steps including reservation of spheres of production, limiting the expansion of the capacity of the large-scale sector of an industry and providing a modicum of price advantage to small units by way of differential taxation or subsidies or rebate on sales. These steps needed in furtherance of common production programme had the objective of providing a degree of preference or assurance in marketing to the small sector so as to provide time and opportunity to the sector to acquire the necessary strength to develop on its own. These measures have been applied in respect of some industries, notably the cotton textile industry, with a measure of success. However, for several industries formulation of common production programmes does not by itself provide an adequate operational base for the development of the small sector as a whole.

5. For building a decentralised sector in modern industry, both structurally as well as locationally, it is necessary to adopt a firm and clear approach. In a number of industries and industrial processes, a large size of operation and a high degree of mechanisation have no decided advantage. It would be desirable in the context of present-day Indian conditions to opt for smaller units and more labour-intensive technologies in such fields. For this purpose, it would be necessary to organise a systematic identification of such

fields and ~~processes~~ and adopt policies whereby ~~smaller units~~ of operation and less capital-intensive methods could be promoted. The ~~ident~~ification of fields and processes would have to be followed by adoption of appropriate technology. A tentative list of industries where the entire or the bulk of production can be reserved for the small sector, has been prepared.

6. Apart from positive measures of assistance in these fields and processes, it would be necessary first to exclude capital-intensive operations, whether in the private sector or in the public sector. The extent to which licensing of industries is applicable; it would be necessary to adopt a firm policy of excluding from the capacity licensed to large industries, the operations within these designated fields and processes. If this is done, it would be possible to open out a large field of development to small industries, especially for the production of a variety of ancillary parts and components required by large industries. A large scope for decentralised growth would also promote the development of some of the traditional village industries which have been languishing. At the same time, the principal aim will continue to be to assist as many of them as possible to grow into ^{larger and more} viable units. Thus the small and large sectors could be developed as complementary to each other, as in other developed countries, so as to generate a wide-spread diffusion of industrial activity and help in realising the economic and social objectives envisaged under the Industrial Policy Resolution.

7. Within the framework of the Industrial Policy Resolution, the following aims will be pursued so that over a period the entire sector

becomes economically viable:--

- i) to promote decentralised growth of industries,
- ii) to raise the earnings of those engaged in small industries by providing positive forms of assistance for improving their skills and productivity, and
- iii) to organise artisans and craftsmen on cooperative lines.

8. A more vigorous programme would be taken up for the development of rural industries including agro-industries which would cover not only those industries which are concerned with the processing of agricultural products including animal husbandry, horticulture and poultry, but also the manufacture of inputs required for agricultural production like agricultural implements. A number of Rural Industries Projects have already been taken up for intensive development of industries based on agriculture and other local resources. Another important step for accelerating the programme of rural industrialisation and development of agro-industries would be to identify the 'growth centres' in small towns and rural areas where basic facilities such as electricity, large supply of agricultural raw materials and improved means of transport are available, or would become available, and to provide in an integrated manner the necessary assistance for credit, technical advice and service facilities. This would lead to the building up of clusters of successful centres. In turn, these would serve as models or nuclei for more widespread development.

9. The development of small industries will depend largely on the initiative and enterprise of small entrepreneurs, technicians, artisans and workers, who may be organised on cooperative basis, wherever possible. But where such initiative and enterprise are not forthcoming and the development cannot be allowed to suffer, the State Governments should be prepared to set up pilot and demonstration plants as well as regular industries. These can be handed over later to private investors or cooperatives.

Outlay:

10. A total outlay of Rs.370 crores in the public sector has been suggested for the development of village and small industries. Distribution of the total outlay as between different small industries and as between the Centre and the States and Union Territories is indicated below, along with the corresponding likely expenditure under the Third Plan:-

Industry	(Rs. crores)				
	Third Plan Estimated expenditure	Centre	Centrally sponsored	States & Union Terri- tories	Total
1. Handlooms	26.43	5.0	-	37.0	65.0
2. Powerlooms			-	23.0	
3. Khadi	90.05	60.0	-	5.0	105.0
4. Village Industries		40.0	-		
5. Sericulture	5.30	2.0	-	11.0	13.0
6. Coir	1.84	1.5	-	2.5	4.0
7. Handicrafts	4.51	8.0	-	10.0	18.0
8. Small scale industries	62.67	35.0	-	85.0	120.0
9. Industrial estates	23.35	-	-	25.0	25.0
10. Rural Industries Projects	5.41	-	20.0	-	20.0
	<u>219.56</u>	<u>151.5</u>	<u>20.0</u>	<u>198.5</u>	<u>370.0</u>

Some adjustments in these allocations for different industries and as between the Centre and the States may have to be considered.

The proposed provision of Rs.370 crores is exclusive of the outlays made for the development of these industries in the programme for community development, rehabilitation of displaced persons and development of special areas. Further, about Rs.400 crores are expected to be invested from private sources including banking institutions.

-/-

Thus, a total outlay of about Rs.800 crores would be available for small industries under the Fourth Plan.

Programmes of development:

11. In formulating programme for the development of different industries, special attention will be given to the following aspects:

- (i) Finance: Proposals are under consideration for providing credit facilities on a larger scale to small industries as well as industrial cooperatives for rehabilitation and modernisation of equipment and for working capital, particularly from the institutional agencies. Suitable steps would also be taken to expedite sanction of loans under the State Aid to Industries Acts/Rules.
- (ii) Technical improvements and research: Greater attention would be given to the facilities for research and improving the techniques of production. With a view to identifying industrial fields and processes which are suitable for reservation for small industry, evolving appropriate technology for small-scale operations and designing improved tools, it is proposed to set up a National Institute of Technology for small industries. It is contemplated that apart from technical improvements and research that it may have to undertake on its own, the institute would also draw upon the experience available in industry as well as the existing research institutions, both within the country and abroad.
- (iii) Supply of raw materials: A special committee was set up in August 1964 to examine the distribution of the scarce raw materials among the large, medium and small scale industries. Most of its recommendations have been accepted by Government. It has recommended that the scarce raw materials, imported as well as indigenous, should be equitably distributed without reference to the sector to which the units belong to, subject only to the overall national priorities of their end products. Suitable steps will be taken for supply and proper utilisation of scarce raw materials in the light of the committee's recommendations.
- (iv) Training, management and marketing: The programme for the development of different small industries will be given support through expansion of training programmes in production methods, business management, salesmanship and market analysis. Under the Government's stores purchase programme, the existing policy of considering price preference in respect of tenders from small units will be continued. Suitable measures will be taken to expand further the sphere of purchases from small industries. It is proposed to set up a few departmental stores to assist small industries in the marketing of their products. For this purpose, a provision of Rs.5 crores is proposed to be made available out of the total proposed provision for the General programmes.

- (v) Preparatory and processing facilities: With a view to promoting industries in the 'growth centres', steps will be taken to organise preparatory and processing facilities for different industries, preferably on a cooperative basis.
- (vi) Decentralised manufacture of equipment: Manufacture of small machines or tools required by small industries, particularly agro-industries, will be undertaken, to the extent possible, on a decentralised basis.
- (vii) Exports: Besides taking suitable steps to further expand the export of handicrafts, handloom cloth, silk and coir products, special measures would be evolved for encouraging the exports of the products of modern small-scale industries.
- (viii) Industrial cooperatives: Steps will be taken to accelerate the growth of industrial cooperatives in the light of the recent resolution of Government on the subject. Further, efforts will be made to liquidate such of the dormant societies as are not fit to be revived and to revitalise the others.

12. Much preliminary work has been already done, and detailed development programmes for different industries will be formulated by the Boards and the State Governments shortly. However, the tentative targets and some of the more important aspects of the programmes as envisaged at present are briefly outlined below:

Industry	Unit	Third Plan		Fourth Plan	
		Targets	Likely achievements	Tentative targets	
1.	2.	3.	4.	5.	
(1) Handlooms, Powerlooms and Khadi	Production (million metres)	3,185	3,146	4,572	
	Exports (Rs. crores)	..	12.0*	30.0*	
(2) Sericulture (raw silk)	Production (million Kgs.)	2,30	2.15	3.1	
	Exports (Rs. crores)	..	2.8@	7.0@	
(3) Coir	Exports (Rs. crores)	..	12.0	25.0*	
(4) Handicrafts	Exports (Rs. crores)	..	27.0	52.0	
	Internal sales through public emporia (Rs. crores)	..	3.5	7.0 to 8.0	
(5) Industrial estates	No. of new estates	300	231	250**	

* Figures of exports pertain to handloom products only.

@ Figures of exports pertain to silk fabrics and silk waste.

** Including cooperative industrial estates.

Handloom and powerloom industries

13. Of the total production target of 10,050 million metres of cloth proposed for the last year of the Fourth Plan period, the share of the decentralized sector, namely, the handloom, powerloom and khadi industries, has been tentatively fixed at 4,572 million metres, as compared to the current output estimated at about 3,146 million metres. No precise allocation of output as between the different sections of the sector has been made. The position is proposed to be reviewed from time to time in the light of the progress made in each sector. It is proposed to set up several new cooperative spinning mills, with 25,000 spindles each. However, higher priority will be accorded to the schemes for expansion to 25,000 spindles of the existing cooperative spinning mills, over the schemes for establishment of new spinning mills. It is proposed to bring within the cooperative fold about 5,000 wool weavers and 10,000 silk weavers. In pursuance of the recommendations of the Powerloom Enquiry Committee, it is proposed to instal one lakh powerlooms; preference will be given to the existing weavers to convert their handlooms into powerlooms.

Khadi and village Industries:

14. The main objectives of the programmes for the development of khadi and village industries will be to organise ~~maximum~~ utilisation of local resources and promoting maximum local consumption so as to absorb a larger number of traditional artisans into the schemes of development through improvement in technology and to increase the levels of production as well as earnings. While the programme for expansion of the traditional charkhas will be continued, a new six-spindle charkha has been developed and put to trial with a view to assessing its likely impact on productivity, earnings, marketing and employment. After its success has been proved, the adequacy of the provision for khadi would be reviewed. The Ambar Charkhas, as and when they become unserviceable, might also be replaced by the new charkhas.

15. It is proposed to introduce certain improved equipment in village industries so as to increase their productivity including processing of cereals and pulses, oil, leather, gur and khandsari, matches, non-edible oils and soap, pottery and fibre. Separate production targets will be fixed in respect of all these village industries falling within the purview of the Khadi and Village Industries Commission. Certain proposals for enabling some of them to meet competition from large industries are under consideration. The development programmes are proposed to be implemented in close collaboration with the Panchayati Raj Institutions.

16. The progress of the programmes for both khadi and village industries is being reviewed by a special committee. It has been set up to make recommendations for strengthening and expanding these industries and also to suggest structural or constitutional changes for bringing about better coordination between the Khadi and Village Industries Commission and the State Boards in the context of the programmes envisaged under the Fourth Plan.

Sericulture:

17. The principal aim of the programmes will be to attain self-sufficiency in regard to the requirements of quality silk through increased productivity and to reduce cost of production through rationalisation of production techniques so as to expand exports. The proposed production target of 3.1 million kgs. by the end of the Fourth Plan is expected to enable the industry to do without imports of raw silk, which are currently estimated at about 50,000 kgs per annum.

Coir industry:

13. The main emphasis of the programme for the development of the coir industry would be to maintain and improve on the existing levels of exports of all coir products, including coir fibre, curled fibre and rubberised coir so that the level of employment is maintained. For this purpose, and also in view of the competition from other cheaper floor coverings particularly in export markets, product diversification as well as improvements in the techniques of spinning, designing, weaving, dyeing, bleaching, and finishing, will receive special attention along with standardisation of quality and pre-shipment inspection. Further, coir cooperatives would be strengthened by making available to them adequate finance and by ensuring efficient supervision.

Handicrafts:

19. Emphasis will be mainly on schemes for preservation of skills, planned organisation of production including quality control, improvement in designs, expansion of exports as well as internal sales, improvement in productivity through supply of better tools and advanced training and promotion, organisation and strengthening of cooperatives of craftsmen and associations of manufacturers, dealers and exporters.

Small scale industries and industrial estates:

20. The principal aims for the development of small scale industries would be to consolidate the progress already accomplished and to ensure further accelerated growth of these industries in coordination with the programmes for increased agricultural production as well as development of large-scale industries. Several suggestions for ensuring co-ordinated growth of small scale and large scale

units e.g., reservation of the capacity in certain industries for the small scale sector, discouraging the manufacture of the parts and components required by large undertakings which are capable of being produced in the small scale sector, and dispersal of industries are under consideration.

21. The approach will broadly be to concentrate efforts on promotion, in small towns and promising rural areas, of those small industries which are not dependent on scarce raw materials. For this purpose, it is proposed to reorient and strengthen the Central Small Industries Organisation including the Small Industries Service Institutes, the Small Industries Corporations in the States and also to arrange for expansion of essential facilities and services in small towns for training, common service facilities, factory accommodation and credit. Besides the establishment of small workshops in suitable rural areas to provide essential service and repair facilities, it is also proposed to organise larger supply of machines on hire-purchase terms in small towns.

22. It is proposed to establish trade centres in large cities to exhibit the products of small scale industries and to arrange for execution of orders. With a view to assisting engineers and other technically qualified persons to set up their own industries, it is proposed to earmark Rs.10 crores for giving assistance to them in the form of provision of factory accommodation, machines on hire-purchase terms or working capital. It is also proposed to supplement the provision made under the head Industries & Minerals for establishment of Area Development Corporations and Industrial Development Corporations, by about Rs.20 crores so as

to promote in selected areas the development of small scale industries along with medium-sized industries.

23. Vigorous efforts will have to be made by the public sector undertakings to promote the growth and development of small ancillary units for meeting their requirements of suitable parts and components. The management of public sector undertakings will have to have close liaison with the Central Small Industries Organisation and States Directorates of Industries. Along with such an effort in the public sector, a similar effort in the private sector will be made.

24. In the vicinity of large cities and towns, it is proposed to provide developed sites on lease hold terms to cooperatives and joint stock companies of small entrepreneurs on which they could construct their own factory buildings. Further, the State Governments will set up common facility centres, raw materials depots and quality-marking centres. In small towns and suitable rural areas, including 'growth centres', the programme for setting up a limited number of industrial estates complete with factory premises, will be continued. Where necessary, the State Governments would coordinate their schemes in the field of housing, or technical education, with the schemes for such industrial estates. It is desirable that handicrafts artisans are also provided suitable accommodation in such estates. However, it is essential that selection of location for both developed sites and industrial estates is preceded by intensive economic surveys. This will indicate whether conditions exist for their successful establishment and functioning and ensure that all the basic facilities are provided to the units so that there are no delays in their going

into production after completion of the factory buildings. New industrial units in the public sector would arrange for establishment of ancillary industrial estates in the vicinity.

Rural Industries Projects:

25. The Rural Industries Projects referred to earlier, have been taken up in selected rural areas in different States so that effective techniques, methods and programmes for promotion of industries based largely on agriculture and local resources could be evolved and extended progressively, in the first place, to other areas having a larger incidence of un-employment and under-employment. The size and the content of the future programme of the Projects will be decided in the light of the findings and conclusions of a Study Team, which has already been set up to evaluate the progress of these Projects.

Employment:

26. On the basis of the total investment envisaged under the Fourth Plan including the outlay in the public sector and investment from private sources, it is estimated that the development programmes in the village and small industries will provide part-time employment or fuller employment for about 11 million persons and whole-time employment for about 16 lakh persons.

Statistics:

27. Statistical data relating to small industries have been collected for certain States and also in respect of some industries. But data have not been collected for all small industries on a uniform basis for the country as a whole. A proposal is now under consideration to organise on an all-India

basis ...

basis collection of the data of all small factories including the non-household units which are not covered under the Factories Act.

28. The programmes for the development of different small industries are expected to accelerate the production of a large variety of consumer goods and simple producers' goods, to generate additional whole-time employment for about 16 lakhs persons and also to earn foreign exchange of the order of about Rs.114 crores in the last year of the Fourth Plan period. If the policy of decentralised growth of selected industrial activities and ensuring a coordinated development of small and large industries is implemented effectively and the small industries' sector is supported with a fair share of the supply of scarce raw materials, finance, marketing and technical assistance, the annual average rate of growth of the sector could be expected to be almost doubled over the Fourth Plan period.

INDUSTRIES & MINERALS

I. Review of programmes in the Third Plan

The industrial programme for the Third Plan was formulated keeping in view the need to lay the foundation for a rapid industrialisation over the next plan periods on a sustained basis and with increasing independence of outside aid. From this point of view, the establishment of basic capital and producer goods industries, with emphasis on machine building programmes and the acquisition of related skills, technical know and designing capacity, were accorded a prominent place in the Third Plan. It was envisaged that with the fulfilment of this programme, a considerable degree of self-reliance would be achieved in providing the capital equipment and material inputs needed for the growth in vital sectors of the economy like agriculture, electric power, railways and motor transport. It was also intended that the development of heavy engineering and machine building industries would provide a part of the capital equipment required for further industrial growth from within the country, thus obviating to that extent the need for imported equipment. In short, the industrial programme was expected to strengthen the industrial base and make a significant advance towards the creation of a modern self-reliant industrial structure.

2. These expectations have been largely fulfilled. Notwithstanding the strains in the economy and the delays and difficulties in the execution of projects in the public and private sector, the progress made in the Third Plan is substantial.

3. Except for 1965-66, which was characterised by a severe

shortage of raw materials owing to import restrictions, the industrial output increased steadily at the rate of 7 to 8 per cent. The actual increase stood at 7 per cent in 1961-62, 7.7 per cent in 1962-63, 8.5 per cent in 1963-64, 7 per cent in 1964-65 and about 4 per cent in 1965-66. This is lower than the average rate of 11 per cent visualised in the Third Plan. But fact is that the growth in output in the producer and basic industries has been of appreciably larger order as compared to the general index of industrial production. Thus, for example, the increase in output during 1961-65 was 71 per cent in electrical machinery, 82 per cent in non-electrical machinery, 57 per cent in metal products, 59 per cent in transport equipment, 49 per cent in basic metals, 48 per cent in petroleum products and 38 per cent in chemical and chemical products. On the other hand, during the same period, the increase in sugar and textiles was only 13 and 20 per cent respectively.

4. In more concrete terms, the capacity and/or production targets visualised for several industries have been fully or nearly realised. Among these industries are aluminium, petroleum products, automobiles, ball and roller bearings, electric transformers, machine tools, textile machinery, power driven pumps and diesel engines, jute textiles and sugar. In certain other important industries like steel, fertilisers and cement the targets are expected to be reached early in the Fourth Plan period. Shortfalls in relation to targets in some industries were in fact anticipated at the stage of the formulation of the Third Plan in view of the uncertainties and delays in tying up foreign exchange and the relatively long gestation periods in heavy industries. The actual performance in the Third Plan has, therefore, to be viewed against these anticipations.

5. Significant addition to capacity was made in several major industries. In the field of capital equipment, adequate potential has been created in the manufacture of electrical, transport, metallurgical and mining equipment. In the near future, the further growth in electrical power, railways, motor transport, communications, steel, coal and iron ore can be sustained largely through machinery produced in the country. Machinery capacity for a variety of traditional industries like textiles, paper and cement has been satisfactorily developed. Capacity in several producer goods industries like steel, aluminium, cement and fertilisers has been stepped up and many new projects undertaken for implementation. Design and engineering capacities have been expanded and process technology acquired or developed to enable the planning, designing and construction of industrial projects with maximum indigenous effort. A more detailed review of achievements in individual sectors is given in the following paragraphs.

6. The production of steel ingots increased from 3.4 million tonnes in 1960-61 to 6.2 million tonnes in 1965-66. The expansion of the Bhilai Steel Plant from 1 million tonnes to 2.5 million tonnes ingots has been completed. The current expansion programme of Durgapur and Rourkela from 1 million tonnes ingots each to 1.6 million and 1.8 million tonnes ingots respectively is, however, likely to take a longer time and are now expected to be completed only by 1967-68. Actual production of steel will be considerably less than the production target primarily due to delay in taking up Bokaro and also due to delays in tying up of foreign assistance for some of the expansion programmes. As a result the increased output from the expansions will be obtained only in the early years

of the Fifth Plan. In the case of alloy steel, Durgapur plant could not be commissioned by 1965-66 as envisaged. The schemes which were approved in the private sector also did not make progress or got delayed. The production of alloy tool and special steel will improve substantially by 1967-68 with the completion of the Durgapur Plant and the changeover scheme of Bhadravati Steel Works to tool and alloy steel.

7. Production from public sector projects in the field of machine building and heavy engineering industries increased substantially. The Heavy Electrical Plant, Bhopal, achieved a saleable production of more than Rs. 10 crores annually by the end of the Third Plan period. Production of motors at Hardwar has commenced; that of turbo sets is likely to begin shortly. The Ramachandrapuram Heavy Electrical Plant and the Tiruchirapalli boiler factory have gone into initial production. Progress was made at the plants being established by the Heavy Engineering Corporation at Ranchi and by the Mining and Allied Machinery Corporation at Durgapur, and production has commenced in some departments of the heavy machine building and coal mining machinery projects. The Heavy Machine Tool Plant at Ranchi is expected to be commissioned in 1967-68. Three units of Hindustan Machine Tools were commissioned at Pinjore, Kalamassery and Hyderabad in 1963-64 and 1965 respectively. Hindustan Machine Tools now accounts for about half the production of machine tools in the country.

8. Improvement in production was achieved by other public sector units such as Hindustan Teleprinters, Hindustan Cables, Indian Telephone Industries and Bharat Electronics. The surgical instrument factory at Madras went into production in 1965-66. The precision

instruments factories at Kotah and Palghat are under construction. They are expected to be completed by the middle of 1967 and 1968 respectively.

9. The private sector units recorded substantial progress, particularly in the fields of aluminium, machine tools, earth moving equipment, tractors, cranes and structurals, steel castings and forgings, ball and roller bearings, heavy mechanical handling equipment plant and machinery for cement, sugar, paper and paper pulp, transformers, motors and switchgears and a number of other items.

10. Fertiliser production ^{programme} has fallen behind the schedule. The capacity planned in the public sector was about 640,000 tonnes of nitrogen. The private sector was expected to contribute the balance of capacity to reach the original target of 1 million tonnes. The public sector programme was taken up in full. But two of the projects at Gorakhpur and Namrup which were originally visualised to be completed during the Third Plan period will now be commissioned only by 1967-68. In the private sector, there was no significant addition to capacity during the plan period; two projects at Vishakapatnam and Baroda are, however, under construction. Several other projects approved in the private sector have either been abandoned or are still in the initial stages. For these reasons, the capacity achieved was short of 600,000 tonnes at the end of 1965-66.

11. The actual production was still less; it was 230,000 tonnes against the target of 800,000 tonnes (revised to 500,000 tonnes at the time of the

[factory and Mid-term Appraisal). The difference between the capacity at the end of power shortage which effected Third Plan period and the actual production achieved in 1965-66 was the output of some of the fertiliser primarily due to inadequate gas availability for the Rourkela fertiliser factories. Furthermore, some of the projects went into production only during the course of 1965-66 and did not make appreciable contribution to production during the year.

12. The expansion in capacity achieved in the cement and rayon

industries is substantial though below the targets. The cement capacity and production increased from 9.4 and 8.0 million tonnes in 1960-61 to 12 and 10.3 million tonnes respectively in 1965-66. The production of cement has, however, been considerably short of demand. Various steps have been initiated for adding to cement capacity at an accelerated pace. In the case of paper and newsprint, the production increased from 350,000 tonnes and 23,000 tonnes to 550,000 tonnes and 30,000 tonnes respectively. Production of paper has fallen short of the target envisaged. But the supply was adequate in relation to demand which did not increase at the rate as originally estimated. The production of newsprint was, however, considerably short of requirements, and in spite of foreign exchange shortage substantial imports had to be resorted to. The only major scheme for increasing newsprint capacity actually under implementation at the end of the Third Plan period is the expansion of NEPA Mills to 75,000 tonnes; the expanded capacity is expected to be realised during 1967-68.

13. The target for sugar at 3.5 million tonnes was achieved by 1965-66. A significant development during recent years has been the substantial contribution of the cooperative sector to the increased capacity. Out of the capacity of 3.2 million tonnes at the end of 1965-66, the share of the cooperative sector is now 0.76 million tonnes.

14. The production of heavy chemicals such as sulphuric acid, soda ash showed a substantial increase. The production levels were however, below the targets envisaged in the Third Plan. In the case of sulphuric acid, shortfall was primarily on account of the lower level of consumption in the fertiliser industry. As the fertiliser industry is the single largest consumer of sulphuric acid, the shortfall in fertiliser production had correspondingly led to a lower production and consumption of sulphuric acid. There will be shortfall in the caustic soda and soda ash targets also, and the goal of self-sufficiency postulated in the Third Plan is now expected to be reached only after a year or two.

15. Consequent on the shortfalls in the coal consuming sectors, there was a cut-back on production and a slowing down in the coal development programme during the latter half of the Third Plan. Against the target of 98.6 million tonnes (revised to 90 million tonnes at the time of the Mid-term Appraisal), production reached a level of about 70 million tonnes in 1965-66 though the capacity was somewhat larger. Even at this level of production, however, the requirements were adequately met. The programme for expanding the refining capacity from 6 million tonnes in 1960-61 to 11 million tonnes in 1965-66 as embodied in the Third Plan document was reviewed subsequently. It was decided to take up an expanded programme to increase the capacity to 17.25 million tonnes. This capacity was expected to be realised in the early years of the Fourth Plan. The actual capacity realised at the end of the Third Plan is about 11 million tonnes. The remaining programme is under implementation.

16. The first step towards the establishment of an economically viable petro-chemical industry was taken during this period. The large petro-chemical complexes at Bombay currently under implementation are expected to make significant contribution to the production of a variety of petro-chemicals in the early years of the Fourth Plan period. Detailed studies on a large complex at Koyali are in hand. The development of these petro-chemical complexes would make it possible to bring down the cost of production of plastics, synthetic fibres and synthetic rubber.

17. In the field of drugs and pharmaceuticals, the major

developments comprise the expansion of Pimpri factory and the construction of the antibiotics plant at Rishikesh and synthetic drugs factory at Hyderabad. With the completion of this programme, during 1966-67 the country will be more or less self-sufficient with regard to antibiotic and other essential drugs.

18. The overall financial outlay in organised industries and mining during the Third Plan period is now placed at about Rs. 13000 crores of which the outlay in the public sector is at about Rs. 1700 crores and that in the private sector Rs. 1300 crores. This is somewhat higher than the outlay of Rs. 2720 crores - Rs. 1520 crores in the public sector and Rs. 1200 crores in the private sector -- originally envisaged in the Third Plan. The monetary outlay, however, does not represent the full physical accomplishments. This is so because the cost estimates of projects have gone up for various reasons and the commissioning of projects has taken longer time than originally provided for. Among other things, the restricted choice in the procurement of imported capital equipment against "tied" credits has been a factor contributing to the upward revision of project costs. The time involved in negotiating foreign loans has similarly led to appreciable delays in the implementation of projects. While some of these elements accounting for delays and cost escalations are beyond control, greater attention to pre-planning and a vigorous discipline of cost control are clearly called for.

II Fourth Five Year Plan

Industries

19. Objectives and overall approach: The broad objective of industrial development during the Fourth Plan is on the one hand, to provide for an adequate expansion in the supply of consumer goods, primarily those which cater to the needs of mass of the people, and on the other, to expand the basic and heavy industries supplying the capital goods and intermediate goods at a rapid pace so as to achieve the goal of self-reliance as early as possible. Furthermore, the industrial programme should provide, in accordance with the high priority attached to agriculture, the expansion of capacity in industries which provide the industrial inputs to agriculture.
20. Foreign exchange will continue to be an over-riding constraint during the Fourth Plan period. A careful review has been made of the existing gaps in the industrial structure. The outlay on industries, especially in the public sector, is designed in the main to make up these deficiencies and to provide for the widest possible measure of import substitution. Devaluation of the rupee has further strengthened the need for, and at the same time opened up possibilities of import substitution on an extended scale. Concurrently it is also necessary to build up capacity in selected industries to sustain an expanding export trade.
21. The efforts towards achieving a measure of self-reliance in basic industrial items and capital goods have to be supplemented by a parallel progress towards developing indigenous design,

engineering skills and knowhow. Some progress has been achieved by developing a number of design and consultancy organisations both in the public and private sectors such as in the field of iron and steel, mining and fertilisers. The Technical Consultancy Bureau of the N.I.D.C. has also built up technological experience and skills in different fields of industrial enterprise. These organisations will have to be strengthened, and their scope enlarged. It will be the policy as a general rule to utilise the technical consultancy services built up indigenously in both public and private enterprises to the maximum and to avail of such services from abroad only when unavoidable. The measures required to give a practical shape to this policy are currently under examination.

22. The research and design work of the Council of Scientific and Industrial Research will be directed more towards applied research, closer contacts with the industry and commercial exploitation with minimum time lag by filling the gap between the development of process and carrying out of pilot and commercial prototype studies.

23. The industrial programme for the Fourth Plan has to keep in view the objectives of development of backward regions and dispersal of industries with due regard to technical and economic considerations. The specific measures required to promote these objectives are being considered.

24. In our mixed economy, the private sector has a large role to play. The realisation of targets over the entire range of

industries is to a considerable extent dependent on the volition and initiative of the private sector. In view of the uncertainty inherent in such a situation, it becomes necessary to distinguish the more important targets and programmes which have a vital bearing on the development of the economy and treat them as definite and firm targets to be realised without default. To this end, it will be necessary to keep the private sector programmes in selected industries under constant review and to take appropriate measures to ensure their implementation. An important measure would be to guide and channelise the assistance by financial institutions in accordance with the priorities of private sector programmes as indicated in the Plan. Other measures will be spelt out in the final Plan document. In respect of the remaining industries, the targets are to be regarded at this stage as indicative and flexible.

Policy and Priorities

25. The policy in the Fourth Plan will continue to be based on the Industrial Policy ~~Resolution~~ of April 1956. The role of the public and private sector will continue to be guided by the schedule of industries in the ~~Resolution~~. Industries of basic and strategic importance will be in the public sector and its predominant role will be maintained and further strengthened. The private sector is also expected to expand and increase its activities in the spheres allotted to it.

26. The industrial programme reflects the broad objectives

and priorities of the Fourth Plan. In accordance with the emphasis laid on agricultural production, the goal of self-reliance and adequate supplies of essential consumer goods, the following industries have been accorded priority :

- (a) Industrial inputs for agriculture : These include fertilizers, pesticides, farm equipment and other material inputs.
- (b) Metals and Machine building industries : These include steel, aluminium, zinc, machinery and machine building industries of all types.
- (c) Intermediate goods: Including industrial chemicals, petroleum, coal, iron and steel castings and forgings, refractories and cement.
- (d) Industries which produce essential consumer goods such as sugar, cloth and kerosene.

27. Within this broad framework, acceleration of industrial growth and the optimum use of investment resources are sought to be achieved on the basis of the following guidelines:

- (i) Fuller utilisation of existing capacity through appropriate balancing investment;
- (ii) Early completion of projects carried over from the Third Plan;
- (iii) Expansion of existing units, wherever it is not inconsistent with accepted social policy, in preference to the establishment of new units with a view to securing additional capacity more expeditiously and with lesser investment.

Investment

28. The new investment in organised industry and mining is Rs. ~~6125~~ crores. Of this amount Rs. 3543 crores will be in the public sector and Rs. ~~2640~~ crores in the private sector. The table below

presents the distribution of investment outlays between the public and private sectors and under selected groups of industries.

Distribution of fixed investment outlay - 1966-71

(Rs. Crores)					
	Total	Public Sector			Private Sector
		Centre	State	Total	
A. <u>Manufacturing Industry</u>					
1. Metals	2040	1625	35	1660	380
2. Machinery and engineering industries	792	332	10	342	450
3. Fertilisers & Pesticides	493	268	5	273	220
4. Intermediate goods	950	290	20	310	640
5. Consumer goods	722	52	30	82	640
6. Miscellaneous	265	25	20	45	220
	<u>5862</u>	<u>2592</u>	<u>120</u>	<u>2712</u>	<u>3150</u>
B. Mining, mineral oil & related developments					
	991	876	15	891	100
Grand Total	<u>6193</u>	<u>3408</u>	<u>135</u>	<u>3543</u>	<u>2650</u>

29. The public sector investment programme based on cost estimates of individual projects and represented in the statement above involves an investment of Rs.3603 crores. It is, however, proposed to secure a saving of Rs.60 crores through a rigorous examination of possible economies in construction; the actual investment postulated in the public sector has been therefore put at Rs.3543 crores. The measures required to bring about the necessary economies in construction are under examination.

-/-

30. Provision has been made in the public sector to the extent of Rs.393 crores for assistance to institutional financial agencies (Rs.300 crores), state financial and industrial development corporations (Rs.50 crores), assistance to plantation industries (Rs.31 crores), and for expenditure on institutions such as the Indian Standards Institution (Rs.3 crores), National Productivity Council (Rs.3 crores) and Design Institutes (Rs.3 crores) and for the introduction of the metric system (Rs.3 crores). The total provision made in the public sector is thus Rs.3936 crores.

31. Broadly speaking, the distribution of the investment in organised industries and mining between the public and private sector follows the trend in the Second and Third Plan periods.

The proportion of investment in public sector to total investment in the industrial and mineral sector will be about 57 per cent in the Fourth Plan as compared to 55 per cent in the Second and 57 per cent in the Third Plan periods.

32. The investment in the private sector represents broadly the new fixed investment corresponding to the additional capacities visualised for development in that sector during the Fourth Plan period. In addition an amount of about Rs.170 crores for replacement in cotton textile, jute textile and woollen textile industries will be necessary. Though the backlog of replacements in these industries is substantial, the limitation of resources may not allow a much larger programme of modernisation. In other traditional industries like sugar and paper also, substantial replacement will be necessary.

33. The estimates of investment in the public sector are based on the information available on specific projects. Detailed studies on some of these projects are yet to be completed. The investment

estimates of these projects might therefore require modification, apart from any changes resulting from a rise in prices during the course of execution as compared to those at the time of the preparation of the different projects.

34. As the need and possibilities of additional projects emerge during the execution of the Plan, it will be necessary to take up detailed project studies on them. A lump-sum provision of Rs.10 crores has been made for such studies.

35. The foreign exchange requirements are estimated at about Rs.2230 crores, made up of Rs.1320 crores in the public sector and Rs.910 crores in the private sector. The contribution from additional output of machinery from within the country has been taken into account in estimating the foreign exchange requirements.

Central Public Sector Programmes

36. The programmes in the central sector in the Fourth Plan consist of (i) projects under execution and carried over from the Third Plan; (ii) new projects for which external credits have been already arranged; (iii) new projects for which foreign assistance is under negotiation; (iv) new projects on which feasibility and techno-economic studies have been completed or are well in hand but no foreign credits have been arranged.

37. The list of projects included in the Central sector is shown in Annexure I. There are some industries in which a major role is assigned to the central public sector. Of these iron and steel, coal, industrial machinery including heavy electrical machinery, petroleum including refining, fertilizers, basic chemicals and essential drugs etc. are reviewed in a later section.

38. The industrial programmes included in the central sector

are, for the most part, in fields which would strengthen the economy and provide the sinews for accelerated development in future. These also represent a considerable effort in import substitution by providing the basic inputs for agriculture, health, transport, power and other sectors of the economy. A major advance in the direction of self-reliance will be achieved when the projects in the public sector are completed.

States Sector:

39. In the Fourth Plan an important role is envisaged for the State Governments in the matter of development of industries. They have a special responsibility in respect of developing new "growth" centres through the setting up of industrial areas; promotion of industrial ventures with assistance from industrial development corporations; development of cooperative industrial enterprises in cotton spinning, sugar and other agricultural processing industries. The discussions with the State Governments on the specific programmes for the Fourth Plan are yet to be held. Tentatively an amount of Rs. 185 crores is indicated for the industrial and mineral programmes of the State Governments. As the bulk of this amount will be utilised in promotional activities of the state industrial development corporations, it will catalyse industrial investments of an order substantially higher than the actual provisions in the State plans.

Private Sector

40. Within the framework of overall physical targets and the fixed investment outlay envisaged for it at Rs. 2650 crores, there is a wide field open for the operation of private enterprise. The investment pattern envisaged a sizeable inflow of private sector resources in the field of consumer goods, intermediate goods, machinery,

fertilisers and metals. Investment programme/visualised in the private sector have been indicated in paragraph 28.

41. Annexure II shows the targets proposed for various industries under the Fourth Plan. These are over-all targets for both public and private sectors. For engineering industries, the targets are based on utilisation of installed capacity on double shift operation. In several important industries like aluminium, electrical equipment, industrial machinery, fertilisers, heavy chemicals, cement, paper and textiles, the additional capacity visualised has already been fully or substantially covered by industrial licenses or letters of intent.

42. Within the private sector programme, it will be necessary to ensure the fulfilment of the targets in the more basic industries and positive measures to this effect will have to be taken. The licensing policy will have to be oriented generally to bring about the establishment of economic units and to achieve a healthy trend in the cost of production. This is particularly relevant in relation to export oriented industries. In the context of the special effort required on the export front, industrial units with record or potentiality of export performance will receive preference in licensing additional capacity.

Financing of private sector programmes

43. The new fixed investment envisaged for the private sector programme is Rs. 2650 crores in the industrial and mineral sector. A study of the resources available to the private sector indicates

that this order of investment might be feasible with the anticipated generation of internal resources within the corporate sector and a measure of support from the institutional agencies. It is broadly envisaged that the institutional financing agencies would have to provide a net amount of Rs. 450 crores (excluding external aid canalised through them) to the corporate and cooperative sector to implement a programme of this order. The outlay in the public sector makes provision for transfer of funds to the institutional agencies to the extent of about Rs. 500 crores in order to augment the resources available to these institutions to provide the necessary support to the private sector programmes. The inflow of foreign assistance from private and official sources to the private sector is estimated at Rs. 685 crores. These estimates are necessarily of a tentative character. But given the effort to tap the investible funds from all possible sources, it should be possible to achieve the financial programme envisaged for the private sector. To the extent there is any shortfall in the anticipated resources, institutional assistance will have to be selectively applied to ensure the achievement of the targets in the priority industries.

Main Features of the Industrial Programme:

44. Iron & Steel: The demand for finished steel and pig iron for sale by 1970-71 is estimated at about 10.5 million tonnes (inclusive of exports of about 0.5 million tonnes) and 6.0 million tonnes respectively. The corresponding requirements of steel

ingots will be about 14.0 million tonnes. Although a capacity of about 14.8 million ingot tonnes is aimed to be reached by the end of the Fourth Plan, the production is likely to be of the order of 11.7 million ingot tonnes or 8.8 million tonnes of finished steel. It will fall short of the demand throughout the Fourth Plan and up to the middle of the Fifth Plan.

45. Imports which are likely to continue at about a million tonnes for each of the first three years are expected, however, to rise during the last two years. Every effort will therefore have to be made to advance the completion of projects, whereby additional production could be secured and imports reduced. This would appear to apply particularly to the Durgapur plant expansion.

46. The long-term perspective of ensuring continued expansion of capacity during the subsequent plans is being kept in view. The development programme of the iron and steel industry envisaging optimum expansion of the existing plants both in the public and private sectors. Thus the steel plant at Bokaro, which is being set up with an initial capacity of 1.7 million tonnes of steel ingots and 880,000 tonnes of pig iron, is designed to be expanded to a capacity of 4 million tonnes in the Fifth Plan period with possible further expansion thereafter. The capacity targets as visualised at the different plants by the end of the Fourth Plan are indicated below:-

Project	Target capacity by the end of the Fourth Plan	
	Steel ingots (Million tonnes)	Pig iron for sale
<u>Public sector</u>		
1. Expansion II of Bhilai	3.2)	0.90
2. Expansion II of Durgapur	3.4)	
3. Expansion II of Rourkela	2.5	-
4. Bokaro	1.7	0.90
5. Mysore Iron & Steel Works *	-	0.10
6. Talcher complex	-	0.16
7. Pig iron plant at Barbil	-	0.10
Total	10.8	2.16
<u>Private sector</u>		
1. Tata Iron & Steel Co.	2.2)	0.30
2. Indian Iron & Steel Co.	1.3)	
3. Pig iron schemes in the private sector -		0.50 to 0.70
4. Electric furnaces	0.5	-
Total	4.0	0.80 to 1.00
GRAND TOTAL	14.8	2.96 to 3.16

* The entire production of Bhadravati steel plant will be converted to alloy & tool steel.

Besides, provision is being made for the preliminary work on

the steel and iron steel plants during the current Plan so that at least one of these nuclei could be progressed further to the stage of production by the middle of the next Plan period. The setting up of pig iron capacity of 168,000 tonnes (with low phosphorus content) at Talcher, including fertilizers and by-products, is also envisaged.

47. With regard to pig iron in private sector, credit has been taken only for 0.5 to 0.7 million tonnes capacity against total capacity of 2.0 million tonnes so far approved on the basis of a judgement as to likely materialisation. In order to maximise output from the existing and new iron and steel making facilities and to reduce production costs, increasing emphasis will be laid on applying improved technological practices. Measures will be taken to augment production of billets by electric furnace plants based on scrap.

48. Alloy and tool steel:- The demand for alloy and tool steel by 1970-71 is placed at 500,000 tonnes. In addition, the demand for electrical sheet steels and low alloy high strength steels has been placed at 150,000 tonnes and 100,000 tonnes respectively. These latter will be produced in the integrated steel plants. Capacity for dynamo grade electrical sheet steel at Tatas will be expanded from 24,000 tonnes to 42,000 tonnes. A capacity of 50,000 tonnes of hot rolled electric sheet steel is under construction at Rourkela. The production of cold rolled grain oriented sheets for transformers is also being planned. It is proposed to take full advantage of the built-in capacity in the Durgapur plant and treble its capacity to 180,000 tonnes of finished tool and alloy steel. On completion of the changeover of the Bhadravati plant to alloy and tool steel with a capacity of 74,000 tonnes, a total capacity of 254,000 tonnes will materialise in the public sector. Currently, tool, alloy and special steels schemes in private sector, which are in varying stages of development, aggregate to 441,000 tonnes as under:

a) In production	23,000 tonnes
b) Under implementation	38,600 "
c) Licensed	159,000 "
d) Letters of intent granted	217,400 "

Together with the public sector projects, a capacity of about 460,000 tonnes is likely to materialise by the end of the Fourth Plan, leaving some gap particularly in constructional steels. This could be met through production of spring steels and free cutting steels by steel plants and by diversion of electric furnace capacity freed from this production to the production of higher alloy items. It is, therefore, expected that imports of special steels currently at about 150,000 tonnes may be more or less eliminated by the end of the Fourth Plan. In view of the vital importance of tools and alloy steel to ~~machine~~-building industry and the long gestation period involved for reaching the rated production, the perspective growth of demand for tools and alloys steels rather than merely the needs of the Fourth Plan will be kept in view.

49. Aluminium: The demand target for aluminium as recommended by the Working Group was 240,000 tonnes for 1970-71. However, it had not taken into account fully the substitution of aluminium for electrical industries and other uses and export possibilities. The production target has, therefore, been revised to 330,000 tonnes keeping in view the increased necessity of substitution of other non-ferrous metals by aluminium. The public sector schemes included in the Fourth Plan are the Koyna aluminium project with a capacity of 50,000 tonnes and the Korba aluminium project with a capacity of 100,000 tonnes. The capacity envisaged in the private sector is about 245,000 tonnes with the main contributions being made by the Indian Aluminium Company and Hindustan Aluminium Corporation. It is expected that from 1969-70 we would be self-sufficient with regard to aluminium and may indeed be in a position to export some quantity of this metal, apart from exporting aluminium-based engineering items.

50. Copper:- The requirements of copper in 1970-71 were estimated earlier at 250,000 tonnes. In view of very high prices of copper combined with the difficult supply position, more concentrated efforts are envisaged towards its substitution and the demand is now estimated at about 180,000 tonnes by 1970-71. Capacity target for copper has been set at 37,500 tonnes per annum for 1970-71. This estimate includes the Khetri copper project of 21,000 tonnes and Indian Copper Corporation Project with the expanded capacity of 16,500 tonnes. A further capacity of 10,000 tonnes will be under implementation at Khetri based on the nearby Koliha deposits. Development of some of the other copper mines such as Rakha, Dariba and Agnigundala will be taken in hand on a priority basis.

51. Zinc:- The requirements of zinc in 1970-71 have been estimated at 117,000 tonnes. The indigenous production (on the basis of conversion of concentrates by Japan on toll basis) is estimated at 5,000 tonnes in 1965-66. The production of zinc in the country is likely to be stepped up to about 78,000 tonnes by 1970-71. This is expected to be secured through completion of the Zawar project (with a capacity of 18,000 tonnes) of the Metal Corporation of India, which has been recently taken over by Government, and a private sector unit at Kerala based on imported concentrates with a capacity of 20,000 tonnes in the initial stage proposed to be expanded to 60,000 tonnes. Work on expansion of the Zawar unit will also be taken up after preparation of the ^{report} project/which is in hand.

52. Machinery: Almost all the machinery and equipment for industrial development in the First Plan was imported. This brought into sharp focus the need for developing basic industries. Accordingly, the machine building and engineering industries were given

high priority during the Second and Third Plans, in order to provide a sound base for the production of a wide range of capital goods and intermediates. As a result, imports of a number of items of electrical and mechanical equipment and machinery are either no longer necessary now or have been reduced considerably. These include: electric motors below 200 HP, distribution transformers, L.T. switchgears, commercial vehicles and other automobiles, wagons, road rollers, textile machinery, sugar and cement machinery, industrial boilers, tea processing machinery, diesel engines, power driven pumps, ball bearings, mechanical handling equipment, telephone equipment and teleprinters.

53. In the field of heavy machine building, power generation equipment, diesel and electric locomotives, machinery for steel-making, coal and other mining and the production of instruments, large investments have been made during the Third Plan. However, the full rated production from some of these investments has not yet been attained. It will become progressively available only during the Fourth Plan period. These investments have brought within reach the goal of self-sustaining growth in several fields like power generation and transmission, transport, steel and coal-mining. As far machine tools, the production has quadrupled during the last Plan period. Since we started from a narrow base, these developments will fall short of our requirements and substantial imports of plant and machinery would still be required during the Fourth Plan period. While the level of imports of plant and machinery during the Fourth Plan may be of the same order as in the Third Plan, owing to the support that it will receive from indigenous capability, it would be able to

sustain a much larger development programme during the Fourth Plan period.

54. In this context and having in view the imperative need of stepping up exports, the Fourth Plan programme for machine building is designed to achieve the following aims:

(a) to reach the goal of self-sufficiency and develop a measure of export potentiality in respect of those industries which are well established, e.g., transformers, motors, electrical transmission equipment, pumps, diesel engines, commercial vehicles, wagons, industrial plants such as sugar and cement plants, textile machinery etc;

(b) to consolidate the position and establish a sound base for future expansion in respect of the heavy industries such as power generation, steel and mining equipment; and

(c) to fill the specific gaps in the spectrum of machine-building capacity, e.g., heavy pumps and compressors, heavy plate and vessels, seamless steel tubes, marine diesel engines and other ancillaries for ship-building, electronics, etc.

55. It is envisaged to step up the production of industrial machinery (i.e. excluding consumer durables like sewing machines and refrigerators) from an output of about Rs.500 crores a year at present to about Rs.1600 to Rs.1700 crores by the end of the Fourth Plan period. To match the increased capability of machine-building and to accelerate it, it is proposed to create, in the public sector, design cells for heavy electrical equipment, structurals, coal washeries, mechanical handling equipment and machine tools. Similar developments are envisaged in the private sector also.

56. Thermal and Hydro generating sets:- The electrical plants at Bhopal, Hardwar and Ramachandrapuram, currently under implementation, are rated for the following manufacturing capacities of turbo generating sets:

	Hydro (Million K.W.)	Thermal	Total
Bhopal	0.5	0.6	1.1
Hardwar	1.2	1.5	2.7
Hyderabad	-	0.8	0.8
Total:	<u>1.7</u>	<u>2.9</u>	<u>4.6</u>

These capacities are likely to be realised in the Fourth Plan. But the full rated production is expected to be achieved only towards the beginning of the Fifth Plan. From then onwards, it should be possible to sustain the entire growth of power of generation from the output of these plants. This will mark an important mile stone in the advance towards self-reliance. The output of these plants could be further stepped up by taking up the manufacture of bigger sets through rationalisation and addition of balancing equipment. A separate foundry forge plant to meet the requirements of these heavy electrical units has been taken up for implementation at Hardwar. It will have a capacity of 15,000 tonnes each of steel castings and forgings.

57. Power Boilers: The power boiler plant at Tiruchi is rated for a capacity of 0.75 million KW equivalent of steam. Along with a capacity of the AVB works at Durgapur of 0.35 million KW per annum, this aggregates to 1.1 million KW. The

Tiruchirapalli plant will also have a capacity of 1800 tonnes per annum of girder fittings. It is proposed to expand this plant during the Fourth Plan to about 1.5 million Kw. AVB Durgapur plant is also likely to be expanded to 0.5 million Kw. This will give a total capacity of 2.0 million Kw. Another project with an initial capacity of 1.0 million Kw equivalent of steam in the public sector ~~will~~ be initiated during the Fourth Plan. As in the case of thermal turbo sets, it is expected to reach self-sufficiency with regard to the associated power boilers also by the beginning of the Fifth Plan. The coal handling equipment for the power plants will be supplied either by the Mining & Allied Machinery Corporation or units in the private sector and the control panels by the Kotech unit of Instrumentation Ltd. This will fulfil the entire plant and machinery requirements for power development.

58. Transformers:- The capacity of 3 million KVA of power transformers, already set up at Bhopal will be further expanded to achieve an output of about 6 million KVA. The rest of the demand of about a million KVA of power transformers and 5.0 million KVA of distribution transformers, will be met from private sector units. There will be no need to import transformers during the Fourth Plan.

59. Electric motors:- The Bhopal and Hardwar plants are establishing facilities to manufacture large sized motors aggregating to about 740,000 kw. When the plants reach their rated capacity by the end of the Fourth Plan period, all the requirements of large sized electric motors of 200 HP and above will be met from these plants. The requirements of traction motors

has been placed at about 2,000 units of which 300 motors for A.C. freight locomotives will be manufactured at Chittaranjan and the rest at Heavy Electricals, Bhopal. The capacity for 800 motors set up at Bhopal will be doubled during the Fourth Plan. The production programme will keep in step with the programme of locomotive manufacture by the Railways.

60. Other Heavy Electrical Equipments:- Substantial output of capacitors, switchgears and control gear and the special transformers for A.C. freight locomotives will be available from Bhopal either through the capacity and complementation or through additions of balancing equipment. In view of the large demand for high tension switchgears of 100 KV and above, another unit in the public sector is being set up at Hyderabad. The power transmission requirements will be thus met largely from indigenous sources.

61. Steel & Metallurgical equipment:- The Heavy Machine building complex at Ranchi with a capacity of 80,000 tonnes of metallurgical and other heavy equipment is under construction. It is expected to be completed by 1967-68. The production has commenced in the Heavy Machine Building Plant (H.M.B.P.) and it is expected that production will be stepped up continuously, approaching by the end of the current Plan period a level close to the rated capacity. The foundry forge plant is designed to have adequate capacity to support the manufacturing programme of the H.M.B.P. as well as supply heavy castings and forgings to some of the other machinery manufacturers. It is likely to be completed but for 6,000 tonnes by the end of 1967. But full production will be achieved only in early Fifth Plan. A structural shop as an adjunct to the heavy machine building plant at Ranchi with a capacity of 25,000 tonnes of technological structurals

is under construction. Some capacity for metallurgical equipment will also be available in the private sector although the bulk of the contribution for mechanical equipment will be from the Heavy Engineering Complex (H.E.C.) and for the electrical equipment by the Heavy Electrical Units in the public sector. When in full production early in the Fifth Plan, these plants will be able to support expansion of steel capacity of over a million tonnes per year. There is near self-sufficiency is likely to be achieved by the end of the Fourth Plan with regard to equipment up to and including steel melt shop, the production of rolling mill equipment will come little later. In 1970-71, altogether, about 50 percent of the metallurgical equipment for new steel plants is likely to be supplied indigenously.

62. Mining Equipment:- No fresh capacity for underground mining equipment is contemplated. The Durgapur Mining & Allied Equipment Plant with a capacity of 45,000 tonnes along with the private sector projects would be adequate to meet such requirements in the Fourth Plan period. The capacity of the Durgapur plant is being diversified to include production of washeries and material handling equipment for other sectors also. So far as the requirements of iron ore and copper mining and beneficiation are concerned, these will be taken care of by the Durgapur plant with the help of supply of some of the items from the Heavy Engineering Complex and that of earth moving equipment etc., from other projects.

63. Fertilizer & Chemical Equipment:- The most serious gap in the machine building capacity during the Fourth Plan is likely to be in this field. The Heavy Plate & Vessels Project which was included in the Third Plan could not be implemented, as our efforts to attract suitable foreign collaboration did not succeed.

It is proposed to set up two heavy plate and vessels projects in the Fourth Plan period with a capacity of over 22,500 tonnes each, one of them oriented for fertilizer and chemical industry and the other oriented towards fabrication of equipment for refineries and related developments. When these units are developed towards the end of the Fourth Plan period, together with the capacity available elsewhere they would be able to cater to the bulk of requirements of plant and machinery for putting up steadily year after year two new fertilizer plants of standard size which the country would need to cope with the increasing requirements of fertilizers from the commencement of the Fifth Plan onwards. It would also enable the setting up of a refinery capacity of about 2.5 million tonnes a year based on indigenous supply of plant and machinery.

64. Machine Tools:- The output of Hindustan Machine Tools (H.M.T.) which was about Rs.15 crores in 1965-66 is envisaged to be stepped up to about Rs.40 crores in 1970-71. The Heavy Machine Tool Project of the Heavy Engineering Corporation Ltd. at Ranchi is estimated to produce about Rs.5 crores of machine tools in 1970-71. It is hoped that over Rs.5 crores of machine tools will be produced annually by Prags and Ash Math factories by that year. It is proposed to set up two projects, one for medium-heavy machine tools at Bhavnagar and another for grinding machines at Ajmer. These projects may together contribute about Rs.5 crores worth of machine tools in 1970-71. The output of machine tools in the public sector from all these projects will thus be stepped up to about Rs. 58 crores by the end of the Fourth Plan. A target of capacity of Rs.120 crores and of production of Rs.105 crores with a provision of Rs.10 crores worth of export by the end of the Fourth Plan has been assured for machine tools. As against the present indigenous production of 50 per cent of the demand for machine tools, it is expected that by the end of

the Fourth Plan period we would be meeting 75 per cent of a much larger demand. The private sector units existing or licensed are expected to produce about Rs.38 crores of machine tools, leaving a small gap of about Rs.12 crores. A machine tool design institute has been set up at Bangalore during the Third Plan. It is proposed to further expand and strengthen it during the Fourth Plan. It will assist the indigenous development of designs and testing of machine tools manufactured in the country.

65. Precision Instruments:- Two units in the public sector, one at Kotah in Rajasthan and the other at Palghat in Kerala, are under implementation. The Kotah unit will mainly produce electro-magnetic indicating instruments, electronic automatic indicating, recording and control instruments and transmitters and sensing elements. The Palghat unit will produce mechanical, hydraulic and pneumatic instruments such as for temperature indicating, controlling and recording, pressure and flow measuring, level measuring and mechanical, hydraulic and pneumatic controlling devices and ancillary equipment. The Kotah unit when in full production, by the end of the Fourth Plan, will produce instruments worth about Rs.11.5 crores. The full rated production of Palghat unit is about Rs.9.7 crores to be achieved in early Fifth Plan. Considerable development of capacity and production is also envisaged in the private sector. It is expected that by the end of the Fourth Plan period, 75 per cent of the requirements of all kinds of instruments and instrumentation may be met from the indigenous sources as against less than 50 per cent at the end of the Third Plan.

Electronics:

66. In view of the importance and the vital role of electronic industry in our progress towards industrialisations, the targets of demand and capacity covering the range of electronic field were gone into by the Electronics Committee. The recommendations made in the Report are being pursued. Action has already been initiated for the development of the electronic industry on a substantial scale. The major emphasis is on developing the requisite base for the manufacture of components. By producing standard components on a mass scale and by making them indigenously available at cheaper prices, development will be promoted in the subsidiary sectors like radio receivers, control instruments for industrial use, electro-medical appliances and research equipment. The developments in the public sector will include the setting up of the electronic instrument and component unit by the Atomic Energy Establishment at Hyderabad, a large variety of components and equipments for consumers and industries at Bharat Electronics and to some extent by the Indian Telephone Industries. There will be also a substantial development of the industry in the private sector. The production of radio receivers is being stepped up from less than 1.0 million to 3.0 million. Letters of intent have also been issued for the manufacture, based on indigenous know-how, of T.V. receivers totalling of 30,000. It is aimed to increase the capacity to sustain a level of production of Rs.150 crores by the end of the Fourth Plan against the present level of about Rs.30 crores.

Machinery inputs for agriculture

67. The main items of machinery falling in this category are; electric motors pumping sets, diesel engine pumping sets, tractors (crawler as well as wheeled type) and power tillers. The existing capacity with progressive expansions will adequately meet the requirements of both electric motor driven as well as diesel driven pumping sets. With regard to wheeled type tractors, a capacity of 30,000 against a demand of 40,000 by 1970-71 is under implementation. This would leave some gap in tractors of below 20 HP range. Measures are being taken to fill the gap. One unit in the public sector and two units in the private sector, with a total capacity of over 1,100 in different HP ranges have been licensed/letters of intent issued, for the manufacture of crawler tractors. Some more cases are under consideration. It is envisaged that by the end of the Fourth Plan or early Fifth Plan, the demand would be largely met from indigenous sources. A capacity of 8,000 power tillers has been licensed and letters of intent issued for additional 82,000. It may take some time before the demand and production built up. The industry is being kept under review.

Developments in engineering industries in private sectors:

68. A large scope for development remains open to the private sector also in the heavy engineering industries. These fields will include power boilers, industrial boilers, transformers (mainly distribution transformers), electric motors, switchgears

and control gears, coal mining equipment, drilling equipment, steel castings and forgings, grey iron and malleable iron castings, agricultural tractors, pumps, compressors, ball bearings, machine tools, structurals, mechanical handling equipment, construction machinery, commercial vehicles, industrial refrigerators etc. The capacity for cement and sugar machinery is now adequate to sustain the growth of these industries without ~~resource~~ ^{need} imports, except for a few components. The production of textile machinery is expected to rise further to about Rs. 55 crores per annum by 1970-71. Some of the gaps of specific items of machinery which have been identified are also designed to be filled up, primarily through diversification and expansion. In regard to paper and pulp machinery, although substantial capacity was licensed in the Third Plan, capacity for a number of specialized items of machinery such as waste heat boilers, pumps and compressors is not available. Steps are being taken to set up capacity for these specialized items and close the gaps.

Fertilisers

69. Chemical fertilisers occupy a key role in the strategy visualised to increase agricultural production during the Fourth Plan period. The expansion of fertiliser capacity has therefore been accorded high priority in the industrial programme. A considerable step up in capacity and production of fertilisers is envisaged during the Fourth Plan period.

70. As already indicated, the capacity of the nitrogenous fertiliser industry at the end of the Third Plan period was roughly 600,000 tonnes of N. The factories currently under construction, including the three recent projects taken up for implementation at Durgapur, Cochin and Madras together, will provide an additional capacity of about 800,000 tonnes. In addition, there are three other projects with a total capacity of 400,000 tonnes which can be reckoned on a fairly firm basis, though the actual implementation of these schemes is yet to be taken up. Thus a total capacity of approximately 1.8 million tonnes of N can be regarded as fairly assured on the basis of the steps taken so far. The total capacity approved for implementation is, however, about 2.4 million tonnes. The financing and foreign exchange arrangements for about 600,000 tonnes of capacity are yet to be firmly settled.

71. Tentatively the targets proposed for nitrogenous fertilisers are 2.4 million tonnes of capacity of 2 million tonnes of production. Of the total capacity of 2.4 million tonnes to be achieved by 1970-71, about 1.6 million tonnes is planned in the public sector and 800,000 tonnes are visualised in the private sector.

72. The development visualised in the fertiliser field during the Fourth Plan has also to provide for an element of advance Planning with reference to the requirements in the early years of the Fifth Plan period. It is expected that the growth in the consumption of fertilisers will require the commissioning of two large nitrogenous fertiliser factories every year from the

beginning of the Fifth Plan period. Keeping this in view and the time lag of about three years in the construction of fertiliser factories, the total capacity under implementation by the end of the Fourth Plan period would have to be of the order of 3 million tonnes. The financial outlay in the public sector provides for advance action on three fertiliser factories in the Fourth Plan period against the anticipated additional fertiliser requirements in the early years of the Fifth Plan. It is also proposed to licence further capacity in the private sector.

72. A significant development in the fertiliser industry is the considerable degree of self-reliance now achieved. This makes it possible to ~~expand~~ fertiliser production increasingly on the basis of domestic technology and equipment. The Fertiliser Corporation of India and the Fertilisers and Chemicals (Travancore) Limited have expanded their design and engineering facilities to undertake between them the planning, designing and construction of three to four fertiliser factories per annum; they have also recently secured the necessary process technology, as elsewhere indicated. A substantial part of the capital equipment for fertiliser factories is expected to be available from within the country with the implementation of the machinery programme included in the Fourth Plan. These important achievements will secure the continued growth of the fertiliser industry without the uncertainties which have so far characterised its development.

73. In order to make fertilisers available at lower cost to the cultivators, new units proposed would be based on the latest technological advancement in the production of ammonia and are expected to be of larger size of 150-200 thousand tonnes of N capacity per annum. A substantial proportion of ammonia production would be based on

naphtha which would be available from the refineries.

76. In the case of phosphatic fertilisers, the capacity and production targets visualised are 1 million tonnes. Substantial additional production of phosphatic fertilisers is expected to be realised in the form of complex fertilisers which would provide high nutrient fertilisers at comparatively cheap prices. The expansion of single superphosphate capacity will be only marginal.

76. Pesticides: The agricultural programme envisages the extension of plant protection measures over a considerably expanded area during the Fourth Plan period. Along with fertilisers, pesticides have an important role to play in agricultural production. Based on the plant protection programme, the demand for pesticides in terms of 'technical materials' is expected to be of the order of 100,000 tonnes by 1970-71. The Fourth Plan programme envisages a substantial increase in the range and output of pesticides. The capacity is proposed to be increased from about 18,000 tonnes in 1965-66 to 100,000 tonnes by 1970-71. Apart from substantial expansion in capacity in items like BHC and DDT already produced in the country, major increases are envisaged in organo phosphates, endrin and carbaryl. In addition to the expansion of the existing public sector projects under Hindustan Insecticides, additional production of DDT and BHC is envisaged in the Gujarat Petro-chemical complex and at the Hindustan Organic Chemicals. In several other items capacity has been licensed more or less to the full extent in the private sector. The production programme is being carefully watched so that gaps, if any, can be filled to with additional capacity in the public sector.

77. Organic Chemicals & Petro-Chemicals: With the increase in refining capacity, substantial quantity of naphtha will be

available from domestic sources. At the same time, there is need to meet the shortage in domestic availability of textile fibres, rubber and non-ferrous metals, which otherwise have to be met through imports, from local production of synthetic fibres, synthetic rubber and plastics. These circumstances have opened up the possibilities of developing a large and economic petro-chemical industry. The programme during the Fourth Plan period envisages, in addition to the private sector petro-chemical units in Bombay, the establishment of a complex at Koyali in Gujarat. It is expected that a beginning would also be made towards the development of petro-chemical industries at Barauni. The advantages of large-scale production and planning of the various components of the complex under a common aegis are being kept in view in the planning of these developments. It is expected that the prices of the various products would be substantially reduced after these complexes are set up and thus the potentialities of exports will be strengthened and diversified. The output of primary organic chemicals such as benzene, toluene, ethylene etc. will be supplemented from petro-chemical sources. An aromatic extraction unit is proposed for some of the important group of petro-chemicals are the following:

	('000 tonnes)
<u>Plastics</u>	
Polyethylene	100
P.V.C.	100
Polystyrene	35
<u>Synthetic Fibres</u>	
Nylon	28
Polyester	10
Acrylics	10
P.V.A.	10
<u>Synthetic Rubber</u>	
S.B.R.	30
Poly Butadiene based rubber	20
Butylene	20

-/-

78. In the production programme of Hindustan Organic Chemicals for the manufacture of basic intermediate chemicals, in the first phase, 14 groups of items would be taken up for production. When the production of intermediates is established, it will place the domestic dyestuff and related industries on a firmer basis by providing some of the basic raw materials from within the country.

79. Inorganic Chemicals: The production targets tentatively proposed for sulphuric acid, caustic soda and soda ash are 2.4 million tonnes 500,000 tonnes and 600,000 respectively. These targets represent the total requirements of the economy in 1970-71, as derived from the targets proposed for the consuming sectors. The sulphuric acid target assume a substantial proportion of phosphatic fertilisers being produced by processes which minimise or eliminate the use of sulphuric acid. Steps in this direction have already been initiated in the product pattern and processes adopted or proposed at the Trombay and Kotah fertiliser units. In caustic soda and soda ash, self-sufficiency is expected to be achieved in the early years of the Fourth Plan period. The caustic soda production will be increasingly integrated with utilisation of the co-product chlorine in the paper, petro-chemical and organic chemical industries. In the case of the soda ash industry, it is envisaged that two or three units will be established in the eastern and in the southern regions bringing about a better regional distribution of the industry. An important project which will spillover from the Third Plan is the development of Amjore pyrites. The scheme for the mining of 240,000 tonnes of pyrites and the establishment of a 400 tonnes per day sulphuric acid plant at Sindri are currently under implementation. In view of the shortage of sulphur, it is proposed that the Amjore pyrites should be more fully exploited and a project for expansion of pyrite mining is under preparation.

80. Pharmaceuticals and drugs: The production programme for drugs and pharmaceuticals envisage an increase in the output of drugs from Rs 150 crores in 1965-66 to Rs. 250 crores by 1970-71. With the completion of the antibiotics and synthetic drugs factories at Rishikesh and Sanatnagar in 1966-67, a very substantial increase in the output of essential drugs will be achieved. In the Fourth Plan period, the Hindustan Antibiotics, Pimpri is planned to diversify its range of production in new lines of antibiotics and Vitamin C. The share of the public sector in the total output of drugs at the end of the Fourth Plan is expected to be of the order of 50 per cent. By the end of the Fourth Plan period, apart from meeting the entire requirements of the country in almost all basic drugs, it is visualised that the industry will make a significant contribution to exports in selected items.

81. Cement: The programme for the cement industry envisages expansion of capacity from 12 million tonnes in 1965-66 to 23 million tonnes in 1970-71. The production target visualised for the Fourth Plan is 20 million tonnes. The expansion of capacity will be achieved exclusively based on machinery produced in the country. Capacity somewhat beyond the Fourth Plan target has already been covered by licences or letters of intent. The implementation of the licenced schemes is being periodically reviewed with a view to ensuring expeditious implementation. The public sector is also expected to contribute to some additional capacity during the Fourth Plan period. Apart from the projects proposed to be undertaken by the Cement Corporation, State Governments have also proposed the expansion of some of the existing units and the establishment of new ones. Broadly it is expected that the total capacity in the public sector at the end of the Fourth Plan period would be of the order of 3.5 - 4 million tonnes. Attention is being given to the utilisation of slag which would be increasingly available from the steel projects. The slag cement capacity is visualised to be increased from 0.8 million tonnes to about 3 million tonnes.

83. Paper and Newsprint: The target of capacity envisaged for paper is 1.10 million tonnes and for newsprint 165,000 tonnes. Although schemes amounting substantially more than the Fourth Plan target have been licenced for paper, the progress on the schemes has not been satisfactory. The establishment of new paper mills involves fairly heavy capital investment. Financial and raw material arrangements present difficulties in the accelerated growth of the paper industry. In the case of newsprint the only scheme under construction is expansion of NEPA Mills which will expand its capacity to 75,000 tonnes. Three schemes licenced in the private sector have not made satisfactory progress. The realisation of the capacity target for newsprint would therefore depend on more vigorous implementation of the schemes approved in the private sector. The target proposed for newsprint may not be adequate to meet the domestic demand and the need for further capacity will have to be kept in view.

84. A very substantial part of the increased output in paper and newsprint will be based on bagasse. Studies are currently in progress for the establishment of large sized pulp units based on bagasse. It is proposed to establish a Paper and Pulp Development Corporation in the public sector to promote the development of large pulp factories with associated development in the production of paper and newsprint.

85. Sugar: In sugar, the production target is 4.5 million tonnes. Within this target, it would be possible to make available up to 700,000 tonnes for export. While expansion of the existing units both in the cooperative and in the private sector will be encouraged with a view to improving their economy, new sugar factories are visualised to be in the cooperative sector. The total sugar capacity in the cooperative sector which

increased from 0.48 million tonnes in 1960-61 to 0.76 million tonnes in 1965-66 is expected to be stepped up to approximately 1.6 million tonnes by 1970-71.

85. Vegetable Oils: In the case of vegetable oils, the requirements of which are expected to be of the order of 2.5 million tonnes by 1970-71, an attempt will be made to harness the maximum possible production of oils from cotton seed and rice bran and through solvent extraction of oil cakes in order to ensure adequate domestic supply without serious detriments to exports. These and other allied matters are currently under examination by an Export Committee.

86. Cotton Textiles: For cotton textiles, the total production is envisaged to be stepped up from about 7600 million metres in 1965-66 to 10,058 million metres by 1970-71. Within the overall production target of 10,058 million metres the share of the mill sector is placed at 5486 million metres and of the decentralised sector at 4572 million metres. The figures of production in the mill sector and decentralised sector in 1965-66 was approximately 4434 million metres and 3150 million metres respectively. The additional output in the fourth plan period is expected to be secured to a considerable extent through additional production in the decentralised sector. The distribution in output in the decentralised sector between handlooms and powerlooms is currently under examination. An export target of 665 million metres of cotton textiles is visualised. The expansion in the mill sector will primarily be in terms of increase in spindleage to the extent of about 3 million. The cotton textile industry is also expected to make substantial investments in modernisation programme. In the central public sector it is proposed to set up a Textile Corporation primarily for establishing export oriented spinning mills. The number of cooperative and public sector

spinning mills proposed to be established during the Fourth Plan period is 25. Provision has been made in the public sector programme for the establishment of these mills.

87. Jute Textiles: The Third Plan envisaged a production target of 1.3 million tonnes of jute goods and an export target of 0.9 million tonnes. No expansion of capacity was considered necessary, as the industry was capable of achieving the production targets with the existing spindlage and loomage. The production and export targets were realised even in the second year of the Third Plan. Since then, the output and exports have been running slightly above the targets. An outstanding achievement in the Third Plan was the rapid expansion in the production of carpet backing cloth for which there has been a very large increase in demand in recent years. The modernisation of the spinning sector of the industry has virtually been completed. The industry has since taken up the modernisation of post spinning equipment commencing with the replacement of winding equipment and installation of prebeamers.

88. The programme for the Fourth Plan envisages a production target of 1.7 million tonnes, corresponding to 1.1 million tonnes of exports and 600,000 tonnes of internal consumption. These targets correspond to the anticipations in exports and domestic demand visualised by the Jute Committee (1963). Following devaluation, it is likely that a somewhat higher level of exports may be achieved. Some measure of expansion of the jute industry will be necessary to achieve the Fourth Plan target. The additional capacity is proposed to be achieved through the expansion of existing units.

89. Plantation Industries: A provision of Rs. 31 crores has been made in the Fourth Plan for the development of plantation industries. The provision is intended for assisting tea, coffee and rubber plantation industries, apart from meeting the financial requirements of the Kerala Plantation Corporation and of the scheme for the development of rubber plantations in the Andamans. This amount will be supplemented by the Commodity Boards from their own resources. The plantation programmes have been drawn up taking into account the long-term prospects of demand and exports. They provide for additional acreage being brought under new plantations which will yield results in the Fifth and subsequent Plan periods. The production targets for the Fourth Plan for natural rubber envisage a step-up in output from about 50,000 tonnes in 1965-66 to 72,000 tonnes in 1970-71. In the case of coffee, output is proposed to be increased from about 60,000 tonnes to 85,000 tonnes and exports from 27,000 tonnes to 45,000 tonnes during the same period. The production target tentatively proposed for tea is 375 million kg. The export target for tea is 454 million kg; the production achieved in 1965-66 is provisionally fixed at 300 million kg (against actual exports of 197 million kg. in 1965-66). The production and export targets for tea are currently being reviewed in detail. The plantation programme has a considerable significance in the overall export effort and will need particular attention for effective implementation.

90. Coal: The requirements of coal in 1970-71 have been estimated at 106 million tonnes comprising of 33 million tonnes of coking coal, 3 million tonnes of blendable coal and 70 million tonnes of non-coking coal. The coking and blendable coal requirements are related to a production target in 1970-71 of 11.20 million tonnes of ingot steel (excluding 0.5 million tonnes from scrap based electric furnaces), 3.0 million tonnes of foundry pig iron and 3.0 million tonnes of by-product and bee-hive coke. Though the target visualised for 1970-71 represents a substantial step-up over the level of production reached in 1965-66, viz. 70 million tonnes, it should not be difficult to achieve it bearing in mind that consequent on the slackening of demand for coal, there was a deliberate slowing down on the development of new projects and a cut-back on production during the Third Plan period. The capacity of the industry to-day is rated at over 75 million tonnes. The major task will be in respect of coking coal, the production of which will need to be stepped up from its present level of about 17 million tonnes to 33 million tonnes. The public sector (N.C.L.C.) will have under production and development 16 projects for coking coal with an ultimate production capacity of 21 million tonnes, against which a production of about 11.6 million tonnes could be expected to be available in 1970-71. The private sector has a programme for 24 million tonnes against which a production of 22 million tonnes could be expected in 1970-71. The capacity already established would be adequate to meet the requirements of blendable coal in 1970-71. Against the present level of production of non-coking coal of about 53 million tonnes, the demand in 1970-71 is estimated at 70 million tonnes. In estimating the requirements of non-coking coal it has been assumed that there will be no further change-over from coal to furnace oil by industrial units and that about 6.4 million tonnes of middlings. fuel requirements of thermal power stations would be met from washery/

The major portion of the additional production of non-coking coal will come from the completion of the Third Plan programmes in both the public and private sectors -- the public sector programme is mainly in the outlying fields -- and no new project for non-coking coal is envisaged in the Fourth Plan except at Singareni where an additional production of 3 million tonnes over the Third Plan target is proposed for meeting regional requirements.

The pattern of production visualised at the end of the Fourth Plan as compared with the position at the end of the Third Plan would be as given below:

	<u>(in million tonnes)</u>			
	<u>Bengal-Bihar fields</u>		<u>Outlying fields</u>	
	<u>Third Plan</u>	<u>Fourth Plan</u>	<u>Third Plan</u>	<u>Fourth Plan</u>
Coking coal	17	33	-	-
Non-coking coal	34	36	19	37
Total:	<u>51</u>	<u>69</u>	<u>19</u>	<u>37</u>

Within the target of 106 million tonnes, the public sector is expected to provide an output of 43 million tonnes. With this level of output, the share of the public sector in the total production would increase from the level of 23 per cent in 1965-66 to about 40 per cent in 1970-71.

91. Coal Washeries: The requirements of clean coal for the steel programme are estimated at about 19 million tonnes - 17 million tonnes of washed coal (consisting of 15.5 million tonnes of coking coal and 1.5 million tonnes of blendable coal) and 2 million tonnes of raw coal which will not need beneficiation. On the completion of the coal washeries programme included in the Third Plan, the washed coal capacity will be 11.25 million tonnes in respect of

coking coal and 1.5 million tonnes in respect of blendable coal. An additional washed coal capacity of about 4.3 million tonnes is now firmly envisaged -- 3.00 million tonnes in the public sector and 1.3 million tonnes in the private sector. This would meet the requirements of the steel programme. The outlay required for implementation of the public sector programme of additional production of coal is estimated at Rs.239 crores and of coal washeries at Rs.54 crores or a total of Rs.293 crores. Since the physical programme in this field has to aim at an ultimate capacity larger than that required in the Fourth Plan with the benefit of full capacity being realised only in the Fifth Plan, the outlay during the Fourth Plan is proposed to be limited to about Rs.217 crores and the balance of about Rs.76 crores is expected to spill over into the Fifth Plan.

Hard coke:

92. Against an expected availability of 0.93 million tonnes of by-product hard coke at the end of the Third Plan, the demand by 1970-71 is estimated at about 3.0 million tonnes. Making allowance for the output of bee-hive coke ovens and some surplus coke from steel plants, an additional capacity of 2.0 million tonnes will be needed during the Fourth Plan period. This is proposed to be established by the expansion of capacity at the West Bengal - Durgapur coke ovens and setting up additional hard coke capacity in a new unit. The investment on the programme is estimated at about Rs.44 crores, part of which might spill over into the Fifth Plan.

Iron ore:

93. As compared with the level of production in 1965-66 of about 22 million tonnes the demand in 1970-71 is estimated at 54 million tonnes -- 29 million tonnes in respect of the iron and steel programmes and 25 million tonnes for export. The additional production required for export will be met by:

- (a) the completion of the Third Plan project at Bailadilla and Daiteri,
- (b) developing a second mine at Bailadilla initially for a production of 2 million tonnes but capable of expansion to 4 million tonnes subsequently and a mine based on Bellary-Hospet ores, and
- (c) setting up a pelletisation plant at Bailadilla with a capacity of 2 million tonnes.

The additional requirements of the steel programme are proposed to be met by:

- (a) expansion of Kiriburu and the existing captive mines of the steel plants, and
- (b) development of the Megahataburu project. The projects in the public sector for expanding production for exports and for meeting the requirements of Bokaro plant are estimated at about Rs.102 crores, of which about Rs.22 crores are expected to spill-over into the Fifth Plan.

Besides, investigations are under way in the Nayagarh-Malangtoli area (Orissa), Bailadilla (Madhya Pradesh) and Mundremukh area (Mysore) with a view to establish additional mining capacity for export.

Other Mineral Projects:

94. Other mineral projects envisaged in the Fourth Plan are:

- (i) Development of the limestone deposits in the Satna area for meeting the requirements of steel programme;
- (ii) Mining and beneficiation of fluorite deposits ⁱⁿ Gujarat and Rajasthan; and
- (iii) Development of magnetite deposits in Almora.

95. Mineral Surveys:

With a view to intensifying the programme of mineral exploration, the Geological Survey of India

and the Indian Bureau of Mines are proposed to be expanded at an estimated outlay of Rs.45 crores. A programme of aerial survey directed primarily towards locating quickly new deposits of non-ferrous metals will also be under-taken at an estimated cost of Rs. 3.5 crores.

Mineral oil:

98. The Third Plan provided for a programme for exploration and production of mineral oil by two agencies, viz. Oil & Natural Gas Commission and Oil India Limited. Against a level of production of 6.5 million tonnes of crude oil envisaged in the Third Plan, the actual production in 1965-66 is of the order of 5 million tonnes — 2.5 million tonnes from the O.N.G.C. areas and about the same level from Oil India and Assam Oil Company areas in Assam. The Oil & Natural Gas Commission will intensify exploratory and production drilling operations in the promising areas during the Fourth Plan period. The programme is expected to involve an outlay of Rs.226 crores. On the basis of the reserves available in the structures already proved, the Commission expects to establish by 1970-71 a production of 6.5 million tonnes of crude oil. Crude oil production may increase if additional extractable reserves are proved during the first two years of the Plan period. While Oil India will continue exploration, its programme will be directed mainly towards the development of the existing areas to sustain production at the rate of 3 million tonnes a year. Thus it is expected that indigenous production would be able to meet 9.5 million tonnes out of a total requirements of about 22 million tonnes by the end of the Plan period.

Petroleum Refining:

87. Subsequent to the finalisation of the Third Plan, the refinery programme was enlarged from about 11 million tonnes originally visualised to 17.25 million tonnes. Against this, a capacity of about 10.4 million tonnes has been established by the end of the Third Plan period. The remaining projects are expected to be completed by about the beginning of 1968 when the total refining capacity will reach 17.10 million tonnes -- 9.35 million tonnes in the public sector and 7.75 million tonnes in the private sector. The demand in 1970 in respect of five major petroleum products is now estimated at about 19.5 million tonnes. Keeping in view the demand for other minor products, the Fourth Plan envisages an additional capacity of 5 million tonnes to be achieved by the establishment of two refineries each with a capacity of 2.5 million tonnes at Madras and Haldia respectively. The two refineries are estimated to involve an outlay of about Rs. 74 crores inclusive of Lube Oil production facilities proposed to be provided at both the places. A refining capacity of 22 million tonnes would by and large be able to meet the requirements of major petroleum product in 1970-71. However, with a view to meeting the increase in demand for petroleum products in the early years of the Fifth Plan, advance action is proposed to be initiated on another refinery in north west India the location of which is yet to be determined.

Lubricating Oil Plants:

93. The demand for lubricating oil in 1970-71 is placed at about 8,00,000 tonnes. The Fourth Plan envisages the establishment.

of three units; one in Bombay region and one each at Madras and Haldia. The plant at Bombay, estimated to cost about Rs. 9 crores, would be set up in collaboration with a private firm. The other two will be an adjunct to the refineries to be located there.

Oil distribution

99. In keeping with the increasing role of the public sector in the production and refining of mineral oil, the public sector organisation for the distribution of petroleum products will be expanded during the Fourth Plan. An outlay of Rs. 65 crores for this purpose is tentatively proposed. The public sector oil distribution organisation would be handling, by the end of the Plan period, the production of all the public sector units, i.e. about 13 million tonnes of products as compared to about 4 million tonnes at the end of the Third Plan.

Industrial and Mineral Programmes of the Department of Atomic Energy:

100. With a view to supporting this nuclear power programme without foreign assistance in regard to nuclear materials, a mine is being developed at Jaduguda (Bihar) for the production of 1000 tonnes of uranium ore per day. Besides establishing the uranium mine and the uranium ore mill, nuclear fuel processing plants are also being set up. The total cost of the mineral and industrial programmes related to the development of nuclear power are estimated at Rs. 53 crores. An outlay of about Rs. 40 crores is envisaged in the Fourth Plan.

ANNEXURE IFOURTH FIVE YEAR PLANIndustrial Projects in the Public Sector - Central Government

(Rs. crores)

Name of the Project.	Location	Total cost of the project	Total investment during the Fourth Plan
1	2	3	4
<u>Metals</u>			
1. Expansion of Bhilai Steel Plant 1st stage (c)	Bhilai	178.60	24.60
2. Expansion of Bhilai Steel Plant 2nd stage (t)	Bhilai	62.90	62.90
3. Bhilai With Blast Furnace (c)	Bhilai	32.50	23.00
4. Expansion of Rourkela Steel Plant 1st stage (c)	Rourkela	150.00	47.00
Expansion of Rourkela Steel Plant 2nd stage (u)	Rourkela	159.40	100.00
6. Expansion of Durgapur Steel Plant 1st stage (c)	Durgapur	81.00	30.00
7. Expansion of Durgapur Steel Plant 2nd stage (a)	Durgapur	343.00	312.20
8. Technological improvements for increasing blast furnace capacity (d) x		13.00	13.00
9. Bokaro Steel Plant (a)	Bokaro	701.16	646.16
10. Fifth and Sixth steel plant (h) x	Not yet decided	Not yet decided	65.00
12. Mysore Iron Steel Works (Conversion and expansion of pig iron) (c)	Bhadravati	24.25	14.15
13. Alloy, Tool and stainless steel plant (c) i	Durgapur	75.00	32.00

-/-

1	2	3	4	5
14.	Expansion of Durgapur Alloy Steel Plant (u) x	Durgapur	80.00	30.00
15.	Koyna Aluminium (t)	Koyna	56.30	38.70
16.	Korba Aluminium (a)	Korba	100.30	42.54
17.	Khetri Copper Project (including Koliha Copper project) (c)	Khetri	37.25	74.00
18.	Rakha and other copper projects (a) x	Rakha	67.10	5.00
19.	Hindustan Zinc Ltd. (c)	Udaipur	12.00	12.00
20.	Expansion of Zawar Mines (u) x	Udaipur	23.66	3.00
<u>Total of Metals</u>				<u>1685.25</u>

Machinery and Engineering Industries:

21.	Bharat Heavy Electricals (c)	Hardwar	78.8	56.00
22.	Bharat Heavy Electricals (c)	Ramachandrapuram	31.79	12.60
23.	Expansion of Bharat Heavy Electricals(a)	Ramachandrapuram	5.25	3.25
24.	Heavy Electrical Plant (c)	Bhopal	68.30	20.75
25.	Bharat Heavy Electrical (c)	Tiruchi	19.08	1.17
26.	Expansion of Bharat Heavy Electricals (a)	Tiruchi	11.73	11.73
27.	New unit for power boilers (u) x	(Not yet decided	21.56	5.00
28.	Expansion of Heavy Electrical(Transformers)(a)	Bhopal	3.60	3.60
29.	Expansion of Heavy Electricals (Traction Motors (a)	Bhopal	3.20	3.20
30.	H.T. Switchgear Plant (ASEA) (c)	Hyderabad	2.80	2.80
31.	Aluminium sheathed telecommunication Cables at Hindustan Cables (c)	Rupnarainpur	3.00	3.00
32.	Expansion of Hindustan Cables (c)	Rupnarainpur	7.62	7.62
33.	Co-axial cables type 174 (a)		0.11	0.11
34.	Copper Play conductors (a)		2.65	2.65
35.	Second Cable Factory (u) x	Not yet decided	13.90	13.90
36.	Heavy Machine Building Plant (including structurals shop and balancing equipment) (c)	Ranchi	49.75	10.50

1	2	3	4	5
37.	Mining and Allied equipment projects (c)	Durgapur	30.10	11.30
38.	Pumps & Compressors Project (t)	Allahabad	13.70	13.70
39.	Fabrication shop for fertilisers and Chemicals (t)	Vishakhapatnam	12.80	12.80
40.	Heavy Plate and Vessels Project (t)		17.80	17.80
41.	Heavy Machine Tools Plant (c)	Ranchi	22.75	15.00
42.	Machine Tool Plant (t)	Bhaynagar	14.60	14.60
43.	Machine Tool Plant (t)	Ajmer	8.50	8.50
44.	Expansion of Machine Tool Plant (u) x	Pinjore	4.35	4.35
45.	Expansion of Machine Tool Plant (u) x	Kalamassary	4.35	4.85
46.	Expansion of Machine Tool Plant (u) x	Hyderabad	4.85	4.85
47.	Additional capacity for Machine Tools (u) x	Not yet decided	19.49	5.00
48.	Precision Instruments (c)	Kotah	15.88	13.20
49.	Precision Instruments (c)	Palghat		
50.	Diversification of National Instruments (a)	Calcutta	1.41	0.28
51.	Electronics (u) x		21.40	6.40
52.	Agricultural Tractors (a) x	Not yet decided	17.68	10.00
53.	Dry Dock Project (u)	Vishakhapatnam	5.00	5.00
54.	Hindustan Shipyard (c)	-do-	3.85	3.66
55.	Expansion of Hindustan shipyard (u) x			
56.	Second shipyard (u)	Cochin	59.40	10.00
57.	Net Basin (u) x		2.20	2.20
<u>Total of Machinery and Engineering Industries</u>				<u>331.87</u>

Fertilisers and Pesticides

58.	Namrup Fertilisers (c)	Namrup	19.34	5.00
59.	Gorakhpur Fertilisers (c)	Gorakhpur	27.44	8.80

		(Rs. crores)		
1	2	3	4	5
60.	Madras Fertilisers (t)	Madras	41.80	41.00
61.	Expansion of Trombay Fertilisers (u)	Trombay	30.90	30.00
62.	Durgapur Fertiliser (a)	Durgapur	35.90	35.00
63.	Cochin Fertiliser (a)	Cochin	33.52	32.60
64.	Fourth Stage expansion of FACT (u) x	Alwaye	4.36	4.00
65.	Modernisation and expansion of fertiliser plants (a)	Rourkela, Sindri	10.00	10.00
66.	Other fertiliser projects (u) x	Not yet decided	140.00	100.00
67.	Expansion of D.D.T. and B.H.C. (u) x	Delhi and Alwaye	2.00	2.00
<u>Total of Fertilisers and Pesticides:</u>				<u>263.40</u>

Intermediates

68.	Foundry Forge Plant (c)	Ranchi	105.39	54.10
69.	Central Foundry Forge for HEL (t)	Hardwar	27.30	27.30
70.	New Foundry Forge Project (t)	Wardha	24.20	24.20
71.	Heavy Structural Project (t)	Allahabad	6.80	6.30
72.	P.C.D.C. Project (c)	Sindri and Amjore	7.67	5.80
73.	Expansion of P.C.D.C. (u) x	Amjore	6.75	6.20
74.	Raw Film Project (c)	Ooty	9.30	3.80
75.	Expansion of Nepa Mills (c)	Nepanagar	10.65	6.00
76.	Gujarat Petro-chemical complex (u)	Koyali	30.00	47.00
77.	Petro-chemical complex (aromatic extraction plant)(u)	Barauni	14.00	10.00
78.	Organic Intermediate Plant (u)	Panvel	40.3	23.00
79.	Cement Corporation of India		45.00	25.00
80.	Paper & Pulp Schemes (u)	Not yet decided	51.52	41.50

-/-

1	2	3	4	5
81.	Salt Washery cum sodium sulphate plant (u) x	Didwana	1.65	1.65
82.	Travancore Titanium Products (u)	Kerala	2.50	2.50
<u>Total of Intermediates</u>				<u>269.35</u>
<u>Consumer Goods</u>				
83.	Additional capacity for watches (IMP) (u)	Bangalore	3.20	3.20
84.	Synthetic Drugs Plant (c)	Sanatnagar	19.00	16.00
85.	Antibiotics Plant (c)	Mishikesh	20.80	
86.	Ophthalmic Glass Project (c)	Durgapur	5.00	5.00
87.	Security Paper Mills (c)	Hoshangabad	6.00	6.00
88.	Expansion of Drugs and pesticides (u) x	Not yet decided	15.00	5.70
89.	Export Oriented spinning mills (u) x	Not yet decided	16.20	16.20
90.	New Alkaloid Factory (u)	Meerut	0.60	0.60
91.	Mandi and Kharagoda Salt Works	Mandi and Kharagoda	1.00	1.00
<u>Total of Consumer Goods</u>				<u>52.50</u>
<u>Miscellaneous</u>				
92.	Pre Investment studies and other Miscellaneous Projects		25.00	25.00

- (c) Continuing Schemes from the Third Plan
 (u) Projects for which foreign credits have been arranged and tied
 (a) Projects for which foreign credits have been assured/or under negotiation
 (u) Projects for which foreign credits have not yet been arranged
 x Schemes for which projects reports are yet to be prepared

Note:- Figures of total cost represent approximate estimates following devaluation and may undergo revision.

FOURTH FIVE YEAR PLAN

II. Minerals Schemes in the Public Sector - Central Government

(Rs. crores)				
Sl. No.	Name of the Project	Location	Total cost	Total investment during the Fourth Plan
1.	2.	3.	4.	5.
1.	Coal Production M.C.D.C.(c) (including washeries)		126.19	68.90
2.	Singareni collieries (c)	Kothagudium (Andhra Pradesh)	25.29	12.20
	Central Ropeways (c)	West Bengal and Bihar	22.12	10.16
4.	Neyveli Lignite Project (c)	Neyveli, Madras	123.00	1.70
	Additional Coal Production, M.C.D.C.(t)(a)		90.70	60.50
6.	Central Ropeway Schemes (u) x	West Bengal, Bihar	10.80	10.80
7.	Singareni collieries (u) x		26.30	14.00
8.	Coal Washerries (a)		53.70	40.50
9.	Durgapur Coke Oven expansion (c)	Durgapur, W.Bengal	3.52	3.52
10.	Doubling of the Durgapur Coke Ovens(u) x	Durgapur, W.Bengal	17.61	15.00
11.	Ramgarh Industrial Complex(u)	Ramgarh, Bihar	38.52	25.00
12.	Bailadila Iron ore project(c)	Bailadila, M.P.	18.00	12.69
13.	Bailadila Second Mine (a)	Bailadila, M.P.	23.54	18.50
14.	Rail link conveyor for the above	-do-	4.24	4.24
15.	Kiriburu Iron Ore Mine Expansion (a)	Kiriburu, Orissa	11.00	11.00
16.	Magahataburu Iron Ore project	Magahataburu, Orissa	24.00	15.00
17.	Polletisation Plant at Bailadila	Bailadila, M.P.	13.15	8.60
18.	Bellary-Hospet Iron Ore project	Bellary-Hospet, Mysore	12.13	12.13
19.	Panna Diamond Project (c)	Panna, M.P.	3.09	1.86
20.	Kolar Gold Mines Expansion(u)	Kolar, Mysore	2.55	2.55
21.	Manganese Ore Beneficia- tion plant (u) x		2.00	2.00
22.	L.T.C.Plant at Singareni(u)	Kothagudium A.P.	15.42	8.90
23.	Expansion of the Geological Survey of India and the Indian Bureau of Mines (u)		45.00	45.00
24.	Aerial Survey for Base Metals (t)		3.50	3.50
25.	Oil and Natural Gas Commission (a)		227.00	227.00

1.	2.	3.	4.	5.
26.	Oil India Ltd. - Oil Exploration and exploi- tation (u)	Assam	26.09	26.09
27.	Barauni, Koyali, Cochin refineries (c)	Barauni, Koyali, Cochin	91.70	5.30
28.	Madras refinery (t)	Madras	35.00	335.00
29.	Haldia refinery (a)	Haldia, W. Bengal	39.20	39.20
30.	North West refinery (u) x		31.00	10.00
31.	Govt. Esso-Lube Oil Project (t)	Bombay	9.13	9.13
32.	Another lubricating oil plant (u) x		14.45	5.00
33.	Oil Distribution and Pipelines (u)		69.14	69.14
34.	Industrial and mineral programmes of the Deptt. of Atomic Energy (u)		58.00	40.00
	Total		1316.18	874.11

- (c) Continuing schemes from the Third Plan
(t) Projects for which foreign exchange have been arranged and tied up
(a) Projects for which foreign credit has been assured or under negotiation
(u) Projects for which foreign credits have not been arranged
x Projects for which project reports are yet to be prepared.

Note: Figure of total cost represent approximate estimates following devaluation and may undergo revision.

lka.

Annexure

Statement showing capacity & production in 1960-61, targets and estimated actuals of capacity and production for 1965-66 and tentative targets for 1970-71 for important industries.

Industry	Unit	Actuals for		Targets for		Estimated		Targets for	
		1960-61		1965-66		actuals for		1970-71	
		Cap.	Prod.	Cap.	Prod.	1965-66	Cap.	Prod.	Cap.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
<u>Manufacturing Industry</u>									
<u>Metals</u>									
<u>1. Iron & Steel</u>									
(a) Steel ingots	Mil. tonnes	6.1	3.4	10.3	9.3	7.0	6.2	14.8	11.7
(b) Finished Steel	"	4.6	2.5	7.6	6.9	5.2	4.6	11.0	8.8
(c) Pig Iron for sale	"	1.1	1.1	1.5	1.5	1.2	1.2	3.2	3.0
2. Alloy tool & stainless steel	'000 tonnes	-	-	203.0	203.0	50.0	35.0	460.0	400.0
3. Aluminium	"	18.2	18.3	88.5	81.0	88.0	65.0	* *	300.0
4. Copper	"	8.9	8.9	22.0	20.0	10.0	9.8	37.5	37.5
5. Zinc	"	-	-	15.0	15.0	18.0	5.0	78.0	70.0
<u>Machinery</u>									
6. Commercial vehicles	'000 nos.	28.0	27.5	(c) 60.0	60.0	60.0	34.0	90.0	80.0
7. Passenger Cars	"	20.2	19.1	(c) 30.0	30.0	30.0	24.5	50.0	50.0
8. Jeeps and Station wagons	"	5.5	5.5	(c) 10.0	10.0	12.0	10.0	25.0	20.0
9. Motor cycles, scooters and mopeds	"	23.0	17.6	48 to 60	50.0	150.0	50.0	150.0	150.0
10. Ball & roller bearings	Mil. Nos.	1.7	3.2	11.0	15.0	27.0	9.0	35.0	30.0
11. Generators Thermal	Mil. KW.	-	-	-	-	0.6	-	2.9	1.4
12. Generators Hydro	"	-	-	-	-	0.5	-	1.7	0.8

** Effective capacity.

(c) relates to calendar year

-/-

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
13. Turbines Steam	Mill. KW.	-	-	-	-	0.6	-	2.9	1.4
14. Turbines Hydro	"	-	-	-	-	0.5	-	1.7	0.8
15. Transformers 66 KV and above	Mill. KVA	-	-	-	-	4.0	2.0	7.5	7.0
16. Transformers 33 KV and below		1.40	1.39	4.0	3.5	3.0	3.3	5.5	5.0
17. Power boilers	Mill. KW.	-	-	-	-	1.1	Neg.	2.2	1.4
18. Motors above 150 KW	"	-	-	-	-	0.5	1.8	1.25	1.0
19. Motors 150 KW or below	"	1.15	0.75	2.2	1.9	1.5		3.75	3.5
20. Switchgear & Control gear	crores	1.0	-	-	-	18.0	17.0	50.0	40.0
21. Machine tools	"	8.0	7.24(c)	30.0	0.0	30.0	23.0	120.0	105.0
22. Metallurgical & other equipment	'000 tonnes	-	-	80.0	15 to 20	30.0	11.0	100.0	70.0
23. Coal & other mining machinery	"	-	-	45.0	20.0	45.0	7.0	60.0	50.0
24. Cotton Textile machinery	crores	12.0	10.4	22.0	20.0	20.0	28.0	60.0	55.0
Jute machinery	"	2.5	1.7	2.5	2.5	5.0	3.5	10.0	8.0
25. Paper machinery	"	3.7	0.01	8.5	6.5	7.0	2.0	25.0	20.0
27. Sugar machinery	"	11.6	4.2(c)	15 to 16	14.0	15.0	3.0	15.0	15.0
28. Cement machinery	"	1.1	0.6	4.5	4.5	20.0	3.5	20.0	25.0
29. Railway wagons (in terms of 4 wheelers)	'000 nos.	26.0	11.77	33.5	117.144	40.0	38.0	40.0	40.0
30. <u>Agricultural Machinery</u>		-	-	-	-	-	-	-	-
(a) Agricultural tractors	'000 Nos.	-	-	12.0	10.0	15.0	5.6	40.0	35.0
(b) Power Driven pumps	"	128.0	105.0	184.0	150.0	200.0	200.0	400.0	400.0
(c) Diesel engines	"	47.7	43.2	72.0	63.0	100.0	85.0	200.0	200.0

@ relates to five year period.

(c) relates to calendar year.

-/-

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
31. Radio Receivers	'000 Nos.	279.0	280.0	900	800	500	500	1500	1500
32. <u>Electric lamps</u>									
(a) G.L.S. & others	Mil. Nos.	47.6	41.8	76.0	68.0	70.0	70.0	185	185
(b) Fluorescent tubes	"	1.2	1.7	7.0	6.0	4.5	4.4	20	20
33. Electric Fans	"	1.74	1.06	2.8	2.5	2.0	1.5	3.5	3.5
34. <u>Fertilizers</u>									
(a) Nitrogenous (in terms of N)	'000 tonnes	161.5	99.0	1016	812	586.5	233	2400	2000
(b) Phosphatic (in terms of P_2O_5)	"	58.4	54.0	508	406	230	111	1000	1000
35. <u>Pesticides</u>									
(a) D.D.T.	"	2.8	2.8	2.8	2.8	18.0*	15.0*	100*	90*
(b) B.H.C.	"	4.0	3.9	15.0	12.0				
36. <u>Heavy Chemicals</u>									
(a) Caustic Soda	"	126.0	99.0	406	345	277	218	600	500
(b) Soda ash	"	273.0	148.0	540	457	363	331	700	600
(c) Sulphuric acid	"	536.0	361.0	1778	1524	1181	664	2600	2400
37. <u>Drugs and Pharmaceuticals</u>									
		Rs. mill.	N.A.	-	-	1500	1500	2500	2500
39. <u>Paints and Varnishes</u>	'000 tonnes	90.0	53.5	163	142	106	73	160	140
(organised Sector)									
40. <u>Automobile tyres</u>	mill. Nos.	1.61	1.49	4.5	3.85	3.30	2.6	6.5	6.0
41. <u>Paper and Paper Board</u>									
(a) Paper and paper board	'000 tonnes	418.0	350.0	833	711	680	550	1100	900
(b) Newsprint	"	30.0	23.3	152.4	128	30	30	165	150
(c) Security Paper	"	-	-	1500	1500	-	-	2070	2070
42. <u>Cement</u>	Mill. tonnes	9.4	7.97	15.3	13.2	12.0	10.8	23.0	20.0

* Inclusive of all items of pesticides.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>43. Cotton textiles</u>										
(a) Yarn Mill.	12.7%	801	16.5%	1021	16.27%	907	19.35%	1232		
(b) Cloth Mill.	1.99%	4649	2.25%	5300	2.09%	4434	2.30%	5486		
(mill made) metres.										
44. Jute Textiles '000 tonnes	1200	1022	1200	1300	1200	1354	1700	1700		
45. Rayon Mill.	23.8	21.3	59.0	59.0	47.0	51.5	67.0	67.0		
filament Kgm.										
46. Staple fibre "	21.8	21.8	34.1	34.1	26.0	42.0	35.0	35.0		
47. Woollen fabrics metres.	43.6	14.0	43.6	31.8	43.6	10.0	43.6	37.3		
48. Sugar Mill.	2.25	3.0	3.56	3.56	3.20	3.55	4.5	4.5		
tonnes										
<u>Mining</u>										
49. Iron ore Mill.	-	11.0	-	30.0	-	22.0	-	54.0		
tonnes										
50. Coal "	-	55.7	-	98.6	-	70.0	-	106.0		
51. Crude Oil "	-	0.4	-	6.0	-	5.0	-	10.0		
52. Petroleum* products.	3.1	5.9	10.92	9.97	10.4	9.86	22.25	20.0		

1/2 Mill spindles.

£ lakh looms.

* Capacity is shown in terms of crude throughput.

CHAPTER XV

TRANSPORT AND COMMUNICATIONS

The Transport System

At the end of the Third Plan, the country's transport system comprised the following principal services:

Government Railway	...	58,276 kilometres
of which, Broad gauge	...	28,440 "
Metre gauge	...	25,510 "
Narrow gauge	...	4,326 "
Non-Government railways	...	662 kilometres
Roads	...	958,000 "
of which, surfaced roads	...	284,000 "
other roads	...	674,000 "
Road Transport -		
Trucks	...	250,000
Commercial buses	...	70,000
Ports - capacity -		
Major ports	...	57 million tonnes
Intermediate and minor ports	...	9 " "
Shipping -		
Overseas	...	1,217,715 GRT
Coastal	...	322,761 GRT
Airlines - (Available tonne-kilometres)		
Indian Airlines	...	155 million
Air India	...	338 "
Inland water transport -		
Length of routes operated	...	13,500 kilometres
Assam and North East region	..	8,500 "
Others	...	5,000 "

2. During the past fifteen years, there has been considerable expansion in capacity of all modes of transport other than inland water transport. In the case of the railways, the initial phase

of rehabilitation was followed by substantial increase in capacities to meet the growing pressure of traffic through addition of rolling stock, introduction of heavier wagons and longer trains and improvement of signalling and control systems and phased changeover from steam to diesel and electric tractions. Between 1950-51 and 1965-66, goods traffic carried by the railways increased about two and a half times and passenger traffic by about 45 per cent. The volume of goods traffic carried by road during these fifteen years rose about six times and passenger traffic nearly four times. The total length of roads increased from 400,000 kilometres at the end of 1950-51 to 958,000 kilometres at the end of 1965-66. The overall shipping tonnage during the period increased from 3.9 lakh GRT to 15.4 lakh GRT and traffic handled by major and minor ports increased from about 24 million tonnes to about 53 million tonnes in addition to about 6 million tonnes through Mormugao. Civil air transport was nationalised in 1953 and both internal air services and international services have since greatly expanded. The present state of different transport services and the directions in which they need to be developed and strengthened have been recently reviewed in detail in the Final Report of the Committee on Transport Policy and Coordination.

3. Industrial and economic developments during the Fourth Plan will make heavy demands on various modes of transport, more specially railways, road transport and ports. Programmes of expansion and proposals for investment are related to these larger demands. Wherever possible, in assessing traffic requirements during the Fourth Plan and making proposals for meeting them, a tentative view has also been taken of requirements over the decade 1966-76. Traffic requirements and projections for the Fourth Plan are briefly reviewed below for different modes of transport.

4. Rail transport. Originating traffic carried by rail was expected to increase during the Third Plan by about 59 per cent. However, because of slower development and marked changes in the volume of traffic accounted for by coal, steel and raw materials for steel plants, the actual increase has been a little over 30 per cent. In 1965-66, the railways had wagon and locomotive capacity of 225 million tonnes and 215 million tonnes respectively against which the originating traffic during the year amounted to 205 million tonnes. This margin of unutilised capacity is largely related to short-lead traffic on account of steel plants and movement of raw coal to washeries. During the Fourth Plan, goods traffic carried by rail is expected to rise by 50 per cent to 308 million tonnes. In terms of different commodities the rail traffic estimates for the Fourth Plan are as follows:

Table 1. Estimates of rail traffic for 1970-71

		(In million tonnes)
Steel and raw materials		45.5
Coal		101.0
Iron ore for export		13.0
Cement		13.0
Railway materials		23.0
General goods		109.5
including:		
	foodgrains	18.5
	POL	14.5
	iron and steel	9.4
	(sec. movements)	
	fertilisers	4.5
	all other goods	62.6
<u>Total</u>		<u>308.0</u>

By the end of the Fifth Plan, originating traffic is expected to be in the region of 430 million tonnes.

5. In respect of passenger traffic, railway programmes for the Third Plan provided for an increase of 3 per cent per annum in non-suburban traffic with somewhat larger increase in suburban traffic. Programmes for the Fourth Plan have been formulated on

the assumption that there will be an increase of 4 per cent per annum in non-suburban traffic and a much larger increase in suburban traffic. The broad objective for suburban traffic is to provide during the peak period the maximum possible frequencies of train services on the existing lines with marginal increases in line capacity wherever feasible. In terms of passenger kilometres, passenger traffic rose by about 24 per cent during the Third Plan. Increases of this order are also anticipated during the Fourth and Fifth Plan periods.

6. Road transport. The volume of goods traffic carried by road is expected to increase from 33 billion tonne kilometres in 1965-66 to about 60 billion tonne kilometres in 1970-71 and to about 115 billion tonne kilometres in 1975-76. Passenger traffic by road is estimated to rise from 80 to 120 billion passenger kilometres in 1970-71 and to about 195 billion passenger kilometres in 1975-76. On the basis of anticipated increase in traffic, the number of trucks would need to increase from 250,000 in 1965-66 to 425,000 in 1970-71 and of commercial buses from 70,000 in 1965-66 to about 100,000 in 1970-71.

7. Ports. The major ports handled a total traffic of about 48.4 million tonnes in 1964-65 and of 50.2 million tonnes in 1965-66. The total traffic to be handled by the major ports by the end of the Fourth Plan is estimated at 82.5 million tonnes. The traffic at minor ports is expected to increase from about 9 million tonnes in 1965-66 to about 12 million tonnes in 1970-71.

Outlays and Programmes

8. The total investment in transport and communications during the Fourth Plan is placed at Rs. 3640 crores, of which Rs. 630 crores are expected to be in the private sector and

Rs.3010 crores in the public sector. The distribution of investment in the public sector is shown in the table below along with the initial provision and anticipated expenditure during the Third Plan.

Table 2. Outlays on transport and communications

Programme			(Rs. crores)	
	<u>Third Plan</u>		<u>Fourth Plan</u>	
	Initial provision	Anticipated expenditure	As in the Memorandum of September 1965	Proposed outlays
<u>1. Transport</u>				
Railways	890	1323	1310	1410 <u>1/</u>
Roads	272	445	730	760 <u>2/</u>
Road transport	25	27	65	65
Ports	86	91	153	170
Farakka Barrage	-	- <u>4/</u>	50	65
Shipping	57	41	20	90
Inland Water Transport	7	3	1	13
Lighthouses	6	4	6	7
Civil Air Transport (including Meteorology)	55	50	73	125 <u>3/</u>
Tourism	8	6	25	25
<u>Total for Transport</u>	<u>1406</u>	<u>1990</u>	<u>2515</u>	<u>2730</u>
<u>2. Communications</u>	73	118	213	235
<u>3. Broadcasting</u>	7	8	40	45
<u>Grand total</u>	<u>1486</u>	<u>2116</u>	<u>2768</u>	<u>3010</u>

1/ In addition, Rs.684 crores are expected to be made available from 'Railways' Depreciation Fund.

2/ Includes Rs.35 crores for border roads in Gujarat and Rajasthan.

3/ Includes Rs.40 crores to be found from Depreciation Funds of the Air Corporations. Earlier figure is exclusive of contributions from this source.

4/ Expenditure on Farakka Barrage project was kept outside the Plan.

The programmes to be carried out and outlays proposed for them are briefly reviewed below.

9. Railways. For carrying the total traffic of 308 million tonnes and allowing for reserve capacity available at the beginning of the Fourth Plan and also for operational improvements, the rolling stock programme of the railways during the Fourth Plan envisages a total procurement of 2177 locomotives, 163,250 wagons in terms of four wheelers and 9282 coaching vehicles. In the table below details of rolling stock are given along with additions made during the Third Plan.

Table 3. Railway rolling stock programme

	(Numbers)	
	Procurement during <u>Third Plan.</u>	Estimated requirements for <u>Fourth Plan</u>
Locomotives -		
Steam	1129	590
Diesel	545	882
Diesel shunters	7	100
Electric	183	605
<u>Total</u>	<u>1864</u>	<u>2177</u>
Wagons (in terms of 4-wheelers)	144,789	163,250
Coaching stock -		
Coaches	7362	8225
Rail cars		200
Electric multiple units	657	857

The present annual production of wagons is about 34,000 in terms of four-wheelers. Taking into account export requirements, production envisaged for 1970-71 is 40,000

wagons. Production of broad gauge steam locomotives at Chittaranjan is to be scaled down progressively from the current level of 137 to 47 by 1970-71, by which year capacity will have been developed for 150 diesel locomotives at Varanasi and an equivalent number of electric locomotives at Chittaranjan.

Capacity for producing 30 diesel shunters will also be developed at railway workshops. Dieselisation and electrification programmes are being viewed together. On sections which are proposed eventually to be doubled and electrified with a view to meeting the requirements of heavy density traffic, dieselisation may be introduced in the initial stages to be replaced later by electrification. Diesel traction will also be employed on single and double line trunk and important routes carrying increasing densities of traffic at levels which are beyond the range of steam traction but not high enough to justify electrification. On double line sections, where traffic density is very high and is expected to increase further, priority is being given as far as possible to electrification. The railway programme for the Fourth Plan provides for doubling a total length of 3100 kilometres including 1370 kilometres carried over from the Third Plan. Centralised traffic control and automatic signalling will be expanded to 1200 kilometres of track and automatic train control devices to 650 kilometres of track.

10. The Fourth Plan provides for a limited programme for the construction of new lines. It is proposed to complete 2200 kilometres of new lines, including 1775 kilometres of lines carried over from the Third Plan. Provision has also been made for the conversion of 450 kilometres of metre-gauge lines into broad-gauge. This includes completion of conversion works begun during the Third Plan. In view of the heavy investments involved in the construction of new lines, it is

necessary to consider each proposal carefully, having regard to the needs of traffic and possibilities of development of alternative forms of transport, more especially road development and road transport. As the Committee on Transport Policy and Coordination has recommended in studying the economic potential of a region, the role of transport and the design of the transport sector as a whole should be considered carefully in terms of the relative contribution and sequence of different services. Road communications and rail and road transport services have to be thought of together as complementary services and incorporated into a single integrated plan of development. Prima facie, in future, the extension of the railway network will be directed mainly towards meeting the needs of basic and heavy industries and of traffic in minerals like coal and iron ore.

11. In addition to expenditure of Rs.684 crores from the depreciation reserve fund, the Fourth Plan provides for an outlay of Rs.1410 crores. The main components of this amount are as follows:

Table 4. Outlays for railway development programmes

(Rs. crores)

<u>Programme</u>	<u>Third Plan</u>	<u>Fourth Plan</u>
Rolling stock	541.24	823
Electrification	81.53	99
Doubling and other line capacity works	324.19	437
New lines	212.97	161
Track renewals	236.15	260
Other works	280.90	314
<u>Total</u>	<u>1676.98</u>	<u>2094</u>
<u>Deduct expenditure from the depreciation reserve fund</u>	353.70	684
<u>Plan outlay</u>	<u>1323.28</u>	<u>1410</u>

The Railway Board have estimated the cost of programmes corresponding to a traffic target of 308 million tonnes at Rs.1522 crores in addition to a contribution of Rs.700 crores from the depreciation reserve fund. It will be necessary, therefore, to keep railway development programmes under constant review and to provide such further outlays as may be justified by the actual requirements of traffic. The present proposals of the Railways do not include any provision for the fifth or the sixth steel plant. Railway requirements connected with these steel plants will be assessed after decisions on the locations of the plants are taken.

12. In drawing up their development proposals for the Fourth Plan, the Ministry of Railways have kept in view the objective of attaining self-sufficiency in regard to their requirements. The programme of dieselisation and electrification is based on indigenous production of locomotives, allowing only for imports on a steadily diminishing scale of components and materials. The Railways also propose to set up a factory for manufacturing electric signalling equipment. The foreign exchange requirements of the railways in the Fourth Plan are estimated at Rs.370 crores which will be largely in the form of non-project imports.

13. Roads. The Fourth Plan makes a provision of Rs.760 crores for development of roads. Of this total outlay, Rs.400 crores are allocated for national highways and for certain other roads and bridges in the Central sector. This outlay is distributed as follows:-

Table 5. Outlays for Central Road programmes

(Rs. crores)

1. National Highways

i) spill-over from the Third Plan	50
ii) new national highways	10
iii) development of existing national highways	166
2. Other roads and bridges, including Lateral Road, inter-State roads, etc.	174
<u>Total</u>	<u>400</u>

Road development programmes of the States for which a provision of Rs. 360 crores has been made will be finalised when their proposals under the Fourth Plan are considered in detail. On present estimates the Central and State road programmes are expected to add about 50,000 kilometres of surfaced roads in the course of the Fourth Plan.

14. Roads have a critical role in national and regional development. The gaps left over from the past are very large indeed. Despite progress made on several routes, there are numerous missing links, unbridged river crossings, weak bridges and culverts and weak and inadequate road pavements. At the end of the Third Plan, the national highway system will have no less than 100 kilometres of missing road links, more than 50 major bridges still to be built, nearly 18,000 kilometres of one-lane and a number of narrow and weak culverts and bridges and other deficiencies. Road crusts originally meant to carry mainly light traffic are unable to stand the heavier traffic and the greater volume of movement which have developed in recent years. The country is still far from having an integrated road network and therefore it is necessary that a

connected view should be taken of programmes for the development of national highways, State highways, inter-State roads and other communications. Rural roads need to be given a distinctly higher priority than in the past.

15. In formulating programmes for the Fourth Plan, it is important to adopt economic criteria to the maximum extent possible and to select major road projects after careful benefit-cost studies on an assessment of traffic expected to be handled in future. There are four important aspects of road development which will need special attention in formulating future plans. These are (a) provision of roads related to major industrial, mining and other development projects, (b) rural market roads, (c) roads for the development of backward areas and regions, including hill areas and coastal areas and (d) road systems in metropolitan areas and large cities and their environs. It will also be necessary to make adequate provision of funds for maintenance of existing roads. The formulation and execution of road development programmes will call for strengthening of organisations at all levels.

16. Road transport. - To meet the requirements of road traffic referred to earlier, a large programme of expansion in the road transport industry has to be carried out during the Fourth Plan. In the main, this is a programme to be undertaken in the private sector. The role of the public sector is limited to a measure of expansion of passenger services operated by State undertakings, the setting up of

an inter-State transport corporation jointly by the Central Government, the Railways and the States to operate goods services on important inter-State routes and in regions of strategic importance, and assistance to transport cooperatives in certain areas. The Fourth Plan provides for an outlay of Rs.65 crores in the public sector and reckons on a total investment of Rs.630 crores in the private sector. State road transport undertakings, which operated about 35 per cent of passenger services at the end of the Third Plan, are expected to account for nearly 40 per cent by the end of the Fourth Plan. If the large estimates of traffic requirements indicated earlier are to be met in time, there is imperative need for carefully prepared plans in terms of needs to be met in different regions, both for goods and for passenger traffic. Specific programmes will have to be worked out to assist the road transport industry in the private sector to organise itself on a sound commercial basis. The Committee on Transport Policy and Coordination has recommended that small operators should be helped to join together to form viable units and cooperative transport undertakings should be actively promoted as a matter of public policy when traffic conditions are specially favourable for this type of organisation. The Committee has also recommended that legislation be undertaken for the formulation at the State and regional level of associations of transport operators with specific functions and responsibilities. Such associations could undertake to provide common facilities for booking and forwarding of goods, workshops for repairing and servicing of their vehicles and purchase and supply of spare parts and accessories and other requisites etc. Arrangements for the financing of the road transport industry are being investigated by

a study group set up by the Ministry of Transport and Aviation. Questions relating to the taxation of road transport are also being studied at present by a special committee.

17. Ports. The programmes drawn up by the major ports for the Fourth Plan have been examined in detail in consultation with the port authorities. These programmes entail a total investment of about Rs.234 crores. On present assessment, with appropriate adjustments in rate structure and possible economies in operating costs, the port authorities are expected to find about Rs.72 crores from their own resources for financing their development programmes in the Fourth Plan. Under the Plan, in addition to the resources of the ports, Rs.145 crores have been allotted for development programmes of major ports. Further detailed study is necessary for working out the phasing of projected and specific proposals for increasing operational efficiency and developing internal resources. It is important that each major port should have long range plan of development extending to at least 10 or 15 years. These plans should be supported by more adequate economic studies and projections than have been available in the past.

18. For the development of intermediate and minor ports, the Fourth Plan makes a provision of Rs.25 crores. This includes Rs.10 crores in the States and Rs.15 crores at the Centre.

19. Inland water transport. Comparatively small progress has been made during the first three Plans in the development of inland water transport. Progress in the Fourth Plan will aim at putting the potential of waterways in a number of regions to productive use, more especially in Assam and in Kerala. Development of waterways needs to be viewed as an integral part of the overall transportation system of each region. Plans for inland water transport should provide not only for development and

maintenance of waterways, but also for the organisation of commercial services and for coordination with other transport services. A provision of Rs.13 crores has been made in the Fourth Plan - Rs.8 crores at the Centre and Rs.5 crores in the States.

20. Shipping. Over the next ten years, Indian shipping should endeavour to secure at least one-half of the country's overseas trade. This will require an overseas fleet of about 4.5 million GRT. During the Fourth Plan, besides replacing obsolete tonnage aggregating to about 200,000 GRT, a net addition of about 1.5 million GRT is envisaged. At the end of the Fourth Plan, the total tonnage in operation should be around 3 million GRT, with orders upto 500,000 GRT to be met in the early years of the Fifth Plan. While some expansion in the liner trade is anticipated, the principal directions in which it is necessary to ensure accelerated growth are bulk carriers, tramps and tankers. Of the total addition of 1.7 million GRT, including replacement, on present estimates, about 200,000 GRT should be available from indigenous resources. The coastal fleet, which has now a strength of 323,000 GRT, is likely to reach the level of about 400,000 GRT during the Fourth Plan. However, it is hoped to take measures to increase its efficiency and to replace existing overaged ships by modern and more economic vessels.

21. The total cost of the shipping development programme in the Plan is estimated at Rs.267 crores. Since ships to be procured from abroad are expected to be acquired on deferred payment basis, the

total payments over the period of the plan including payments against past commitments are estimated at Rs.140 crores. About Rs.50 crores are expected to be provided from the balances available in the Shipping Development Fund and the resources of the Shipping Corporation of India and a provision of Rs.90 crores is made in the Plan for advances to the Fund.

22. Lighthouses. A provision of Rs.7 crores has been made for the development of lighthouses. The programme provides for establishment of 24 lighthouses and 22 light beacons, besides installation of modern equipment for some of the existing lighthouses. The setting up of a factory for the manufacture of lighting equipment within the country is also under examination.

23. Civil air transport. For the development of air transport the Fourth Plan provides Rs.118 crores. About Rs.32 crores have been allocated to the Department of Civil Aviation for constructing new aerodromes, improving existing aerodromes to meet the operational requirements of modern aircraft and strengthening aeronautical communication services. The available capacity in tonne kilometres of the Indian Airlines Corporation is expected to increase from 155 to 342 million and of Air India from 338 to 594 million. The revenue tonne kilometres performed are expected to go up from 108 to 213 million in the case of the Indian Airlines Corporation and from 155 to 290 million in the case of Air India. Air India's development programmes provide for purchase of five sub-sonic jets and also take into account the possibility of ordering super-sonic aircraft. The Indian Airlines Corporation proposes to acquire six aircraft of Caravelle type, seven aircraft

to replace Viscounts and Skymasters, 15 aircraft to replace Dakotas and 15 smaller aircraft for feeder routes.

24. The total provision under the Fourth Plan for the two Corporations is Rs.86 crores which includes expenditure to be met by the Corporations on depreciation account.

25. Meteorology. A provision of Rs.7 crores has been made for the development of meteorological services. The more important schemes for the Fourth Plan include modernisation and expansion of observatories, laboratories and workshops and development of facilities for weather forecasting, specially for aviation, shipping, climatology and agricultural meteorology, geophysical and allied activities and rocket and satellite meteorology.

Management and Coordination

26. In earlier Plans, the principal emphasis was on expansion of transport services and provision of adequate capacities. In view of the growth of the economy and the larger demands on the transport system, these aspects will continue to receive attention. At the same time, efforts will be made under each mode of transport to improve management, secure higher levels of efficiency and reduce costs. Studies of the Indian Airlines Corporation, the Shipping Corporation, the Delhi Transport Undertaking, the Visakhapatnam Port and coastal shipping operations which have been completed or are under way suggest that closer attention to management aspects in all sectors of transport will bring a larger return on investment in transport, will help reduce costs of transport and will generate resources for further development much beyond present levels.

27. A programme of economic studies has been initiated by the Joint Technical Group for Transport Planning to enable plans for different modes of transport being drawn up on an integrated basis so that the transport system as a whole may function as a composite network and the community's requirements for transport could be met at minimum cost to the economy. The Group has undertaken studies of the present and future patterns of movement of several bulk commodities such as iron ore, coal, petroleum products, limestone, cement, manganese ore, salt, finished steel, tea and jute. A series of regional transport surveys are at present under way. These studies are expected to throw up data which will provide the basis for drawing up detailed programmes in the Fourth Plan and also long-term plans for the development of transport covering the period of the Fifth Plan for the country as a whole as well as for different regions.

Communications

28. The Plan includes provision of Rs.235 crores for communications of which Rs.214 crores is provided for telecommunications (including postal services), Rs.8 crores for Indian Telephone Industries, Rs.9 crores for Overseas Communication Services and Rs.4 crores for the Hindustan Teleprinters Ltd., and Wireless Planning & Coordination. In addition, the Posts and Telegraphs Department are expected to find about Rs.200 crores from their own resources towards the cost of their development programmes in the Plan;

29. Telecommunication.- The demand for telephone facilities has been expanding rapidly on account of several factors such as expansion of industry and commerce and growing urbanisation in the country. During the Third Plan, 4.1 lakh telephones were added, giving a total of 8.7 lakh connections at the end of the Plan. The programme for the Fourth Plan provides for installation of 6.5 lakh additional telephone connections, the equipment being produced at the existing factory at Bangalore. In order to meet the requirements of long distance transmission equipment it is proposed to establish a new factory during the Fourth Plan period.

30. The programme for trunk telephones provides for installation of 28 trunk automatic exchanges and 2000 public call offices during the Plan period. It is proposed to meet the increasing demand for trunk telephones between important stations by extension of subscriber to subscriber dialling services to important main automatic exchanges and to a number of small automatic exchanges. Provision has been made for completion of the carry-over schemes for laying coaxial cables and microwave on different routes. It is proposed to add 8500 kilometres of coaxial cables and 8500 microwave links to the trunk network during the Fourth Plan. Adequate circuit capacity with provision for alternate routing for interlinking Delhi, Bombay, Calcutta and Madras will also be provided.

31. For meeting the requirements of telegraph services, provision is made in the Fourth Plan for opening of additional 2000 telegraph offices and modernisation of the existing offices, introduction of teleprinter working on a wider scale and installation of general teleprinter exchanges in major centres for introducing circuit switching in telegraph network. It is proposed

to introduce 4000 teleprinters in the telegraph offices where traffic justifies their use. The existing teleprinter exchanges will be expanded and the Telex service will be extended to 50 additional stations. Provision is also made for 8000 voice frequency telegraph channels for strengthening of different routes for telegraph services.

32. Overseas communication services.:- The demand for external telecommunication services has been growing and it is necessary to devise new means of telecommunication to supplement the existing high frequency radio spectrum which is becoming greatly congested. Development in two main directions is envisaged, namely, use of earth satellites and installation of submarine cables. India has joined the Global Satellite Communication System now being developed by a group of nations. Steps are being taken to set up a ground station in India for communications with the Global Satellite. Provision is also made for India's participation in the Commonwealth Cable System.

33. Hindustan Teleprinters.:- In view of the growing demand for teleprinters for Posts and Telegraphs, Railways, Defence and Overseas Communications and other users, the capacity of Hindustan Teleprinters, Madras, is proposed to be expanded from 1000 machines in 1964-65 to 3000 machines per annum in 1966-67 and to 8500 machines a year in 1970-71.

Broadcasting

34. The proposals formulated by the All India Radio for the Fourth Plan involve a total outlay of Rs.67.9 crores against which a provision of Rs.45 crores is proposed for the present in the Plan. The main objectives of the programme for the Fourth

are: (1) strengthening of external services, (2) effective coverage of the border areas, (3) extension of coverage of regional services and (4) expansion of facilities for community listening all over the country.

35. As part of programme for the Third Plan for strengthening of external services, two high power short-wave transmitters are being set up at Aligarh and one super high power transmitter near Calcutta. The proposals for the Fourth Plan envisage installation of two additional high power short-wave transmitters at Aligarh and one super power transmitter in Rajkot area. Provision has also been made for studio and programme originating facilities at Delhi to meet the requirements of external and news services.

36. By the end of the Third Plan the medium wave coverage in the country extended to about 52 per cent of the area and 70 per cent of population. Proposals for the Fourth Plan provide for complete coverage of border areas and extension of the overall coverage in the country to about 82 per cent of the area and 85 per cent of population by the end of the Plan period. In formulating the programme for internal services special consideration has been given to the requirements of border areas and provision is made for a chain of additional high power medium wave transmitting stations with studio facilities for these areas. Besides, the existing transmitters at Jammu, Kohima, Imphal, Trichur and Port Blair are proposed to be strengthened. As far as possible, provision will be made for adequate coverage of the areas in which intensive agricultural development programmes have either been undertaken or are likely to be undertaken in the period of the Fourth Plan. Special attention is to be given to the areas inhabited by tribal people and also autonomous hill districts of

of Assam which need broadcasting facilities in their own local languages. The proposals have been worked out in detail, keeping in view the recommendations made by the Committee on Broadcasting and Information Media. Under the programme for extension of community listening facilities to rural areas, it is proposed to supply at least one set to each of the 5.67 lakh villages in the country. Efforts are being made to ensure that development schemes for rural broadcasting will provide for satisfactory arrangements for maintenance of sets in each State.

37. The programme for television envisages strengthening of the existing centre at Delhi for extension of services to rural areas around Delhi upto the distance of about 200 kilometres by installation of a few subsidiary transmitters at different locations. Further, it is proposed to set up four additional centres one each at Bombay, Calcutta, Madras and Kanpur during the Fourth Plan period. At these centres programme production facilities are proposed to be provided for service of about two to three hours daily.

38. Concerted efforts have to be made to organise manufacture of transmitters, television sets, community listening sets, low cost receivers and other broadcasting equipment within the country in order to ensure that foreign exchange requirements are progressively reduced during the Fourth Plan period. For speedy and efficient implementation of the programme in the Fourth Plan, proposals are being formulated to strengthen the administrative organisations at the Centre as well as at the State and regional levels. The staff training school is proposed to be strengthened to meet the requirements of qualified engineers and operational staff during the Plan period.

Tourism

39. The provision of Rs.25 crores proposed for tourism includes Rs.20 crores for programmes of the Central Department of Tourism and the India Tourism Corporation and Rs.5 crores for programmes to be taken up as part of the State Plans. Details of tourism programmes are being worked out.

.-.-.

Transport & Communications SectorFourth Plan outlay compared with the outlay and expenditure
in the Third Plan

(Rs. crores)

Head/Sub-head of Development	Third Plan			Fourth Plan outlay	
	Financial provision	Cost of physical programmes	Likely expendi- ture	As in the Memo- randum of Sept. 1965	Proposed outlays
1	2	3	4	5	6
<u>Transport</u>					
Railways	890	940	1323	1310	1410
Roads	272	324	445	730	760
Road Transport	25	26	27	65	65
Ports	86	105	91	153	170
Farakka Barrage	-	-	- 1/	50	65
Shipping	57	58	41	90 2/	90
Inland Water Transport	7	9	3	13	13
Lighthouses	6	6	4	6	7
Civil Air Transport (including Meteorology)	55	55	50	73 3/	125 3/
Tourism	8	8	6	25	25
<u>Total - Transport</u>	<u>1406</u>	<u>1531</u>	<u>1990</u>	<u>2515</u>	<u>2730</u>
Communications	73	88	118	213	235
Broadcasting	7	11	8	40	45
<u>Grand Total</u>	<u>1486</u>	<u>1630</u>	<u>2116</u>	<u>2768</u>	<u>3010</u>

1/ Expenditure on Farakka Barrage was kept outside the Plan.

2/ Figures of outlays relate to advances to be given by Government to the Shipping Development Fund. Programme will be financed partly through the balances available in the Fund and the resources to be contributed by the Shipping Companies including the Shipping Corporation of India.

3/ The outlay of Rs.125 crores includes Rs.40 crores to be found from depreciation funds of Air Corporations. Earlier figure of Rs.73 crores is exclusive of contributions from this source.

Transport & Communications Sector

Targets of Development for the Fourth Plan along with the corresponding position at the end of the Third Plan

Sector/Item	Unit	Third Plan		Fourth Plan targets (1970-71)
		Targets (as originally fixed)	likely achievements (1965-66)	
1	2	3	4	5
<u>Railways</u>				
Freight traffic	Million tonnes	249	205	308
<u>Roads</u>				
Surfaced roads	'000 Kms.	276	284	334
<u>Road Transport</u>				
Commercial vehicles on the road -				
Buses	'000 Nos.	80	70	100
Trucks	'000 Nos.	285	250	425
Total	'000 Nos.	365	320	525
<u>Major Ports</u>				
Traffic	Million tonnes	50 ^{1/}	50	82.5
<u>Shipping</u>				
Tonnage	lakh GRT	10.4	15.4	30.0
<u>Civil Air Transport</u>				
Air India - available capacity	Million tonne-Km	Not specified	338	594
Indian Airlines - available capacity	Million tonne-Km	Not specified	155	342
<u>Communications</u>				
Post Offices	'000 Nos.	94	92	110
Telephone connections	'000 Nos.	765	373	1523
Public call offices	'000 Nos.	10.4	10.1	12.1

1/ The target capacity of major ports (excluding Mormugao) as indicated in the Third Plan was 50 million tonnes. The estimates of traffic for 1965-66 and 1970-71 are inclusive of traffic at Mormugao.

E D U C A T I O N

I. GENERAL APPROACH

Education as an investment in human resources, plays an important role among the factors which contribute to economic growth. It secures returns in the form of skilled manpower geared to the needs of development and also creates the right attitudes and climate for development. It exposes the farmers and workers to new ideas, stirs their ambition and bends them to change. It seeks to create an environment of discipline, harmony, understanding and team work which is conducive to the implementation of production plans. Both for accelerating economic development and for improving the quality of the society which we are trying to create, it is essential that planning should establish a firm and purposive link between education and development.

2. It is true that during the three previous plan periods there has been a substantial expansion in enrolment at all levels of education in India as will be evident from Annexures I & II. The expansion of numbers has, however, been accompanied by a certain measure of deterioration in quality. The Indian educational system has not been sufficiently geared to economic development, especially at the primary and secondary levels, insufficient attention having been paid to vocational and agricultural education. Girls' education has still a long way to go before it can catch up with that of boys, while certain parts of the country are significantly lagging behind others in respect of both boys' and girls' education. Stagnation and drop-outs at the primary levels has resulted in a considerable wastage of resources devoted to this sector of education, while the high proportion of failures and third classes at the university stage,

especially in regard to Pass courses, bears evidence of the need for improvement in quality. It is obvious that educational planners in the immediate future should pay larger and more effective attention to factors like consolidation, quality, diversification, terminalisation, and work orientation than has been the case so far.

3. The Fourth Plan attempts to face three major tasks in the field of education: to remove the deficiencies in the existing educational system and link it more effectively with the increasing demands of social and economic development; to remove internal stresses and strains in the educational system which have developed in consequence of rapid expansion during the first three Plans; and to extend the system in response to social urges and economic needs. Investment in education will seek to obtain better returns by avoiding waste and improving the quality of its content. High priority will be given to the training of technical personnel. The emphasis at the elementary stage will be on free and universal primary education, elimination of wastage, and work orientation of the curriculum. At the secondary stage, the provision of vocational education of a terminal character and the strengthening of science teaching will receive special attention. At the post-matric and university stages, the emphasis will be on diverting students to vocational, technical and professional channels and on extending facilities for science and post-graduate teaching and research work. The quality of teaching will be improved with greater insistence on the training of teachers and by linking increases in their salaries to improvement in qualifications. Research in curricula and methods of teaching will be intensified. Particular emphasis will be laid on extending adult education and functional literacy as an instrument of economic development. Book production in Indian languages will receive greater attention. Loan scholarships will be provided on a large scale as a step towards the democratisation

of education. It is intended that every student of merit should be able to study up to the highest level and poverty should not stand in his way. Special attention will be paid to the education of members of the scheduled castes and scheduled tribes. The technology of education will be improved to secure better results at less cost by insisting on large-sized institutions, utilisation of the buildings, libraries and laboratories for longer hours, part-time and correspondence courses, etc. Efforts will be made to mobilise local resources for providing mid-day meals to school children, constructing school buildings, developing school improvement programmes, etc. and to establish a close relationship between the school and the community.

II. PROGRAMMES & POLICIES

Pre-School Education:

4. Pre-school education has largely been left to private initiative. Although it is an important area, Government can assume only limited responsibility in view of the dearth of resources and the large scale effort required to provide for compulsory primary education. It is, therefore, proposed to confine governmental attention to certain strategic areas, such as training of teachers, production of teaching material and evolving methods suitable to Indian conditions.

Elementary Education:

5. Primary education, as an important area of education in a developing country, enables children to acquire literacy and to retain it in adulthood besides cultivating in them the capacity to acquire skills and develop a right attitude to work and towards production. The efforts made so far reveal that there has been a very significant increase during the last 15 years in the number of children going to school. Between 1950-51 and 1965-66, their number has risen from 19 million to about 52 million (estimated) in Classes I to V and from 3 million to 11 million in Classes VI to VIII. Although a special effort is still necessary to bring them up to the level of the rest of

the population, it is encouraging that the enrolment of scheduled caste and scheduled tribe children has increased at a faster rate than before. Similarly, the gap between the enrolment of boys and girls has been narrowing. The proportion of house-holds sending children to school is, however, still low among the poorer sections of the rural society. The increase in enrolment has also not been uniform over all the States. Sixty per cent of the children in the 6-14 age-group, who do not attend school, are centralised in six States, viz. Jammu & Kashmir, Uttar Pradesh, Bihar, Orissa, Madhya Pradesh and Rajasthan. The content and quality of primary education also needs to be improved all over the country.

6. The targets of expansion for elementary education are as follows:

Stage/Age-group	(enrolment in million)				
	1960-61 (actual)	1965-66 (estimated)	1970-71 (targets)	Additional 1961-66	1966-71
<u>Primary (6-11)</u>					
<u>Classes I-V</u>					
Enrolment	34.99	51.50	69.50	16.51	18.00
Percentage of age-group	62.2	78.5	92.2		
<u>Middle (11-14)</u>					
<u>Classes VI-VIII</u>					
Enrolment	6.70	11.00	19.00	4.30	8.00
Percentage of age-group	22.5	32.2	47.4		

In spite of the appreciable rise in the number of children going to school, we will still be far from fulfilling the constitutional directive of free and compulsory education for all children up to the age of 14. This goal is not expected to be achieved before 1981. However, as an effective step towards it,

great emphasis will be placed on the reduction of drop-outs which is as high as 50 per cent in primary classes. Several measures are envisaged to achieve this objective, such as better organisation of the schools, free supply of text books and extension of the mid-day meal programme. The massive programme of adult education envisaged during the Fourth Plan will also go a long way to assist in motivating parents to keep their children in school. Adjusting school hours and vacations to agricultural operations like sowing and harvesting and modifying the curriculum to meet local needs should also be helpful. Provision of school buildings and introduction of two shifts in the first class, wherever necessary, as well as maximization of space utilization by promoting multiple use of school buildings has also been planned. Greater attention will be paid to securing an increase in the enrolment of girls. This means that special steps will have to be taken to increase the supply of women teachers. A programme which will greatly facilitate this will be building of quarters for women teachers in the rural areas. Adult women with some education will be able to improve their educational qualification through condensed courses and subsequently given professional training to work as teachers, midwives, etc. Basic education will be strengthened by developing carefully selected schools and introducing in other schools work-oriented curricula and citizenship training.

Secondary Education

7. As a result of the impact of rapid expansion in the elementary stage as well as the various concessions given to students of backward classes, the enrolment at the secondary stage increased

from 1 million in 1950-51 to 5 million in 1965-66 (estimated). To provide for expansion needs, the following targets are being set.

Enrolment targets for secondary education

(Figures in million)

Stage/age-group	1960-61 (achievement)	1965-66 (likely achievement)	1970-71 (targets)	<u>Additional</u> 1961-66 1966-71	

Secondary (14-17) <u>Classes IX-XI</u>					
Enrolment	2.96	5.24	9.00	2.23	3.76
Percentage of age-group	11.7	17.8	22.1		

8. Secondary education is beset with a number of problems which need urgent attention. One of the major problems is that while at the end of secondary education large numbers have to enter life, they do not find themselves adequately equipped to do so, with the result that the number of educated unemployed in the live registers of employment exchanges has increased rapidly in recent years. Again, about 50 per cent of students appearing for the final examination fail to pass. This is indicative of the poor quality of teaching and the consequent wastage at the secondary stage. Another major difficulty faced is the dearth of teachers in science, mathematics, english and diversified courses.

9. It is obviously essential to improve the quality of teaching in secondary schools and evolve a system which will prepare students for entrance to the university and also afford facilities for those who want to enter a definite vocation. This

means a diversified system of secondary education. The emphasis consequently will be on the provision of a large variety of courses including technical, commercial, agricultural, etc. of a terminal character. How far these diverse courses can be offered in the same institution and to what extent they require the setting up of specialised institutions like junior agricultural, technical and vocational schools is a matter that is being further examined in the light of the recommendations of the Education Commission. It will also be necessary to make a study of the requirements of various types of middle level personnel in each State so that students can be guided regarding vocations likely to be available. There will be greater stress on science education. Science teachers will be encouraged to take correspondence courses and attend summer institutes thereby improving both their knowledge of the subject and their skill to teach it. The upgrading of high schools to higher secondary schools is proposed to be completed in those States which have already made significant progress in this direction. In other States, attention will be concentrated on improving the high schools. The existing multipurpose schools will be strengthened and research in various problems of secondary education expanded. To sum up, efforts will be made to re-orient our secondary education and devise a system that will prevent the current rush to the universities and, at the same time, give to the secondary school leavers a training which has an employment value and make them productive workers when they go out into the world.

Girls' Education

10. Sustained efforts to extend facilities for the education of girls have been made right from the First Plan. The gap between

boys' education and girls' education has narrowed, but is still considerable as indicated in the following table:

Table: Progress in girls' enrolment

(Figures in lakhs)

	Enrolment in classes					
	I-V		VI-VIII		IX-XI	
	Total	Girls	Total	Girls	Total	Girls
1950-51	191.5	53.8	31.2	5.3	12.2	2.0
1960-61	343.4	109.6	62.9	14.7	29.8	5.3
1965-66	515.0	182.0	110.0	28.0	52.4	11.2

Girl students as a percentage of their population in the relevant age group increased from 24.6 per cent to 56.2 per cent in classes I-V, 4.5 per cent to 16.7 per cent in classes VI-VIII, and 1.8 per cent to 7.8 per cent in classes IX-XI during the last 15 years. To narrow the gap further, programmes for accelerating girls' education at the school stage are being intensified. These measures include provision of teachers' quarters, special allowance for women teachers serving in rural areas, and building up a cadre of teachers from amongst adult women through the provision of condensed courses to upgrade their qualifications, the recruitment of school mothers, construction of hostels, etc.

University Education

11. The expansion of universities and the increase in the number of persons enrolled in colleges and other institutions of higher education is a striking feature of the years since independence. Enrolment at the university stage in science, arts and commerce faculties has gone up from 0.3 million in 1950-51 to 1.1 million in 1965-66. While, during each of the first two Plans,

the enrolment increased by 0.2 million, it is estimated to have risen by 0.4 million in the Third Plan. The targets of university education in the Fourth Plan are as under:-

Enrolment targets at the university stage

(Figures in million)

Stage/age-group	1960-61 achieve- ment	1965-66 likely achieve-	1970-71 target ment*	<u>Additional</u> 1961-65 1966-71	

University/Collegiate (15-23)@

1. Enrolment (Total)	0.7	1.10	1.60	0.40	0.50*
2. Percentage of age-group	1.5	1.9	2.4		
3. Enrolment in science courses	0.19	0.44	0.80	0.25	0.36

* Includes 0.05 million students to be educated through correspondence courses.

@ Arts, Science and Commerce subjects (excluding Intermediate students)
12. It is proposed to take steps to slow down the number of

persons enlisting for arts and commerce courses and expand facilities for science, agriculture, technical (particularly diploma level) and medical education. The limitation in numbers will be effected by raising the qualifications for admission, arranging correspondence courses, multiplying terminal courses at the secondary stage, and by discouraging the opening of sub-standard affiliated colleges. Improvement of facilities, incentives to teachers to improve their qualifications, provision of better text-books and summer institutes for improving the skill and knowledge of teachers are expected to raise the general level of teaching. Facilities for post-graduate education and research will be increased, particularly in science subjects. No new universities are contemplated during the Fourth

Plan period. Instead, preference will be given to the setting up of university centres for post-graduate studies, each embedded in a complex of colleges with a large enrolment. Such centres will have adequate laboratory facilities, libraries and a nucleus of university teachers. It is also proposed to link the Institutes of Rural Higher Education with development programmes in rural areas through suitable adjustment of courses and admissions.

Teacher Education

13. An important sector of post secondary education is the training of teachers for elementary as well as secondary schools. Most of the challenges which face Indian education today are experienced in tackling the problem of teacher preparation, fast increasing numbers and the consequent strain on the available facilities as well as in the rapidly growing demands of socio-economic development on the education system. Further, it is necessary to take into account the recent advances in pedagogic techniques, the changing character of the school population, the new curricula, and the role of teachers in national integration and the development of democratic practices.

14. The number of school teachers increased from 750,000 in 1950-51 to 2 million (estimated) in 1965-66. The number of trained teachers during the same period increased from 430,000 to 1.4 million, raising the percentage of trained teachers from 57 to 70. However, the number of untrained teachers went up simultaneously from 320,000 to 600,000. Acute shortage of teachers was also experienced in certain subjects like science, mathematics and technical and vocational courses. The rapid expansion of training institutions has also outstripped the provision of physical facilities, libraries, laboratories, buildings, etc. The quality of teachers also needs serious attention.

15. In the Fourth Plan the additional requirements of teachers are estimated to be 800,000 (520,000 for additional enrolment and 280,000 for replacement at the rate of 3 per cent) for the elementary stage and 215,000 (157,000 for additional enrolment and 58,000 for replacement at the rate of 4** per cent) for secondary stage. To meet these additional needs as also to clear the backlog of untrained teachers, recourse will be had not only to the creation of more facilities for whole-time teacher education, but also to the institution on a large scale of correspondence and short-term courses. Correspondence training has some shortcomings, but there appears at present no other way of meeting the situation. The Plan provides for correspondence courses for 140,000 elementary teachers and about 23,000 secondary teachers. For whole-time trainees, additional places will be found largely by expansion of existing institutions rather than by opening new ones. Attempt is being made to estimate the requirements of teachers both Statewise and by subjects and qualifications and efforts will be made to meet the shortages by increasing the output in the appropriate fields from the universities and other institutions of higher education. Short-term courses will be organised to help teachers improve their knowledge of particular subjects. The universities, State Institutes of Science Education, State Institutes of Education, summer institutes, correspondence courses, etc. will be utilised for this purpose. Research will be encouraged in curricula and teaching methods in a continuous effort to improve programmes of teacher training. A more intimate connection will be established between teacher training institutions and universities and the

** Replacement at the secondary stage has been taken at a higher rate in view of the fact that a larger number of teachers leave for alternative employment.

universities will be encouraged to set up departments of education. Incentives in the form of cash awards and special increments in salaries are being provided in the Plan for teachers to enhance their academic and professional qualifications.

16. An important step towards improvement will be the setting up of large-sized comprehensive pedagogic institutes where teachers of different disciplines, both for the elementary and secondary schools, will receive education. Such institutions will bring the training of secondary and elementary teachers under one roof and will remove the artificial barrier between different categories of teachers and help in building up sound traditions for the profession. Large institutions will be in a position to employ well paid staff and provide the other facilities necessary for good teacher education on an adequate and economic scale. They will also help to raise elementary teacher training to the level of a university discipline.

Technical Education:

17. Technical education has expanded rapidly during the three Plans as already indicated in Chapter VII. At the end of the Third Plan, facilities exist for an annual admission of 24,700 students for degree courses and 49,900 students for diploma courses in the several branches of engineering and technology. In addition, 4,000 seats for degree courses and 3400 for diploma courses have been approved. The annual outturn from these facilities is expected to meet the likely demand for engineering graduates and diploma holders in the Fourth Plan. At the Degree level, it is estimated that the demand for the Fifth Plan would also be largely met and no large scale expansion is considered necessary during the Fourth Plan.

18. The rapid expansion of facilities during the recent years has severely strained the resources of the existing institutions. A survey in 1964 revealed that engineering colleges and polytechnics had an overall shortage of 35 per cent in teachers, 53 per cent in equipment, 51 per cent in instructional buildings and 55 per cent in hostels. As a result, there is a high rate of wastage, particularly in the polytechnics. It is proposed now, as a first priority, to make up these deficiencies and consolidate the existing institutions by providing essential physical facilities like buildings, equipment and hostels, ensuring the availability of qualified teachers and bringing about closer integration of engineering education with industrial requirements.

19. In order to ensure that a sufficient number of qualified teachers are available, facilities for post-graduate education and research would be expanded and teachers already in service helped to improve their educational qualifications. It is expected that 3,500 places would be available for these courses in selected engineering colleges by the end of the Plan. It is also proposed to take measures to stimulate the exchange of personnel between industries and educational institutions. Engineers working in industries would be encouraged to participate in teaching for specified periods, while teachers would be provided opportunities to get first hand knowledge of industrial techniques by accepting short-term assignments there.

20. In regard to expansion of facilities, as already stated, the probable demand for graduates in the Fifth Plan is expected to be met by the outturn from existing institutions. There is

likely to be, however, some demand for specialists in new branches for meeting the requirements of new industries. Provision is being made for the examination of specific demands of this type and for the establishment of appropriate training facilities. Thus, an additional annual admission capacity of 1300 students only is included in the proposals for the Fourth Plan. A view has, however, been expressed that the annual admission capacity should be raised and that this may require the setting up of new engineering colleges in the Fourth Plan. This is being gone into by a high powered Committee including some State Ministers and appropriate changes, if necessary, will be made in the Plan for technical education. The additional facilities provided at present are by expansion of selected existing colleges and institutes. This will assist in economising expenditure on equipment and buildings and also facilitate better utilisation of some costly equipment and provide for the required inter-disciplinary collaboration.

21. At the Diploma level, admission capacity is proposed to be increased in the Fourth Plan by 18,100⁺ to ensure the growth of pool of engineering manpower as indicated in Chapter VII. The targets for annual admissions to degree and diploma courses in engineering and technology at the end of the Fourth Plan would be as follows:

<u>Admission capacity</u>	<u>Targets for Tech. Edn.</u>		
	<u>1965-66</u>	<u>1970-71</u> <u>(total)</u>	<u>1966-71</u> <u>(additional)</u>
Degree courses (Nos.)	24,700	30,000	5,300*
Diploma courses (Nos.)@	49,900	68,000	18,100+

- - - - - @ Includes admission capacity in the polytechnics for girls.

* This includes 4,000 seats already approved in the Third Plan, but not provided by March, 1966.

† This includes 3,400 seats already approved in the Third Plan but not provided by March, 1966.

22. At the Diploma level, additional facilities will be created both by expanding existing institutions and establishing new ones. The new institutions will be coordinated with the existing as well as developing industrial centres in the country. Such coordination with industrial complexes will ensure, for technical education, the cooperation of industries and facilities for practical work in large factories. This is necessary not only to give technical institutions the appropriate environment but also to facilitate cooperative education and linking of technical training with employment. It is also considered necessary that, at this level, there should be diversification of training facilities to cover the entire range of middle level technicians.

23. The Plan lays emphasis on the development of part-time and correspondence courses to provide opportunities for study to those who have had to leave full time educational institutions to enter employment. In organising these courses, it would be ensured that standards are maintained at the same level as in full-time education. Arrangements would be made for laboratory work and workshop practice in selected technical institutions under a programme of on-campus study.

24. To prepare high level management personnel, two institutes of management had been started at Calcutta and Ahmedabad during the Third Plan. These conduct full time courses of two years duration leading to the degree of Master of Business Administration. By the end of the Third Plan, the intake capacity of both the institutes was 300. To meet the increasing demand for managerial personnel, it is proposed to increase the admission capacity of

these institutes. In addition, management instruction on a part-time basis was being provided in selected universities like Bombay, Delhi and Madras. During the Third Plan, more universities and technological institutions have started similar courses. Some of the universities have also started full time course in business administration. Mention must also be made of the activities of the National Productivity Council and the All India Management Association as well as the courses offered in the Administrative Staff College, Hyderabad. It is also proposed to offer short-term and correspondence courses in modern techniques and methods of management for the benefit of the large number of small entrepreneurs. It is necessary to take an integrated view of the facilities being provided in the country as a whole from all those institutions, and link them more functionally with requirements. This will be taken up before the completion of the final report.

Social Education

25. Widespread illiteracy is a real handicap in the way of both economic and social development. This has not been adequately tackled in the past and has led to various problems. Though literacy* increased from 17 per cent in 1951 to 24 per cent in 1961, the number of illiterates also increased within this period from 298 million to 334 million due to the increase in population. In the Fourth

* Percentages refer to total population.

"The test for literacy in the Census of 1961 was satisfied if a person could, with understanding, both read and write. The test for reading was ability to read any simple letter either in print or in manuscript. If the person could read one of the examples in the enumerator's handbook with facility, he was taken to have passed the test for reading. The test for writing was ability to write a simple letter. To qualify for literacy, a person was not required to pass any standard examination. On the other hand, literacy was recognised as something a man still possessed and actively put to use and it was in this general practical sense that it was uniformly applied. The results are thus comparable from area to area. If a person could both read and write and had also passed a written examination or examinations as proof of an educational standard attained, the high examination passed was to be recorded." - Census of India-1961, Vol.I - page XIV.

Plan it is proposed to launch a mass adult literacy movement which should help increase production both in the factory and the farm.

26. Adult literacy will need to be made functional in character and linked up with the work and life of the people so that it serves as a tool for rural development. Particular emphasis will be given

on retention and utilisation of literacy. Recognising the importance of follow up measures to make literacy effective, provision is being made for libraries in the rural areas and for large-scale book production suited for neo-literates in different languages. Stress will be laid on the mobilisation of public cooperation in covering the first stage of literacy on the lines of the Gram Shikshan Manim tried out in Maharashtra. Attention will also be paid to the training of literacy workers and library personnel, opening of adult schools and night classes, especially for low income groups in industrial areas and establishment of workers' education colleges.

27. The problem of adult education and functional literacy is so vast that it is not likely to be solved unless it is tackled at the level of political and popular leadership. This could be provided by the setting up of a National Adult Education Board and corresponding State Boards. These Boards will take steps to organise the programme on a campaign basis, elicit non-official support from all possible quarters and provide the necessary inter-departmental coordination.

Development of Languages

28. The question of development of Indian languages has become urgent. It is necessary that they grow rapidly in richness and functional efficiency and become effective means of communicating modern knowledge. Simultaneously steps need to be taken to establish effective inter-communication between them. With these objectives in

view, it is proposed to set up one institute for each principal language, which will conduct research in the language, encourage production of literature and prepare encyclopaedias, lexicons and other reference material. Universities will also be encouraged to expand and develop their departments of modern Indian languages.

29. In pursuance of Article 351 in the Constitution which declared Hindi as the official language of the Union of India, various schemes for its propagation and development were initiated. These programmes included establishment of Hindi teachers' training colleges and provision of qualified Hindi teachers for schools in non-Hindi speaking States, grants-in-aid to voluntary organisations and individuals for the propagation and development of the language, preparation of books and other reading material in Hindi, etc. These programmes are being considerably stepped up. Attention will also be given to the development of Sanskrit through assistance to Pathshalas, award of scholarships, etc.

Preparation of Text Books

30. Another problem needing urgent attention is that of text books. The present position is very unsatisfactory from the point of view of content, presentation, printing and binding. At the university stage and in technical institutions, the need of good books is met to some extent by imports from foreign countries and publication of cheap Indian editions of some well known foreign books. At the school stage, there is a real dearth of good books. The National Council of Educational Research and Training and the State Governments will attend to this. A National Book Council is being set up which is also expected to assist in this programme.

Physical Education

31. The programme will include provision for physical education in all secondary schools, equipping schools and colleges with sports equipment and building gymnasias and stadia. Facilities which have so far been confined to urban areas are now proposed to be extended to rural areas. Local contributions towards amenities for physical education will be encouraged. The National Institute of Sports and the National College of Physical Education will be further developed. Programmes under the National Fitness Corps, which has already passed the pilot stage, are proposed to be extended throughout the country. Social service camps, campus works projects, youth hostels, scouts and guides, etc. will also be encouraged.

Cultural & other Programmes

32. The programmes proposed under this head pertain to the Archaeological Survey of India, the Academies, Indology, museums, cultural scholarships, gazetteers, etc. These are mostly continuing schemes. A scheme where new ground is sought to be broken is to acquaint the school and college students and through them the people in general with our cultural heritage through the publication and distribution to selected high/higher secondary schools and colleges/universities, archaeological albums, prints of India paintings, plaster casts of Indian sculpture and selected records of Indian classical music.

Programmes for improving facilities for audio-visual education and educational research and training are also envisaged.

Scholarships

33. Scholarships constitute an important means of equalising opportunities and encouraging talent. Expenditure on scholarships and other concessions to students has been increasing steadily from

year to year. It rose from Rs.2.75 crores in 1950-51 to Rs.20 crores in 1960-61 and is estimated to have gone up to Rs.35 crores in 1965-66. Of the total enrolment at various stages of education, scholarship holders at the end of the Third Plan are estimated to form 2.8 per cent at the middle stage, 8 per cent at the secondary stage and about 18 per cent at the post-matric stage, including technical education institutions.

34. During the Fourth Plan, the outlay on scholarships will be further increased to Rs.54 crores under secondary, university and technical education and another Rs.15 crores under agricultural and medical education. As a result, the annual expenditure on scholarships and other concessions to students will rise to nearly Rs.69 crores by 1970-71.

35. The scholarships will be given largely as loans. The repayment will be in easy annual instalments spread over a number of years after the students have completed the studies and started earning. It is suggested that a national autonomous organisation be set up for the administration of this programme. The organisation will coordinate the various scholarship programmes in the country. It will receive funds from the Government as well as donations from the public. It will follow up the educational careers of scholars and offer them the necessary guidance from time to time. It is felt that the new organisation will have the necessary flexibility and speed, as well as prestige to act as the focus of a national endeavour in this important field.

Emoluments and service conditions of teachers

36. The quality of education is largely determined by the skill

and ability of the teachers who man various institutions. No system of education can rise above the quality of its teachers. It is important that their status in society should be suitably recognised and they should be paid emoluments comparable to those earned by persons with similar qualifications in other professions. It is, therefore, felt that the general rise in the salaries of the teachers should be in the normal budget as in the case of other Government servants. One has, however, to encourage a constant desire among the teachers to study and improve their qualifications. Provision, therefore, has been made in the Plan for incentive payments to the teachers who improve their qualifications.

Educational Administration

37. Despite a phenomenal increase in the range and dimensions of educational activities at all stages, the structure of educational administration has undergone little change during the last fifteen years. It is necessary, therefore, that the machinery of educational administration should be expanded both quantitatively as well as qualitatively, to ensure efficient implementation of the expanded educational programmes. The strength of the inspectorate should be related to the number of schools in a particular area. Further, to improve the quality of instruction at the secondary stage, the appointment of subject specialists for supervisory duties is envisaged. The statistical and planning machinery at the Centre and the States will also be strengthened. An autonomous organisation for administering scholarships and a National Board to review the progress and advise on Social Education have been mentioned already. A suitable machinery for correspondence courses is also under consideration.

III OUTLAYS AND TARGETS

38. The proposed expansion in educational facilities will call for a considerable investment and organisational effort. An outlay of Rs.1,210 crores is being provided for carrying out the above tasks. The outlay envisaged in the Fourth Plan is nearly 20 per cent more than the expenditure in all the three Plans put together and is more than double the expenditure in the Third Plan. The distribution of the proposed public sector outlay is indicated below:

	(Rs. in crores)
1. Elementary Education	322
2. Secondary Education	243
3. University Education	175
4. Teacher Education	92
5. Technical Education	253
6. Social Education	64
7. Cultural Programmes	15
8. Miscellaneous (General Education)	46
<u>Total:</u>	<u>1210</u>

39. The above outlay will involve construction of buildings worth about Rs.320 crores. This will call for careful planning of school buildings and laboratories, so that they are economic in construction and functionally more effective. Greater public cooperation in the provision of buildings and equipment is also envisaged.

40. The provision of adequate equipment and facilities is an important pre-requisite for improvement in quality. A substantial increase in outlay under this programme has, therefore, been included. The equipment component in the Fourth Plan is worth about Rs.150 crores,

which is about three times as large as that in the Third Plan. This include laboratory and workshop equipment of roughly Rs. 80 crores involving Rs.60 crores of foreign exchange. Steps are being taken to build indigenous production capacity to meet this demand.

41. The achievements during the previous three plans^{and} the target for the Fourth Plan in physical terms relating to the principal programmes are summarised below :-

Programme	UNIT	Achievement 1950-51	Achievement 1960-61	Target 1965-66	Likely achievement by 1965-66	Target 1970-71
1.	2.	3.	4.	5.	6.	7.
1. Elementary Education						
A. Primary Stage (Classes I-V)						
Enrolment	Million	19.15	34.99	50.29	51.50	69.50
Percentage of the Age-group 6-11 %		42.6	62.2	76.4	78.5	92.2
B. Middle Stage (Classes VI-VIII)						
Enrolment	Million	3.12	6.70	10.16	11.00	19.00
Percentage of the age-group 11-14%		12.7	22.5	29.8	32.2	47.4
2. Secondary Stage						
Enrolment	Million	1.22	2.96	4.61	5.24	9.00
Percentage of the age-group 14-17 %		5.8	11.7	15.7	17.8	22.1
3. University Education						
Enrolment	Million	0.30	0.73	1.10	1.10	1.60*
Percentage of the age-group 17-23 %		0.7	1.5	1.9	1.9	2.4
4. Technical Education (Admission capacity)						
A. Diploma Course	Nos	5,900	25,800	37,390	49,900**	68,000
B.. Degree course	"	4,120	13,820	19,140	24,700**	30,000

* This includes 0.05 million students to be educated through Correspondence Courses.

** Sanctioned capacity for diploma course is, however, 53,300 while it is 23,700 for degree course

The Report of the Education Commission

42. The Education Commission was appointed by the Government of India in July, 1964 to advise on the national patterns of education and on the general principles and policies for the development of education at all stages and in all aspects. The Commission has recently submitted its report, but at present only summary has been made available to the public. A perusal of this shows that in many areas the recommendations of the Commission are broadly in line with our thinking outlined in this chapter. When the full report becomes available, it will be carefully considered and such modifications will be made in the programme as may be considered necessary.

Progress in the number of students at schools and colleges
1950-51 to 1965-66
(Figures in millions except V below)

Stage and Age-group	1950-51 (Actuals)	1955-56		1960-61		1965-66	
		Target	Achievement	Target	Achievement	Target	Achievement
1.	2.	3.	4.	5.	6.	7.	8.
<u>I. Primary (6-11)/Classes I-V</u>							
Enrolment	19.15	28.55	25.17	32.90	34.98	50.29	51.50
% age of age-group	42.6	60.0	52.9	58.5	52.2	76.4	78.5
<u>II. Middle Stage (11-14)/Classes VI-VIII</u>							
Enrolment	3.12	@	4.29	5.58	6.70	10.16	11.00
% age of age-group	12.7		16.5	18.7	22.5	29.8	32.2
<u>III. Secondary (14-17)/Classes IX-XI</u>							
Enrolment	1.22	@	1.88	2.65	2.96	4.61	5.24
% age of the Age-group	5.8		7.8	10.5	11.7	15.7	17.8
<u>IV. University Education (17-23) (Arts, Science and Commerce)</u>							
Enrolment (Excluding Intermediate)	0.30	@	0.52		0.73	1.10	1.10
% age of the age-group	0.7		1.1		1.5	1.9	1.9
<u>V. Technical Education</u>							
(Admission capacity) Diploma (No)	5,900	@	10,480	20,530	25,800	37,390	49,900
Degree (No)	4,120	@	5,890	11,140	13,820	19,140	24,700

@ No targets were laid down

(Enrolment, in Lakhs)

Sl. No.	State/Union Territory	Classes I to V			Classes VI-VIII			Classes IX-XI		
		1955-56	1960-61	1965-66	1955-56	1960-61	1965-66	1955-56	1960-61	1965-66
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.	Andhra Pradesh	23.59 (56.7)	29.76 (68.3)	37.29 (75.7)	3.09 (13.5)	4.08 (16.9)	6.53 (25.1)	1.82 (8.4)	1.96 (8.7)	2.72 (11.4)
2.	Assam	88.15 (59.4)	11.26 (67.7)	15.09 (75.8)	1.46 (21.9)	2.20 (25.8)	3.15 (31.2)	0.03 (11.6)	1.26 (16.8)	2.02 (22.4)
3.	Bihar	17.81 (35.7)	31.84 (50.7)	43.60 (59.8)	2.77 (10.3)	5.35 (17.1)	7.78 (20.3)	1.43 (5.9)	3.28 (12.1)	5.09 (15.1)
4.	Gujarat	115.03 (66.3)	20.30 (72.0)	28.31 (87.5)	2.20 (18.1)	3.87 (26.3)	6.11 (35.7)	0.97 (8.6)	1.71 (13.1)	2.60 (16.5)
5.	Jammu & Kashmir	1.26 (24.7)	2.10 (46.7)	3.43 (72.8)	0.33 (11.9)	0.59 (24.4)	0.94 (36.4)	0.15 (5.5)	0.22 (10.0)	0.28 (11.6)
6.	Kerala	19.73 (109.3)	24.32 (110.0)	28.99 (116.8)	3.81 (36.8)	6.61 (55.4)	9.46 (70.9)	1.95 (19.5)	1.77 (16.3)	3.70 (45.5)
7.	Madhya Pradesh	14.00 (40.9)	19.96 (48.8)	27.30 (53.6)	1.70 (9.3)	3.17 (15.5)	5.84 (23.3)	0.50 (3.0)	1.24 (6.8)	2.29 (10.5)
8.	Madras	25.74 (66.3)	33.33 (85.4)	58.34 (132.4)	4.66 (21.3)	6.91 (31.8)	14.31 (61.5)	1.94 (9.3)	2.68 (12.9)	4.60 (20.9)
9.	Maharashtra	30.04 (66.5)	34.49 (77.3)	54.04 (92.2)	4.39 (18.1)	7.48 (27.3)	12.51 (40.2)	1.93 (8.6)	3.38 (14.0)	6.44 (22.1)
10.	Mysore	15.78 (57.8)	21.68 (73.8)	32.89 (93.9)	2.47 (16.5)	3.63 (22.4)	4.95 (28.1)	1.29 (9.2)	1.69 (11.2)	3.77 (23.2)
11.	Orissa	6.51 (34.5)	14.11 (63.7)	19.07 (76.8)	0.72 (7.2)	1.06 (9.5)	3.12 (23.4)	0.31 (2.9)	0.45 (4.2)	1.31 (10.8)
12.	Punjab	12.25 (56.6)	14.57 (51.4)	27.54 (85.2)	3.07 (25.8)	4.38 (29.3)	6.18 (35.5)	1.25 (11.3)	1.60 (12.2)	2.60 (16.8)
13.	Rajasthan	5.36 (24.2)	11.15 (40.9)	18.65 (58.0)	1.07 (9.0)	2.07 (14.5)	4.00 (24.1)	0.45 (4.1)	0.85 (6.7)	1.62 (10.9)
14.	Uttar Pradesh	28.05 (33.5)	40.93 (44.7)	68.00 (63.5)	6.36 (14.0)	8.68 (16.9)	13.80 (25.0)	2.17 (7.6)	4.53 (11.3)	7.80 (15.5)

43

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
15. West Bengal	24.68 (73.6)	29.27 (64.9)	41.88 (78.0)	3.78 (19.4)	5.18 (21.7)	8.10 (29.9)	1.72 (9.1)	2.18 (10.1)	4.18 (17.1)	
16. A & N. Islands	0.02 (63.3)	0.044 (62.9)	0.094 (100.0)	0.003 (4.6)	0.005 (14.3)	0.017 (42.5)	0.001 (0.5)	0.002 (5.7)	-	
17. Delhi	1.86 (78.4)	2.72 (79.1)	4.11 (95.6)	0.68 (48.5)	1.07 (58.5)	1.83 (78.2)	0.25 (19.6)	0.53 (31.4)	1.07 (48.4)	
18. Goa, Daman & Diu	NA.	NA.	1.00 (123.5)	NA	NA	0.20 (45.5)	NA	0.05 (12.5)	0.09 (18.4)	
19. Himachal Pradesh	0.60 (47.4)	0.84 (50.9)	1.45 (79.7)	0.11 (16.4)	0.20 (23.0)	0.34 (34.7)	0.03 (5.2)	0.05 (6.8)	0.12 (13.3)	
20. Manipur	0.35 (42.4)	0.57 (52.3)	0.89 (65.4)	0.08 (19.7)	0.15 (27.3)	0.26 (38.2)	0.04 (10.9)	0.07 (14.6)	0.10 (16.9)	
21. Nagaland	NA.	0.39 (83.0)	0.71 (134.0)	NA.	0.07 (26.9)	0.12 (41.4)	NA	0.02 (9.0)	0.03 (11.5)	
22. Tripura	0.61 (52.2)	0.87 (55.4)	1.37 (72.4)	0.10 (19.2)	0.15 (19.7)	0.29 (33.0)	0.03 (7.3)	0.05 (7.7)	0.11 (13.9)	
23. L. & M. & A. Isls.	0.02 (69.6)	0.034 (103.0)	0.052 (144.4)	0.003 (2.0)	0.0032 (17.9)	0.01 (52.6)	-	-	0.003 (14.7)	
24. N. E. F. A.	0.07 (6.2)	0.055 (26.2)	0.162 (33.1)	0.005 (0.9)	0.008 (5.7)	0.02 (7.7)	0.007 (1.5)	0.002 (4.6)	0.01 (4.6)	
25. Pondicherry	0.19 (49.6)	0.31 (73.8)	0.45 (93.7)	0.03 (13.9)	0.071 (30.9)	0.113 (47.1)	0.007 (3.4)	0.028 (13.3)	0.05 (21.3)	
TOTAL:	251.78 (52.9)	349.90 (62.2)	515.00 (78.5)	42.89 (16.5)	66.00 (22.5)	110.00 (32.2)	18.80 (7.8)	29.60 (11.7)	52.40 (17.8)	

Note: Figures within brackets indicate percentage of children enrolled to population in the relevant age-group)

CHAPTER XVIII

Scientific Research

Progress of Expenditure

The following table shows the progress of both plan and non-plan expenditure under the head "Scientific Research", in the Council of Scientific and Industrial Research, the Department of Science in the Ministry of Education, and the Department of Atomic Energy in each plan period.

plan period	expenditure in Rs. crores		
	plan	non-plan	total
(1)	(2)	(3)	(4)
1. First Plan (1951-1956)	10	10	20
2. Second Plan (1956-1961)	17	50	67
3. Third Plan (1961-1966)	73	70	143
3.(a) Total (1961-1966)	<u>100</u>	<u>130</u>	<u>230</u>
4. Fourth Plan (1966-1971)	140	130	270

(Figures include R&D expenditure in the Department of Atomic Energy which was outside the First and the Second Plans).

2. Expenditure on Research and Development (R&D) has increased very rapidly having more than doubled during each five year period. The estimated expenditure of Rs. 270 crores during the Fourth Plan period would be substantially higher than the total expenditure of about Rs. 230 crores which had been incurred during the 15-year period (1961-1966) of the three previous five year plans.

3. In addition to the three agencies mentioned above, several other ministries in the Government of India have under them scientific organisations with research responsibilities. The total

expenditure for programmes for these organisations is estimated to be about Rs.160 crores of which Rs.70 crores would be the plan outlay. The total expenditure on research and development as a whole would be about Rs.430 crores during the Fourth Plan.

4. At a rough estimate the R&D expenditure in the last year of each of the three previous plan periods was about Rs.8 crores; Rs.25 crores, Rs.60 crores respectively; and is likely to be about Rs.100 crores or so at the end of the Fourth Plan. The R&D expenditure expressed as a percentage of the gross national product, which is called the research ratio, is estimated at about 0.06 per cent, 0.16 per cent, 0.26 per cent, and 0.35 per cent at the end of the four successive five year plan periods respectively.

Evaluation of R & D activities

5. Much has been achieved in science and technology but much more remains to be done. Large capacities have been built up and more would be established during the Fourth Plan. It is necessary to utilise these facilities effectively for the promotion of economic growth. With rapidly increasing expenditure on research and development, evaluation of programmes and results in relation to economic needs is becoming particularly important.

6. The aim of basic research is to seek fuller knowledge or understanding of the subject under study, and publication of results is essential. Basic research of high quality is an end in itself in satisfying intellectual curiosity, and is also indispensable for the building up of the scientific tradition, and for the training of research personnel for the

future. In advanced countries, basic research and the training of research personnel is carried out mostly in association with higher education. In India basic research, particularly in association with higher education and training, has not been receiving adequate support and is relatively weak. Some distinguished work is being done but a good deal of the work under the name of basic research would require attention. There is need to give discriminating support on the basis of high quality of work.

7. 'Applied research' is directed towards the practical application of the results of basic research and when successful, would lead to 'development' which is directed towards the production of useful materials, devices and methods, including the design and development of proto-types and processes. In the advanced countries, excluding military research and development, which is financed by Government, the greater part of the total expenditure on non-military research and development is directed to economic ends, is incurred within industry, and is financed by industry itself, though the ploughing back of a part of the additional profits generated by research and development. This feed-back arrangement has been mainly responsible for the rapid increase of expenditure on non-military R & D in recent years in a number of countries including Japan.

rapid increase of expenditure on military R & D in recent years in a number of countries including Japan.

8. In India applied research has absorbed the greater part of the R & D expenditure without however leading to design and development in sufficiently large measure. There is very little research and development within industry whether in the public or in the private sector. The share of the expenditure on research and development within industry often comes to 60 per cent or 70 per cent of the total non-military R & D expenditure in the advanced countries while in India its share is only about 5 per cent. In consequence, research and development has not made adequate contributions to economic growth so far. India remains weak in design and development, and much too dependent on the import of foreign design and technical knowledge.

9. Basic research is intrinsically open-ended with a free time programme. Projects of applied research, and even more so, of design and development, must have specified objectives, time schedules, and some idea of expected benefits in relation to costs. Projects in India are, however, not always formulated in this way which makes evaluation difficult or impossible and leads to waste of resources. Sustained efforts must be made to have proper specification of projects for applied research and development together with periodic evaluation of the results,

Imbalance in R. & D

10. Some recent studies have shown that there are large disparities between different institutions and subject fields in respect of capital and current expenditure and particularly

of foreign exchange. Higher education and technological institutions and non-government research institutes have suffered good deal in this regard.

11. At a very rough estimate, the number of R & D scientists and technologists may have increased from about 9,000 at the end of the Second Plan to about 15,000 at the end of the Third Plan. There is danger of such a high rate of expansion weakening the quality of work because it takes several years of experience to gain some proficiency in research. In any case, to maintain a high rate of growth of research it is necessary to initiate a long-term programme of training for research personnel in association with basic research.

12. Present facilities for the training of research personnel are, however, inadequate partly because of the weakness of basic research in higher educational and training institutions, and partly because of lack of instruments, accessories, equipment, stores and other facilities. It is, therefore, necessary to make some special provision for strengthening scientific research in association with the training of research personnel.

13. An overwhelmingly large number of R & D personnel are working in Government laboratories, in most cases without adequate contact with either higher educational and technological institutions or with industrial establishments. The research staff in higher technological or educational institutions have little contact with industry; while the number of R & D staff within industry itself is very small.

14. An important task during the Fourth Plan would be to utilise as large a part as possible of the R & D staff and

facilities in Government agencies and in higher educational and technological institutions to promote research, design and development within, or in collaboration with, industrial establishments in both public and private sectors. It is also necessary for scientists in government and other research agencies to participate in the activities of educational and technological institutions.

15. It has been mentioned earlier that the research ratio in India in 1965-66, the last year of the Third Plan, was over 0.25 per cent. The total research ratio is much higher in the advanced countries, for example, it is about 3 per cent in the United States or 2.5 per cent or so in the United Kingdom and USSR, and between 1 per cent and 2 per cent in other advanced countries. If the military R & D is excluded, the research ratio even in the most advanced countries would be below 1.5 per cent or 1 per cent; of which the greater part (between about 50 per cent and 70 per cent) is within industry (compared with only 5 per cent in India). If the expenditure on military and industrial R & D is excluded, the research ratio in the advanced countries would fall to the level of something between 0.2 per cent and 0.5 per cent.

Some special needs

16. The present research ratio of over 0.2 per cent in India, representing the civilian R & D outside industry, is already of the same order as the research ratio in many advanced countries for the same type of R & D activities. To increase R & D expenditure for purposes of economic growth it is essential to bring research and development into industry close to production.

17. In comparison with advanced countries, the gross national product (GNP) in India being lower, the same research ratio, that is, the same fraction of GNP, would make available, for the same number of R & D staff, a much smaller amount of money per R & D scientists. The cost of instruments, equipment, stores, etc., much of which have to be imported, would be higher. To provide similar facilities for research it would be, therefore, necessary to have a proportionately higher research expenditure in India.

18. Vigorous efforts must be made to develop rapidly the manufacture of instruments, equipment and accessories required for research and industrial purposes. A progressive instruments industry is an indispensable condition for a self-reliant economy.

19. A brief reference may also be made to a basic issue. The attempt to attract Indian scientists from abroad by setting up the Scientists Pool in the C.S.I.R. was only partly successful. Many or most of the abler scientists did not come back. Although personal factors must have been responsible for some of the scientists not returning to India, this could not have been the only reason. Also, many Indian scientists continue to take up posts abroad every year. Evidently, whatever be the reasons, a career in scientific research in India is not yet sufficiently attractive.

20. Research and development to promote the best utilisation of domestic resources and to stimulate competitive efficiency of production are, however, essential requirements for a self-reliant economy and independence. How to make scientific research sufficiently attractive to men of talent and ability, and how to use applied research and development to

promote economic growth are the two crucial problems to which continuing thought will have to be given.

Outlay and Programmes

21. The outlay proposed for the three agencies, the Atomic Energy Department, the Council of Scientific and Industrial Research, and the Scientific Department of the Ministry of Education, is Rs.120 crores which is substantially higher than the total plan outlay spent during the previous three plan periods taken together. In addition, a provision of Rs.15 crores has been made for strengthening scientific research in association with the training of research workers, and another provision of Rs.5 crores for the support of high priority programmes in connection with food, import substitution and export promotion, especially within, or in collaboration with, industry. The proposed outlay for research in the Fourth Plan is given below:

Provision under the "Scientific Research"	(Rs. crores)
1) Department of Atomic Energy	50
2) Council of Scientific & Industrial Research	46
3) Department of Science, Ministry of Education	24
4) Scientific research and research training	15
5) Priority research and development programmes	5
Total	140

22. It is proposed that efforts in the Department of Atomic Energy would be directed mainly to the atomic power programme with special emphasis on import substitution of hardware, maintenance and replacement parts, and on the use of atomic energy for other peaceful purposes.

23. The Council of Scientific and Industrial Research would give highest priority to projects for food, import substitution and export promotion. It would also try to promote research and development within industry in both public and private sectors through the active collaboration of its own staff with industrial enterprises and the establishment of cooperative research associations.

24. The Survey of India would be strengthened for the systematic preparation of maps as essential pre-requisites for hydro-electric power, irrigation, flood control, minerals development, etc. Anthropological, botanical, sociological and other scientific activities of the Department of Science, Ministry of Education, would concentrate on the consolidation and utilisation of development schemes taken up in the Third Plan.

25. The need of a long term programme of training for research personnel has been stressed. Such training can be given most effectively in association with basic research in higher educational and technological institutions. A special provision of Rs.15 crores would be used for this purpose to give selective financial support, on merit, to individuals, projects, or institutions to strengthen basic research in science and technology associated with research training in any subject field independently of existing administrative channels or institutional affiliations. The present provision of Rs.15 crores would also be used to correct disparities which have arisen through imbalances in the allocation of resources and lack of adequate support of non-government institutions and scientists.

26. A provision of 5 crores has been made to give support to high priority projects of applied research and development relating to food, import substitution and export promotion especially within or in association with industrial enterprises in both public and private sectors. The question of a suitable machinery for carrying out the administration of the above two programmes is under consideration.

Planning of scientific research as a whole

27. The advance of science and technology is marked by increasing specialisation through the emergence of new subject fields and, at the same time, by increasing integration through the strengthening of interconnections between different subject fields. An advance in one subject or in instrumentation may have large repercussions on research programmes in other fields. Also, research in the same or overlapping subjects ~~has~~ to be done in different Ministries, agencies and industrial enterprises. Planning of scientific research as a whole is, therefore, necessary for the maximum utilisation of available resources.

28. The Study Group for Scientific Research of the National Planning Council has recommended the planning of scientific research as a whole, and stressed the need of keeping open multiple channels of support for scientific research. The Estimates Committee of Lok Sabha recommended early in 1966 that arrangements should be made for the planning of research as a whole especially directed to economic needs and for the review and appraisal of research programmes and results.

29. Planning of research and evaluation of programmes and results would have to be undertaken not only by one single body but at many different levels. At the national level, planning would be concerned with policy, aims and objectives, priorities for allocation of resources, future supply of research personnel and equipment, and also with over-all evaluation of results. Further consideration of programmes and evaluation of results would be the responsibility, at successive levels, of the concerned Ministries, Departments, Agencies (A.E.D., C.S.I.R., U.G.C., etc.) and then of individual laboratories and operating units. Two way flow of information and consultations would be indispensable for which committees and working groups with overlapping spheres of interest would have to be set up at different levels.

30. Divergent views often arise among scientists regarding very expensive projects in different and competing subject fields, such as large optical or radio telescopes, high energy accelerators, space research, etc. which, for lack of a common denominator, cannot be settled by discussions at a purely scientific level but has to be decided at government level. The important point in the case of such issues is to ensure that all divergent views among scientists receive due consideration by persons responsible for making final decisions.

.....

CHAPTER XVIII

HEALTH AND FAMILY PLANNING

I Health

The programme for the expansion of medical and public health facilities has been set within the framework of the long-term targets suggested by the Health Survey and Planning Committee of 1961. Stress has been laid on augmenting training facilities for different categories of medical personnel. The aim is to overcome the current shortages in qualified personnel and, at the same time, improve the medical and public health services. The targets for the Fourth Plan together with the Second Plan and Third Plan achievements are given at Annexure I.

2. Public health and medical programmes have been divided into five broad groups. The outlays for each group are indicated in the table below:

	<u>Outlay adopted</u> (Rs. crores)
Medical Education, Training and Research.	178.30*
Control of Communicable Diseases.	86.68
Medical Care, including hospitals, dispensaries and Primary Health Centres	181.00
Other Public Health Services.	36.02
Indigenous Systems of Medicine.	10.00
Total;	<u>492.00</u>

* In addition, a provision of about Rs.17 crores is included within a provision of Rs.95 crores suggested for family planning programmes for the training of medical and public health personnel,

A more detailed table is given in Annexure II. As in other sectors, priority has been given to spill over schemes from the Third Plan in order to ensure that continuity is maintained and that better returns are obtained.

Main features of the programmes

3. Efforts are being made to provide an effective base for our health services by strengthening the primary health centres. These will meet the medical needs of the people by providing preventive and curative health services, take over the maintenance phase of mass control programmes like malaria, and smallpox, become the focal point for the family planning programme and serve as a link between the people and the health administration. Sub-divisional and district hospitals will have cases referred to them by primary health centres and will provide the location points from which the mobile services will cover the surrounding areas. Expansion of medical education and training facilities will also meet the minimum technical manpower requirements of the Fifth Plan. It is intended to intensify the campaigns against communicable diseases which sap the health and efficiency of our people.

Medical Education, Training and Research:

4. Training programmes for medical personnel have made notable advances during the last ^{fifteen} years and are ahead of original targets. The number of colleges increased from 30 in 1950-51 to 57 in 1960-61. As against a target of 75 by the end

of the Third Plan, 87 medical colleges have been established. Annual admissions to medical colleges have risen from 2,500 in 1950-51 to 5,800 in 1960-61 and to 10,625 in 1965-66. This expansion during the Third Plan is partly the result of measures undertaken to step up the number of admissions and ^{to} meet the needs of the national emergency. In spite of this large increase, the doctor-population ratio has remained more or less constant at the approximate level of 1 : 5,800 mainly due to the accelerated rate of growth of population.

5. In the Fourth Plan, it is proposed to increase the number of medical colleges from 87 to 112. This is expected to improve the doctor - population ratio to 1:4,600 from 1 : 5,800 at the end of the Third Plan period. Out of the 25 new medical colleges that are proposed to be established, five will be regional institutions to be set up by the Government of India in the Central sector. The total number of doctors is estimated to increase to 1.31 lakhs by the end of the Fourth Plan.

6. A major impediment in the expansion of medical education is the dearth of qualified teachers for medical colleges. In most medical colleges, the shortage has ranged from 25 to 45 per cent. Additional teaching staff will be required in the 25 new medical colleges and the new postgraduate institutes. About 4,000 specialists will be needed for providing specialised treatment in district hospitals and polyclinics. At present only four postgraduate institutes exist at Delhi, Calcutta, Pondicherry and Chandigarh. Two more postgraduate institutions at Bombay

and Hyderabad are expected to start functioning shortly. The State Governments will also provide postgraduate courses in some departments of the existing medical colleges. They will be strengthened for the purpose. It is proposed to encourage the establishment of full-time teaching units in medical colleges, as recommended by the Health Survey and Planning Committee.

Nurses' Training:

7. The number of nurses available by the end of the Second Plan was estimated at 27,000; this number has increased to 45,000 at the end of Third Plan. This gives a nurse-doctor ratio of roughly 1 : 2 against the desirable norm of 3 : 1 . Taking into consideration the existing conditions, it will only be possible to increase the annual intake from 8,000 at present to 18,500 at the end of the Fourth Plan.

8. In the reorganised pattern of primary health centres, each sub-centre with a population of 10,000 will have an auxiliary nurse-midwife. Keeping in view the requirements of primary health centres and urban areas for maternal, child health and family planning programmes, it is proposed to provide training facilities for an additional number of 60,000 auxiliary nurse-midwives during the Fourth Plan, thus bringing up the total number to 95,000.

Para-medical Personnel:

9. The experience of the three Plans has shown that non-availability of trained para-medical personnel in adequate numbers has slowed down the implementation of health programmes. Provision has, therefore, been made for the training of

health visitors, health inspectors, pharmacists, laboratory technicians, radiographers, X-ray technicians, physio-therapists and occupational therapists.

CONTROL OF DISEASES

Malaria:

10. Measures adopted for the eradication of malaria have resulted in a marked decline in its incidence. The proportional case rate has now come down from 10.8 per cent in 1953-54 to 0.05 per cent in 1965. This shows a reduction of 99.5 per cent. There are at present 393.25 National Malaria Eradication Units operating in the country in different phases, namely the attack phase (spraying), the consolidation phases (during which spraying is withdrawn and surveillance starts) and the maintenance phase (during which vigilance services for the detection of fever cases and examination of blood slides will become the responsibility of the normal health staff). At the end of the Third Plan, about 52 per cent of the population of the country has entered the maintenance phase. Another 30 to 40 per cent will reach the maintenance phase by the second year of the Fourth Plan. The remaining 10 to 20 per cent of the population, situated mostly in border tracts, will continue to be in the attack phase.

11. During the Fourth Plan, it is estimated that a provision of Rs.19.21 crores will be required. By the end of the Fourth Plan, 370 units, will go into the maintenance phase, leaving 19.5 in the consolidation phase and four units in the attack phase. An important step for completing the National Malaria Eradication Programme according to schedule, is to establish primary health centres with adequate staff, buildings and equipment. Without this, the vigilance service during the

maintenance phase of the programme, based on domiciliary visits once a month by basic health workers to detect fever cases, and to take blood slides, cannot be carried out under proper supervision.

Smallpox:

12. The National Smallpox Eradication Programme was started in 1962 with special eradication units in all the States. Nearly 83 per cent of the country's total population has been protected so far. The impact of this coverage is to be seen in the marked reduction in the incidence of small-pox during the last two years. It is, however, a matter for concern that in even some of those districts, where more than 80 per cent coverage has been reported, mild incidence of the disease has been reported. This implies that there is still a gap in the effective coverage of sizeable groups of population, such as new-borns and those in the age group 0-4, who have escaped primary vaccination, and the floating population residing in slums who have not been effectively vaccinated.

13. Maintenance is vital as smallpox can be eradicated only if there are no indigenous cases for three successive years after the attack phase and if any out-break from an imported case is quickly controlled.

14. For the indigenous production of freeze-dried small-pox vaccine, four institutes have been set up with W.H.O./UNICEF assistance. Two of these have already started manufacturing vaccine of an international standard. More equipment will be needed to enable these institutions to turn out 160 million doses each year, to meet the requirements of the maintenance phase.

Tuberculosis:

15. An effective campaign for the control of tuberculosis calls for BCG vaccination; the establishment of TB clinics and training and demonstration centres; the expansion of domiciliary services and the isolation and treatment of all cases in special TB hospitals.

BCG vaccine is now being manufactured in the country in adequate quantities. So far 221 million persons have been tested and 81 million vaccinated. There are, at present, 425 TB clinics and 34,500 TB beds.

Against a target of 5 TB training and demonstration centres, 8 centres have been established during the Third Plan period.

16. The proposals for the Fourth Plan include establishment or upgrading of 200 TB clinics, setting up of 4 TB training and demonstration centres, supply of drugs, setting up of a limited number of beds for isolation and surgical treatment and a well-knit training programme. In addition to the control programme will be the establishment of four regional centres for guidance, implementation and supervision of TB centres and for coordinating their activities.

Leprosy:

17. Modern drugs, especially sulphones, can now control leprosy by intensive as well as mass-scale treatment. Emphasis in leprosy control has, therefore, shifted from institutionalisation to case-detection and out-patient treatment with sulphones. During the Third Plan, the programme was reorganised on the basis of experience of the First and Second Plans. Survey, education and treatment (SET) centres were introduced. Each SET centre is attached to a primary health centre, a dispensary or a hospital and covers a population of about 20,000. The basis of approach for the control of leprosy will be to detect cases and treat them. This will prevent the transmission of the disease. By converting the highly infectious cases into non-infectious ones, the quantum of infection will be reduced. It is proposed to establish 100 Leprosy control units, 2,000 SET centres and 6 training centres for non-medical assistants under the Fourth Plan.

Trachoma:

18. Trachoma is a communicable disease which has done incalculable harm, because it has been responsible for a major proportion of cases of blindness. This problem was brought into sharp focus during the emergency when volunteers to the Armed Forces had to be rejected because of this disease. Priority has been given to the States in which the prevalence of Trachoma is more than 50 per cent. These include Punjab (79.1 per cent), Rajasthan (74.3 per cent), Uttar Pradesh (68.1 per cent) and Gujarat (56.0 per cent).

Cholera:

19. An expert committee of the Indian Council of Medical Research has pointed out that there are five endemic foci in the deltaic regions of the principal rivers in West Bengal, Orissa, Andhra Pradesh and Madras. To prevent the frequent recurrence of cholera epidemics, it is necessary that the endemic foci are eliminated. This can be done with an adequate supply of safe water and with the introduction of modern methods of sewage disposal. While sanctioning water supply and sanitation schemes, priority has accordingly been given to these areas.

Filariasis:

20. The extent of filariasis is considerable and the disease is gradually spreading to new areas. According to available information there are about 220 towns where filaria exists in endemic form; of these 52 towns are hyper-endemic.

21. Provision has been earmarked, under water supply and sanitation programmes, for the provision of underground sewerage and sewage disposal facilities in areas endemic for filaria and for the provision of protected water supply in cholera infested areas.

Medical Care:

22. There were 8,600 hospitals and dispensaries and 1,13,000 beds at the commencement of the First Five Year Plan. By 1965-66, their number increased to 14,600 and the number of beds to 2,10,100. While there has been considerable advance through the provision of additional beds in urban areas and through primary health centres, medical facilities are still not readily available, particularly in the rural areas. It is also difficult to maintain adequate standards in view of the shortage of medical personnel, equipment and other facilities.

23. The present bed:population ratio is 0.49 per thousand. In the Fourth Plan it is intended to add 60,000 beds. At the current rate of growth of population, this will, at best, maintain the ^{present} bed:population ratio.

24. Primary Health Centres serve as focal points for providing comprehensive basic health services in rural areas. By the end of the Third Plan, it was intended to set up 5,200 centres, at the rate of one in each community-development block. In March, 1966, about 4,800 centres were working; the remaining 400 centres will be opened in the Fourth Plan. The primary health centres have to provide the basic framework for effective implementation of the maintenance phase of malaria and other communicable diseases and their eradication or control programmes and to serve as the main plank for carrying out Family Planning Programmes in rural areas. Their staffing pattern has accordingly been reorganised.

25. It is also proposed to increase the number of sub-centres attached to each centre. One sub-centre will be provided for

every 10,000 persons in the block, and each sub-centre will be looked after by an auxiliary nurse-midwife and a basic health worker. The auxiliary nurse-midwife will attend to maternal, child health and family planning programmes, while the male worker will deal with other health programmes.

Maternal and Child Health:

26. The Maternal and Child Health Programme aims at providing domiciliary and institutional services in rural areas for ensuring safe delivery and for motivating parents to limit the size of their families. With a view to regulating practice by untrained dais, it is proposed to register them during the Fourth Plan period. Other measures include free supply of vitamins and diet supplements like iron and calcium pills to expectant mothers and the immunisation of pre-school children against contagious diseases.

Indigenous Systems of Medicine:

27. Programmes relating to indigenous systems of medicine, which were started in the Third Plan, will continue. These include research schemes, compilation of Ayurvedic and Unani Pharmacopoeia, establishment of a separate drugs control organisation for these systems of medicine, establishment of a Central medical plants garden at Poona, and the survey of medicinal plants in common use and known to be effective in curing common ailments. Another continuing programme is the post-graduate institute at Banaras Hindu University.

Health Intelligence and Statistics:

28. Programmes for training biostatisticians and statistical assistants will continue. A provision has been proposed for the training of record officers and record technicians for the improvement of medical records and hospital statistics.

Health Laboratories:

29. In order to develop public health services, the Health Survey and Planning Committee have recommended that there should be a chain of laboratories adequately staffed and equipped in each State. In addition to the expansion of the existing laboratories, it is proposed to establish one principal, 76 regional and 200 district laboratories during the Fourth Plan period.

Nutrition:

30. The applied nutrition programme was taken up in 1962-63. Its aim was to increase production at the village level of nutritive foods like poultry, fish, milk, fruits and vegetables, and to provide facilities for training and education in the production, preparation and consumption of these foods. By the ^{end of the Third Plan,} ^{in 213 blocks.} Its coverage will be extended to an additional 1,000 blocks. Provision has been made for its implementation in the sector on Agriculture.

School Health:

31. There is a nation-wide need for a school health programme. Ministries of Health and Education will jointly implement the programme with the help of teachers, parents, students and social workers. The School Health Committee

has inter-alia laid emphasis on the provision of mid-day meals and had recommended that this programme be developed rapidly with a view to improving nutritional standards and inculcating sound dietary habits. This scheme has made good progress during the Third Plan. In several States encouraging results have been achieved in mobilisation of local resources. Provision for continuing this programme will be made in the sector on Education. It is expected that local support from non-official and voluntary agencies such as panchayats, local bodies and child welfare organisations will be forthcoming in even greater measure.

32. The programme for the improvement of health of school children envisages their immunisation against preventable diseases, and scientific health education for students and teachers about protected water supply, sanitary latrines and hygienic surroundings. It is proposed to provide facilities to school children and college students, at the time of their admission, for medical check up and for attention to remediable defects like errors of refraction, caries, skin diseases and emotional disturbances.

Drugs and Medical Supplies

33. The Third Plan envisages a large increase in the production of drugs and the replacement of imported drugs and raw materials by indigenous manufacture. Some of the main developments in

improving the quality of drugs and enforcement of the Drugs Act, establishment of machinery for supervision and control of drugs manufactured and of their distribution and sale. Production programmes for drugs and pharmaceuticals envisage an increase in the output of essential drugs from Rs.175 crores in 1965-66 to Rs.250 crores by 1970-71. With the completion of anti-biotic and synthetic drug factories at Rishikesh and Sahatnagar, a substantial increase in output of essential drugs will be achieved. For instance, the production capacity of penicillin, streptomycin, tetracycline and sulpha drugs will increase from 100 million mega units, 90 tonnes, 20 tonnes, and 350 tonnes, at the end of Third Plan to 250 million mega units, 300 tonnes, 290 tonnes and 1500 tonnes respectively by the end of Fourth Plan.

34. At present the Medical Stores Organisation has five medical stores depots catering to the need of State hospitals, medical colleges, railway hospitals and other institutions. It is proposed to establish more medical stores depots. In addition, workshops will be set up for undertaking repairs and servicing of surgical instruments and appliances.

III FAMILY PLANNING

General Approach Approach

35. India's population according to the 1961 Census was 439.2 million. The estimated mid-year population of 1966 is 494.80 million. Improvement in public health has caused a sharp fall in the death rate without any significant change in the fertility rate. As a result, there has been a steady rise in the annual growth of population. It rose from 1.4 per cent per annum during the decade

1941-51 to 2.2 per cent per annum during 1951-61. The growth rate was estimated to be 2.38 per cent per annum during the period 1961-65. This rate of growth is expected to rise still further to 2.46 per cent per annum during the period 1966-70. Expectation of life at birth which used to be only 27 in 1920s and nearly 32 in 1945 is now reckoned at 50 years. With the all round improvement in health conditions, the death rate will fall still further and the expectation of life will increase. The rate of growth of population is bound to rise unless action is taken on a national scale to bring it down.

36. India's objective of attaining socio-economic betterment of the people can only be fulfilled if the rate of growth of population is controlled and human skill and resources are developed to the desired extent. The Government of India have recognised family planning as a key programme for the success of the country's Five Year Plans of development and have adopted a nation-wide programme with the objective of reducing the birth rate from 40 per thousand at present to 25 per thousand as expeditiously as possible. The operational goal for achieving this objective is to create facilities, for 90 per cent of the married population of India, for the adoption of family planning by:

- i) Group acceptance of a small sized family
- ii) Personal knowledge about family planning methods, and
- iii) Ready availability of supplies and services.

37. India is one of the few countries which has taken up family planning as a national programme. In the First Plan, a modest beginning was made. During the Second Plan, an action-cum-research programme was initiated. The programme was intensified towards the

middle of the Third Plan when the emphasis was shifted from the clinical approach to a more vigorous extension education approach for motivating the people to accept the norm of a small family. The programme involves various aspects of community life and social behaviour of the people. Its successful implementation requires (i) large numbers of trained staff such as doctors, nurses, mid-wives, health educators and other experts as well as non-technical administrative and executive personnel, (ii) training facilities on a very wide scale for training of all categories of staff, (iii) supplies of contraceptives, intra-uterine device (IUCD), equipment, transport etc..

38. There were only 147 Family Planning centres at the end of the First Plan period. This number increased to 11,474 by the end of the Third Plan. In addition to these centres, nearly 9329 centres for distribution of contraceptives have been located particularly in the rural areas. These centres provide supplies, services and advice on family planning. The programme has all along been integrated with the maternity and child health programme. All known methods of contraception are being followed with particular emphasis on the IUCD, which was introduced in the last year of the Third Plan. The response of the people has been encouraging both in urban and rural areas, particularly the response of women to the IUCD. Over 0.8 million IUCD were inserted and more than 1.5 million sterilisation operations were performed by the end of the Third Plan.

39. Certain organisational changes have been introduced in order to facilitate speedy implementation of the programme. The Ministry of Health has been redesignated as the Ministry of Health

and Family Planning. A Department of Family Planning has been created with a separate Secretary. A Commissioner of Family Planning has been appointed with Regional Directors for better liaison with the State Governments and State organisations for Family Planning. For technical support, a Central Family Planning Institute has been established as an autonomous organisation. For giving advice on demography and communication research, two committees have been formed viz. the Demographic Advisory Committee and the Communication Action Research Committee. For medical and biological research, an Advisory Committee has been formed under the auspices of the Indian Council of Medical Research. A Cabinet Committee has been constituted with the Minister for Planning as Chairman and the Ministers of Finance, Information & Broadcasting, Food & Agriculture and Health as Members. This Committee will facilitate the taking of quick decisions and speeding up the implementation of the programme.

Programme for the Fourth Plan

40. In keeping with the basic objective of reducing the birth rate from 40 to 25 per thousand as expeditiously as possible, the outlay of Family Planning has been stepped up from Rs.27 crores in the Third Plan to Rs.95 crores in the Fourth Plan. The programmes include the recruitment and training of doctors and other workers at various levels to implement the campaign and the provision of supplies and services that go with it. It is intended to cover all the 5,000 Community Development blocks as

well as the urban areas where there are large concentrations of population. Provision is being made for audio-visual equipment, technical equipment, mobile units etc. The Department of Family Planning has, since the preparation of this Chapter proposed an additional outlay of Rs.144 crores in the Fourth Plan for further intensification of the programme. These proposals will be considered and any additional amount that this programme can usefully spend will be provided through the Annual Plans.

41. Although it is intended to promote all methods of contraception, emphasis is being laid on the IUCD because of its efficacy, reversibility and acceptability. Stress is also being laid on all other conventional methods. The successful implementation of this programme requires large number of women doctors and steps are being taken to ensure their availability for the purpose. A Central 'task force' of doctors has been created and special stipends are being given to women medical students who agree to serve in the family planning programme after their graduation. It is also intended to involve private medical practitioners in the programme.

42. The mass education and motivation programme will be intensified during the Fourth Plan. Steps have already been taken to make fuller use of various media like films, radio, press etc. for promoting the acceptance of the family planning programme as a way of life. These include mobile audio-visual vans, transistorized radio sets for villages not having electricity and the production of a large number of feature films and short films on family planning.

43. As already mentioned, the programme will be implemented on a coordinated basis involving several Ministries. The most important is the professional work of doctors and other medical personnel under the Ministry of Health and Family Planning. Steps have already been taken to start the manufacture of loops for the IUCD programme and the manufacture of condoms, both in private and public sectors. The Ministry of Information and Broadcasting will play a major role in the mass education field. The Block staff of the Department of Community Development and the staff of the Ministries of Education, Local Self Government and Social Security and various industrial organisations will be utilised for the propagation of family planning programmes. The overall coordination will be done through the Committee of the Cabinet.

44. The active participation of Voluntary Agencies, Local Leaders, Local Bodies, Labour Organisations and other associations in various fields of national life is essential to the successful implementation of the programme. Since it involves mass contact with the people it is vital that representatives of the people themselves are fully associated with the programme. With this end in view, enhanced provision has been made for voluntary organisations and steps are being taken to associate local leadership both in the rural and urban areas.

Annexure IHealth - Physical Achievements under the Second and
Third Plans and Targets for Fourth Plan.

.....

Item	Position by the end of Second Plan (1960-61)	Anticipated position by the end of Third Plan (1965-66)	Position by the end of Fourth Plan (Targets) (1970-71)
1.	2.	3.	4.
Hospitals beds (including beds for Primary Health Centres)	1,85,600	2,40,100	3,00,100
Primary Health Centres	2,800	4,800	Establishment of the remaining 400 PHCs and stren- strengthening of all the Centres.
Medical Colleges	57	87	112
Annual Admissions (undergraduate doctors)	5,800	10,625	19,125
Nurses intake (annual)	4,000	8,000	18,500
Annual Admissions (Dental)	281	600	1,000
Dental Colleges	10	13	16

AVAILABLE MANPOWER

Doctors	70,000	86,000	1,31,000
Nurses	27,000	45,000	87,000 to 1 90,000 1
Aux. - Nurse-Midwives & Midwives	19,900	35,000	95,000
Health Visitors	1,500	3,500	5,500
Dais/Nurse Dais	11,500	30,000	2,80,000
Malaria:			
Attack Phase (Units)	390.00	80.23	4.00
Consolidation Phase (Units)	-	170.36	19.50
Maintenance Phase (Units)	-	142.63	370.00
TOTAL:	<u>390.00</u>	<u>393.25</u>	<u>393.50</u>
Smallpox:			
Population covered	②	83% coverage	100% cover- age & maintenance phase operations.

T.B.

District T.B. Clinics (Well equipped)

%

145*

345**

-/-

1.	2.	2.	3.	4.	

Leprosy:

i) Leprosy Control Units	135	200	300	
ii) Survey, Education & Treatment Centres	-	475	2,475	
iii) Training Centres for non-medical Assistants	NA	8	14	

V.D.

i) District Clinics	83	101	161	
ii) Headquarters Clinics		6	12	
iii) Mobile V.D. Teams (Survey & Study Teams under the Centre)	NA	-	4	

* Although at present there are 425 clinics in the country

** Upgrading and establishment of new clinics.

% The number of clinics was 220 but the number of well-equipped is not available.

@ The Pilot Project was initiated during the last year of the Second Plan.

XVIII - 21 -

OUTLAYS ON HEALTH PROGRAMMES DURING FOURTH
FIVE YEAR PLAN

		(Rs. in crores)	
Programme	1.	Outlays	
		Third Plan	Fourth Plan
		2.	3.
1. <u>Medical Education, Training & Research:</u>			
i) <u>Medical Education:</u>			
a) Undergraduate		42.10	50.00
b) Postgraduate			55.00
c) Postgraduate in P.H.		-	2.00
d) Establishment of Ophthalmic Centres for Postgraduate training		-	1.50
ii) Research		3.97	10.00
iii) Dental Education		1.22	3.50
iv) Nursing Education			31.00
v) Training of Para-medical personnel		8.47	23.07
vi) Training of other ancillary personnel			2.23
TOTAL:		55.76	178.30
2. <u>Control of Communicable Diseases:</u>			
i) Malaria		41.95	19.21
ii) Smallpox		6.89	4.50
iii) Tuberculosis		11.91	33.00
iv) Leprosy		4.34	12.00
v) Filariasis		2.37	4.50***
vi) Trachoma		0.20	8.00
vii) V.D.		0.58	1.50
viii) Cholera		0.14	3.00
ix) Rabies and other diseases		1.60	0.97***
TOTAL:		70.32*	86.68
3. <u>Medical Care:</u>			
i) Primary Health Centres		13.28	103.00
ii) Hospital beds		41.81	
iii) Polyclinics			45.50
iv) Emergency medical services		-	4.00
v) Mental Health		0.25	2.00
vi) Health Insurances			
a) CGHS		00.85	8.00
b) Pilot Projects			
vii) Prevention of Eye Diseases		-	0.50
viii) Blood Transfusion & Resuscitation Services		-	2.50
ix) Grants to voluntary agencies		2.00	5.00
x) Rehabilitation of handicapped		0.20	5.00
xi) Intensive Health Districts		-	2.00
xii) Dental Health Services		-**	3.50
TOTAL:		61.79	181.00

1.	2.	3.
4. <u>Other Services:</u>		
i) Public Health Organisation .	0.50	10.00
ii) Public Health Laboratories	2.85	3.20
iii) Student Health Programmes	1.28	
iv) M.C.H.	2.26	6.20
v) Nutrition	0.07	
vi) Prevention of Food Adulteration	-	4.10
vii) Health Education	0.82	1.20
viii) Drugs	0.40	2.00
ix) Goitre	0.14	0.30
x) Medical Stores	-	3.20
xi) Cancer	0.28	2.00
xii) Development of certain central institutes	0.53	3.54
xiii) Miscellaneous	3.73	0.28
TOTAL	11.86	36.02
5. I.S.M.	9.82	10.00
GRAND TOTAL:	209.55	492.00

- * Includes Rs.0.34 crores for NHTA for which break-up is not available.
- ** Included in the provision of Rs.1.22 crores for Dental Education under Medical Education, Training & Research.
- *** The outlay for cholera and Filariasis Control Programme are meant for Administration and Control operations only. As for the sanitation and water supply part of the programme, these are included in the allocation for water supply and sanitation programme.

kka.

CHAPTER XIX

URBAN & REGIONAL DEVELOPMENT

Economic development accelerates urbanisation and this raises a variety of problems of spatial implication such as land use, location of industries, laying out of transport, communication and power facilities and provision of housing, water supply, sanitation and other social services. It becomes necessary to harmonize all activities inscribed on land - industrial and agriculture commercial and residential, -- 1 cultural and social. The objective of urban and regional planning is to achieve this.

2. It is expected that urbanisation would grow in India in the coming years. It is estimated that about 23 per cent of the population might live in the urban areas by 1981 as against 18 per cent in 1961. We shall be adding in all probability 80 million to the urban population in two decades. In the absence of balanced urban and regional development, the population will tend to converge in the big towns which have grown in a haphazard manner and lack basic amenities. It is, therefore, necessary to give conscious direction to this growth through comprehensive physical plans - regional and urban. In achieving balanced and controlled physical development, it is necessary to bring proper coordination with regard to various components of development such as land acquisition and development, housing, water supply and sanitation, power and transport.

I URBAN - REGIONAL PLANNING

3. According to the 1961 census, there were 107 Class I cities in India with a population of 1 lakh and above and 141

Class II cities with a population between 50,000 and 1 lakh. Nearly 45 per cent of the urban population lived in these bigger towns. A fourth of the urban population is concentrated in the metropolitan cities having a population of 5 lakhs and above - Calcutta, Bombay, Delhi, Madras, Bangalore, Kanpur, Nagpur, Hyderabad, Poona and Lucknow. The pressures for further development in these towns are great. In addition to these, there are about 515 towns having population between 20,000 to 50,000 and 1927 small towns having population below 20,000. It will take some years before plans can be prepared for all the towns. And, it is necessary to accord priority in preparing plans to towns which are growing fast and where the absence of planning can cause serious clogging.

Third Plan Programmes:

4. A small beginning was made during the Third Plan for preparing Master Plans for cities and towns. A sum of Rs. 3 crores was allocated for assisting the States to prepare plans for certain selected cities and regions. The programme covered in all 62 Class I and II cities. Besides, preparation of Regional Plans for the following 13 regions was also taken up - Calcutta Metropolitan Region, Delhi Metropolitan Region, Gorakhpur-Deoria Region, Mirzapur-Rihand Region, Rishikesh-Hardwar Region, Ghaziabad-Bulandshehr Region, Kulu-Manali Region, Rajasthan Canal Region, Dandakaranya Region, South-East Resource Region, Bhilai Region, Neyveli Region and Trivandrum Region. The Plan for Calcutta Metropolitan Region was financed separately through a pool provision between the State and the Centre, of Rs.20 crores, which also provided funds for certain development works. Of others, the Delhi Master Plan has

been completed and is being implemented according to the provisions of the Delhi Development Act.

Fourth Plan Programme:

5. The Fourth Plan contemplates completion of plans that have been taken up during the Third Plan period. In addition, plans are to be prepared for about 52 Class I and 105 Class II cities and 49 tourist/pilgrim centres. There are certain regions in the country which have been growing faster and where unplanned growth has been taking place in the absence of planning and control on development. It is proposed now to prepare detailed plans for these regions.

6. Along with the preparation of plans, urban research work is a necessary component as a complement to urban and regional planning undertaken at the Centre and State organisations. It is, therefore, proposed to create Urban Research Cells in these organisations.

Urban Development Works:

7. Although the city development programmes have to be financed from the funds available in the conventional sectors, there would still be left certain aspects of city development programmes and improvements for which funds cannot be found from these sectors. It is proposed to make a small provision to start with for such programmes so that with the funds available from the conventional sectors, it is possible to achieve integrated development.

8. Training of municipal and local bodies -

of municipal bodies

self government employees is necessary to improve efficiency in local administration. It is proposed to make arrangements in the Indian Institute of Public Administration in Delhi for training of employees. A few other centres may also be considered depending upon requirements.

9. The pilot programme on Urban Community Development started during the Third Plan is proposed to be expanded during the Fourth Plan. It is important to intensify the effort for greater citizen participation in community development work both to tackle the growing problems of city life and to ensure successful implementation of urban development plans.

10. The following are the outlays proposed for Urban and Regional Planning, Urban Development Works, LSG and Municipal Works:

(Rs. crores)

I. Town and Regional Planning

Preparation of Master Plans, city Development Programmes, Regional Plans and Urban Research Cells	13.00

II Implementation of certain vital aspects of Urban Development Plans, Urban Community Development and other LSG and Municipal Works	15.00

Total:	<u>28.00</u>

Legislation & Land Policy:

11. The basic requirement for implementation of the Master-Regional Plans is comprehensive legislation for town and country planning which should provide the machinery - administrative and technical - for preparation, sanction and implementation of the plans. Some of the States have already prepared draft legislation.

A high priority should be given to this aspect as the plans cannot be implemented effectively without the requisite legislation.

12. Some of the requisites of an adequate implementation of city development programmes are the following: There should be a provision in the Master Plans of development for reservation of sites required for public purposes. It is also necessary to enable the developmental authorities and agencies to acquire lands expeditiously and at reasonable prices. Large scale acquisition and development of land by public authorities on the periphery of growing urban townships is a necessary prerequisite for orderly development and as a means for an adequate impact on low and middle-income housing. Apart from these administrative and procedural requirements, it is necessary to take note of the important issue of urban land values. The extremely steep rise in property values that has occurred on the outskirts of larger cities and metropolitan towns in recent years, has created a situation in which the policies of local Governments in regard to urban land and property rights call for a major revision. The sale and purchase of urban properties, sometimes at fantastically high rates, is a feature compounded of many undesirable elements. There is reason to believe that a large part of the speculative gains as a result of rise in the values of these properties is suppressed and escapes the taxation provisions relative both to capital gains and stamp duties on transactions of immovable property. As these property values clearly represent unearned incomes and wealth, it ought to be the objective of any progressive fiscal system to mop up effectively these betterments,

resulting from general development, to the public fisc. It will be necessary to consider what legislative amendments are called for to ensure that a due proportion of the unearned increases in these land values is appropriated to public revenues and the loopholes ~~existing~~ at present for evasion of tax dues are effectively plugged. These problems are under examination. In the course of this examination, it may well be found necessary to consider making appropriate amendments to the Constitutional provisions in respect of property rights for effectively plugging the loopholes for tax evasion. Indeed if such measures are not found adequate, it may even have to be considered whether in certain urban areas, land ought not to be brought under public control limiting private rights of sales in respect of such urban lands and properties.

Augmentation of local finances:

13. There is a large scope for augmenting local resources for urban development works. A judicious review is essential for upward revision of water rates and property taxes and to introduce certain new taxes by which it should be possible to create additional incomes.

A Committee appointed by the Union Ministry of Health in 1963 has ~~gone~~ into the finances of urban local bodies and early action on its recommendations should be taken.

Industrial Locations:

14. A number of public undertakings have located industries and other institutions without coordinating them in consultation with the Town Planning authorities. This has resulted in piecemeal and unplanned development of peripheral areas. Lack of utility

services, congestion and traffic bottlenecks characterise such developments. It becomes, necessary to ensure that the appropriate town planning authorities are associated with the decisions regarding location of industries and industrial townships.

Training Manpower:

15. It has been estimated that about 2,000 town planners of various levels would be required for planning work during the Fourth Plan period. With the current training programmes in different parts of the country, it should be possible to meet this demand. The planning schools will, however, train young town planners. Special courses will have to be organised to give necessary orientation in town and country planning to senior technical personnel with experience in allied disciplines such as civil engineering and architecture who may be called upon to man higher posts in the field.

II. HOUSING

16. Housing is an integral part of physical development. A large number of housing consumers belong to the low income group and are not able to pay the economic rent of a standard dwelling unit. Housing construction for them is not an attractive commercial proposition. Housing for this category of people has to be, therefore, provided to a large extent through housing schemes in the public sector.

Fourth Plan Programme:

17. The Fourth Plan envisages increase in housing output both in urban and rural sectors. It seeks to give an impetus to the programme by creation of proper institutions for housing finance and providing incentives to private construction. An outlay of Rs.252 crores is proposed for various housing schemes as detailed below:

	(Rs. crore)
Subscribed Industrial Housing Scheme	45.0
Low Income Group Housing Scheme	30.0
Slum Clearance and Improvement Scheme	60.0
Village Housing Scheme	25.0
Land Acquisition and development	25.0
Middle Income Group Housing Scheme in Union Territories	5.0
Plantation Labour Housing Scheme	2.0
Dock Labour Housing Scheme	2.5
Establishment of cellular concrete factories	3.7
Experimental Housing, Housing Statistics, etc.	3.8
Office & residential accommodation for Central Govt. Employees*	50.0
Total:	<u>252.0</u>

In addition to this provision, the Life Insurance Corporation is expected to provide some funds for housing during the Fourth Plan.

It should be possible to finance a large part of the programmes for land acquisition and development, middle income group and

rental housing in the States from this source. Also efforts are being

* This is mostly intended to provide residential accommodation for lower categories of Central Government staff at Delhi, Bombay, Calcutta, Madras and Nagpur where the shortage of housing is very acute.

made to obtain additional funds for housing from the Employees Provident Fund, particularly for the housing of industrial workers.

Central and State Housing Boards:

18. Implementation of housing schemes depends on the institutions available for promoting housing finance, housing administration and construction. The Third Plan recommended the creation of a Central Housing Board. It has not yet been set up. It is important that a Central Housing Board should be set up at an early date. It will help coordinate the functions of the State Housing Boards. In some of the States, Housing Boards have already been set up. In others early action needs to be taken to set them up on a statutory basis. The State Housing Boards would be able to pool the resources available from various sources and utilise them for organised housing development.

Land Development Schemes:

19. All the Land Development Schemes should provide land not only for housing but ^{also} for commercial, industrial and other uses also. In order to augment the resources available for land development the public authorities should take advances against cost of plots and collect the cost of development as the development proceeds in suitable instalments.

Slum Clearance and Improvement:

20. The scope of the slum clearance schemes needs to be enlarged so as to enable State Governments and other authorities to take up schemes of urban renewal. The re-

developed ...

redeveloped areas should provide for various social amenities such as schools, hospitals and markets. Slum clearance in central areas should be able to operate on a self-financing basis if sufficient areas for commercial and other remunerative uses are provided for in the redevelopment design. In order to speed up slum clearance, there is need for the State Governments to initiate at an early date legislation based on the Central Slum Clearance Act which provides the necessary authority and powers for the local authorities to undertake redevelopment and protect the rights of tenants in the redeveloped premises. Nine States have already enacted this legislation. Where slum clearance is likely to take time, slum improvement programmes should be speeded up.

Cooperative Housing:

21. To help augment funds for private housing construction on a co-operative basis, it is recommended that Apex Co-operative Housing Finance Societies may be established in all the States on the pattern of Societies already established in Maharashtra, Gujarat, Mysore and Orissa. These should be able to procure funds from the State Housing Boards and the Life Insurance Corporation and accept deposits from private parties.

22. With a view to supplementing the housing output, necessary encouragement, including financial assistance, should be given to housing industrial enterprises who could

build ...

build houses for sale as well as for renting. The Housing Boards could advance secured loans to such undertakings.

Village Housing:

23. In order to give a fillip to the rural housing programme, villages in which there is congestion on account of a rise in population or a new economic activity, should be chosen for expending and improving the village abadis. The lay out for the redesign of the village should include provision for new housing for all communities including backward classes and Harijans and also for various other community facilities such as schools and health centres. Harijans and Backward Classes would continue to get subsidies for house sites and housing construction. Other sections of the village community would get loans.

III. WATER SUPPLY AND SANITATION

24. The backlogs to be covered in both rural and urban water supply and sanitation facilities are still very large in spite of the efforts made during the first three Plans.

25. Altogether 644 schemes of rural water supply were approved during the first three Plans at an estimated cost of Rs.44.21 crores. Most of the schemes sanctioned during the first two Plans have already been completed. The projects sanctioned during the Third Plan have also been mostly completed within that period. About 17,000 villages have already been provided with piped water supply. A

quick ...

quick survey conducted by the Union Department of Community Development through their Block Organisation indicate that about 30 per cent of the villages/hamlets still have inadequate water supply and about 25 per cent are without a satisfactory source of water supply.

26. About 272 urban water supply and sewerage schemes were sanctioned during the First Plan, 227 in the Second Plan and 529 in the Third Plan. The total estimated cost of these schemes worked out to Rs.182.40 crores. Even after the completion of the Third Plan, 52 per cent of the urban population will be without adequate water supply and 76 per cent without sewerage.

27. With the limited resources available, it is not possible to wipe out all the backlogs in rural and urban water supply and sanitation facilities during the Fourth Plan. Priorities have to be assigned to tackle more pressing problems.

Fourth Plan Programme:

28. During the Fourth Plan priority would be given to Rural Water Supply Schemes, schemes for urban and rural areas endemic with cholera and filaria and schemes for overcrowded metropolitan areas. A total outlay of Rs.373 crores has been provided for rural and urban water supply and sanitation schemes as detailed below:

Rural Water Supply Schemes	150.00
Areas Endemic with Cholera and Filariasis	33.00

Urban ...

Urban Water Supply and Sanitation Schemes (including metropolitan schemes)	190.00
Total	373.00

Rural Water Supply Schemes:

29. Rural water supply schemes have been taken up mainly under programmes for Community Development, Local Development Works and Welfare of Backward Classes. These are supplemented by the National Water Supply and Sanitation Programme which deals with provision of piped water supply. The programme gives priority to areas of severe water scarcity and areas endemic with water borne diseases. Under the well construction programme, about 7 lakh wells have been newly constructed or renovated till the end of the Third Plan. There is, however, paucity of data on the number of villages so far provided with these facilities. The Special Investigation Divisions set up during the Third Plan as a Centrally sponsored scheme in 13 States have been able to investigate a number of areas affected by scarcity. This work should be intensified during the Fourth Plan. The well construction programme in the rural areas should be directed more to areas affected by scarcity conditions. This programme should be fully coordinated with the rural piped water supply programme. With the setting up of the Central Investigation, Planning and Design Organisations in each State, it should be possible to define quickly the areas affected by regular scarcity for drinking water and suggest sources of supply.

Urban Water Supply Schemes:

30. The position with regard to water supply and sewerage facilities ...

facilities in the metropolitan cities like Calcutta, Bombay, Delhi, Madras and Bangalore is acute. Most of the systems designed many years ago have not expanded adequately to meet the population growth. None of these cities have full fledged treatment of sewage nor adequate sewerage net works. There is danger to public health by indiscriminate river and stream pollution on account of the discharge of city wastes. In the other urban areas also the problems to be tackled are formidable. But during the Fourth Plan priority would be given to areas endemic with cholera and filaria.

Metropolitan and Regional Water Supply & Sewerage Boards:

31. Water supply schemes should be planned and executed, as far as practicable, on a regional basis for towns and villages. In order to enable this, there is a need to set up Regional Water Supply and Sewerage Boards in the States. Resources for development can be raised through loans from the open market, collection of adequate water charges and levy of cesses. In the case of Metropolitan areas, there should be separate Boards for this purpose. Water Supply and Sewerage should be operated as a combined utility; surpluses from the water supply side could make good the deficits in operating the sewerage system. As a matter of principle no urban water supply scheme should be sanctioned unless it is followed up immediately by a sewerage scheme.

Water Pollution Control:

32. With rapid growth of industries and urban areas the danger of pollution of the rivers and natural streams has

increased ...

increased. As these are also the major sources of drinking water, there is an immediate need for abatement of river and stream pollution by proper control at the State, Regional and Central levels. The Ministry of Health has prepared a draft legislation. Early enactment and enforcement of this legislation in all the states is essential for the preservation of public health.

CHAPTER XX

SOCIAL WELFARE

The common purpose of development plans in all spheres is to seek, in the given circumstances, to secure the maximum welfare of the community. However, in every society there are social problems which need special attention. At the same time, the very process of development throws up new problems which call for social action. Social welfare programmes included in the Five Year Plans form part of the effort to deal with some of these problems.

2. Scope of Social Welfare Programmes: In its wider aspect, social policy and programmes comprise measures directed towards a wide range of objectives, notably,

- (a) expansion of social services and their qualitative improvement;
- (b) welfare and development of the weaker and more vulnerable sections of the population;
- (c) development of supplementary welfare services at the level of the local area and the local community;
- (d) social reform;
- (e) provision of social security and social assistance; and
- (f) social change, including reduction in disparities of income and wealth, prevention of concentration of economic power and steps to equalise opportunities within the community.

The principal advances are to be expected through rapid economic growth accompanied by expansion of social services, specially education, health, family planning, nutrition and housing. Policies aiming at enlarging economic opportunities and creating better social conditions for the weaker sections

of ...

of the population and bringing about greater economic and social equality and integration within the community, run through every sector of the plan for national development. In respect of social security, so far only the beginnings have yet been made in relation to workers in organised industries. For other sections of the community, at this stage, the approach has to be through acceleration of development, expansion of employment opportunities and provision of schemes for social assistance and community action. Thus, specific social welfare programmes, which are briefly described in this chapter, aim at providing certain supplementary welfare services mainly at the level of the local area and the local community and supporting voluntary efforts towards eradication of social evils, old and new.

3. Review of progress. Social welfare programmes have taken shape by stages in the course of the first three Plans. In the first Plan a provision of Rs.4 crores was made for welfare programmes for women and children and for grants to voluntary bodies. To administer these programmes, the Central Social Welfare Board was constituted as a non-official autonomous organisation which could, in turn, bring large numbers of voluntary women workers into the field of social work. At this stage, social welfare schemes undertaken in the States were outside the purview of the Plan. In the Second Plan, the scope of social welfare programmes was enlarged to include both Central and State schemes, and a provision of Rs.19 crores was made, against which expenditure incurred was about 14 crores. In the Third Plan, besides programmes pertaining to social

defence, social and moral hygiene and after-care services and services for handicapped, special attention was given to the welfare of women and children. The Plan provided for a total outlay of Rs.51 crores but, due to the budgetary and other limitations after 1962-63, programmes in this sector did not expand as the Plan envisaged, and the actual expenditure over the Plan period amounted to about 20 crores. At the end of the Third Plan, there were 264 welfare extension projects for women and children functioning in coordination with community development, 506 welfare extension centres run by recognised voluntary organisations and 1472 welfare extension services run by registered mahila mandals. There were also 17 integrated child welfare projects in progress in the States. About 6,000 voluntary organisations have received grants-in-aid through the Central and State Social Welfare Boards for providing specific welfare services to women and children and to handicapped persons. About 625 condensed courses in education and 75 production units were instituted in urban areas for the benefit of women. The Central Social Welfare Board also set up 66 urban welfare extension projects. A number of night-shelters were also organised. Programmes in moral and social hygiene and after-care services were started at 16 institutions. For the rehabilitation of handicapped persons 27 training-cum-home centres were established.

4. Fourth Plan provisions. For the Fourth Plan, a provision of Rs.50 crores has been made for social welfare programmes.

The following ...

The following are the principal programmes:

	(Rs. crores)
1. Family and child welfare ..	13.0
2. Special programmes for women	6.0
3. Special programmes for children	8.0
4. Welfare projects for non-student youth.	2.0
5. Eradication of beggary ..	3.0
6. Social defence	5.5
7. Rehabilitation of handicapped persons	8.5
8. Aid to voluntary organisations	2.0
9. Training, research and administration	2.0
Total	<u>50.0</u>

In addition, under the head 'Miscellaneous' in the Plan, a provision of Rs.4 crores has been made for social assistance schemes for three groups of persons who may be altogether lacking in the means of livelihood and support, namely, the physically handicapped, old persons unable to work and women and children. These schemes are to be implemented through the Department of Social Welfare and in the States with the support and participation of civic institutions and voluntary organisations. The Department of Social Welfare is also responsible for implementing the programme for displaced persons from East Pakistan who are staying in homes and infirmaries. A provision of Rs.2 crores has been made for this under Rehabilitation.

5. Institute action for social welfare. Before describing briefly the main features of social welfare programmes for the Fourth Plan, it should be stated that in their very nature, most of these programmes can be effectively implemented only through a favourable environment for cooperative working between various operating agencies, governmental and non-governmental, at the level of the local area and the community. It is important that these agencies should be given freedom to administer and execute, to change and adapt, and to find their own solutions for the many problems which must arise from day to day within each community. The primary task of agencies at higher levels is to create conditions in which agencies directly responsible for carrying out schemes can best succeed. Beyond a point, planning and direction in detail from above hinder implementation. Secondly, the key to the success of social welfare programmes lies in each community taking an integrated view of community welfare and accepting the obligation of looking after the interests of all its members, and specially of those who need the help most. This implies that everything possible must be done to strengthen local self-governing institutions and voluntary organisations. Through Panchayati Raj, a system of rural democracy is being built up at the village, block and district level. It is essential that Panchayati Raj institutions should be fully involved in undertaking welfare programmes in these areas. In towns and cities, at present most municipal institutions suffer from lack of resources and are

are not fully associated with welfare programmes. This is at present a lacuna in the scheme of social welfare. In the third place, both in rural and in urban areas, local self-governing institutions should work on the basis of complete partnership with voluntary organisations. Alone, neither local self-governing institutions nor voluntary organisations can achieve fully the aims of welfare for the community, and more specifically, for women, children and youth.

6. Voluntary organisations have to be supported and nurtured with care. There is a vast amount of energy to be mobilised at every level. Significant leadership resources exist in most communities. Potential leaders are held back frequently from lack of knowledge and lack of resources. These are the two elements which plans at the national and State level should seek to provide. Few investments will yield larger results than the training of leaders and workers at the community level. Experience in the working of voluntary organisations suggests that priority should be given to building up their capability for continuous work. Therefore, in the Fourth Plan, while grants would, no doubt, be required for equipment and other facilities, the greater emphasis should be on the strengthening of voluntary organisations through nucleus staffs of trained workers who can be maintained as part of a total social service and can act as effective catalysts for getting the best out of the available human resources. With greater freedom and flexibility in using the resources made available to them, each community and the voluntary organisations which serve it should be able to develop ...

develop greater capacity to solve their social problems and
enlarge the area of welfare activities.

Family and Child Welfare

7. Family and Child Welfare In the ordinary course, development programmes reach women and children indirectly through the general spread of economic development and expansion in social services. But this is not adequate, for, under the existing schemes of development, it is extremely difficult to give sufficiently continuous and systematic attention to the needs of women and children. There are already lags in education and welfare between men and women. In the case of the weaker and poorer sections of rural community in particular, children suffer from many handicaps in their future development. Although considerable work has been done over the past decade through welfare extension projects, in planning for the future three considerations have to be kept in view. First, most of the welfare extension projects undertaken in cooperation with the community development programme have completed their first stage and have to run varying periods for the balance of the second stage. Arrangements for continuing these projects have to be made on a firm basis. Secondly, most of the voluntary organisations and mahila mandals to which welfare extension centres were entrusted a few years ago, find it difficult to maintain the services which have been established or to expand them unless the necessary resources are assured. Thirdly, besides strengthening institutions and centres already established, for the future programmes for women and ...

and children should be so organised that similar services could become available on a continuing basis in all rural areas.

8. After careful evaluation of past experience, leading social workers are agreed that in proposing schemes of development for women and children, the family should be treated as the basic unit and a composite family and child welfare programme should be adopted. Accordingly, in the Fourth Plan, it is proposed that the family and child welfare programme should include the following main activities:

- (1) provision of integrated social services to children in the villages, specially to pre-school children;
- (2) provision of basic training to women and to young girls in homecraft, mothercraft, health education, nutrition and child care and provision of the essential health and maternity services for women;
- (3) promoting cultural, educational and recreational activities for women and children; and
- (4) assisting women in the villages to obtain supplementary work and income and generally promoting economic activities on the part of women.

Provision of supplementary work and income is an important means of reaching women in the villages and augmenting family income and family welfare. Under the family and children welfare programme, only the basic organisation and core facilities can be provided, but if these are available it is hoped that through other programme included in the Plan notably under village and small industries, cooperation and rural works, it should become possible to provide fuller work opportunities for women in the villages.

9. In the coming years, the family and child welfare programme will need to develop along two related paths. First, within the resources available, the programme should extend progressively to an increasing number of community development blocks. Secondly, wherever, local communities and leadership are prepared to make the necessary effort, means should be available for providing a measure of support to them. The first is the aspect of organised advance, the second of voluntary growth. Both aspects are inter-related and support each other. In blocks in which family and child welfare projects are established, there should be even greater scope for encouraging voluntary effort by local communities but in other areas also there should be some opportunity for development through the initiative of local communities.

10. The organisational pattern for the family and child welfare programme has been carefully considered. It is essential to enlist the cooperation of Panchayati Raj institutions and of other agencies engaged in providing development services. The three essential conditions to be secured are:

- (1) cooperation and participation on the part of Panchayati Raj institutions and agencies engaged in providing development services, including schools and primary health services;
- (2) participation of voluntary workers, both from within and outside the block; and
- (3) active involvement on the part of and assumption of responsibility by local communities and local leaders working through Panchayats, cooperatives and voluntary associations.

11. In blocks in which family and child welfare projects are undertaken, it is envisaged that at the block level there should be a Family and Child Welfare Centre with the necessary personnel, equipment and buildings. This Centre should develop into a permanent institution serving women and children and the families in the block. It should become an important means through which various development agencies can extend their services so that the women and children of the area are benefited to the greatest extent possible. The main Centre would provide facilities for training women. It is envisaged that besides the main Centre in the block, there should be up to five sub-centres for which full-time personnel (Balevikas) are available. The scheme also provides for 8 to 10 aided centres being set up during the Fourth Plan by local mahila mandals with the help of the village Panchayat, the services being organised by a local woman worker (Gramlakshmi) to whom an honorarium is given. As part of a growing movement and as there is greater response on the part of women in the area, the number of such aided centres should increase steadily. On the tentative estimates prepared for the programme, a family and child welfare project with one main Centre, 5 sub-centres and 10 aided centres would involve non-recurring expenditure amounting to Rs.55,500 and recurring expenditure per year of Rs.32,500. The programme has to be implemented through the Central and State Social Welfare Boards.

12. The family and child welfare programme has to be undertaken in partnership between Panchayati Raj institutions and voluntary organisations and workers. It is envisaged that the Panchayat Samiti should be responsible for the establishment of family and child welfare centres and the organisation of the entire programme as an integral part of the plan for rural development and rural welfare. At the same time, because of the nature of the tasks to be carried out and the need to enlist women workers to the maximum extent, it is proposed that the programme should be implemented under the overall provision of the State Social Welfare Board and the State Government. It is envisaged that the Panchayat Samiti would agree to place the family and child welfare centres with its associated sub-centres and aided centres under the management of a special Functional Committee of the Panchayat Samiti. This Committee would include two groups of members in equal number, namely, those represented by the Panchayat Samitis and those proposed by the State Social Welfare Board, the majority of the members being women. The chairman of the Panchayat Samiti would also serve as the chairman of the Functional Committee in charge of the family and child welfare programme. The day to day responsibility for the programme could be entrusted to the vice-chairman of the Functional Committee who should be a non-official woman worker proposed by the State Social Welfare Board in consultation with the Panchayat Samiti. It is hoped that the resources provided by the Centre and the State

for the ...

for the family and child welfare programme would be supplemented to some extent by local resources drawn from the Panchayat Samiti and village communities in the block. Tentatively, it is proposed to introduce the family and child welfare programme along the lines explained above in about 800 blocks over the Fourth Plan period. Detailed arrangements are to be worked out in consultation with the States and the State Social Welfare Boards. If the programme succeeds during the Fourth Plan, over the next ten or fifteen years, it should become possible to make much greater progress in carrying the essential services to women and children in all rural areas. The programme will, of course, call for careful training of workers for evaluation from time to time and for strengthening of the official and non-official agencies concerned with it.

13. The family and child welfare programme is the largest single effort directed towards the welfare of women and children, specially in the rural areas, and has to be implemented as a major national programme. Other programmes for women and children can be described more briefly. Several schemes for the welfare of women which are at present under way will be continued and expanded during the Fourth Plan. These include provision of condensed courses for women, establishment of socio-economic units for training and employment, hostels for working women and assistance to voluntary organisations and mahila mandals for carrying out various activities. Similarly, there are several existing schemes for the welfare of children which will be continued during the Fourth Plan. These include
homes ...

homes for children who are destitutes or have no one to look after them, foster-care and adoption services, holiday homes and camps and a national centre for child welfare. In the Third Plan, attention was drawn to the need for providing educational training on a full-time basis for children in the age-group 11-14 whose education had been discontinued and 65 centres for pre-vocational training were established. This programme has been recently reviewed and details for the scheme to be implemented during the Forth Plan are under consideration. A provision of Rs.3.5 crores has been made for it in the Fourth Plan.

Other Welfare Programmes

14. Non-student youth. A working group on youth programme set up by the Commission has recommended the establishment of a Central Youth Board and corresponding State Boards for enabling and assesting young people to participate more fully in the tasks of national development. The programme envisages schemes for both student and non-student youth in urban and rural areas. Provisions for different aspects of the programme are to be made under different heads and details are being worked out. As part of the plan for social welfare, a provision of Rs.2 crores has been made for welfare activities, specially among non-student youth.

15. Eradication of beggary. The Third Plan had referred to beggary as an age-old social evil which had been allowed to continue for too long and called for steps to eradicate beggary from large cities, places of pilgrimage and tourist centres. It also recommended central legislation for the

control

control and eradication of beggary and vagrancy. Experience in this field in different States has been recently reviewed by a study group constituted by the Planning Commission. Panel on Social Welfare and proposals have been drawn up for the Fourth Plan. For this purpose, a provision of Rs.3 crores has been made.

16. Social defence. A provision of Rs.5 crores has been made in the Fourth Plan for probation services, care and protection for children, non-institutional services for the prevention of juvenile delinquency, welfare work in prisons, social and moral hygiene programmes and protective homes for correctional training. Several of these schemes were under implementation during the Third Plan.

17. Rehabilitation of handicapped persons. A number of schemes for handicapped persons, specially the blind, the deaf-mute, the orthopaedically handicapped and those who are mentally deficient or ill were implemented during the Third Plan. The principal schemes to be implemented in the Fourth Plan include scholarships for physically handicapped persons, assistance to voluntary organisations, establishment of workshops, training centres, rehabilitation and adjustment centres, special schools for handicapped children and cells in employment exchanges for the physically handicapped. Provision has also been made for the establishment of homes for the aged.

Voluntary Organisations and Training and Research

18. The role of voluntary organisations in social welfare programmes has been already stressed. It is recognised that besides ...

besides voluntary workers, voluntary organisations should build up cadres of trained and experienced workers who can work on a continuing basis. A study group on voluntary organisations set up by the Planning Commission Panel on Social Welfare has made a number of recommendations concerning grants to voluntary organisations, conditions which they should endeavour to fulfil and the forms in which assistance from Government should be made available to them. It is hoped to assist selected voluntary organisations in building up and maintaining trained personnel.

19. Manpower and research needs in the field of social work have been examined by a study group set up by the Planning Commission Panel on Social Welfare. The proposals made by the study group are under consideration. It will be necessary also to consider further administrative arrangements concerning social welfare programmes and their coordination with other programmes, specially at the State and district level.

CHAPTER XXI.

WELFARE AND DEVELOPMENT OF BACKWARD CLASSES

Programmes for the welfare and development of backward classes are conceived of as being supplemental to general development programmes in different sectors. Therefore, they represent only a part of the resources to be drawn upon for promoting the economic and social well-being of scheduled tribes, scheduled castes and other backward classes. Special provisions in the Plan for backward classes should be utilised so as to generate larger support from general schemes of development and should not be utilised as a substitute for what is due to the backward classes from programmes under different sectors. This is all the more necessary because, while there has been progress in several directions, levels of well-being among tribal and backward communities have not risen in adequate degree and the processes of integration with the rest of the population have not proceeded rapidly enough. The urgency of rapid economic and social advance among these groups is now being recognised ever more than before. The success of development programmes undertaken on their behalf during the Fourth Plan is crucial to the progress of the country as a whole. In drawing up schemes of development for the Fourth Plan, special attention is, therefore, being given to the identification of factors which have accounted for slow progress in the past and to securing machinery and personnel for effective implementation. In this field, the Central Government provides a considerable part of the resources and has a special and continuing concern.

2. The outlay on special programmes for the welfare of backward classes rose from Rs. 30 crores in the First Plan to Rs. 79 crores in the Second and to Rs. 101 crores in the Third Plan. Of the total

amount of Rs. 210 crores spent during the first three Plans, Rs. 115 crores have been devoted to scheduled tribes, about Rs. 72 crores to scheduled castes, about 21 crores to denotified tribes and other backward classes and Rs. 2 crores to aid voluntary organisations. The Fourth Plan provides for an outlay of Rs. 180 crores, of which 100 crores are for scheduled tribes, Rs. 66 crores for scheduled castes and Rs. 14 crores for other schemes. The tentative break-down of the allocation is given below:

(Rs. crores)

	Education	Economic develop- ment	House sites, water supply and other schemes	Aid to volunt- ary org- anisation	Total
	-----	-----	-----	-----	-----
Scheduled tribes	22	68	10		100
Scheduled castes	30	15	21		66
Denotified tribes	2	2	1		5
Other backward classes	6	-	-		6
Common provisions	-	-	-	3	3
	-----	-----	-----	-----	-----
	60	85	32	3	180
	-----	-----	-----	-----	-----

Schemes included in the plans of States are expected to account for one-half of the total allotment, the rest comprising Centrally sponsored programmes

Scheduled tribes

3. Tribal communities accounted in 1961 for a total population of about 30 million. In several parts of the

-/-

country, they live in varying degrees of concentration. In the Fourth Plan special efforts will be made to develop the economies of such areas more intensively by combining to the maximum extent possible resources from different sectors with those separately allocated for the welfare and development of tribal communities. To implement such an integrated approach, it will be necessary to strengthen the existing administrative machinery, to place the maximum responsibility on the institutions and leadership of each tribal area and to give greater support to the efforts of voluntary organisations and voluntary workers. In other areas, where tribal communities live in scattered villages or groups of villages, it will be necessary to provide for special schemes to cater for their needs.

4. Tribal development blocks. During the Second Plan, 43 development blocks situated in tribal areas were taken up for multi-purpose development and resources available under the community development programme were augmented from provisions made for welfare of scheduled tribes. Following an assessment of the working of these blocks in 1960, it was agreed that the programme of tribal development blocks should be implemented during the Third Plan over the country as a whole. By the end of the Third Plan, about 415 tribal development blocks have been taken up in areas in which the tribal population accounts for two-thirds or more of the total population. The Scheduled Areas and Scheduled Tribes Commission which reported in 1961, recommended that tribal

development blocks should be set up in areas with more than 50 per cent tribal population. In the course of the Fourth Plan and in the early part of the Fifth Plan, all areas which fulfil the criteria proposed by the Scheduled Areas and Scheduled Tribes Commission will come within the coverage of tribal development blocks. A provision of Rs. 55 crores has been made for tribal development blocks and associated schemes in the Fourth Plan.

5. The scheme for ^{tribal} development blocks makes it possible to supplement the provisions available under the normal community development budget and to give greater attention to the needs of the tribal population. To ensure that the benefits will reach the tribal people, it has been stipulated that 75 per cent of the resources available under the tribal development and community development block provisions under the head 'Economic Development' should be earmarked for schemes which will be of exclusive benefit to the tribal population. Considerable flexibility in allocating resources under the tribal development budget is also envisaged. Experience of the working of tribal development blocks during the Third Plan, however, suggests certain improvements. Firstly, some of the existing tribal development blocks **are far too large for proper administration**. Secondly, departments at the State level concerned with tribal development programmes should be much more closely associated than they have been with the planning and implementation of tribal development programmes. Thirdly, in evolving proposals for tribal development blocks, special attention should be given to the problems of the tribal areas and of different tribal groups, and individual development schemes should be adapted accordingly. Fourthly, systematic plans of work should be prepared in advance for each tribal development block, and funds should be allotted so as to assist implementation all through the year. At present, frequently, funds are allotted for individual schemes at different times in the course of the year and are not always fully utilised. Finally, efforts should be made to draw resources provided under the general development programmes into the tribal development blocks to a much greater extent than has been done in the past.

6. On the lines of the two stages provided under the community development programme, allocations for tribal

development blocks are also determined in two phases. In the first stage, the supplementary allocation from programmes for the welfare of scheduled tribes is Rs. 10 lakhs. In the second stage, it is reduced to Rs. 5 lakhs. For the present the Fourth Plan provision are based on the continuance of these stages. However, it is a matter for serious consideration whether development of tribal communities may not be accelerated if funds are made available on an agreed, uniform basis from year to year for a minimum period of ten years or whatever the balance of the period may be in the case of any given tribal development block, the position being reviewed afresh at the end of the ten-year period. If necessary, the extension of tribal development blocks to cover all the eligible areas in each State could be spread over a slightly longer period. In predominantly tribal areas, the first few years are taken up in preparing the people for development, in providing essential staff and buildings and in taking other preliminary steps. By the time the first stage comes to an end, little is achieved by way of development so that, precisely as the people of an area become more ready to reap the benefits of development and to participate in it, the resources available to them tend to diminish. It is proposed to consider these suggestions further in consultation with the States.

7. Area approach. In addition to the considerations mentioned above, there are two major weaknesses in the present programme.

of tribal development blocks. In the first place, the average tribal development block with a population of about 25,000 is much too small for providing several of the services which are essential for the fuller development of the tribal people. Programmes like communications, irrigation, forestry, processing industries and vocational and secondary education could gain greatly from being planned in terms of somewhat larger areas. In many parts of the country, tribal economic problems lend themselves readily to an area or regional approach. It is, therefore, proposed that in the Fourth Plan tribal development blocks situated within a district should be grouped into one or more tribal development areas. At the district or subdivisional level, special personnel should be provided to look after the needs of a tribal development area as a whole. Depending upon physical features, social structure, communications and economic needs for each area so demarcated, an effort should be made to draw up a systematic plan of development. This will take into account resources available under general sectors such as roads and road transport, agriculture, animal husbandry, forestry and cooperation, rural electrification and transmission and distribution, small and processing industries, hill area plans, rural works and programmes for the expansion of education and other social services. When large industrial and mining projects are undertaken in tribal areas, steps should be taken simultaneously, as part of the area plan, to ensure that the local population is helped and equipped to adapt itself to participate in

future development. Local institutions as well as specialists and non-official workers should be intimately associated with the preparation and execution of area development programmes. Groups of villages situated within the district, which are inhabited by tribal communities but are not sufficient to form tribal development blocks, could be treated as tribal pockets and given attention as part of the tribal development area or otherwise.

8. In proceeding thus, it should be possible also to correct the second major weakness of the existing programme, namely, its relatively small coverage in relation to the total tribal population. By the end of the Third Plan, tribal development blocks would have covered about one-third of the tribal population. Even with extension of the coverage to areas with 50 per cent of tribal population, tribal development blocks will serve at the end of the Fourth Plan only 70 to 75 per cent of the total tribal population. Through the approach of tribal development areas built into the scheme of tribal development blocks, supplemented by measures pertaining to groups of villages inhabited by tribal communities, it is hoped to cater to the needs of a larger proportion of the tribal population. It should be added, however, that this approach will call for considerable strengthening of the existing administrative machinery and for more effective implementation as well as for much greater cooperation and initiative on the part of institutions and leadership within each area. The various Departments concerned at the State level should work

together to demarcate tribal development areas and to evolve and implement coordinated plans for them. The Department of Social Welfare at the Centre and corresponding Departments in the States should assume much more specific responsibility than at present for planning in relation to tribal areas and for observing closely the execution of various development programmes.

9. Conditions in different tribal areas vary widely. In each area it is essential to study carefully the special needs and problems of the people and to formulate fairly long-term plans for dealing with such basic problems as communications, development of agriculture and horticulture, including improvement of existing methods of shifting cultivation and introduction of settled cultivation, development of cooperative organisations for marketing, credit and construction, re-orientation of the prevailing system of education and provision of larger facilities for vocational and technical education, and the building up of local personnel to carry out the many tasks which rapid development inevitably entails. In working out such plans for tribal areas, there is need to draw upon Tribal Research Institutes and upon specialists available in the universities and elsewhere. To this end, steps will be taken to enable these Institutes to play a larger role in promoting tribal development. It is also proposed to utilise more fully the resources of the Anthropological Survey of India in the study of tribal problems and in designing future patterns of tribal development.

10. Rehabilitation of displaced tribals: Since the commencement of planning, in a number of States, industrial and mineral development projects and major schemes for irrigation and power development have entailed large scale acquisition of land and consequent displacement of local tribal populations. The traditional life and livelihood of the communities concerned were dislocated. Resettlement on land could be arranged only to a limited extent. Often compensation paid in cash did not last long. Temporary employment as unskilled workers during the construction stage could not be followed by absorption in productive work on a more continuing basis. Where new housing colonies were established, these did not provide a satisfactory means of earning a living. These problems have received greater attention in projects taken up under the Third Plan. The Scheduled Areas and Scheduled Tribes Commission had suggested that where tribal communities are likely to be affected, the scheme of rehabilitation should be an integral part of the project itself and should include comprehensive programmes for education, technical training, housing, re-settlement and future employment. As far as possible, efforts should be made to provide for rehabilitation in the form of land so that the tribals are able atleast to produce for the primary needs of those living in industrial townships. State Departments concerned with tribal affairs should be associated from the beginning in drawing up plans of rehabilitation and welfare personnel and voluntary workers should assist the execution of rehabilitation and re-settlement programmes. In projects undertaken in the future, where tribal populations are involved, the

Central Ministries concerned should associate the Departments of Social Welfare and Community Development in drawing up suitable schemes for re-settlement and rehabilitation.

11. Tribal Education: In predominantly tribal areas, along with communications and the reconstruction of the agricultural economy, there is urgent need to develop a system of education which can meet the requirements of economic and social development and is responsive to the cultural and economic needs of the people. In these areas, education and development should proceed together, each supporting and stimulating the other. Frequently, tribal communities live in scattered hamlets. This makes it difficult to provide on an adequate scale educational and other facilities within reasonable distance from the habitations. While primary schools have to be located as near the homes as may be possible, at the middle and secondary levels, the necessary facilities have to be provided at centrally situated schools which are equipped with hostel accommodation. Schools in tribal areas are often poorly equipped and do not have a sufficient number of trained teachers. In particular, facilities for the teaching of science and mathematics are inadequate. Special attention needs to be given during the Fourth Plan to the training of teachers, provision of hostel facilities, introduction of science teaching, improvement in the teaching of mathematics and provision of vocational courses such as will enable school leavers to fit into the agricultural and other programmes of development proposed to be undertaken in the tribal areas. These development programmes have also to be continuously intensified and strengthened, so that their absorptive capacity increases in keeping with the increase in the number of those leaving the schools.

12. Cooperation: In dealing with many of the economic problems which beset tribal communities, cooperative organisations can make an important contribution, more specially, in the provision of credit, in marketing, in labour and construction activities and in forest operations. In this connection, although the proposals of the Special Working Group on Cooperation for Backward Classes which reported in 1962, were broadly accepted, little practical action has ensued thus far. Early in 1966, proposals concerning the financial and organisational patterns for service cooperatives, primary marketing cooperatives, forest labour cooperatives and labour contract and construction cooperatives were communicated to the States. Administrative arrangements for implementing cooperative programmes pertaining to scheduled tribes are still weak. It has, therefore, been proposed that in each State the Department of Cooperation should assign to the Tribal Welfare Department a special officer to take charge of cooperative programmes for scheduled tribes. This officer should be placed in a position to function effectively on behalf of both Departments and should help the staff in tribal development blocks to work out programmes for building up cooperatives. To assist in marketing and supplies, in a number of States, it would be useful to promote organisations on the lines of the Andhra Cooperative Finance and Development Corporation and the Madhya Pradesh Cooperative Development Society.

13. The Scheduled Areas and Scheduled Tribes Commission had urged that, as a policy, Government should take steps to eliminate middlemen in the exploitation of forests. Forest cooperatives have, therefore, a crucial role in the tribal economy. However, outside Gujarat and

Maharashtra, they have not made much advance. It is important that over a period, in most forest areas with tribal populations, contractors should be replaced by forest labour cooperatives, by departmental operations and by corporations specially constituted for exploiting major forest produce. Under the programme for cooperative development, appropriate patterns of financial assistance for forest cooperatives have been already prescribed. Financial provisions also exist in the budget of tribal development blocks. An inter-departmental study group on forest labour cooperatives, which is examining the operational problems involved in working forest labour cooperatives, has recommended that an experienced officer of the State Forest Department should provide liaison and technical assistance to the Tribal Welfare Department and the two Departments, along with the Department of Cooperation, should jointly formulate and implement a well-conceived programme for forest labour cooperatives. Tribal communities residing in or near forests need to be educated in methods and techniques of conserving and developing forest resources. Forest officers should be given training in the working of forest labour cooperatives and should be helped to understand more intimately the life and problems of tribal communities living in forests areas. Forest Departments have also to be strengthened for extension work among tribal communities. Since forest work is mainly seasonal, it is essential to devise measures for providing employment during slack seasons to tribals living in forest areas. In these areas, wherever possible, the rural works programme should be utilised for providing opportunities for supplementary work.

14. Administration and personnel: One of the main reasons for inadequate implementation of programmes pertaining to scheduled tribes has been the lack of administrative machinery and of personnel specially trained for and adapted ^{to} work among tribal communities. Since tribal communities frequently live in remote and inaccessible areas, working conditions are difficult, and, besides a high proportion of unfilled positions, the staff turn-over is heavy and transfers are frequent. Moreover, few technical and administrative officials are able to acquire the close understanding and sympathy without which much cannot be accomplished in tribal areas. It has, therefore, become necessary that in States which have sizeable tribal populations, specially where they live in more or less concentrated areas, special measures should be taken to strengthen the administration and provide the necessary personnel. These may include, where necessary, steps to constitute sub-cadres as part of the various technical and administrative cadres of the State. Through such sub-cadres an adequate number of trained persons can become available for long enough periods for continuous work among tribal communities.

15. In the nature of things, development programmes in tribal areas cannot be implemented successfully through the official machinery alone. Local institutions with which tribal communities are closely associated at the village, block and higher levels have a large role to play. It is, therefore, important to strengthen these institutions, to give them adequate authority and resources and to provide them with competent and trained officials. Further, there is need for large numbers of voluntary workers drawn increasingly

from amongst the tribals themselves. Therefore, special efforts should be made to strengthen voluntary organisations for work among tribal communities.

Scheduled Castes

16. At the Census of 1961, scheduled castes numbered 65 million or about 15 per cent of the country's population, about 7 million being in urban areas and 58 million in rural areas. The economic problems of scheduled castes are inter-mixed with those of much larger numbers who may be described as the weaker and the more vulnerable sections of the community. To an extent, therefore, these problems may be resolved only with more rapid growth and structural change in the economy as a whole. Yet, these sections of the community are faced with problems which cannot wait and in many directions there is need for urgent action. Besides the general problems with which the weaker and vulnerable sections are confronted, several groups among scheduled castes still labour under serious social disabilities inherited from the past.

17. In spite of efforts to end the practice of untouchability, the evil still persists to some extent, specially in the rural areas. Provisions in the Constitution banning the practice of untouchability and making its practice a cognizable offence have not been found adequate. A sustained drive to improve the educational standards of scheduled castes and to strengthen and diversify their economic opportunities is called for. The basic economic conditions under which forms of untouchability can permeate social relationships have to be speedily eliminated for, under present

conditions, social hardships are greatly accentuated on account of economic weakness. A committee set up by the Department of Social Welfare is at present engaged in reviewing the progress of action against untouchability. It is clear that in this sphere there is no room for complacency and there is need for a nation-wide effort to create a sense of equal worth and equal dignity for every citizen in the land.

18. Since nearly 90 per cent of the scheduled castes live in the villages and a considerable proportion among them engage in agricultural labour or in occupations of low skill and productivity, whatever measures can be taken to build up the agricultural economy and to diversify the rural occupational structure, will be of benefit to the scheduled castes. To the extent to which industrialisation helps larger numbers from amongst scheduled castes to attain skills and enter new vocations, they will gain both in economic opportunity and in social status. Schemes for the resettlement of landless labourers and for rural industries and the rural works programme will also go some distance in improving earnings and expanding employment opportunities.

19. Provisions for special programmes for the scheduled castes are intended to supplement benefits and facilities which they obtain through schemes undertaken for the community as a whole. Over the first three Plans, the special provisions have accounted for a total outlay of about Rs.72 crores, of which Rs.34 crores have been devoted to educational schemes, Rs.11 crores to economic uplift schemes and Rs.27 crores to health, housing and other schemes. For the Fourth Plan an outlay of Rs.66 crores has been provided for scheduled castes.

The principal schemes to be implemented and the tentative provisions proposed for them are given below:

	(Rs. crores)
1. Post matric-scholarships and other educational schemes	30
2. House-sites	15
3. Economic development	14
4. Improvement in working conditions in occupations such as scavenging, flaying, tanning, etc.	2
5. Other schemes	5
	<u>66</u>

20. Education: Although there is still a considerable gap in education and literacy between scheduled castes and the rest of the community, significant progress has been made and an increasing proportion of children from amongst scheduled castes are now attending school and availing of facilities for higher education. All States have extensive programmes for pre-matric stipends and other assistance in education. In addition, the Central Government is financing the scheme for post-matric scholarships. In implementing scholarship schemes for scheduled castes, as for other backward classes, certain administrative problems which are now being encountered need special attention. The existing procedures, both at the Centre and in the States, should be simplified as they tend to cause delay in the award of scholarships. Heads of institutions should be placed in a position to grant scholarships on their own authority within the general schemes approved by State Governments. Assistance in education to students from backward classes should go

beyond the award of scholarships. There should be adequate provision of coaching facilities, arrangements for watching progress of individual scholars; planning ahead of careers and ensuring placement in appropriate institutions. With such personal follow-up, scheduled castes and other backward classes will be able to take advantage of reservations made in their behalf, both in educational institutions and in appointments in the public service. It is essential that the Department of Social Welfare at the Centre and the Departments concerned at the State level should be closely associated with Education Departments in the administration of scholarships and other assistance given to students from scheduled castes and other backward classes.

21. Economic Development: The main object of providing special resources for schemes for economic uplift is to enable scheduled castes and other backward classes to obtain the maximum advantage from provisions available under general schemes. Where necessary, supplementary help could be given, for instance, by way of subsidies or share capital. It has been already proposed to State Governments that since cooperatives have an important contribution to make to the development of scheduled castes and other backward classes, in such programmes as fisheries, poultry, dairying etc, appropriate proportions of the available resources should be earmarked for cooperative programmes.

22. House-sites. Little has been done so far for the provision of house sites for scheduled castes and other backward classes in the villages. In a few States, special efforts have been made to acquire lands and provide house sites for Harijans, but the problem has vast dimensions and is becoming increasingly acute. Moreover, even where house sites are made available, as a rule, the principle of segregation continues to prevail. The provision of house sites is a national problem and it is hoped that the Fourth Plan can mark the beginnings of a large-scale effort. A problem of this size calls for action both on the part of the Government and on the part of local communities and civic institutions. Conditions have to be created in which the latter will be prepared to take upon themselves the obligation to establish certain minimum living conditions for the weaker sections and, more specially, for scheduled castes and other backward classes and the landless. Three essential conditions have to be met. Firstly, resources should be available to facilitate acquisition of land for the provision of house sites. Secondly, funds available under programmes for the welfare of backward classes, rural housing and community development should be used in a concerted manner so as to achieve a definite impact. Thirdly, local communities and institutions should be induced to provide land for house sites, not so much as a matter of acquisition by the Government (which may of course be necessary in the last resort), but as an essential aspect of community development. Care should be taken to avoid building on fertile agricultural lands.

The extent to which common lands belonging to the village community are made available, this could take the form of a collective contribution.

23. If all the sources of funds are utilised for implementing a coordinated scheme, resources of the order of Rs. 40 to 50 crores could become available during the Fourth Plan for the provision of house sites for Harijans, landless agricultural workers and small peasants in the villages. To begin with, the programme could concentrate on villages which fulfil three criteria, namely, a degree of congestion in village homesteads, a significant proportion of Harijans and landless families in the village and the willingness of the Panchayat to sponsor a scheme for the provision of house-sites. Schemes for the provision of house sites which cater to the needs of Harijans as well as landless agricultural workers and small peasants could be an effective means for combating traditional attitudes leading to segregation. Instead of land being obtained mainly for providing house sites to individual families, housing cooperatives could be formed in the selected villages and they could be given assistance from cooperative and other sources for establishing community facilities and constructing wells. Wherever the rural works programme is in operation, help could be given during the slack agricultural seasons for constructing houses on the basis of mutual help. If a number of villages

within a block embark together upon such a programme, it should be possible also to arrange for artisan cooperatives to construct doors and windows of standard size and to promote the formation of brick klin cooperatives. Such a programme, if implemented with determination and on the basis of cooperation from local communities, could make a beginning not only in solving the problem of house sites for Harijans and landless workers, but also in improving living conditions in rural areas for all sections of the village community. The programme will of course call for combined action and leadership on the part of a number of agencies and for a great deal of educational work in the villages. Viewed as a movement at the community level, as it proceeds, the programme should also generate increasing confidence in the rural areas.

24. Voluntary Organisations. As in the case of scheduled tribes, and indeed to an even larger degree, voluntary organisations and voluntary workers have a vital contribution to make in work among Harijans. In recent years, the Central Government has assisted a number of leading organisations in carrying through programmes of training and social work among Harijans. In cooperation with the States, it is proposed to assist some of these voluntary organisations in building up cadres of social workers who can educate public opinion and also help members of scheduled castes and other backward groups to organise themselves for mutual self-help through cooperative and other agencies. A provision of Rs. 3 crores has been made for this purpose.

Denotified Tribes

25- The total population of denotified tribes is reckoned at about 4 million. Although a sum of Rs.3 crores has been spent during the Third Plan on welfare programmes for denotified tribes, on the whole this section of the population continues to live precariously and on the margin of subsistence. A small proportion among them possess land, but frequently they are not skilled cultivators and lack resources and little has been done to help them overcome their difficulties. An effective plan for imparting new skills and creating greater economic opportunities for denotified tribes and specially for those who have no stable means of livelihood has yet to be formulated. It is proposed to work out specific proposals in cooperation with the States, keeping in view the need for a combined correctional and welfare approach and for programmes for training and economic uplift suited to the needs and skills of different groups.

26. The number of social workers who have interested themselves in the welfare of denotified tribes is extremely small, but this is an area of work in which there is considerable need and scope for strengthening voluntary organisations and enlisting voluntary workers. There is also insufficient knowledge of the cultural background and the social and economic problems of different groups among denotified tribes. It would, therefore, be useful if one or two schools of social work could adopt the study of denotified tribes as their special field of interest.

Nomadic and Semi-nomadic groups

27. There are several nomadic and semi-nomadic groups in different parts of India, some sizeable, others quite small. Broadly, they may be divided into four categories; (a) **pastoral** nomads, (b) trading nomads, (c) nomads rendering specialised services and (d) miscellaneous groups.

The nature and extent of nomadism differs among each of these groups, but most of them now need to be settled so that they can begin to benefit from social, economic and technological developments which are now within their reach. This has become all the more necessary because, with disruption in traditional relationships between settled and nomadic populations, most of these groups are passing through difficult times and live on the margins of subsistence. Studies in respect of nomadic groups in western Rajasthan indicate that nomads themselves now desire help in settling down, and in fact many of them are already undergoing a gradual process of settlement. In many parts of the country many village communities along customary routes followed by nomadic groups have become increasingly resentful of the damage done to crops, grazing grounds and water resources by herds of cattle brought by the nomadic groups.

28. It is essential to evolve programmes of rehabilitation for each group separately, taking into account its social and economic organisation, values, skills and motivations and the resources of the region to which it belongs. Schemes for economic uplift, pasture development, housing, education and training would need to be worked out. In view of the fact that the process of settlement is likely to be spread over many years, it is necessary that those groups which will continue to be nomadic or semi-nomadic should receive assistance as may be possible in keeping with the needs and tenor of their nomadic life. Efforts should be made to provide amenities at convenient points along the routes traditionally followed by these groups, specially drinking water supply, fodder, veterinary aid, credit, marketing

and camping facilities. As to be admitted, however, that too little is at present known about most of the nomadic groups. As part of the Fourth Plan it is proposed to obtain more precise information at least for the larger nomadic groups and to prepare for each of them a few essential schemes of development suited to their present needs and way of life.

CHAPTER XXII

LABOUR POLICY AND PROGRAMMES

Labour legislation since Independence and agreements arrived at jointly between representatives of workers and employers and the Government proceed from two basic concepts. Firstly, the relationship between workers and employers is one of partnership in the maintenance of production and the building up of the national economy. Secondly, the community as a whole as well as individual employers are under obligation to protect the well-being of workers and to secure to them their due share in the gains of economic development. A series of important legislative measures, which were enacted between 1947 and 1952, continue to provide the main structure of protective labour legislation. In recent years, greater emphasis has been placed on the role of collective bargaining, on mutual agreements reached in the Indian Labour Conference and other tripartite bodies and on agreed schemes such as those embodied in the Code of discipline in industry, the inter-Union Code of Conduct and the Industrial Truce Resolution. On the whole, tripartite arrangements have responded well to changing needs and aspirations and ^{at} two critical occasions during the Third Plan they helped achieve labour solidarity and strengthen national unity.

2. The legislation already enacted and the voluntary arrangements mentioned above will continue to form the basis of labour policy during the Fourth Plan. It is inevitable that labour problems and industrial relations should now be influenced by wider economic developments to a greater extent than before. Developments concerning price levels and cost of living, availability of

foreign exchange for supply of raw materials, conditions for the utilisation of existing capacities, measures to raise levels of productivity and the overall rate of economic and industrial growth are of great importance for industrial peace and for policies relating to wages and the welfare of workers. The labour movement and the trade unions should now be in a position to assume larger responsibilities. One of the main tasks in the Fourth Plan will be to evolve practical ways in which they can make an increasing contribution to national development and national policy. The growth of the public sector provides opportunities for working out new concepts of labour relations and the association of labour in management of industry. Equally, it places greater responsibility on labour and the trade unions. Labour has a vital rôle in increasing productivity, and management has to help create conditions in which workers can make their maximum contribution towards this objective. In the main, labour policy has thus far given protection to those engaged in organised industries. In the coming years, labour policy and labour programmes have to be broadened steadily to provide for agricultural labour as well as for various groups of unorganised workers such as contract labour, construction workers ~~water workers~~, workers engaged in scavenging and others.

3. Three sets of problems of implementation will call for special attention during the Fourth Plan. Firstly, there is room for considerable improvement in the administration of the legislation which has been enacted for the protection, safety and welfare of industrial workers. In the second place important schemes such as works committees and joint management councils have made

a very limited progress. It is necessary to orient both workers and employers to these changes and find ways of meeting the practical problems which have been encountered. Finally, there are several directions in which execution of programmes which have a large bearing on the welfare and prospects of workers has to be strengthened, for instance, workers' education, provision of facilities for imparting higher skills and training to workers, social security and labour research.

Industrial Relations

4. The Industrial Disputes Act provides for machinery and procedures for settlement of disputes through conciliation, adjudication and voluntary arbitration. While the provisions of this legislation are available as a last resort, it is recognised that greater emphasis should be placed on collective bargaining and on strengthening the trade union movement for securing better labour-management relations, supported by recourse in large measure to voluntary arbitration. The Code of Discipline in Industry stressed the need to avoid unilateral action by employers as well as workers, to settle disputes and grievances through mutual negotiation, conciliation and voluntary arbitration and to utilise existing machinery for settlement of disputes with the utmost expedition. The working of the Code of Discipline was reviewed at a tripartite meeting in August 1965. It was appreciated that the Code had succeeded on the whole in bringing a positive approach to bear on industrial relations and that further steps should be taken to ensure its fuller observance. To this end

-/-

a number of constructive suggestions has been advanced. Weaknesses in the implementation of the Code are well known, and there is wide agreement on the need to strengthen the machinery at present available for conciliation, adjudication and voluntary arbitration. In this connection, it would be useful if summary powers could be conferred on Labour Courts to enable them to recover dues and monetary benefits to which workers might be entitled under various awards and agreements.

5. Works Committees: A large proportion of the grievances of workers and the difficulties encountered by them from day to day can be best dealt with in the early stages through works committees. The Industrial Disputes Act provides for the constitution of works committees consisting of representatives of employers and workers in equal number in industrial establishments with one hundred or more workers. Works committees are concerned with matters which directly affect the conditions under which workers function such as safety and accident prevention, provision of simple amenities, education and recreational activities and administration of welfare and canteen funds. Matters such as wages, incentive schemes, fixation of work loads and others which may bear on the activities and obligations of trade unions are normally outside the purview of works committees. Even so, works committees have made extremely limited progress. In 1965, about 3400 works committees representing about 1.7 million workers were reported to be functioning. There were also 236 works committees functioning in public sector undertakings. There has not been sufficient appreciation yet of the contribution which works committees can make towards the

worker's welfare and efficiency and the opportunities for training workers to assume increasing responsibilities in the units to which they may belong. It may be that there have also been some reservations on the part of trade unions in implementing the scheme. The stage has reached, when, through the consideration of the subject afresh at the tripartite level from the standpoint of the objectives to be attained in the Fourth Plan, the setting up of works committees at the plant level should be clearly separated from issues affecting the functioning and organisation of trade unions on which there could be legitimate room for differences in emphasis. It is to be hoped that within each industry, leaders of management and labour will do everything in their power to promote the establishment of works committees in all eligible units and help them to carry out the tasks entrusted to them.

6. Joint Management Councils: The progressive extension of the schemes of joint management councils to new industries and units was envisaged as a major programme for the Third Plan period. It was hoped that in the course of a few years joint management councils could become a normal feature of the industrial system. As the Industrial Policy Resolution, 1956, had stated, in a socialist democracy labour is a partner in the common task of development and there should be not only joint consultation but also progressively greater association of workers and technicians in management. The scheme of joint management councils has been introduced so far in 41 undertakings in the public sector and 31 in the private sector. The functions of joint management councils fall into three categories, namely, (a) matters in which responsibilities are entrusted to them, specially administration of welfare measures, supervision of safety measures, operation of vocational training and apprenticeship schemes, preparation of schedules of working

hours and breaks and of holidays and payment of rewards for valuable suggestions, (b) matters in which they have the right to receive information, discuss and offer suggestions and (c) matters in which they are expected to be consulted. Issues such as wages, bonus and others which are subjects of collective bargaining as well as individual grievances fall outside the scope of joint management councils.

7. In a series of seminars and evaluation studies, the practical problems encountered in the successful working of the scheme of joint management councils have been identified. Under the Industrial Policy Resolution, enterprises in the public sector are expected to set an example in promoting workers' participation in management. A committee of heads of public sector undertakings has recently reviewed the experience of joint management councils in public enterprises and has suggested some practical steps. It is recommended that in co-operation with the Ministry of Labour and Employment the Ministries concerned should formulate specific programme for development of joint management councils during the Fourth Plan period and follow it up with an intensive orientation programme for workers and technical and managerial personnel at different levels. In the private sector, progress will depend as much on the support which central trade union organisations give to the movement as to the lead provided by progressive and forward looking enterprises. Both in the public and in the private sector, the training and orientation of managers, technicians and workers is essential to the success of the scheme. The movement for joint management councils has rightly been viewed as an area for voluntary effort. But, it should be recalled, when the scheme was first considered, the proposal for introducing enabling legislation was dropped mainly because employers had agreed to introduce it on a voluntary basis. Joint management councils have therefore to be developed into an essential functional link in the structure of industrial relations.

8. Labour relations in public sector undertakings: Labour legislation and tripartite agreements apply equally to undertakings in the private sector and the public sector. Studies of industrial relations and working of labour laws undertaken by the Implementation and Evaluation Division of the Ministry of Labour & Employment suggest that the position concerning implementation of labour legislation in public sector undertakings has been generally satisfactory, but some instances of inadequate observance of safety provisions have been noticed. In public enterprises, within the framework of existing arrangements, a great deal can be done to eliminate causes of conflict. Among the suggestions which have been made are the strengthening of personnel departments, fuller use of the services of labour officers and conciliation officers, prompt attention to the grievances of workers, greater recourse to voluntary arbitration in the settlement of disputes, satisfactory promotion procedures and effective working of the machinery for joint consultation. At times rivalries between and within unions and action on the part of unrecognised unions lead to labour unrest. Even so, with greater attention to the management of human relations and the welfare of workers and their families and studied efforts to create wider opportunities for workers by way of training and education and attainment of higher levels of skill, it should be possible for public sector undertakings to establish labour relations conducive to greater productivity and better performance. As part of their manpower planning, public enterprises should make special efforts to help workers who attain the necessary skills and equipment to rise to positions of higher responsibility. In a sense, an industrial dispute in a public sector undertaking

is a confession of failure on both sides. Managements in the public sector should strive to bring together workers and technical and managerial cadres and create among workers a sense of identification and personal involvement in the enterprise to which they belong. On their part, trade union organisations should be expected to assist in the smooth and uninterrupted working of public sector undertakings, for, this is a necessary condition for the success of the public sector itself.

Trade Unions

9. The number of registered trade unions has risen from about 4600 in 1951-52 to about 11,900 in 1963-64. The number of trade unions submitting returns was about 7200 with a total membership of 3.9 million. The number of trade unions affiliated to all-India organisations was smaller - being, in 1962-63, 2635 with a membership of 2.2 million. Compared to the total numbers of workers, membership of trade unions accounts for about 50 percent in mines, 40 percent in factories, 25 percent in the railways and less than 20 percent in the plantations. Considering the present levels of membership, as a matter of public policy, workers should be encouraged to become members of trade unions. Trade unions should serve not only as agencies seeking for their members fair wages and proper conditions of work and living, but should also play an increasingly important role in the nation's development. Inevitably, strong trade union organisations are able to assume greater responsibilities in serving their members as well as in participating in shaping economic and social policies and programmes. The various forums

in which labour is represented, provide a ready means through which trade unions can make an effective and continuous contribution in the area of policy. These include, besides tripartite bodies like the Indian Labour Conference, Development Councils constituted under the Industries Development and Regulation Act, Industrial Committees, Productivity Councils, Labour Welfare Boards, Port Trusts, Dock Labour Boards and others. Given a stronger membership base, with greater response from trade unions, Boards of Directors of public sector undertakings could provide for labour representation and the concept of labour-management partnership could be carried into a wide range of new activities. Similar action could be promoted in the private sector.

10. These considerations will progressively gain in importance in the coming years; over the next decade, the industrial labour force may increase perhaps twofold and the membership of trade unions may increase even more. The proportion of workers with higher standards of education and skill and ability to assume higher responsibilities will increase year by year. Their attitudes and expectations will also go on changing. Correspondingly, the role of trade unions and their possible contribution to the well-being of workers and to economic and social development should greatly increase. National trade union organisations are well aware of these perspectives. There are, however, two principal limitations. The first is the absence of an unified trade union movement. In the field of labour organisation, unity has to grow from within. Therefore, the larger the area of common interest and common action, the greater will be the extent to which unity in a practical sense can be achieved.

National trade union organisations recognise no doubt that the labour movement as a whole and the interests of workers as a body are wider than the activities in which the organisations themselves are at present able to participate. Therefore, to the extent to which they are able to enlarge the area of cooperative action amongst themselves, they will be able to serve more fully not only their own members but also the community as a whole.

11. The second obstacle which comes in the way of workers organisations' assuming a larger role arises from lack of resources. Trade unions are unable to collect sufficient funds through regular subscriptions on the part of members and have to depend on donations from workers when they receive special payments such as bonus dues or action in support of their grievances has to be organised. In common interest, the machinery for collection of union dues needs to be strengthened. The existing subscription rates should be revised and minimum rates linked to monthly earnings of workers proposed. Even these measures may not prove adequate specially if trade unions are to take up constructive activities which involve employment of trained full-time personnel as well as organisational work on a continuing basis. This is the problem to which national trade union organisations need jointly to address themselves. One possibility which may be worth exploring may be for national trade union organisations to come together in an independent non-government organisation which may be able to support registered trade unions in undertaking specific projects for the welfare and development of workers.

In this way, within the framework of the Five Year Plans, it may become possible to assist the trade union movement in making a larger contribution in many areas of constructive work than at present appears possible.

Wages, Incentives and Productivity

12. The current economic situation as well as the requirements of planned development call for a carefully considered and widely agreed approach on the various issues which arise in the consideration of prices, of wages for government and non-government employees and of other incomes; notably, profits and dividends. While these issues call for separate treatment, in the context of labour policy, certain lines of action need to be stressed:

- (1) Although there are obvious difficulties, it is essential for the success of planned development and, more specially, in the context of the Fourth Plan, that an integrated incomes policy should be evolved for the guidance both of the public and the private sector.
- (2) The question of price stability is basic to wage policy; for, pressures for higher wages at present arise directly from price increases and increases in the cost of living.

- (3) While criteria related to fair wages and nutritional requirements are important as long-term guiding principles, in the current situation, the issue is somewhat narrower, namely, how the workers' standard of living can be protected in view of the price increases which have occurred in recent years.
- (4) In principle, it would be appropriate to link dearness allowance with cost of living, but complete neutralisation of increases in cost of living at all levels is not feasible. In this connection, steps must be taken to improve upon existing arrangements for collection of price data and their publication along with consumer price index numbers.
- (5) The total wage should have three components, namely, the basic or minimum wage, an element related to cost of living and an element related to increase in productivity. In seeking to link increases in wages with increases in productivity, the need for standardisation of wages and for **narrowing** of wage differentials should be kept in view, having regard particularly to these categories of workers whose wages are at present unduly low.

- (6) Efforts should be made to extend the scope of wage systems based on payments by results. Such systems should be evolved by agreement with workers and in an atmosphere of good industrial relations and should be applied discriminat~~ing~~ly in industries and in activities to which they are appropriate.
- (7) Since 1957, wage boards have been appointed in several industries and suggestions have been made for setting up wage boards in a few others. ~~The stage has been~~ reached when a careful review of the working of wage boards and the criteria followed by them should be ~~undertaken~~, so that guiding principles for the Fourth Plan period may be evolved in the near future.
- (8) During the Fourth Plan, a concerted drive should be made for achieving higher levels of productivity in all branches of industry. To this end, in relation to each industry, representative organisations of employers and workers should evolve a broad, common approach for the guidance of individual production units. To begin with, and as an example to be followed in other industries, such an agreed approach should be worked out carefully for cotton textiles, cement and steel.

- (9) At the level of the production unit, as an immediate step, simple incentive schemes should be evolved jointly by employers and workers in keeping with their specific requirements and circumstances.
- (10) For implementing agreed incentive schemes for increasing productivity, it is essential that managements should take all possible steps to ensure satisfactory working conditions. Contingencies ~~for~~ such as uncertain supply of raw materials or possible intervals of unemployment should be taken into account. In addition to financial incentives, non-financial incentives, such as greater security of employment, job satisfaction and job status should be given a due place. Objectives such as securing reductions in cost, economy in the use of materials, etc., should be incorporated in incentive schemes to the extent possible. Incentive schemes should cover those workers whose work is of a direct nature as well as others.

LABOUR PROGRAMMES

13. Social security: The Employees' State Insurance Scheme extends at present to 3.13 million employees and 3.03^{million}/insured persons family units. In the Fourth Plan it is proposed to bring the remaining employees and their families in all areas with insurable population of 500 or more within the scope of the scheme. In addition, the scheme is to be extended to include all factories in the implemented areas employing 10 or more persons using power and 20 or more persons without power, and to shops and commercial establishments in some of the larger cities where facilities for full medical care can be ensured. The working of the Employees' State Insurance Scheme has been recently reviewed by a special committee. The recommendations of the committee are under consideration. The Committee has proposed that in consultation with the Indian Labour Conference, Government should evolve a comprehensive scheme of social security. This should not only ensure merger of the employee's State Insurance and provident Funds and the conversion of the latter into pensionary benefits but should also provide a strong financial and administrative base for such benefits as are at present not available.

14. The Employee's Provident Funds Act of 1952 now applies to 103 classes of establishments and covers more than 4.5 million workers. In 33 of these classes of establishments provident fund contributions are made at 8 per cent of wages, including dearness allowance. In others, contributions are levied at the rate of $6\frac{1}{4}$ per cent. Suggestions have been made that the rate of provident fund contributions should be raised beyond 8 per cent and, in any event, there would be immediate justification

for raising the present rate in a number of industries/classes of establishments in which the lower rate still prevails. These and other suggestions are under consideration.

15. Preliminary proposals for the introduction of unemployment insurance have been worked out and are being considered by the Standing • Labour Committee. Proposals for introducing compulsory insurance for workers engaged in hazardous occupations are also under consideration.

16. Working conditions: Improvement in working conditions depends in large part on the effectiveness with which existing labour legislation is enforced. In this respect there appears to be considerable room for improvement. In particular, it is felt that existing provisions for penalties in case of default are not adequate, and labour inspectorates in the States are not sufficiently equipped. A committee set up by the Ministry of Labour and Employment is currently engaged in reviewing the working of statutory welfare funds in iron ore mining, coal and mica industries and is also examining the possibility of establishing similar funds pertaining in certain other industries. Questions to industrial safety are receiving considerable attention at present, specially in relation to mines. In view of the high rate of accidents in a number of industries, in addition to appointment of safety officers, evaluation and investigation into industrial health hazards and safety surveys, it is essential that workers' representatives should be associated closely with the working of the inspection machinery and suitable

training programmes with emphasis on problems of safety should be organised for the benefit of new entrants to industry.

17. Workers' education: During the Third Plan, under the workers' education programme, 18 new regional centres were established, and 217 education officers, 6 314 worker-teachers and over 3 lakh workers received training. In the Fourth Plan, it is proposed to establish 12 new regional centres and to provide training for 565,000 workers, 9960 worker-teachers and 400 education officers. Because of the rapid pace at which the programme has grown, the quality of training seems to have suffered to some extent and in the Fourth Plan it will be necessary to give special attention to this aspect. It has been pointed out that for the workers' education programme to develop as a movement steps should be taken to secure much greater involvement in it of trade unions, State Governments, local bodies, universities and colleges. It is essential that trade unions should be persuaded to participate in workers' education programmes on a much larger scale than at present. The scope of the workers' education programme also needs to be widened to include schemes to enable the more promising workers to achieve higher levels of skill and education. At the same time, in industries which have significant proportion of illiterate workers, the workers' education programme should provide for schemes for eradication of illiteracy. Specific proposals for adult literacy amongst industrial workers have been made by a Panel set up by the Committee on Plan Projects. These schemes have to be implemented in close cooperation with education authorities.

TRAINING AND OTHER PROGRAMMES

18. At the end of the Third Plan, the training programme for craftsmen provided for 113,622 seats compared to 42,685 at the end of the Second Plan and 10,534 at the end of the First Plan. Over the Fourth Plan period, industrial training institutes are expected to make about 7 lakh trained craftsmen available. Accordingly, the number of seats in these institutes will be increased to about 213,000 by the end of the Fourth Plan. At present 26,000 apprentices are undergoing training in industrial establishments. The apprenticeship programme is proposed to be extended to a number of industries not at present covered by it and to this end appropriate trades and training programmes are being established. Efforts will be made to increase the number of apprentices to about 100,000 by the end of the Fourth Plan. Expansion of craftsman training and apprenticeship schemes calls for increase in training facilities for instructors. The capacity of the seven existing central training institutes is proposed to be increased from about 1900 to about 3100 by the end of the Fourth Plan. During the Fourth Plan period, about 9000 instructors will be trained. Other training programmes to be implemented in the Fourth Plan include rural training institutes, mine mechanisation training institutes and central staff training and research institutes. It is also proposed to strengthen training organisations at the national and regional levels.

19. The Fourth Plan makes an allotment of Rs.145 crores for schemes for training and other programmes for workers. This includes

provision in the States for labour welfare schemes and for the Employees' State Insurance Scheme, craftsman training and allied programmes, manpower and employment service schemes, workers' education, labour institutes, safety schemes and the programme of research and investigation undertaken by the Labour Bureau.

AGRICULTURAL LABOUR AND UNORGANISED WORKERS

20. Problems concerning agricultural labour were reviewed at an all-India seminar held in August, 1965, and also by the Planning Commission's advisory committee on agricultural labour. It is well-known that in most parts of the country the benefits of development have not reached the bulk of agricultural workers to any appreciable extent. The growth of population has borne on them with special harshness. To the extent the agricultural economy of a region grows and production expands continually, the volume of employment available also increases, but in the country as a whole rural under-employment appears to have grown. A large section of agricultural labour faces not only economic difficulties but also social disabilities. Adequate remedies for the present condition of agricultural labour lie, on the one hand, in fundamental changes in the agrarian structure, including development of cooperative farming and land resettlement programmes and, on the other, in industrial and economic growth, and more specially the diffusion of industry into small towns and rural areas. Meanwhile, the more pressing problem is one of expansion of employment opportunities and measures to reduce under-employment. It is hoped that the

rural works programme which is calculated to provide work in the slack agricultural seasons for about 1.5 million persons will bring significant relief in a number of areas which are densely populated and where problems of unemployment are specially acute. There is need also to implement minimum wage legislation more effectively than at present and to ensure credit facilities to landless workers on a much larger scale than now available. It is considered that at the Centre, both within the Ministries of Food & Agriculture and Labour and Employment as well as in the States, there should be special cells for watching closely the progress of development programmes which have particular bearing on the welfare and development of agricultural workers and studying the special problems which confront them in different parts of the country.

21. Besides agricultural labour, there are other groups of workers who have been hitherto without aid and protection and have now to be brought within the scope of labour legislation and State action. Central legislation for regulating the conditions of work of construction and building workers is being considered and a tentative draft bill is under circulation. A bill for regulating the conditions of work in the beedi industry is already before Parliament. A bill to regulate the employment of contract labour is also under examination.

CHAPTER XXIII
REHABILITATION

At the beginning of the Third Plan there were three outstanding problems concerning rehabilitation of displaced persons from Pakistan. A residual number of displaced persons from West Pakistan had to be provided with housing, education and medical facilities. Over 23,000 families (about 150,000 persons) from East Pakistan living in camps in West Bengal and elsewhere and 200,000 partially rehabilitated families living outside camps in West Bengal remained to be fully resettled. Finally, the Dandakaranya Project awaited completion. The relief camps in the Eastern region were closed in March 1961. Over 100,000 acres of land were reclaimed in the Dandakaranya Project area for resettling 10,500 families by the end of Third Plan. Of this, about 50,000 acres of agricultural land were allotted to refugee settlers and 18,000 acres to local tribal population. The expenditure on rehabilitation in the Third Plan period was Rs. 42.2 crores.

New Influx

2.3.1 Since January, 1964, however, there has been fresh large scale emigration from East Pakistan. Over 800,000 persons migrated into India, of whom about 300,000 persons (nearly 67,000 families) were admitted to transit and relief camps. Migration from East Pakistan still continues, though at a reduced rate. Hence provision has to be made not only for the 40,000 or more families (about 200,000 persons) who are still in transit and relief camps, but also for possible additions to them. The likelihood of a sizeable repatriation of Indians from certain other countries has also to be kept in view.

Policy for settlement

3. The shortage of good agricultural land will not permit more than a limited number of families to be resettled in agriculture. The rest will have to be resettled in small-scale and medium industries, agro-industries, and trades and profession. Planned allocation of population from primary to secondary and tertiary activities is, therefore, going to be an important feature of the rehabilitation programme in the Fourth Plan.

4. In terms of geographical distribution, displaced persons will find new homes in 11 or 12 different States and Union Territories. Madhya Pradesh, Assam and Maharashtra have agreed to accept a large number of families for purposes of rehabilitation. A significant number will be pioneers in virgin areas yet to be opened up under the Special Areas Development Programme. This programme aims at building up the economic infrastructure of selected areas of low population density which are at the same time rich in productive potential. The rest will be settled in the Dandakaranya area.

Outlay

5. A rehabilitation programme of this magnitude offers significant opportunities for economic development. In the Fourth Plan, these opportunities are going to be explored to a much greater extent than in the Third Plan. Apart from expenditure on relief in transit camps, a development programme amounting to Rs.90 crores is envisaged for the rehabilitation of displaced persons. This will comprise schemes for resettlement of families in gainful employment in agriculture, trade and industry, education of children and medical care for all, technical and vocational training and large scale promotion of cottage,

small and medium industries. Except in areas declared as Special Areas where separate funds for development will be provided, this will also cover the expenses of reclamation of virgin land for purposes of resettlement. The break-down of expenditure envisaged in the Fourth Plan is as below:

Classification of Rehabilitation outlays

<u>Scheme</u>	<u>(Rs. crores)</u>
Dandakaranya Project	27
Rehabilitation Industries Corporation	14
Rehabilitation schemes other than in Dandakaranya	27*
Technical and Vocational Training	3
Education and Health	5
Rehabilitation Reclamation Organisation	3
Fuller rehabilitation of earlier settlers	4
Rehabilitation of Repatriates from countries other than Pakistan	7
Total:	90

* Includes Rs. 2 crores for Social Welfare Programmes.

Programmes

6. About 180 villages have so far been set up under the Dandakaranya Project in which nearly 9,000 families have already been resettled. In the Fourth Plan period about 200 new villages will be set up. There will be five large composite agricultural farms providing livelihood to over 2,000 refugee families. Three industrial estates will be established and about Rs. 8 crores will be spent by the Rehabilitation Industries Corporation in the area in setting up cottage, small and medium industrial units providing employment to about 12,000 refugees. About 200 primary

schools, 50 middle schools and 4 high schools will cater to the educational needs of the children of the new settlers. Two Industrial Training Institutes will turn out artisans and craftsmen. In the field of health services, 40 new dispensaries and 10 ten-bed hospitals will be set up and there will be adequate provision for family planning, malaria eradication and other essential services. Similar provision will be made for other areas where displaced persons are resettled.

7. The Rehabilitation Industries Corporation will be the Chief agency for promoting industries for displaced persons. This Corporation has already gained useful experience in diverse industrial fields and has been currently managing two industrial estates and a number of industrial units of different sizes and products in the eastern region. In addition, State Governments as well as the Dandakaranya Project will promote certain industries in the interest of rehabilitation of displaced persons.

8. The Special Areas Development Programme for which a separate provision has been made in the Plan, has now been entrusted to the Ministry of Rehabilitation. It will also prove to be of considerable assistance in rehabilitating displaced persons. Of the areas which will be brought under this programme in the Fourth Plan, Chanda in Maharashtra and Andaman and Nicobar Islands hold out great promise. If the technical problems of reclamation and development of the Sundarbans in West Bengal can be solved, that area also should be able to absorb a sizeable number of displaced persons.

CHAPTER XXIV

PUBLIC COOPERATION AND PARTICIPATION

Social and economic development has necessarily to be a cooperative endeavour between the official and non-official agencies. In the successive Plans a great deal of emphasis has been laid on the importance of securing public cooperation and participation in carrying out the developmental programmes. Even so, it is recognised that in the implementation of the Plans, it has not been possible to enlist the support of the people in the requisite measure. The difficulties encountered are partly due to defective administrative arrangements and partly to other factors inherent in our present social set-up which tend to make the process of involvement of the people relatively slow. It is, therefore, important to ensure that the aspect of securing public cooperation and participation receives much greater attention than hitherto in various sectors of the Plan.

2. Voluntary organisations and voluntary workers have made commendable contribution in organising community welfare and developmental activities. Over the past three Plan periods, voluntary contributions for community activities in cash, kind and services have been estimated at about Rs. 130 crores. An important development in the voluntary sector has been expansion of the construction activities of the Bharat Sevak Samaj. Its effort has been to keep the tender rates as low as possible. A Working Group set up by the Planning Commission estimated that if all the construction works executed by the Samaj, since its inception, had been entrusted

to private contractors, the additional cost to the exchequer would have been of the order of Rs. 3 crores.

3. Voluntary organisations can play a particularly valuable role in community activities. Given the necessary encouragement and support, Plan schemes with a welfare content, entrusted to them, are often executed more economically, expeditiously and efficiently. In their functioning, they are flexible and working through them the people have a sense of participation. On the other hand, if these schemes are executed through official agencies, people do not often identify themselves intimately with such agencies, and when they are not actively involved, they remain unconcerned and apathetic or even hostile. The benefit of such schemes to the community, therefore, tends to be less. Voluntary service can attract manpower, which would have otherwise remained either idle or been used for personal gain.

4. The success of family planning as a nation-wide movement will depend in a very large measure on the work of voluntary organisations. In rural areas women workers can give very useful service in the women's welfare extension projects linked with the community development programme. School lunch programmes are another example where voluntary work had already proved valuable and can be expanded. Voluntary workers have much to contribute in the programmes designed to secure a better life for Harijan and other under-privileged groups. In urban community development, experience so far shows that voluntary workers can do a great deal to improve the community self-help programmes in

the city slums. They can also help organise consumers so as to safeguard their interests against the malpractices of the trade. Labour and social service camps can enlist youngmen and women to build schools, roads and other public works and undertake social service. Voluntary organisations equipped for construction work, can play a useful part in bringing down construction costs besides earning resources for financing their welfare activities. In the Universities and Colleges and civic organisations, Planning Forums comprising students and teachers or private citizens can bring the national goals closer to the people and enlist their support for development programmes. Public cooperation is thus a vast field. For, in every aspect of development there are many ways in which the community can contribute.

Need for self-help projects:

5. The unsatisfied needs of the people are so vast that all the investments in public and private sectors together can, at this stage, only make a limited provision for them. It is, therefore, necessary to harness the time, energy and other resources of millions of people for constructive activities for the welfare of the community. For this purpose, it will be useful if for each important sector of the Plan, schemes are selected under two major groups :

- (i) those which are to be initiated by official agencies and where cooperation of voluntary agencies is required and (ii)
- those which may be initiated by voluntary agencies and for

which Government may give necessary support and assistance. Suitable orientation training may be arranged so as to equip the people for the different tasks involved in these schemes. Pioneering projects in these fields organised on a self-help basis and relating to some specific problems should be encouraged and supported, particularly during their formative period.

6. The National Advisory Committee on Public Cooperation, which includes representatives of a number of leading voluntary organisations such as the Bharat Sevak Samaj, Akhil Bharat Serva Seva Sangh, All India Women's Council, Family Planning Association of India, the Indian Conference of Social Work, the Indian Council of Child Welfare, the Harijan Sewak Sangh, Gandhi Smarak Nidhi and others, has sponsored national programmes in public cooperation and serves as a forum for the consideration of problems relating to public participation in development programmes. In the Fourth Plan an allotment of Rs. 10 crores has been made for public cooperation schemes to be formulated on the basis of the recommendations made by the National Advisory Committee on Public Cooperation. These schemes are mainly intended to provide to the participating voluntary organisations and other non-official agencies facilities for research, training, pilot projects, evaluation, etc., and to strengthen them by building up a cadre of trained whole-time and part-time workers.

7. The following table gives the scheme-wise break-up as well as the targets in terms of physical units for the Fourth Plan, together with the comparative figures for the Third Plan:

-/-

<u>Scheme</u>	<u>Third Plan</u>		<u>Fourth Plan</u>	
	<u>Physical targets/units</u>	<u>Expenditure Rs. lakhs</u>	<u>Physical targets/units</u>	<u>Financial outlay Rs. lakhs</u>
<u>A. Grant-in-aid Schemes:</u>				
1. Lok Karya Kshetras (Rural & Urban)	600	86.54	700	190.00
2. Planning Forums	950	10.06	1800	105.00
3. National Consumer Service	Central and 3 State Units	1.74	(Units in all States)	30.00
4. Research, Training and Pilot Projects	-	33.52	-	300.00
5. Educational Work on Prohibition	40 Centres	4.26	-	75.00
Total 'A'		136.12		700.00
<u>B. Loan Schemes</u>				
6. Construction Service of Voluntary Organisations and Labour Cooperatives	Out-turn Rs.20 crores	80.75	Out-turn Rs.30 crores	300.00
7. Commercial and Semi-Commercial activities with Social objectives				
Total 'B'		80.75		300.00
Total 'A' + 'B'		216.87		1000.00

important

A brief explanation of some of the more schemes is given below.

Lok Karya Kshetras (Rural & Urban):

8. Community action programmes can yield much better results if implemented in close collaboration with non-official agencies. The main object of the Lok Karya Kshetra Programme is to supplement the official effort in organising extension work through voluntary

organisations, educational institutions and other non-official agencies.

Good results usually follow where the Kshetra is run by voluntary organisations in association with educational institutions. Certain Kshetras which have concentrated on one or two specific activities have been able to obtain striking results. About 44 voluntary organisations and educational institutions are participating in this scheme.

Planning Forums:

9. This is a popular programme and now about 950 Forums are functioning throughout the country. With a view to creating Plan consciousness among the teachers and students, these forums organise lectures, talks, seminars, symposia, essay and debating competitions, exhibitions, small savings campaigns and undertake socio-economic surveys. The scope of the programme is gradually increasing through the adoption of the adjoining villages and slum areas by universities and colleges for development and construction work.

National Consumer Service:

10. The National Consumer Service has been set up with the main object of protecting the interest of the consumers. The Service will be mainly concerned with the organisation of Consumers' Councils at different levels, research in consumer problems, promotion of consumer cooperatives, development of consumer resistance, avoidance of extravagance and wastage, studies relating to market intelligence, suggesting measures for prevention of adulteration and other mal-practices and exercising quality control. In the conditions concomitant to a developing economy, the National Consumer Service has an important role.

Research, Training and Pilot Projects:

11. The Central Institute of Research and Training in Public Cooperation ^{has}

started functioning recently. It will strengthen the voluntary organisations and other non-official agencies by providing them suitable facilities for research, training, evaluation, publication, etc. It will also help them in the preparation of their plans.

Construction Service of Voluntary Organisations and Labour Cooperatives:

12. In pursuance of the recommendations of the Third Plan, certain concessions were given to the Construction Service of Voluntary Organisations and Labour Cooperatives by way of exemption from security deposits and earnest money, loan assistance for working capital and purchase of equipment, share capital participation for labour cooperatives, deputation of or subsidy for technical and managerial personnel and reservation of work for labour cooperatives. Apart from direct economies the Construction Service has helped in maintaining standards of work, ensuring better deal for workers and inducing public authorities to simplify administrative and financial procedures. The Construction Service of the Bharat Sevak Samaj consistently submitted the lowest tender in respect of a large number of public works. This assisted in checking the tender rates and had a salutary effect on curbing construction costs. Besides, in many areas completion of works by the Service has left behind a pool of skills and experience which has in turn encouraged voluntary organisations at the local level to take up construction work and other allied activities. This has created greater self-reliance in the communities concerned. The programme will be further strengthened during the Fourth Plan.

Commercial and Semi-commercial Activities with Social Objectives:

13. It is desirable that voluntary organisations should be encouraged to take up such activities, which are intended to provide to the community goods and efficient service at a reasonable price. If such activities are run by voluntary organisations, not for purpose of profit, but from the point of view of service to the community, they will provide a healthy competition and will assist in checking prices. Such activities will also yield some modest income to the voluntary organisations for financing their own welfare and developmental activities.

It is proposed that loan assistance may be given to the voluntary organisations for taking up such activities.

Prohibition:

14. The Third Plan recognised Prohibition as essentially a social welfare movement and emphasised the need for organising educational work for creating strong public opinion ⁱⁿ favour of prohibition. A number of Nashabandi Lok Karya Kshetras were opened in different States through voluntary organisations.

The work of prohibition throughout the country has been studied by a Study Team set up by the Planning Commission. The Report of the Team is under consideration of the Government and the prohibition policy in the Fourth Plan will be formulated in the light of this Report.

Urban Community Development:

15. This programme was taken up in 1965-66 and twenty pilot projects were sanctioned. In these projects emphasis is being placed on self-help on the part of the local communities and on enabling the relatively less privileged sections of the community to obtain

the maximum benefit from facilities provided under various programmes of the Government and the Municipal bodies. The projects are being implemented through the local bodies concerned and with the cooperation of all available non-official agencies and voluntary organisations in the area. An Inter-Departmental Coordination Committee has been set up in the Ministry of Health to review and guide this programme. The programme will be expanded during the Fourth Plan on the basis of the experience gained in these 20 pilot projects. The provision for Urban Community Development will come out of the outlay provided for Urban Development.

Public Education and Mass Communication:

16. There are certain national tasks on which the rate of development and growth of the economy depends and which can be executed only with the support of the people. Some of these are family planning, adult literacy, stepping up agricultural production, avoidance of wastage of food, increase in the rate of savings, checking the rise in prices, slum clearance and improvement etc.

How to educate and mobilise the people on a nation-wide scale for these important tasks is really the crux of the programmes for public cooperation and participation. Each important section of the society, such as, farmers, industrial workers, teachers and students, public servants, Members of Legislatures and local bodies, social workers, etc. will have to evolve in concrete terms their obligations and responsibilities in respect of the Plan programmes and policies. The people will have to be enlightened about it on a nation-wide scale. For this purpose, it will be necessary to adopt such latest methods and techniques of mass communication as are feasible in the

peculiar conditions of this country. An Institute of Mass Communication has recently been set up by the Ministry of Information and Broadcasting to indicate and develop such methods and techniques. All available publicity media and a large number of official and non-official organisations and institutions including educational institutions, voluntary organisations, press, etc. will have to be harnessed in this national task.

17. The successive Plans have emphasised the role of various publicity media in quickening the processes of social and economic change. They have to help in creating better understanding of the significance, objectives and priorities of the Plan schemes. This is the first step towards enlisting widespread community participation in the reconstruction of social and economic life. The publicity media employed in this task are the radio, community receiving sets, films, mobile vans, exhibitions and audio-visual aids. National Plan Weeks are celebrated by the Planning Forums throughout the country for spreading Plan consciousness among the intelligentsia. Plan Information Centres have also been organised for this purpose.

These programmes will be strengthened during the Fourth Plan with adequate technical facilities for the spread of information. They will aim not only at mass enlightenment but also at creating an involvement in developmental tasks and a feeling of self-help and mutual aid.

CHAPTER - XXV

OTHER PROGRAMMES

Programmes included under this head are: statistical programmes of the Central Statistical Organisation and States' Statistical Bureaux, study of natural resources, research programmes in the field of social sciences, management and administration and Planning, Evaluation Organisation, Manpower Unit, Social assistance schemes, welfare of Central Government employees, State Capital projects, expansion of Government printing capacity and Plan publicity programmes both at the centre and in the States.

2. The distribution of outlay between the Centre, the States and the Union Territories for the programmes covered under the head "other programmes" in the Fourth Plan may be seen from the following table:

Table 1 : The Head of Development - Other Programmes

(Rs. crores)				
Sector	Total	Centre	States	Union Territories
1	2	3	4	5
1. Statistics	18.0	10.6	6.5	0.9
2. Study of Natural Resources	0.50	0.50	-	-
3. Research Programmes Committee	1.0	1.0	-	-
4. Social Science Research Committee	4.0	4.0	-	-
5. Evaluation Organisations	1.0	-	1.0	-
6. Manpower Units	0.50	0.50	-	-

	1.	2.	3.	4.	5.
7. Training for Management Administration, & Planning	1.0	1.0	-	-	
8. Schemes for Social Assistance	4.0	4.0	-	-	
9. Welfare of Government Employees	8.0	8.0	-	-	
10. State Capital Projects	11.0	-	11.0	-	
11. Expansion of printing capacity	8.0	8.0	-	-	
12. Plan Publicity	13.0	6.4	6.9	0.6	
	70.0	44.0	24.5	1.5	

Statistics

The Statistical System

3. Economic growth continually calls for an increased volume of statistics for purposes of planning and for policy and Administrative decisions. Expenditure on statistics was, therefore, increased with a large expansion of staff at different levels. The flow of information increased considerably but is still lagging behind requirements in coverage. Progress would be necessary gradual because of the decentralised structure of the collection and processing of statistics in India. Most of the Central Ministries have their own statistical units to look after their operational needs. Each state has its own Bureau of Statistics with District Statistical Offices; some State also have Departmental units of statistics. Collection of primary statistics is thus done either as part of the administrative work of departments and government agencies or through part-time investigators without a dequate training at the village or higher

levels. Compilation and tabulation at the State and at the national level of statistical data from such diverse sources of information present many difficulties.

4. The Central Statistical Organisation has the responsibility for general coordination, concepts, definitions, standards, and inter-state comparability for purposes of aggregation at the national level. Through the efforts of the Central Statistical Organisation considerable progress has been made in promoting an articulated statistical system for the country as a whole. But much more remains to be done in this direction. The National Sample survey, which was started in 1950, has developed into a country-wide net-work of a trained investigating staff supported by a specialised group of experts on sampling and processing of data. It serves as an independent source of data with all-India coverage on a uniform system which also supply valuable checks on internal consistency, inter-state comparability and validity of statistical information.

5. The chief obstacle to the speedy improvement of the quality of statistics in the country is the shortage of trained statistical personnel at the professional, technical and primary levels. A national training programme is an essential requirement for the improvement of the statistical system. The Indian Statistical Institute is providing professional and technical training in statistics up to the Ph.D. level, and is engaged in fundamental research in the theory of statistics and development of new tools for application in different fields. It is also giving special courses in 7 or 8 places in India in collaboration with the Central Statistical Organisation and the State Statistical Bureau.

Outlay

6. In the Third Plan Rs. 3.5 crores was spent for the statistical schemes of the Department of Statistics including the Central Statistical Organisation, the National Sample Survey, and the Indian Statistical Institute and about Rs. 3 crores for grants for State Statistical programmes. In the Fourth Plan, out of a provision of Rs. 18 crores, Rs. 9 crores is for the schemes of the Department of Statistics, Rs. 2 crores for training programmes at the Centre and in the States, and Rs. 7 crores for the support of statistical schemes of State Statistical Bureaux.

General

7. In addition to the outlay mentioned above there is separate provision for statistical programmes in different Central Ministries and States including professional training and research in the Institute of Agricultural Research and Statistics, and in universities and educational institutions. A great deal of statistics is also available from the day-to-day activities of Government departments and agencies, much of which, if compiled and processed in a suitable way, would be of great value for purposes of planning, execution and control of administrative operations.

8. There is urgent need of taking a comprehensive view of statistical programmes at the Centre and in the States as a whole, and of strengthening the general coordination of statistical activities to improve coverage, internal consistency, comparability, and validity of the statistical information. With increasing integration at the stage of planning of programmes and of central coordination there can be increasing decentralisation of operational responsibilities.

Study of Natural Resources

Committee on Natural Resources

9. Under its terms of reference, the Planning Commission

is required to make an assessment of the various resources of the country and to formulate a plan for their most effective and balanced utilisation. For balanced development, it is necessary to assess availabilities, requirements and potential in relation to each of the principal regions within the country. Accordingly, the five year plans have presented accounts of the land, water, mineral and energy resources of the country on the basis of available information, drawn attention to the main problems in each field and set out programmes for further surveys and investigations. At the time of the formulation of the Third Plan, the Planning Commission considered that the stage had been reached when a comprehensive view needed to be taken of the extent and quality of the information available in respect of the country's main natural resources, the principal gaps that existed, the surveys required in this connection, and further steps that needed to be taken for an effective and balanced utilisation of these resources. It set up the Committee on Natural Resources in December, 1961. The Committee has appointed a number of Sub-Committees and Working Groups to carry out the various studies that are approved by it. The different studies conducted under the aegis of the Committee on Natural Resources bring out in more comprehensive details the availabilities and deficiencies of the main natural resources in different regions of the country with a view to achieving their optimum utilisation. Besides presenting a long-term strategy for the development of agriculture, coal, oil-refining, forest, iron ores, fertilizers, power and others so that necessary steps may be taken for their fuller utilisation in a phased manner, the studies also make recommendations for immediate action for development of natural resources of the resources. A

A large proportion of the basic work is got done through the various scientific and technical organisations in the country, both official and non-official. The Committee has already carried out a number of studies during the Third Plan period.

A brief account of these studies and the programme for the Fourth Plan is given below.

Land Resources:

10. One of the most important early studies undertaken by the Committee was "A Coordinated Study of Organisations concerned with the Surveys of Natural Resources e.g., The Survey of India, Geological Survey of India, Soil and Land Use Survey, Forest Survey, Cadastral Survey and Town Planning Surveys". Among other studies undertaken by the Committee mention may be made of those on Waste Lands and their Reclamation Measures, Utilisation of Urban Wastes, Survey and Utilisation of Agricultural and Industrial By-products and Wastes, Survey and Reclamation of Ravines and Soil Conservation in Catchment Areas in Dams and River Valley Projects. Studies which are already on hand and are proposed to be completed during the Fourth Plan period are Land Resources of India, Study on Low Unit Yield of Rice and Wheat in relation to Utilisation of Fertilisers and preparation of a Soil Map of India in the scale 1:1 million.

Forest Resources:

11. The Committee undertook studies on Forest Raw Materials of Pulp, Paper, Newsprint and other Forest Based Industries, Fuel Wood Trends and Prospects, and Wild Life Preservation during the Third Plan period. It proposes to undertake an intensive study of productivity in construction timber industry and the economies of various forest operations under the Fourth Plan.

Mineral Resources:

12. The studies on mineral resources undertaken by the Committee during the Third Plan period include Investigation of Copper, Lead, Zinc and Antimony-bearing regions, Competitive Position of Major Indian Export Minerals in world markets, Aerial Photographic and Aeromagnetic Surveys of the Promising Mineral Areas in India, Bauxite Deposits of India, Coal Mine Fires and Subsidence and Phosphate Deposits and their Beneficiation. It proposes to undertake studies on the Methods of Coal Mining, Agglomeration of Iron Ore Fines, Flux Materials, Raw Materials for Refractories, Asbestos and Mineral Substitution during the Fourth Plan period.

Water Resources:

13. The Committee has already taken up studies on ground-water resources, use of water for domestic and industrial purposes and control of water pollution and these are proposed to be continued during the Fourth Plan period.

Energy Resources:

14. An Energy Survey Committee was appointed by the Government of India in 1963 which submitted its report in 1965. The Report deals with the various energy resources, namely, coal, oil, electricity, non-commercial fuel etc. and indicates a possible pattern of a coordinated development programme to meet the energy demand. It also deals with the pricing of energy and investment required to achieve the required levels of development. An Energy Survey Unit has been set up in the Planning Commission to continue the work initiated by the Energy Survey Committee. The Unit has taken up the review of consumption of energy by its various sources, estimate of available energy supplies from various energy sources and plans for coordinated development of power resources. Apart from these

general studies, the Unit also proposes to study the problem of balancing the production of by-products of coking coals and their uses and the various possibilities for reducing the import of fuel with fuller use of indigenous resources.

15. Educating the general public as well as the concerned official agencies about the importance of taking a long-term perspective of not only utilisation but also conservation of scarce national resources should be an important aspect of the work of the Committee. Greater attention needs to be paid to this task during the Fourth Plan Period.

Research Programmes Committee

16. The main function of the Committee has been to sponsor and promote research investigations of economic, social, political and administrative problems connected with planning and development. During the Fourth Plan ^{greater} emphasis will be laid on studies directly oriented to formulation and implementation of the Plan. From this angle a list of priority topics and areas of research has been drawn up. Studies of problems of small farmers, transport development, resource mobilization, industrial location, wage-productivity relationships, labour market surveys, pattern of leadership in the rural areas, social tension and conflict and tribal welfare will receive greater emphasis. The tempo of research-sponsored by the Committee has increased substantially during the last 12 years. The expenditure during the Third Plan was about Rs.54 lakhs against Rs.20 lakhs in the First Plan.

Social Sciences Research Committee

17. The Planning Commission appointed in August 1965 a Committee on Social Science Research consisting of experts in the main disciplines of social sciences. The Committee surveyed the state of research in social sciences in the country with a

view to making recommendations for building up an expanding corps of research workers; accelerating improvement in output and quality of research; promoting the balance distribution of research as between different disciplines, different regions as also categories of research e.g., sponsored and non-sponsored, basic and applied and promoting an integrated and multi-disciplined approach to studies of the problems of development. It is expected that the Committee's recommendations will lead to the creation of a national coordinating body in the field of social sciences and a programme of financial and technical assistance and training for the promotion of research in the different social sciences.

18. A provision of Rs.4 crores has been provided in the Fourth Plan for the development of Social Science Research.

a. Evaluation Organisations

19. The Planning Commission attaches importance and urgency to measures for streamlining the machinery for planning and the system of progress analysis in the States which will in their turn strengthen corresponding activities at the Centre.

20. For strengthening evaluation arrangements in the Fourth Plan it is proposed that as part of the State Planning Department, there should be an evaluation unit which can assess the impact of important development programmes independently of, but in cooperation with agencies administering these programmes.

21. To assist the Governments of States and Union Territories to built up such evaluation units, an outlay of Rs.1 crore has been proposed in the Fourth Plan. Full Central assistance to the States has been provided for advance action in 1965-66.

Manpower Units

22. A sum of Rs.50 lakhs has been provided in the 'Fourth Plan for giving Central assistance to States and Union Territories for setting up Manpower Units. This is intended to improve the existing arrangements in the States for manpower planning and for achieving coordination among the various agencies, who participate in the process of planning, supply, training and utilisation of manpower. The Units will be dealing exclusively with manpower problems on a continuing basis.

Training for Management, Administration and Planning.

23. A provision of Rs.1 crore has been made under the Plan for Training for Management, Administration and Planning. It is envisaged that training programmes in Management will be jointly sponsored by the Planning Commission and the Bureau of Public Enterprises in cooperation with the Ministries concerned, and those pertaining to Administration by the Planning Commission and the Department of Administrative Reforms in cooperation with the States. The programmes will fall broadly into five groups, namely, (a) management control and planning, (b) programme planning and management, (c) area planning and administration, (d) training and orientation of managers, supervisors and workers in public and private sectors in relation to management tasks for the Fourth Plan, and (e) planning methods and techniques. Training programmes will be worked out and implemented in cooperation with leading institutions and the universities. In some areas where facilities do not exist at present, new training schemes will be proposed. Action in pursuance of these proposals will be initiated by the Planning Commission.

Schemes for Social Assistance

24. The Third Plan had drawn pointed attention to the need for action at the community level for three groups of persons, namely, the physically handicapped, old persons unable to work and women and children, where they were altogether lacking in the means of livelihood and support. Until a comprehensive system of social security can be developed, assistance for these groups would have to come from voluntary and charitable organisations, municipal bodies, Panchayati Raj institutions and voluntary organisations. With a view to enabling these organisations to develop their activities with the help of local communities and giving them a measure of support, a small provision was made in the Third Plan. It is a matter of regret that although the scheme was worked out and instructions were issued, for a variety of reasons, a real start could not be made during the Third Plan. The basic problems exist and it is necessary to gain experience of dealing with them on a sufficient scale to facilitate further advance. For this purpose a provision of Rs.4.5 crores has been made in the Fourth Plan. The scheme is to be implemented by the Department of Social Welfare in cooperation with the States and in association with municipal and Panchayati Raj institutions and voluntary organisations.

Welfare of Government Employees

/ low
paid

25. The living and working conditions of Government employees in metropolitan towns need to be improved. This scheme is intended to provide relief in kind through a chain of consumers' cooperatives and better facilities, for, housing, transport, etc. This will contribute to higher efficiency and improved morale.

26. A provision of Rs.8 crores has been provided for consumer cooperative programmes and other welfare schemes in the Fourth Plan.

State Capital Projects

27. Work on three capital projects namely Chandigarh (Punjab), Bhopal (Madhya Pradesh) and Bhutaneshwar (Orissa) is in progress and will be continued in the Fourth Plan. A provision of Rs.11 crores has been made for these projects in the Fourth Plan.

Expansion of Printing Capacity

28. Since the demand on the Government Presses has become more acute during the Fourth Plan a number of new schemes are proposed to be taken up for expanding capacity of some existing presses and setting up two new photo-litho presses. A sum of Rs.8 crores has been provided for this purpose in the Fourth Plan.

Plan Publicity

29. The aim in the Fourth and succeeding plans is to bring into existence in the foreseeable future a communication system geared to the needs of a rapidly developing society. During the Fourth Plan period greater emphasis will be laid on select media. While general publicity has its own place, more publicity work needs to be carried on as an essential adjunct to developmental activities. Programmes for family planning, agricultural and irrigation development, etc. should have a built-in element for publicity arrangements.

30. In addition to such publicity linked with developmental programmes, general publicity work needs to be strengthened with steps to meet the specific needs of particular target areas and groups of people.

31. Fourth Plan provides for Rs.13 crores for Plan publicity - Rs.6 crores at the centre, Rs.6.4 crores in the States and Rs.0.6 crores for Union Territories.

