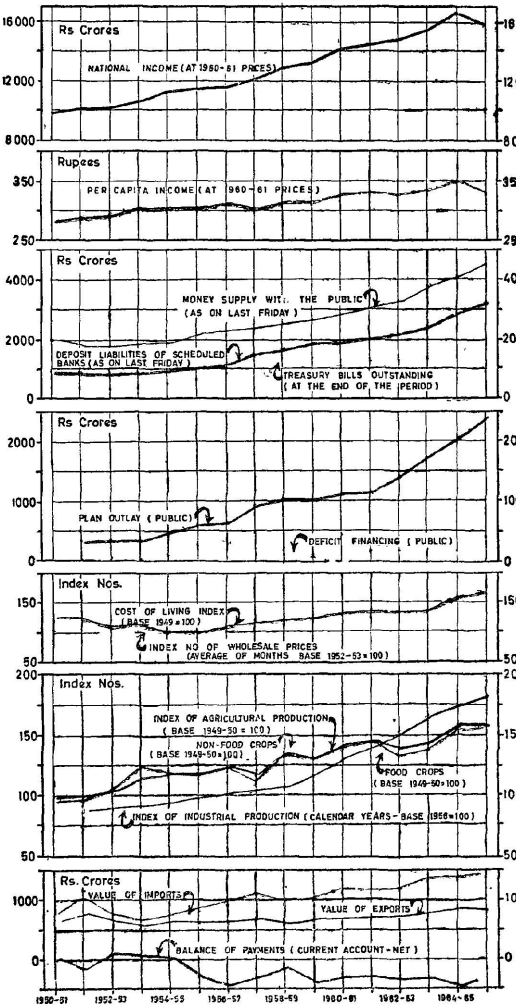
SELECTED ECONOMIC INDICATORS

1950-51 TO 1965-66



FOURTH FIVE YEAR PLAN

A DRAFT OUTLINE

GOVERNMENT OF INDIA • PLANNING COMMISSION

Explanatory Note

The expressions 'lakh' and 'crore' signify 100,000 and 10,000,000 respectively.

FOURTH FIVE YEAR PLAN

A DRAFT OUTLINE

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INTRODUCTION

THIS DRAFT OUTLINE sets out the substance of the proposals of the Planning Commission for the Fourth Five Year Plan. It is being offered for consideration by Parliament and State Legislatures and for eliciting the views of all sections of public opinion. It is also intended to assist the Central Ministries, State Governments and various other concerned organisations in the country in working out their detailed proposals for the Fourth Plan. After taking these into consideration, a final report of the Fourth Five Year Plan will be submitted to Parliament for approval a few months later. This Outline gives only the broad contours of the proposed Plan and briefly mentions some of the policy issues involved. These will be elaborated and dealt with more fully in the final report.

2. The work on the Fourth Plan was commenced some time in the first half of 1962. In all, 43 Working Groups (including 75 Sub-Groups) were set up at the Centre for the purpose. The Planning Commission requested these Groups to formulate their proposals for the Fourth Plan in the light of the progress of the Third Plan and the perspective of development for the ten year period ending 1976. Along with the studies undertaken by the Working Groups, the Perspective Planning Division of the Planning Commission worked out certain projections for the period 1961-76 with a view to providing a general perspective within which work on the Fourth Plan was to be undertaken. A mid-plan appraisal of the Third Plan was carried out in 1963 and the findings were kept in view while formulating proposals for the Fourth Plan. In the light of all these studies, the Planning Commission presented a Memorandum on the Fourth Plan to the National Development Council in October, 1964. The Memorandum envisaged a total outlay of Rs. 21,500 crores at 1963-64 prices. The National Development Council decided to constitute five committees to consider in detail five important sectors, namely, (*i*) Agriculture and Irrigation; (*ii*) Industry, Power and Transport; (*iii*) Social Services; (*iv*) Resources, and (*v*) Development of Hill Areas.

3. A National Planning Council was set up in February, 1965, comprising specialists, to work in close and continuous association with the Planning Commission. The Council set up several sub-committees which examined a number of important problems relating to the formulation of the Fourth Plan. Meanwhile, the State Governments also prepared preliminary Memoranda on the Fourth Plan of their respective States.

4. In the light of these studies and Memoranda, the entire position was reconsidered and a revised Plan with a total outlay of Rs. 21,500 crores at 1963-64 prices (including Rs. 12,000 crores for public sector investment, Rs. 7000 crores for private sector investment and Rs. 2500 crores for public sector current outlay) was presented to the National Development Council in a document entitled "Fourth Five Year Plan-Resources, Outlays and Programmes" in September, 1965. As the country had to face serious hostilities about the same time, the Council authorised the late Prime Minister to make such adjustments in the Plan that he considered necessary for meeting the emergency and safeguarding the country's security and long-term necessities.

5. Accordingly, the Planning Commission undertook a series of studies with a view to determining the changes that were needed to be made in the programmes of the Fourth Plan to ensure that the requirements of both defence and development were met, as far as possible, through an intensive development of the productive resources of the country. More recently, the prospects of external credits for financing the Plan were discussed with the representatives of several friendly countries and international agencies. While these studies and discussions were going on, the rupee was devalued on June 6, 1966 and this brought about a major change in the economic situation necessitating a complete re-examination of Plan resources, priorities and outlays.

6. The Draft Outline now presented takes into account the results of all these exercises. Keeping in view the current uncertainty about resources it proposes a minimum Plan with a total outlay of Rs. 23,750 crores at June, 1966 prices (including Rs. 13,600 crores for public sector investment, Rs. 7750 crores for private sector investment and Rs. 2400 crores for public sector current outlay). The increase in the outlay over the figure indicated in the document presented in September, 1965 to the National Development Council is accounted for partly by changes in some Plan programmes and partly by changes in the value of the rupee and consequential effects. It may be noted that the total outlay of Rs. 21,500 crores as presented in the September, 1965 document would have gone up to Rs. 25,000 crores as a result of the changes in prices and the devaluation of the rupee if there was no downward adjustment of physical programmes. There has been, therefore, a reduction in some of the physical programmes, although an effort has been made to maintain the key production targets as far as practicable. As this is likely to have some adverse effect on the long-term growth prospects of the economy, it will be desirable to reconsider some of these physical programmes and to provide for adequate advance action

for the Fifth Plan as and when the resource prospects improve during the Fourth Plan.

7. Some supplementary programmes in sectors like irrigation, power, village and small industries, technical education and water supply may be considered if the States are in a position to raise resources additional to those envisaged in the present estimates.

8. Since all these exercises took time and there was also a suspension of some of the foreign credits following the hostilities in September, 1965, the preparation of the Draft Outline of the Fourth Plan was delayed considerably. The Annual Plan for 1966-67, the first year of the Fourth Plan, was, therefore, formulated in advance of the Draft Outline so as to obviate any delay in the implementation of the programmes to be undertaken in that year. This Annual Plan, which had to be prepared under emergency conditions, could not bear the same relationship to the Fourth Plan, as it would have under normal conditions. Certain matters needed immediate attention because of the sharp set-back in agricultural production in 1965-66 due to severe drought conditions. The public sector outlay in the Annual Plan for 1966-67 amounts to Rs. 2082 crores. The Annual Plan for 1966-67 has now been made an integral part of the Fourth Plan and the phasing for the subsequent years is being determined keeping the Annual Plan for 1966-67 in view.

9. It is proposed that annual planning will play a much more important role during the Fourth Plan than in the past. A careful evaluation of past performance will form the basis for annual plan allocations in future. No new scheme will be included in the annual plan unless it is fully worked out in all details and unless there is reasonable assurance that requisite resources will be available for its completion as scheduled.

10. The Fourth Five Year Plan represents a crucial stage in the development of our economy. It has to consolidate and carry forward the achievements of the three earlier Plans, make up for their shortfalls as far as practicable and prepare the ground for a self-reliant economy to be attained by the end of the Fifth Plan. The tasks set out in this Outline are the minimum that require to be done and are well within the capacity of the nation. Every effort has to be made to see that they are fully achieved and, wherever possible, improved upon in course of the five years of the Fourth Plan.

August, 1966.

M4PC/66—2

CHAPTER I

APPROACH TO THE FOURTH FIVE YEAR PLAN

I

Approach in the First Three Plans

A decade and a half ago the process of planned economic development was adopted by the country with the objective of "raising living standards and opening up to the people new opportunities for a richer and more varied life". A specific aim was to double per capita income by 1977-78 or roughly within the span of a generation. Within this broad perspective, each successive Five Year Plan had a distinctive role to play.

The First Two Plans

2. The First Five Year Plan sought to rehabilitate the economy from the ravages of war, famine and partition and formulate policies and build up institutions which would help the economy to develop in the desired direction. The Second Five Year Plan sought to carry the process further, accelerate the rate of growth and initiate a strategy which would assist in bringing about such structural changes in the economy as seemed to be necessary if the long-term objectives of development were to be achieved. The target date for doubling the per capita income was advanced to 1973-74. There was a special emphasis on the maximisation of the rate of capital formation. While agriculture was given a high priority, it was also recognised that in the context of an unfavourable land-man ratio, capital enrichment of the Indian economy could not proceed very far within the bounds of an essentially agrarian economy and that, beyond a point, capital enrichment necessarily meant industrialisation. Further, "a socialist pattern of society" was explicitly accepted in the Second Plan document as the goal of the country's programmes for social and economic development. It was stated that "the pattern of development and the structure of socio-economic relations should be so planned that they result not only in appreciable increases in national income and employment but also in greater equality in incomes and wealth."

The Third Plan

3. The Third Five Year Plan raised the sights and set the achievement of a "good life" for every citizen as the ultimate goal of socialist society that the country had already accepted. It defined the task of the next three Plans to be, (*i*) to lay down foundations of self-reliant

economic growth, (*ii*) to provide avenues and opportunities for employment to all those who seek it, and (*iii*) to ensure a minimum level of living to every family in the country, while narrowing economic and social disparities. It set 1976-77 as the target date for doubling the level of per capita income obtaining in 1950-51 after taking into account the difficulties faced in implementing the Second Plan and the revised projections of population growth.

4. Although the idea of self-reliance was implicit in the long-term growth models presented in the First and Second Plan documents, it was explicitly stated for the first time as a major goal in the Third Plan document. The Third Plan was conceived as "the first stage of a decade or more of intensive development leading to a self-reliant and self-generating economy." The perspective was that "progressively external aid will form a diminishing proportion of the total investment, and by the end of the Fifth Plan the economy will be strong enough to develop at a satisfactory pace without being dependent on external assistance outside the normal inflow of foreign capital." The Third Plan thus both explicitly stated self-reliance as a major goal for the twenty five year period, 1951-76, and sought to give it a precise meaning. At the same time it recognised that the pattern of development necessary to reach out to the goal of self-reliance would involve for a limited period considerably increased imports, especially of capital goods, and would necessitate susbstantial non-commercial foreign credits.

5. The objectives of a socialist society and the need for assuring a minimum income for everyone were re-emphasised in the Third Plan document. It was postulated that, as a first step towards equality of opportunity for every citizen, a "socialistic economy should provide for the basic necessities in particular for food, work, opportunity for education, reasonable condition of housing and a minimum level of income which in given circumstances will ensure tolerable living standards." With a view to achieving these broad objectives, certain targets of saving, investment and production were set in all the three Plans. But these targets were only a means to an end, the end being self-reliant growth in a socialist society. While evaluating the success or failure of the Plans, these targets have no doubt to be kept in view but the structural changes which lie behind these targets should be deemed to be no less important than these targets by themselves.

II

Situation at the End of the Third Plan

National Income

6. The First Plan achieved considerable success. The performance of the Second Plan was also not unsatisfactory. The record of the

Third Plan, however, has not, *prima facie*, been good. The financial outlay was about Rs. 8630 crores substantially higher than the original provision of Rs. 7500 crores. But an appreciable part of it was neutralised as a result of the rise in prices. Progress in physical terms was much slower than expected in many fields, as may be seen from Annexure I to Chapter III (The Fourth Plan in Outline). An over-all view of the performance of the Third Plan from year to year in national income terms for major sectors may be obtained from the following Table:

Table 1. National Income at 1960-61 Prices

(Rs. crores)

sector	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66 (likely actuals)*
agriculture and allied sectors	6890	6900	6760	6970	7460	6390
mining, manufacturing, etc.	2600	2720	2830	3010	3190	3340
commerce, transport and communications	2340	2420	2510	2640	2890	2910
other services	2360	2520	2720	2930	3200	3410
net domestic product at factor cost ..	14190	14560	14820	15550	16740	16050
net national income ..	14140	14490	14740	15460	16630	15930
per capita income (Rs.)	326	326	323	331	348	325

7. Over a five year period, the rate of growth of national income was less than half of the rate of 5 per cent per annum aimed at National income increased at the rate of only 2·5 per cent in the first and 1·7 per cent in the second year of the Plan. This was followed by a rapid recovery in the next two years. National income increased at the rate of 4·9 per cent in the third and 7·6 per cent in the fourth year. In the fifth year, however, there was a severe set-back due to unprecedented drought conditions and Pakistan-India hostilities and national income actually declined by 4·2 per cent. Except for one year, *viz.* 1964-65, agricultural production did not show any increase and large imports of foodgrains continued Industrial production was also lower than expected.

*Based on foodgrains production of 72·3 million tonnes which reflected the effects of an abnormal drought. If instead of this abnormal production, the production potential of 90 million tonnes is adopted, net national income will amount to Rs. 17,180 crores and per capita income Rs. 351. This could be treated as base line potential.

PRICES

8. These shortfalls in domestic production occurred at the same time as aggregate spending in the economy was rising in both the public and private sectors. In consequence, the Third Plan period witnessed a steep increase in prices, especially prices of agicultural commodities. Much the greater part of the price increase was concentrated in the three year period 1963-64 to 1965-66. During this period the general price index rose by 36 per cent or by a measure larger than the increase that had occurred in the preceding ten years. Price movements for the Third Plan period as a whole are summarised in the Table below:

Table 2. Index Number of Wholesale Prices—by groups (1952-53=100)

group	last week of the year						percentage increase in
	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1965-66 over 1960-61
food articles ..	118·1	118·4	123·5	141·0	153·6	175·3	48·4
liquor and tobacco	114·6	98·8	117·0	119·4	138·4	127·5	11·2
fuel, power, light and lubricants ..	121·0	122·4	137·6	140·4	148·2	156·6	28·6
industrial raw materials ..	158·5	134·7	135·3	146·1	163·3	210·2	32·6
manufactures ..	128·8	126·3	129·5	133·0	141·2	157·3	22·1
(a) intermediate products ..	137·3	135·7	136·2	145·3	156·2	184·5	27·1
(b) finished products ..	127·4	124·8	128·4	130·9	138·7	152·8	19·9
all commodities ..	127·5	122·9	127·4	138·9	151·0	173·9	36·4

9. Within this general increase, the movements in respect of different commodity groups varied. Increases in respect of manufactured articles were generally of a lower order. It was the increase in prices of agricultural products, reflecting the effect of insufficient increase in agricultural production which was most significant. Since the bulk of consumer articles in India is derived from agriculture, the large increase in the prices of agricultural commodities was reflected in a rise in the cost of living, which in turn led to increases in wages, dearness allowances, trading profits, etc.

10. To counter the pressure on prices resulting from small increases in supplies and large increases in spending, a number of measures were taken in the last few years. These included an enlargement of the network of fair price shops and consumer cooperatives; larger distribution of imported as well as domestically procured foodgrains at fixed prices; setting up of the Food Corporation of India for

increasing Government's participation in wholesale trade; utilisation of fiscal and credit instruments to regulate spending and special programmes for quick increases in domestic production. But these have not been adequate to contain price increases for the reason that the large dislocations in the economy during 1965-66 resulted in a widening of the gap between available supplies and total domestic expenditures. If domestic output in 1965-66 had shown an increase over the previous year, the price situation would have been less difficult. But since this did not happen, the strain on domestic prices has been such as to make it a matter of general concern.

An Abnormal Period

11. It should be noted, however, that in several respects the Third Plan period turned out to be very abnormal. Firstly, weather conditions were adverse during three out of five years of the Third Plan period. Secondly, the country had to face serious hostilities in the very second year and again in the fifth year of the Plan. Thirdly, the delays in tying up the needed external credits in certain important cases in the earlier years and the virtual suspension of bulk of these credits during the last year accentuated the difficulties. The sharp step-up in defence outlay that the country was compelled to undertake added to the pressure on resources. Further, the external aggression and severe drought in 1965 created problems which demanded urgent attention of the administrative machinery. Added to these, the administrative rules and procedures lacked the flexibility to meet the changing needs and necessary changes in them had not come about. All these factors contributed to the shortfalls in the Third Plan.

Positive Achievements

12. Although judged by aggregate statistics like national income and its rate of growth over short periods and certain broad targets like food production, the performance of the Third Plan is disappointing, there are a number of sectors where the targets were substantially reached. Some illustrations of this may be seen from Annexure I to Chapter III. The rate of growth of key industrial sectors such as machinery, metals, chemicals, fertilisers, etc. has been more than 15 per cent per annum. The increase in production in industries like aluminium, automobiles, ball and roller bearings, electric transformers, machine tools, textile machinery, power driven pumps, diesel engines, jute textiles, sugar, jute, iron ore, cement, petroleum products, etc., has been substantial. The rate of growth of capacity has been even faster than that of production in several cases. A number of projects which have been delayed on account of the factors mentioned earlier are nearing completion and are expected to go into production early in the Fourth Plan.

13. So far as the infra-structure is concerned, area under major irrigation has gone up by 5·5 million acres and that under minor irrigation by 13·1 million acres, generating capacity for power has increased from 5·6 million kW to 10·2 million kW, the number of towns and villages electrified from 24,200 to 52,300, surfaced roads from 235 thousand kilometers to 284 thousand kilometers, freight carried by railways from 156 million tonnes to 205 million tonnes and shipping from 8·6 lakh GRT to 15·4 lakh GRT. The acute shortage of transport, power and fuel which was faced during the early years of the Third Plan has been largely over-come.

14. In the social services sector, the number of schools increased from 4 lakhs to 5 lakhs, of students in schools from 45 million to 68 million, of engineering graduates from 58,000 to 93,000, of doctors from 70,000 to 86,000, and of family planning centres from 1,649 to 11,474.

15. Even on the agricultural front it is a significant fact that in the year when the country had good weather conditions, namely, 1964-65, the foodgrains production increased from 79·4 million tonnes to 89 million tonnes. It may not be unreasonable to expect that the unusual long spell of bad weather that the Third Plan faced may not be repeated in the Fourth Plan period. If weather conditions become normal and Indian agriculture can repeat the performance of 1964-65 the situation on the food front should be much better. The progress made by the Intensive Agricultural District Programme, the development of high-yielding varieties of certain food crops, the popularisation of fertilisers and pesticides and the expansion of irrigated area which has been achieved during the Third Plan period certainly give good reasons for believing that conditions have been created which should yield substantially better results in future.

16. So far as the industrial sector is concerned, there was encouraging progress in the early years of the Plan. But the tempo could not be kept up primarily due to scarcity of key materials and components which resulted from the shortage of foreign exchange especially after the hostilities of 1962 and 1965 and the suspension of certain foreign credits in the latter year. The shortfall in hydel power due to drought in 1965-66 also affected industrial production. Yet the real situation is better than what may appear at first sight. As has been mentioned above, in a number of industries, especially machinery, metals, chemicals and fertilisers, the progress has been substantial. In even others where it is not so, a considerable amount of production capacity which has already been created is lying idle because of shortage of imported components. With an improvement in exports and

resumption of foreign credits, much of this idle capacity is likely to be activated and lead to a substantial increase in industrial production within a short period and not only facilitate recovery but also give a new spurt to the economy. Besides, a number of projects which could not be completed on account of various difficulties faced during the Third Plan period are likely to be completed during the first one year to eighteen months of the Fourth Plan.

17. In spite of all the shortfalls and disappointments of the Third Plan, the country, at the beginning of the Fourth Plan, is poised for a faster growth during the years to come.

III

PROGRESS UNDER THE FIRST THREE PLANS

THE LONG-TERM PERFORMANCE

18. The above assessment would appear to be based on even stronger grounds if one looks at the performance of the economy over the last fifteen years instead of only the last five years and analyses the structural changes that have already taken place. Here also the figures given in Annexure I to Chapter III present some pertinent facts.

19. In aggregate terms, India's net national income increased by about 69 per cent from Rs. 9850 crores to Rs. 16,630 crores (at 1960-61 prices) between 1950-51 and 1964-65 or at a compound rate of 3·8 per cent per year. Within this cumulative picture the rate of growth in the first five year period (1951-52 to 1955-56) was 3·4 per cent and in the second five year period (1956-57 to 1960-61) 4 per cent, and, despite all the difficulties, bad harvests, external aggression and foreign exchange shortage, the rate of growth of the national income in the first four years of the Third Plan (1961-62 to 1964-65) was of the order of 4·2 per cent. As has been mentioned earlier, the year 1965-66 is by all accounts a very abnormal year due to unprecedented drought and external aggression, and it would not be inappropriate to keep it out of the reckoning.

20. Even though changes in aggregate national income are an inadequate index of the economic change that has occurred, the figures given above belie the thesis of stagnation and lack of growth of the Indian economy. It is true that what has been achieved is less than what was needed and sought. But this should not divert one's attention from the fact that an economy, which had for decades prior to the adoption of planning been growing at the rate of barely 1 per cent per annum, has, since 1950-51, been expanding at over thrice that rate. Even in agriculture, where progress has undoubtedly been

tardy, the rate of growth has been about 3 per cent (compound) between 1950-51 and 1964-65 as against an average rate of less than ½ per cent per annum in the previous decades. India may seem to have an unsatisfactory record judged by the standards that she has now set for herself. But compared to the actual performance in the pre-plan period, the rate of growth of the Indian economy, especially in terms of capital and skill formation, during the first fourteen years of planned development should be regarded as encouraging. India's record in terms of the overall capital-output ratio during these years compares favourably with that of most other countries, particularly if account is taken of the fact that the building up of long term growth potentials has been given special emphasis in Indian planning.

21. The growth in terms of national income has, however, been accompanied by a fairly rapid increase in population, with the result that the additions to per capita income have not been commensurate with earlier expectations. Since 1950-51, India's population has risen by nearly 134 million, *i.e.*, at 2·5 per cent per annum. This large growth in population has in itself been the consequence of the modest improvement in consumption standards and a reduction in the death rate through nation-wide public health services. Nevertheless, between 1950-51 and 1964-65, per capita income in real terms increased by 28 per cent or at an annual average rate of about 1·8 per cent.

Progress in Agriculture

22. These gross indices, though significant in themselves, do not reflect fully the nation's effort at economic development. Even in the agricultural sector which, it is sometimes said, has failed to show progress, the absolute increases in production during the first fourteen years of planning have been large. The index of agricultural production has gone up from a level of 96 in 1950-51 (related to 100 in 1949-50) to 158 in 1964-65, an increase of about 65 per cent in 14 years. A few other key data illustrating the point are given below :

Table 3. Production of Selected Agricultural Commodities

	1950-51*	1960-61	1964-65	1965-66
foodgrains (million tonnes) . .	54·9	82·0	89·0	72·3
oilseeds . . „ . . .	5·1	7·0	8·3	6·1
sugarcane (gur) „ . .	6·9	11·2	12·3	12·1
cotton (million bales) . . .	2·6	5·3	5·4	4·7
jute „	3·5	4·1	6·0	4·5

*Adjusted for statistical changes.

23. By any standard of comparison these are substantial increases. And except jute, all of these products enter into the consumption basket of the common people. In fact the per capita production of foodstuff in terms of calories per day went up from 1636 in 1950-51 to 2014 in 1964-65 ; including imports, the per capita availability went up from 1759 calories to 2145 calories per day. Per capita production of foodgrains increased from 12·8 to 15·4 ounces per day and of cloth from 11 to 15 metres per annum.

24. In the initial years of planning, additions to agricultural output were secured more from extension of the area under cultivation than from increases in production per acre. Since the middle fifties, the dominant trend is that of higher yields from the acreage cultivated. To facilitate the increase in agricultural productivity, efforts have been, and are being, made to enlarge the supply of water, fertilisers, pesticides, power, etc., needed by the farmers especially in selected promising areas. During the first three plans, area under major and medium irrigation went up by 13·8 million acres and that under minor irrigation by 31·6 million acres. In regard to other inputs the increases have been as follows :

Table 4. Inpvts in agriculture

	1950-51	1960-61	1964-65	1965-66
fertilizers (000 tonnes N) . .	56	210	555	600
electricity (milion kWh) . .	203	832	1400	1730
irrigation tubewells (numbers) . .	3500	17700	28900	32400
fuel oil (value in Rs. crores) . .	4·5	14·6	25·1	27·7

25. These are indicative of the change that has already occurred in the size and character of Indian agriculture. All these notwithstanding, the potential that exists for increasing agricultural productivity is still very large. Of the things that require to be done for realising this potential, expansion of the supply of inputs such as those above is undoubtedly one of the most important. But in order to do so, it has become vitally necessary to set up large production capacities for fertilisers, pesticides and improved seeds, agricultural implements and tractors, as well as to provide additional power, transport and communications facilities. Over and above these, it is necessary to rationalise the landownership and tenancy systems as well as those aiming at providing additional incentives and credit facilities to the farmers for enhancing the rate of agricultural progress in the future.

Progress in Industry

26. More impressive than the additions to production in the agricultural sector have been the increases in the fields of power, transport and industry. Installed electric power capacity has increased over

four-fold—from 2·3 million kW in 1950-51 to about 10·2 million kW in 1965-66 and an additional 2·0 million kW is expected to materialise in the next 12 months. The number of towns and villages electrified has increased from 3700 to 52,300. The freight carrying capacity of the railways has risen from 93 million tonnes of originating traffic to 205 million tonnes. Surfaced roads have increased from 156,000 kms to 284,000 kms and shipping from 3·9 lakh GRT to 15·4 lakh GRT. The index of industrial production has gone up from a level of 74 in 1951 (related to 100 in 1956) to 182 in 1965—an increase of 146 per cent in 14 years. The progress in some of the growth promoting sectors has been striking as will be seen from the following Table :

Table 5. Value added in Manufacturing Industry

(Rs. crores at 1960-61 prices)

industries	1950-51	1960-61	1964-65	1965-66
consumer goods	260·7	423·7	483·3	487·6
intermediate goods	89·5	346·1	547·3	620·2
machinery	30·9	151·3	282·6	315·9
others	3·1	6·9	9·6	10·3
total	384·2	928·0	1322·8	1434·0

Apart from the important structural changes that have occurred in the meanwhile, these aggregates are in themselves evidences of the large strides that have been taken since the beginning of the fifties. A notable result has been the emergence of a new forward looking class of technicians, managers and entrepreneurs.

27. A special feature of industrial development, especially since the commencement of the Second Plan in 1956-57, has been the growth of capacities in steel, aluminium, engineering, chemicals, fertilisers and petroleum products. The growth registered by these industries does not get fully reflected in the official index of industrial production, on account of the large weight given to traditional industries like cotton, jute, sugar, etc. in the formulation of the aggregate index. In order to appreciate the real structural change that has been going on, it is useful to look at the new industries separately. Figures for a few of these key industries are listed below:—

Table 6. Growth in Key Industries

	1950-51	1960-61	1964-65	1965-66
finished steel (000 tonnes)	1040	2300	4430	4600
aluminium ingots (000 tonnes)	4·0	18·3	54·1	65·0
diesel engines—stationary (000)	5·5	43·2	74·1	85·0
automobiles (000)	16·5	55·0	70·8	68·5

	1950-51	1960-61	1964-65	1965-66
machine tools (value in Rs. crores) .	0·3	7·0	20·0	23·0
sugar machinery (value in Rs. crores)	nil	4·2	9·1	8·0
bicycles (organised sector) (000) .	99	1071	1442	1700
sulphuric acid (000 tonnes) . .	101	361	695	664
cement (million tonnes) . . .	2·7	8·0	9·8	10·8
nitrogenous fertilisers (000 tonnes of N)	9	99	234	233
caustic soda (000 tonnes) . .	12	59	192	218
coal (million tonnes) . . .	32·8	55·7	64·4	70·0
iron ore (million tonnes) . .	3·0	11·0	15·1	23·0
petroleum products (million tonnes) .	0·2	5·8	8·4	9·9
electricity generated : (million kWh)	6575*	20123	29280	36400

28. Apart from these, large investments have been made in industries producing heavy electrical equipment, heavy foundry forge, heavy engineering machinery, heavy plates and vessels, etc.—all of which will become available in increasing quantities from now on. Likewise, a variety of light engineering products, manufactured consumer products, chemical products and so on are now being produced in both large and small-scale units, in quantities many times larger than in 1950-51.

Role of the Public Sector

29. The development of all these industries has necessarily involved large investments in both the public and private sectors, as will be seen from the following Table:

Table 7. Investment in Industry

(Rs. crores at current prices)

	First Plan	Second Plan	Third Plan (envisaged)
public sector	55	938	1520
private sector	233	850	1050

30. One result of planning has been that the share of the public sector in the reproducible tangible wealth of the country has increased from about 15 per cent in 1950-51 to 35 per cent in 1965-66. In a country aiming at a socialist society, the public sector has progressively to occupy the commanding heights in the economy. The public sector has also to pioneer some of the key but difficult projects where gestation lags are very large and full output can be reached only after several years of operation. Inspite of delays and disappointments, it has succeeded in developing a number of new industrial complexes which are offering new opportunities for the private sector as well.

*Relates to calendar year.

If comparison is made of the return of the public sector undertakings which have been in operation for some years, *e.g.*, Hindustan Machine Tools, Hindustan Insecticides, Indian Rare Earths, Indian Telephone Industries, National Newsprint and Paper Mills, Bharat Electronics, Hindustan Cables and Hindustan Antibiotics with those in the private sector, the performance of the public sector would compare favourably. This, however, does not provide any ground for complacency. There are several cases where the performance is not yet satisfactory. Every effort has to be made in the Fourth Plan to raise the return from major projects in the public sector.

31. As is inevitable in so large a programme, not all of the effort has borne fruit in time or in the measure expected; nor has this development occurred without friction or bottlenecks. In fact the actual implementation of the plan projects in many sectors has not been able to conform to the phasing that was contemplated initially. But even allowing for all this, two facts remain indisputable; firstly, the structure of industrial production is much more balanced today than it was in the early fifties; and, though much still remains to be done by way of establishing proper linkages and filling the gaps in this structure, the industrial complex as a whole has a much greater ability to press forward with growth and diversification than before. In regard to the manufacture of transport and power equipment, the country has reached a stage when the requirements can soon be met without any substantial reliance on imports.

32. Of necessity, the setting up of new industries has required large-scale import of equipment and accessories and know-how in the last few years. With exports not being adequate to cover the import requirements, the country drew in the initial stages on the large sterling balances accumulated during the Second World War and Korean War years. Very large drafts were made on these accumulated reserves in the initial years of the Second Plan to sustain the large investment undertaken in the economy. Since then, the country has had to draw on the rest of the world for credits, which have come in a substantial measure from friendly countries and international agencies. The progressive increase in imports made possible by credits has, however, obscured the fact that, simultaneously, much has been achieved by way of import replacement. This is obscured because, with the increase in productive activity that has occurred, new types of imports have become necessary; and even where the proportion of imports to total supply has fallen, the absolute quantities are still large enough to create balance of payments difficulties. But one significant fact is that in many areas of industrial production the relative dependence on imports today is much less than what it used to be. For instance, in machine

tools we used to import 91·6 per cent of the total supply in 1950-51, the figure went down to 44·6 per cent in 1964-65, a reduction of 51·3 per cent. In sugar machinery, the figure has gone down from 100 to 4·1 per cent, in textile machinery from 100 to 56·5 per cent, in commercial vehicles from 35·7 to 0·5 per cent, in synthetic fibre yarn from 100 to 13·6 per cent, in petroleum products (other than kerosene) from 91·5 to 1·6 per cent and in aluminium from 74·8 to 29·7 per cent. However, in several cases the total demand has increased so much that inspite of a larger proportion being manufactured indigenously, the total imports have tended to increase. In some cases, there are substantial imports of components. A much greater effort for indigenous manufacture of components is, therefore, called for.

Progress in Social Services

33. Important as the development of the material sectors of agriculture, irrigation, industry, transport and power are, the large effort put into the development of the faculties of the people during the last fifteen years is perhaps of even greater significance to their future well-being. It is the people who in the final analysis are the architects of progress, even as they are the beneficiaries. Of necessity, investment in the building up of this social capital has to be on a massive scale in a country of the size of India; and it is an investment which yields fruits over a long period of years, by adding to the quantity and excellence of the things done.

34. Substantial ground has been covered in the last fifteen years in providing schools for general education and technical training; medical, public health and family planning facilities; welfare of backward classes and tribes; houses for industrial workers, low-income earners, and so on. A few illustrative figures are given below:

Table 8. Expansion in selected programmes under education and health

	1950-51	1960-61	1964-65	1965-66
schools (000 numbers)	231	400	483	505
students in schools (6-17) (million numbers)	23·5	44·7	63	67·7
engineering and technology degree level (intake) (000 numbers)	4·1	13·8	23·8	24.7
diploma level (intake) (000 numbers)	5·9	25·8	46·2	49.9
hospital beds (000 numbers) ..	113	186	229	240
primary health centres	—	2800	4500	4800
family planning centres	—	1649	7701	11474
doctors (practising) (000 numbers)	56	70	82	86
nurses (practising) (000 numbers) ..	15	27	39	45

35. The people are much better educated now than they were fifteen years ago. There has been in particular a remarkable growth of technical personnel. Expenditure on scholarships has increased from Rs. 2·75 crores in 1950-51 to Rs. 35 crores in 1965-66 and new opportunities have been provided to students from poorer families. The people are also much more healthy. Malaria has been eradicated. The average expectation of life has increased from 32 years in the forties to 50 years to-day.

Progress in Resource Mobilisation

36. These increases in production, production capacity and social welfare facilities have required a progressive increase in resource mobilization through voluntary saving as well as fiscal policy. In 1950-51, total investment in the economy is estimated to have been of the order of 5½ per cent of the national income; this was financed wholly from domestic savings, which are also estimated to have been around 5½ per cent of national income. In the years since, both these proportions have increased but at different rates. The ratio of investment to national income had, at the end of the Third Plan period, risen to about 14 per cent, while the ratio of domestic savings to national income rose at a somewhat slower rate—to around 9 per cent in 1960-61 and about 10·5 per cent in 1965-66. These disparate trends in the investment and savings ratios arise from the fact that in subsequent years, a part of the investment within the country has been financed by means of a drawal upon the foreign exchange reserves accumulated in the war and post-war years as well as utilisation of credits secured from abroad.

37. Though there was some inflow of external credits in the First Plan period, the bulk of domestic investment was financed from domestic savings. In fact, for the last four years of the First Plan period, the total of domestic savings and external credits was larger than total investment in the economy, and the accumulated savings of the economy in the form of foreign exchange reserves increased somewhat. During the initial years of the Second Plan, however, these past savings were drawn upon heavily to sustain an accelerated growth of domestic investment, while in the later years investment in excess of domestic savings has been financed through external loans and grants. The relative importance of external credits in financing investment increased further during the Third Plan period because of a slower increase in domestic savings as a result partly of smaller increases in national output than had been anticipated, and partly of unavoidable increases in public consumption expenditure. Even so, domestic

savings had risen, as stated earlier, to 10·5 per cent of national income by the end of the Third Plan as against the ratio of 11·5 per cent anticipated earlier.

38. Given the income distribution pattern in India—in which a very small section of the population has income which provides a margin for voluntary savings, and the savings of the corporate sector are a small proportion of the total—the enlargement of domestic savings has required the adoption by Government of policies oriented towards a progressive increase in public savings. At the same time, there have been, since 1950-51, rapid increases in public expenditure on social overheads like education, medical and public health facilities, welfare of scheduled tribes and castes and so forth. The increases in public expenditures on productive investment and social welfare have in the last ten years resulted in budgetary deficits to a certain extent; but the principal sources of financing public expenditures have been additional taxation, public borrowing and surpluses from public enterprises.

39. The effort to mobilize public revenues for enlarging public savings and adequate financing of essential public expenditures has been very large and increasing over the plan years. This is particularly evident in the trend of the ratio of tax receipts to national income, which has increased from 6·6 per cent in 1950-51 to 9·6 per cent in 1960-61 and over 14 per cent in 1965-66. The tax system has, further, undergone changes which have given it a measure of built-in elasticity with respect to increases in domestic production and national income. Even at existing rates of taxation and coverage, the ratio of tax yields to national income will be of the order of 15 per cent by the end of the Fourth Plan period. And with the additional measures of taxation that will be needed in the Fourth Plan period, this ratio is estimated to rise to about 17 per cent. As observed earlier, the increased tax intake has been utilised both for enlarging public savings and for meeting increases in inescapable public consumption expenditure.

40. Along with the increase in tax revenues of the Central and State Governments, their expenditures on developmental items have also increased rapidly. The Plan outlay in the public sector was Rs. 1960 crores in the First Plan, Rs. 4672 crores in the Second Plan and about Rs. 8630 crores in the Third Plan. Most of this increase has been the result of the wider responsibilities that the Government have undertaken for economic and social betterment of the people. India had until recently kept her defence expenditure very low; and it is only after the foreign aggression in 1962 that this element in public expenditure has become significant. Even at the higher level it has now

reached, it is not more than 4 to 5 per cent of national income. An important fact to be emphasised in this context is that, despite the increase in defence expenditure, there has been an increase in the ratio of domestic savings to national income even in the years following the emergency.

IV

OBJECTIVES AND STRATEGY OF THE FOURTH PLAN

PRINCIPAL TASKS OF THE FOURTH PLAN

41. The Fourth Five Year Plan reaffirms the objectives enunciated in the earlier Plans and includes such policies and programmes which would help in the attainment of economic self-reliance with adequate growth rate and accelerate the progress towards a socialist society. In drawing up the Fourth Plan the following principal tasks have been kept in view:

(*i*) for ensuring the achievement of self-reliance as early as possible, highest priority will be given to all such schemes of agricultural and industrial production as are designed to promote exports and replace imports;

(*ii*) for ensuring price stability, effective steps will be taken to check all inflationary factors and avoid deficit financing;

(*iii*) for enlarging the income of the rural population, as well as for augmenting the supplies of food articles and agricultural raw materials, all possible efforts will be made to maximize agricultural production;

(*iv*) for enabling this objective to be realised, production of such goods as fertilisers, insecticides, agricultural implements, including pumps, diesel engines, tractors etc., will be given the highest priority in the programme for industrial development;

(*v*) for enlarging the supplies of essential mass consumption goods on which additional incomes will be spent, production of articles like textiles, sugar, drugs, kerosene, paper etc., will be stepped up;

(*vi*) for ensuring continued growth in the metals, machinery, chemicals, mining, power and transport industries, which are important for self-reliance, schemes in hand will be completed with the maximum possible expedition and such new schemes will be undertaken as are essential for keeping up the momentum of economic growth already built up and for meeting the basic needs of the country during the Fifth Plan period;

(*vii*) for limiting the growth of population and ensuring better standard of living for the people, all necessary resources will be provided to enable the family planning programme to be implemented on a massive and countrywide scale;

(*viii*) for the development of human resources, substantial additional facilities will be provided in the social services sector, especially for the rural areas, and these will be suitably reoriented in the direction of increasing productivity.

The organisation of effort in all these directions will be such as to promote rapid progress towards greater employment and social justice.

SELF-RELIANCE

42. The Third Plan had set self-reliance as a goal to be achieved by 1975-76. The experience during the recent emergency, when there was a sudden suspension of certain non-commercial foreign credits, and the devaluation of the rupee have underlined the over-riding importance of attaining this goal as early as possible. Programmes for export promotion and import substitution have been, therefore, given the highest priority in the Fourth Plan. With this objective, steps will be taken to restrain non-essential consumption in general and domestic consumption of exportable goods in particular and ensure maximum possible utilisation of existing capacity in all enterprises which can produce for exports or replace imports. The available foreign credits for projects as well as for maintenance will be utilised mainly for developing the export promoting and import substituting potentials of our agriculture and industry with the maximum possible expedition. A main criterion (along with the principle of comparative advantage) for selection of projects will be their possible contribution to the achievement of this objective. The policies and measures necessary for the achievement of self reliance have been considered in the next Chapter.

PRICE POLICY

43. As has been observed earlier, the large price increases during the Third Plan period have been due to an inadequate increase in available supplies of food and other essential commodities as well as a continued increase in domestic expenditures, both public and private. For exercising an effective restraint on further price increases it will be necessary to remedy these factors as quickly and as effectively as possible. The implementation of policies envisaged for reaching production targets, especially the targets for agricultural production, set out in the Plan is, therefore, a matter of basic importance for the attainment of a stable price situation. In the same way, the measures

suggested for exercise of discipline in incurring expenditures and adequate mobilisation of internal resources are a means of avoiding a general pressure on prices.

44. Obviously, these general policies will have to be supplemented by specific measures in different areas. In formulating the specific measures a distinction should, however, be made between price increases which are likely to have a cumulative and wide impact on the economy and those which are of a peripheral nature. Such a differentiation is necessary because it would not be practicable in a developing economy to control the prices of all commodities and services. The main emphasis in price policy should be to ensure that a spiralling of costs, prices and money incomes through mutual inter-action is avoided. From this point of view, attention in policy should be concentrated on two things; firstly, in respect of basic consumer goods, like food-grains, textiles, edible oils and so forth, steps should be taken for maintaining prices at reasonable levels through expansion of State participation and control in regard to both wholesale and retail trade; and secondly, efforts should be made for reducing the scope of automatic linkages between the cost and price increases, or between price and wage increases, that exist in the economy. As in the case of essential consumer articles, it will be necessary to design specific measures for regulating the prices of industrial raw materials which have a significant bearing on the general cost structure in the economy.

45. In regard to basic consumer goods, steps have been initiated to increase their supply to consumers at controlled prices through consumer cooperatives, Government departmental stores, fair price shops and such other regulated outlets. These arrangements have to be further strengthened, and the Plan makes necessary provision for their expansion. Government has added to the list of commodities covered by the Essential Commodities Act, set up a Civil Supplies Control organisation at the Centre, and in cooperation with the producers, organised supplies at controlled prices to the retail stores. More recently penal action on an extended scale is being taken against hoarding and profiteering in a number of States. Pursuit of these policies will be necessary if both the economic and psychological factors affecting the prices of essential consumer goods are to be brought under control.

46. Specific attention has likewise to be given to price policy in respect of industrial raw materials of general use in the economy. For these materials, price and distribution regulations have to be operated with a view to ensuring on the one hand, economy in their utilisation and preventing, on the other, an undue increase in the

prices of commodities produced from these raw materials. Their prices have, in other words, to be viewed as a means of facilitating the planned pattern of resource utilisation, including the direction of investible resources to priority purposes. Apart from basic consumer goods and the more important industrial raw materials, the approach to their prices in the economy should be one of allowing changes to occur within the general constraints of monetary and fiscal policy. In their case, changes in relative prices which derive from the need to promote exports or to restrain domestic consumption or to provide incentives for additional investment and production, should be accepted as a necessary means of achieving Plan objectives. An aspect of such acceptance is that any increase in the prices of less essential commodities should not be sought to be off-set by subsidies or other types of compensations to consumers or producers.

47. The implementation of such a policy will in its turn require a selective use of physical controls and State trading activities. If the commodities in respect of which such direct measures have to be taken are clearly identified and proper machinery for this purpose is set up, the regulatory functions in respect of other prices can be minimised and largely incorporated in fiscal and monetary policies. In the past, price increases have occurred both because of *ad hoc* decisions to decontrol and because of weaknesses in the administration of price and distribution controls. In the light of this experience, the enter structure of controls has to be reorganised so that the objectives to be served by it are clear and the administration is purposive. This is a matter which requires to be examined comprehensively and a rational decision taken on where controls should be vigorously applied and where the forces of supply and demand should be allowed to operate flexibly. The Commission will deal with these aspects of price policy in greater detail in the Final Report of the Fourth Plan.

Monetary rnd Fiscal Discipline

48. A variety of monetary and fiscal measures have to be taken to ensure that any excessive purchasing power in the economy does not lead to a distortion of the Plan. Deficit financing will have to be avoided. Saving will have to be maximised not only to mobilise resources for the Plan but also to keep in check inflationary forces. Neither relative price stability nor adequate devolopment will be possible unless the dom estic savings required for planned devolopment can be assured out of the current national income. Consequently, all the policies and measures that are needed for enlarging public as well as private savings and channelling these into priority investment will have to be adopted. The pattern of investment itself will no doubt

be a large determining factor, especially in an economy which faces severe balance of payment constraints. But monetary and fiscal policies have an important role to play. General credit policy should be determined with a view to keeping down inflationary pressure and selective credit controls should be implemented in such a manner as to induce private sector investment to follow the priorities laid down in the Plan, encourage economy and discourage hoarding. Fiscal policy also should aim at mopping up excess purchasing power in the economy and providing such a combination of incentives and disincentives as would ensure the achievement of the plan targets.

Selective Approach

49. It is important that in the Fourth Plan there should be a special emphasis on the selective approach, concentration of effort on certain essentials and careful phasing of the effort over the plan period. Under the previous three Plans, a certain amount of infra-structure has been built up in almost all important areas which is likely to ensure a rate of economic growth large enough to match at least the population growth in these areas. This is a factor which should make it possible for the Fourth Plan to be more selective (consistent with the perspective for the development of backward areas) as between different areas and sectors than the previous plans could be. And it is also necessary for the Fourth Plan to be more selective as it is starting from a substantially lower base than was envisaged earlier. The country will not be able to achieve the goal of economic self-reliance with a reasonable growth rate by the end of the Fifth Plan unless both the Fourth and Fifth Plans seek to get the maximum results out of the scarce resources available.

50. A selective approach of this nature, however, calls for a much greater degree of discipline in the choice of projects and programmes, in finance and in administration. The unsatisfactory progress of the Third Plan, the serious difficulties which were experienced during the recent emergency and the devaluation of the rupee—all point to the importance and urgency of such discipline. All non-essential expenditure has to be firmly avoided, costs have to be carefully scrutinised and kept to the barest minimum, benefits have to be carefully assessed and the principle of comparative advantage followed to the maximum extent possible in the choice of projects and programmes.

Phasing

51. There should be an insistence on the most efficient and economic phasing of the plan programmes, which alone can ensure the maximum returns out of the scarce resources available. Projects which

have already made substantial progress should be completed as quickly as possible. The progress of all related projects should be kept under constant and careful watch so that none of them may fall out of step. No new project should be started until it has been fully worked out in all its details and there is a reasonable certainty of requisite resources being available in time. Above all, the phasing should be such that the achievement of the target is ensured. Since it may not be possible to complete all the requisite exercises before the five year plan is finalised, the annual planning has to be done much more carefully than hitherto. No project should be included in the annual plan unless it satisfies the criteria indicated above. Greater use has also to be made of the annual plan exercise to take full advantage of any unforeseen opportunity that may present itself.

Administration and Management

52. Administration and management have a special role to play not only for ensuring that the plan targets are fulfilled according to schedule but also in securing the optimum benefit out of the assets which already exist in the economy. The reproducible tangible wealth of the country at the beginning of the Fourth Plan is estimated at Rs. 42,500 crores as compared to the new investment of Rs. 21,350 crores proposed for the entire Fourth Plan period. The importance of making the most efficient use of the former does not, therefore, require any emphasis. The administrative machinery and procedures as well as managerial functions at all levels have to be geared up to the basic economic and social tasks which will help the country to tide over the present difficulties and achieve the objectives which it has set before itself.

V

Towards a Socialist Society

53. The perspective of fundamental changes that the people cherish is enshrined in the Constitution, under which political rights and liberties have become a common heritage. A shared and equal citizenship is emerging through the exercise of these responsibilities and privileges, as well as through the setting up of representative institutions at different levels of government. There are also some distortions. Yet, during the past fifteen years, a stagnant economy has been set stirring and moving, a traditional society is getting modern and mobile.

54. Through planned economic development, contours of the economy as also of the society are getting altered. The old structure was not pulled down in one fell swoop. It is being transformed under the surge of democratic processes and the pull of economic growth. The development of material and human resources is being followed in a purposeful manner. Possibilities of vital changes have been created,

They, in turn, demand quickening of pace and sureness of direction. The Fourth Plan is designed to accelerate development and provide greater opportunities for the transformation desired. Without rapid economic growth the diffusion of new skills and provision of new tools on which the improvement in levels of living depends cannot be achieved.

55. Over the three Plan periods, the production structure has been significantly expanded and diversified. Large programmes of public investment have helped to build the infra-structure of the economy as also of social progress. Opportunities for education and provision of health services have been widened. The share of the public sector has steadily grown : in the Fourth Plan about three-fifths of all investments will be in the public sector. Many new instruments for mobilising resources and using them for the desired ends of development have been brought into being. It is possible to use them more purposively.

56. Growth in population over the past decade and a half has diminished the impact of economic growth. Under Indian conditions, the quest for equality and dignity of man requires as its basis both a high rate of economic growth and a low rate of population increase. Even far-reaching changes in social and economic fields will not lead to a better life unless population growth is controlled. Limitation of family is an essential and inescapable ingredient of development.

57. There are, however, two main directions in which new initiative and determined effort will be necessary if development programmes are not to result in fresh imbalances and further inequalities.

58. If the small producers are to be ensured proper returns and the consumers are to be protected, the extension of the public sector has to be much faster in the distributive system. The Foodgrains Trading Corporation has to expand its activities rapidly. As its transactions get diversified, other similar organisations have to come up. Co-operativisation of trade catering to consumers and small producers will have to be carried forward on a far bigger scale. The Fourth Plan provisions can be revised and stepped up, once the needed tempo is generated.

59. Another area where our effort so far has been feeble and halting is in narrowing the disparities in incomes and property ownership. The real source of inequalities lies in vast differences in the ownership of property. Wealth tax, Gift tax, Estate Duty, curbing restrictive practices of monopolies, preventing concentration of economic power, and abolition of Managing Agencies are among the means used to contain inequalities. The desired goal, that is, where difference in income

are related to efficiency of output and not to accident of birth and property rights, can come only to the extent urban and industrial property is made to accept limitations and abridgements.

60. A decisive change that would shape and colour all our efforts is needed above all in the social and cultural climate. The inherited culture has in it strands of idealism and fellowship as also embedded privileges and discriminating practices. In daily life the latter choke the former. Socialism implies a radical change in the prevalent patterns of thought and behaviour. The ethos it seeks is of modernism and equality, of rationalism and humanity. The various programmes of production, education and welfare that constitute the Fourth Plan can partly help to create this new climate. But their impact could indeed be revolutionary if the social behaviour and administrative efforts bend themselves to establish equality and dignity of man. Without the application in daily life within the community of the values we profess, the motivations and incentives needed to accomplish the tasks that await will evade us. Sustained hard work and acceptance of the primacy of social needs over personal gains are the principal motive forces in the basic transformation we seek. Whether the tasks of development invite participation and satisfaction or lead to stresses and strains, depend upon the social ethos and the cultural climate. The test of earnestness about socialism lies in the critical effort made in imparting confidence to every citizen that he is at once the participant and the beneficiary of development which implies both sacr fices and rewards. Socialism is as much a national goal as a functional force. In the measure in which its functional role is enlarged and strengthened we shall come nearer the goal.

CHAPTER II

SELF-RELIANCE AND THE PERSPECTIVE FOR DEVELOPMENT

IMPLICATIONS OF SELF-RELIANCE

A major objective of our economic planning is the achievement of self-reliance. Self-reliance not only means freedom from dependence on foreign aid but also involves the establishment of an acceptable minimum standard of living for the masses and a continuing rise in this standard. With self-reliance, therefore, has been linked the capacity for self-sustaining growth. This means that the objective is not only to take the country towards freedom from dependence on external aid for its economic development but also to generate domestic capacities that will enable it to have a steady and satisfactory rate of economic growth without dependence on external aid. This does not mean that we aim at economic autarky or that we shall be able to dispense with all imports. No country in the world is able to do so. What it does mean is that the country's requirements will be met from within to the maximum possible extent, and that what it must obtain from abroad will be limited to what it cannot produce within its borders or finds it uneconomic to do so in terms of comparative advantage and, even more important, that it is able to pay for these imports with its export earnings. A self-reliant and self-sustaining economy, therefore, cannot do without imports; and it must have exports sufficient to meet the cost of these imports. To the extent that its economic development has been facilitated with external credits, the country must also have an export surplus that will be adequate for the purpose of meeting its interest and re-payment commitments. In other words, self-reliance and balance of payments gap cannot go together nor is it consistent with dependence on external credits of a continuing character for meeting its normal imports or imports necessary for the full and effective utilisation of its capacity as well as imports that may be necessary for facilitating the continued growth of the economy. Nor should self-reliance be contemplated within the framework of a low level of economic development.

2. It is not necessary to emphasise the magnitude of the implications of the objective in the context of an economy like India's, which started her economic planning from a low base of production, investment, and savings, a low base of the physical capacity needed for capital

formation, and a low base of exports from the stand-point of meeting the requirements of a self-reliant and self-sustaining economy. It was natural, therefore, that Indian economic planning should have postulated an increasing rate of domestic resource mobilisation, a higher rate of investment, and the use of external credits to bridge the gap in the early years of the country's development. The Third Plan document set out a perspective of 15 years for the achievement of the goal of economic self-reliance and self-sustenance and stressed the imperative need for ensuring that over the next three plan periods all the possibilities of economic growth should be fully and effectively mobilised. The Third Plan was to be treated as "the first stage of a decade or more of intensive development leading to a self-reliant and self-generating economy".

The Perspective of Development

3. This perspective has now to undergo some change in the light of the performance of the economy during the Third Plan period, the circumstances following the devaluation of the Indian rupee, and the outlook for the immediate future as it emerges from our Fourth Plan proposals. Three imperatives, however, stand out from any review of the current position. First, the need for closing the balance of payments gap as early as possible and the speedy termination of *dependence* on external credits for the continuing economic growth of the country. Second, the need for the speedy building up of the country's capacity for both capital formation and adequate consumption. Third, the need for achieving both these objectives consistently with price stability and absence of inflationary finance. The revised perspective that we may formulate must reconcile these three objectives and set out clearly the changes it may involve in the time horizon as well as in the conditions necessary for its achievement. It goes without saying that the realisation of the perspective is wholly conditioned by the fulfilment of the required conditions. It would, therefore, be necessary to have a realistic view of the feasibility of these conditions and take a deliberate decision on the action programme necessary for their fulfilment before the perspective can be embodied as an integral part of our proposals for planned development.

4. In any revision of the perspective, it is the Planning Commission's considered opinion that the balance of payments gap in terms of maintenance imports and debt servicing charges (including both interest and repayment commitments) should be met during the Fifth Plan period, and that external credits (except for inflow through normal commercial channels or international agencies) should completely cease during the Sixth Plan period. In other words, the economy should reach self-reliance by the beginning of the Sixth Plan period. The Commission is also of the opinion that in view of the increased

rupee cost of external credits following devaluation and in order to close the balance of payments gap during the Fifth Plan period, and the continuance of balance of payments equilibrium in subsequent periods, external credits envisaged for the Fifth Plan should undergo an appropriate sharp reduction. What is referred to of course is governmental credits and not credits obtained from international agencies or commercial channels. If this is taken as a constraint, the revised perspective has to undergo suitable alteration in terms of targets and time horizon, depending upon the view taken of the realistic and practical feasibility of the conditions regarding (1) domestic resource mobilisation in terms of exports, domestic capacity for capital formation and operational maintenance of the economy, and domestic savings and investment, and (2) maintenance of price stability. Attention will also have to be paid to changes in distribution policy as may be necessary to bring nearer the achievement of the objective of minimum income than would be feasible on the basis of a revised perspective of production and the earlier policy formulations regarding distribution.

5. In drawing up a revised perspective, it has to be recognised that the position has changed somewhat not only on account of the higher cost of imported equipment and materials and of the debt burden and debt servicing charges resulting from devaluation but also on account of failure of the Third Plan in achieving fully its original targets of production. Thus, national income in 1965-66 is estimated to be only Rs. 15,930 crores at 1960-61 prices as compared to the Third Plan target of Rs. 19,000 crores. 1965-66, however, was an abnormal year because of the severe drought we had during the year and unforeseen interruptions in the flow of imports for the maintenance of the economy. If we take 1964-65 or the fourth year of the Plan as a base, the national income reached is Rs. 16,630 crores (at 1960-61 prices), which is about Rs. 1100 crores less than was implied in the Third Plan targets of income. We are not likely to reach in 1970-71 a national income of Rs. 25,000 crores (at 1960-61 prices) as set out in the perspective contained in the Third Plan. In turn, this would perhaps cast doubts on the feasibility of attaining in 1975-76 the target of Rs. 33,000 to Rs. 34,000 crores given in that document.

6. It would, however, be unduly pessimistic to jump to such a conclusion. While the Third Plan has not been satisfactory in its performance and the final year of that Plan period has been particularly unsatisfactory in this respect, there are certain other factors that must be taken into account before coming to a judgement on this question. Thus, it must not be forgotten that a major cause of the

unsatisfactory record of the Third Plan, apart from the two conflicts and other disasters, is the delay in the achievement of its targets. These delays have pushed into the first and second year of the Fourth Plan some of the target capacities and outputs in key sectors. What must be remembered is the significant growth-orientation that has taken place in the structure of the economy by the end of the Third Plan and the further growth that is bound to take place from the action taken during this period. The production potential already built up or in sight will be further augmented by the programme we have included in the Fourth Plan, a more explicit and deliberate priority for agriculture, export promotion and import substitution, and within the limits of what appears to be feasible resource mobilisation during the period.

7. In considering the extent, if any, to which the perspective set out in the Third Plan document should undergo revision, it must be remembered that it is generally undesirable to lower one's sights, especially, when one is thinking of a period as distant as ten years from now rather than of the immediate future. Planning in the immediate future has necessarily to be strictly realistic in the sense of taking due note of the constraints on growth and the extent to which the time span involved would permit a relaxation or elimination of these constraints. But when one is visualising the targets at the end of the Fifth Plan or beyond, one must never forget the objective of planning which is not merely the establishment of a self-reliant and self-sustaining economy but also the achieving of a satisfactory and rising standard of living for the masses of the people. Constraints which loom large in the immediate present tend to diminish or even disappear, given timely decisions and prompt action in the present, and a deliberate strengthening of the national will towards social and economic growth. Economic development is not merely a function of material investment and physical inputs but also of the way in which the human factor functions, and this means technical skills, involvement, motivation and organisation. The pull which an understanding and acceptance of the need for creating a socialist society can give in terms of mass involvement in the developmental process, will be enormously strengthened if the perspective for development includes the material and institutional ingredients for a significant betterment of mass welfare. In fact, the perspective can itself be an active element in accelerating the process of economic growth by the effect it has on the national will for the reduction and elimination of constraints based on current attitudes to consumption, savings, work, *swadeshi*, and exports. Hence, the reluctance of the Commission to lower the sights of perspective planning below

the targets previously proposed except in terms of a minimum allowance for the effects of recent happenings in the economy.

8. It may be recalled that the perspective presented in the Third Plan document was as under :

	1960-61	1965-66	1970-71	1975-76
national income (at 1960-61 prices, Rs. crores)	14500	19000	25000	33,000 to 34000
population (millions at the end of year, i.e., in March)	438	492	555	625
per capita income (Rs. per annum)	330	385	450	530
net investment as percentage of national income	11	14-15	17-18	19-20
domestic savings as percentage of national income	8·5	11.5	15-16	18-19

9. It has not so far been possible to study the full implications of the lower output levels of the Third Plan and the revised programmes of the Fourth Plan consequent on devaluation on the scope and strategy of the Fifth Plan. This is proposed to be done in the course of the next few months, after which requisite advance action for the Fifth Plan will be considered. For the same reason, it is not possible to indicate at this stage the extent of revision required in the perspective. What is clear, however, is that we cannot afford to slacken our efforts during the Fifth Plan period. Indeed it may well have to increase in both magnitude and intensity. In any case, our perspective for development is based on reaching by the beginning of the Sixth Plan, a stage when further economic growth will no longer require any net increase in our foreign indebtedness. This would mean that, as contrasted with the figures given in the table above, both savings and investment rates will have to be higher in the revised perspective. Further, if we are to reduce our indebtedness, the savings rate will have to be higher than the investment rate, as savings have not only to be sufficient for creating maintenance imports but also the balance of payments gap arising from interest and debt repayment charges in the Fifth Plan period. It would also mean a stepping up of exports at a rate higher than during the Fourth Plan period simultaneously with a slower rate of increase in commodity imports, whether for maintenance or for projects. In turn, this would also mean not only the full utilisation of the physical capacity for capital formation created during the Fourth Plan period but also sufficient additions to the same to offset the reduction in the rate of growth of imports and largely eliminate net dependence on foreign sources

for further increase in growth capacity during the Sixth Plan period. Concretely, this could mean by the end of the Fifth Plan period, an investment rate of 19-20 per cent, a savings rate of 20-21 percent, a reduction in the rate of population growth by 20 to 30 percent, and the creation of a domestic economic structure capable of meeting the physical requirements of capital formation, maintenance needs, and a substantial increase in mass consumption availabilities. A substantial export surplus should also be achieved by the beginning of the Sixth Plan period.

10. As regards distribution, the perspective has to provide for a reduction in inequalities of income and property not only by income groups but also by urban and rural areas, developed and backward regions of the country, and by the sub-sections within the agricultural communities like the large holders, small holders, and agricultural labourers. Steps must also be taken to reduce concentration of economic power and resort to monopolistic practices, while simultaneously extending the field for new comers and fresh talent in all fields of enterprise. The scope for equalisation of opportunities must be expanded by a more comprehensive system of scholarships and other opportunities for individual betterment. Above all, it is necessary to move in the direction of bringing about a significant rise in minimum incomes both by increase in employment and increase in the social services provided by the State.

THE TASKS

11. Can this perspective be realised or is it merely a matter of setting the sights high in order to urge the nation to greater effort ? The answer depends upon what will be done by the people; and what the people do will depend upon the leadership, the clarity and definiteness of the measures it proposes to follow for the development objective, and the determination and drive with which it operates these measures. Leadership not only includes the realm of politics, but also the professions, the administration, and those in charge of production and distribution in the private sector. The task is not impossible. But it cannot be achieved by mere wishful thinking or ardent desire divorced from effort.

12. It is now necessary to spell out in concrete terms the details of the task the country has to undertake if we want to achieve the revised perspective set out in this document.

13. To begin with, every effort has to be made to see that the Fourth Plan is implemented in full. There should be no question of shortfalls or unscheduled spillovers into the next plan if we want to reach

the perspective envisaged for 1975-76. The building up of the structure of the Indian economy in the terms envisaged in this document for the Fourth Plan is a 'must', if we want to achieve self-reliance in the Fifth Plan period consistently with a continuing improvement in mass welfare and satisfactory rate of economic growth. If we are to do this, then special attention must be paid to certain key programmes which taken together constitute the core of the Plan. While these have been spelt out in detail in subsequent chapters, it is worthwhile drawing attention to them in this chapter because of their intimate relation to the realisation of self-reliance and the successful achievement of the revised perspective of development.

14. To begin with, and claiming the highest priority, is the programme for increasing agricultural production. Necessary financial outlays have been provided, industrial planning has built into it a high priority for the physical inputs needed by agriculture such as fertilisers, pesticides, agricultural implements, etc., and the necessary provision is being made for imports to make up the balance of demand not met by domestic production. Other programmes such as minor irrigation works, rural electrification, expension and better utilisation of irrigation potential created by major and midium irrigation schemes, better implementation of land reforms, adequate provision of credit facilities and integrated approach to agriculture production by area planning have been specially emphasized in the Plan. What must be stressed here is the vital role of administration and of peasant involvement. There has to be proper allocation of ministerial and official responsibilities. Cabinet Ministers who have the highest drive and organising capacity should be in charge of agriculture and the necessary coordination should be provided with the relevant activities of other Ministries. Similarly, the most efficient among the officials should be in charge of the production programmes in agriculture and allied activities. Panchayati Raj institutions and cooperative societies should be more actively involved in both the planning and implementation of production programmes. Above all, it must be recognised that the investment needed in agriculture is not merely in financial outlays and physical inputs, but also in the intensity of humen effort and the supply of efficient organisation. Success in this field will promote self-reliance by doing away with the need for food impotrs and increasing our exports of agricultural and agriculture-based commodities, raise living standards by increasing demestic availabilities and supply the raw material requirements of the country's growing industrial activity.

15. An almost equally important programme that would determine not only freedom from external credits but also promote the rate

of capital formation is machine building, as domestically produced machinery will have to become more or less the whole base for expansion of productive capacity from the end of the Fifth Plan period. If the programme put forward in this Plan is implemented, the country would have, by 1970-71, the capacity to build its own steel mills, fertiliser plants, equipment for power generation, transmission, transport and a variety of other equipment. This will require concentrated effort both in the public sector and in the private sector.

16. Associated with this programme for machine building is the need for decreasing our dependence on imports of spare parts and components. This involves not only greater care in settling the details of foreign collaboration but also much greater emphasis on standardisation of specifications etc., such as will enable the country to build up domestic supplies of spare parts and components. The phased production programme we are now insisting on in licensing imports for actual producers will also help in this development. Success in this field will enable us to reduce the volume of our maintenance imports in the future, and also help the export of capital goods by creating facilities for servicing and supply of spare parts and components.

17. Linked with this is also the expansion and diversification of consultancy and design services in the country. What is needed is not so much an increase in the supply of technical skills but a bolder and more extensive utilisation of the capacity that is already in existence. The process will be materially assisted by a firm policy of not going in for turn-key jobs in cases of foreign participation or financing. Designing and consultancy can grow only by use. This cardinal fact must be given more operational recognition by both public and private sectors.

18. Another important key to self-reliance is export promotion and import substitution. The opportunities created by devaluation cannot be exploited to the full unless export supplies are built into production planning in the Fourth Plan period and fiscal and administrative measures are fully implemented for assisting the procurement of export supplies and motivating producers and traders to show preference for exports over the domestic market. State participation in the export trade may have to be extended for ensuring the needed increase in exports and preventing possible leakages in foreign exchange. As for import substitution, action must be taken to ensure that every industrial and other import-using enterprise in the country undertakes a phased programme for reducing its dependence on imports. It is also necessary to see that import liberalisation does not act as a disincentive to

import substitution but is used, for the speedy promotion of capacity for import substitution as well as export promotion. It will be helpful if the annual reports of these enterprises are required to contain information on the progress achieved in this respect.

19. Self-reliance also requires that the policy outlined in the Fourth Plan of linking education more directly with developmental and manpower requirements is faithfully implemented. Similarly, the need for giving technical education a more practical bias and linking it closely with industry and its existing as well as expanding and diversifying requirements has to be given concrete and detailed recognition in our programmes for technical education.

20. Resource mobilisation is in some ways the kingpin in the Fourth Plan as a prelude to self-reliance. This is so because, for the first time, our plan is based on a definite and complete eschewal of deficit financing. Deficit financing not only emerges from budgetary deficits but can also arise in many other ways, including credit. It is, therefore, imperative that a close watch is kept on all avenues of deficit financing and prompt action taken. While price stability in a total sense is neither possible nor desirable in a developing economy, as explained elsewhere, monetary and credit policy should be so conducted as not to lead to any general rise in prices. On the positive side, the following programmes need special attention :

(*a*) improvement of the tax collecting machinery;

(*b*) plugging the loopholes in the tax system that lead to legal avoidance of tax liability, and taking prompt action to close new loopholes as they emerge.

(*c*) a closer look at the items allowed as deductions for taxable income, and especially the scale on which they are allowed, in order to prevent functionally avoidable lowering of tax receipts.

(*d*) a more imaginative and efficient attempt at locating and preventing tax evasion, which is now assuming a formidable form in the Indian economy, leading to the emergence of illegal markets, speculative and non-priority investments, and reckless spending with inflationary consequences. Legislation must contain stringent penalties for tax evasion, action taken against tax evaders must be prompt and public; and necessary institutional changes made to prevent tax evasion;

(*e*) new incomes generated as a result of economic development have to bear their share of the fiscal burden of development

This is possible only by a bold re-structuring of the tax system and a greater resort to tax at the source.

(*f*) the small savings target in the Fourth Plan needs a more active and imaginative policy of motivating, identifying and mobilising small savings. Extension of the provident fund system to the maximum possible number of employed workers, devising a similar savings system for the self-employed, linking up savings with felt needs for the future such as housing, education and marriage of children, these and other measures need to be taken for getting the required increase in small savings;

(*g*) capital gains especially in urban land values, monopolistic and *rentier* elements in income, incomes from speculative activity and incomes divorced from functions, all these are appropriate fields for additional taxation and need greater attention in the Indian financial system.

21. Another kingpin of the Fourth Plan, and in some ways the most difficult of achievement, is family planning. Action has to be voluntary and all that the State can do is to motivate and provide supplies. Hence the importance of showing the greatest understanding and imaginativeness in the drawing up of this programme and securing the involvement of voluntary agencies and public opinion at local levels for ensuring its success. Failure in this field will give a set back to our attempt at self-reliance.

22. Another programme that needs more attention than it has received so far in our planned development is the securing of public cooperation. Planning for a continental and economically under-developed economy like that of India needs mass understanding, mass support, and mass involvement. Clarity and definiteness in objective and confidence that the steps being taken are in the right direction are essential for securing public cooperation; and so also are conspicuously visible programmes for improvement in the social and economic conditions of the masses of the people. In addition, we need a more purposive and effective use of the entire machinery of mass communication, including press, radio, films, and literature.

23. One of the weakest areas in Indian planning is the regulation and direction of the private sector. We need to devise, therefore, a suitable machinery for the progressing and implementation of developmental programmes in the private sector. Non-priority diversions have to be discouraged and priority items have to be adequately serviced and speeded up in both formulation and execution. Fiscal, administrative, and other methods of regulation, inducement, deterrence, vigilance

and evaluation have all to be harnessed for ensuring the fulfilment of Plan targets in the private sector.

24. Not the least important among the Fourth Plan programmes is the maximisation of employment. On present estimates, increase in employment opportunities during this period will not be sufficient to absorb the addition to the labour force. It will, therefore, be necessary to undertake a large rural works programme in several parts of the country to ensure work, specially during the slack agricultural seasons. Adequate provision of employment opportunities is essential for ensuring a minimum income. Therefore, along with programmes for industrial and economic development, there must be continuous emphasis on the full use of the manpower resources available in rural areas and a high degree of priority should be attached to labour intensive programmes.

25. The programmes referred to above need for their implementation certain administrative and management reforms. They have been dealt with in a subsequent chapter. There are, however, some items which need special mention. Thus, the agricultural programme needs more efficient implementation of land reforms for securing land to the tiller, and where this may not be possible in terms of ownership, it needs security of tenancy, restriction of rents, and availability of credit on the basis of crop production programmes. The co-operative movement also needs strengthening especially in the fields of crop loans, and credit linked with marketing, processing of agricultural products, and cooperative farming in the case of small and uneconomic holdings. Alternative credit arrangements of a transitional character have to be provided where the cooperatives are yet unable to serve this function. There has to be some machinery for enforcing plan priorities in the industrial sector in respect of the production of agricultural inputs while, simultaneously, the supply organisations for agricultural inputs should be strengthened in their functioning. The necessary machinery must also be created for enforcing Plan priorities in the agricultural sector in regard to high yielding varieties of food crops and increasing the yield of export crops. It is also necessary to undertake a greater measure of both decentralisation and localisation of agricultural planning and its implementation taking down to blocks and villages and using the panchayati raj and cooperative institutions for this purpose. This will also involve more emphasis on inter-departmental coordination and public participation in terms of area development. In particular, coordination at the district and block levels is required between the departments of agriculture, cooperation, community development, irrigation, rural electrification, rural works, and rural education.

26. As regards industry, the necessary machinery has to be created for the direction and regulation of the private sector in accordance with Plan priorities. It is also necessary to have a specific machinery for dealing with the problems of cost reduction, and improve the machinery for preparation, scrutiny, and clearance of projects in the industrial sector. Some machinery is also required to watch and speed up progress in machine building in both the private and the public sector. Public enterprises need a special machinery for improving their profitability, increasing their competitive strength, and streamlining their administration.

27. Plan targets in regard to foreign trade also require to be dealt with by a special machinery for their implementation. Problems of import substitution have to be identified and dealt with, export industries have to increase their competitive capacity, and supplies have to be assured for exports. Public sector enterprises should have special cells for export promotion, and the machinery of state trading in imports and exports has to be strengthened.

28. The administration also needs strengthening to cope with the large increase in Plan effort that is now contemplated, particularly in the realms of decision-making, disposal, and sympathetic identification with the economic and social ethos of planning. The machinery for watching progress and evaluating performance in Plan implementation has to be strengthened both at the Central and State levels, and more attempts should be made to link up earnings with productivity, including where possible an extension of the principle of payment by piece work and incentive payments. Improvement is needed in machinery for Plan publicity and mass education in the objectives of planning and implication in terms of the effort involved to achieve them. There is also need for a review and subsequent improvement in the machinery for economic intelligence, trade intelligence, and short-term forecasting by the use of modern methods of data collection, analysis, and communication. Manpower planning is another field where the relevant machinery needs coordination and strengthening at the Central and State levels and also in the private sector.

29. Research is an important tool both for the implementation of the Fourth Plan and the eventual achievement of self-reliance. There is need for an efficient machinery for the better coordination of basic scientific research and technological research specially oriented towards industrial (including small industries) and agricultural growth, and for the utilisation of the results of such research. Social science research not only needs more support but also better coordination with developmental problems and requirements. Training

programmes should pay special attention to the personnel requirements of scientific, technological and social research.

30. Planning is intended for the enlargement of material benefits, as well as to meet social requirements. Indian planning has not only an economic objective but also contains a social ethos. It is necessary, therefore, to strengthen the machinery for the enforcement of constitutional and legislative provisions for the maintenance of human dignity and the avoidance of social discrimination. The implementation of land reforms for the securing of ownership by the actual tiller is also another step in the recognition of human dignity, apart from its economic implications. Special attention needs to be paid for implementing and extending the benefits of Plan programmes for the amelioration of the conditions of the handicapped and weaker sections of the society.

Attitudes and Behaviour Patterns

31. Changes and improvements in machinery and institutions outlined above are not in themselves sufficient to bring about the implementation of the Fourth Plan programmes or take the country towards self-reliance and rising standards of living. Attitudes and behaviour patterns have to change for meeting the needs of our developing economy. In the words often used by the late Prime Minister Jawaharlal Nehru, it is a war against poverty that the country is engaged in, and planning is the strategy used for the purpose. Attitudes and behaviour patterns, therefore, have to undergo as much of a fundamental change as they do when a country gets engaged in war. These changes have to be such as to maximise work, efficiency, savings and resource mobilisation. They must motivate and move the people in the direction of economic development. For this purpose, specific measures in terms of policies, machinery, and communication must be undertaken to bring about or strengthen the following changes in attitudes and behaviour patterns in the country.

32. To begin with, there has to be a change in the attitude of the well-to-do sections of the community towards consumption. Austerity to the extent possible should be encouraged not only in daily life but also extended to the conspicuous expenditure that now takes place on ceremonial occasions. This would also have to be accompanied by limiting the disposable incomes of the better-off sections of the community in the direction of reaching a desired range between minimum and maximum personal incomes. Resources thus released from consumption could then be made available for investment in Plan priority channels.

33. Along with this it is also necessary to get a change in the public attitude towards taxation. Taxation should be recognised as an instrument of resource mobilisation for the promotion of economic development and not as a means for financing wasteful and unproductive expenditure. While promoting the recognition of taxation as a necessary social obligation attendant upon the receipt of income, public opinion should also be built up to frown upon all wasteful and non-functional expenditure and encourage the necessary internal discipline whether in the public or the private sector. Social displeasure should also be brought to bear on tax evaders and dealers in unaccounted money.

34. To encourage the mobilisation of external resources, it is also necessary to stimulate in the people a general willingness to put up with the reduced availabilities caused by the imperative claim of exports on the domestic output of exportable commodities together with a corresponding obligation on the part of public authorities to bring about an equitable distribution of the incidence of such hardships. Simultaneously, there has to be a deliberate building up of an attitude of preference for *swadeshi* products on the part of consumers and producers in both the public and private sectors in order to give support to import substitution. Import substitution applies not only to commodities but also to skills. For this purpose, there should be a deliberate building up of public opinion for the encouragement of indigenous talent in the scientific, technical and consultancy fields on the part of both public and private enterprises.

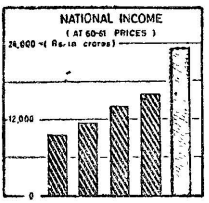
35. For the promotion of productive efficiency on the part of both individuals and enterprises, it is necessary to secure the economy against interruptions to production or transport by promoting a climate of industrial peace and effective operation of the machinery for the identification and speedy settlement of legitimate grievances. Full utilisation of existing capacity and getting the maximum return from past investments should become a ruling norm for productive enterprises and be given, generally speaking, first preference over the establishment of additional units of production. Along with this there should be a stimulation of a sense of pride in work leading to the fulfilment of targets in terms of output, quality, and time phasing, and public recognition and appreciation of such personal achievements. It is also necessary to create cost consciousness on the part of all producers and encourage competitive emulation in terms of cost reduction and quality improvement. Productivity would be also stimulated by the acceptance of the principle of merit, as against that of mere seniority, in filling key posts and specialised appointments and promotions in both the public and the private sectors.

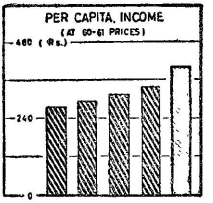
36. Public opinion must also be mobilised for the support of the general objectives of the Plan such as price stability, family planning, and equalisation of opportunities. Thus, a positive public opinion should be brought to bear on hoarders, blackmarketers and profiteers, while simultaneously public support should be encouraged for consumer cooperative stores, fair price shops, and private traders who observe price regulations. It is also necessary to bring about a preference for small families and promote willingness to make full use of the facilities provided for family limitation, spacing of births, and reduction in the growth rate of population. Public opinion must be built in favour of common educational facilities in place of the current trend of going in for private schools with differential advantages for the higher income groups.

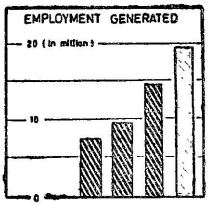
37. Finally, it must not be forgotten that the administration forms a partnership with the people for the promotion of economic development. While this requires on the part of public officials a spirit of identification with the Plan and a deliberate effort on their part to cut down red tape and speed up action, it also involves on the part of the public an attitude of undestanding of the difficulties of administrators and of creating the confidence that they will not be penalised for bona-fide mistakes of judgement that may result from their functioning in a more decisive and dynamic manner.

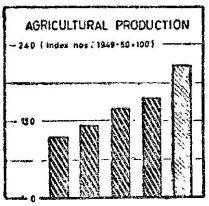
38. What has been said above demands a great deal of effort on the part of the government and the people. But all this is capable of achievement. What is needed is the national will to do so. The results of the planning efforts undertaken so far have enabled the formulation of a Fourth Plan of the size and pattern set out in the following pages. If the Fourth Plan is implemented, implementation of an appropriate Fifth Plan becomes less strenuous of achievement. The Fourth Plan constitutes the real challenge in our planning endeavour. If the challenge is followed by response—and the details of what constitutes this response have been spelt out in this chapter—there can be no doubt about our success in reaching the desired goal of self-reliance and continuing economic and social betterment.

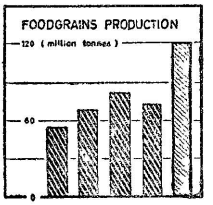
SELECTED FIRST, SECOND AND THIRD PLAN ACHIEVEMENTS AND FOURTH PLAN TARGETS

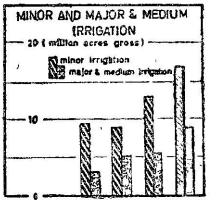


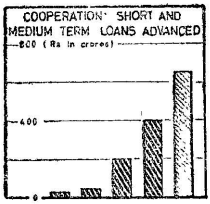


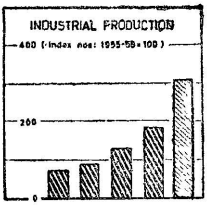


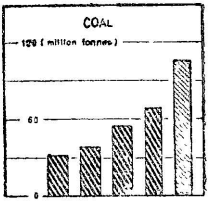


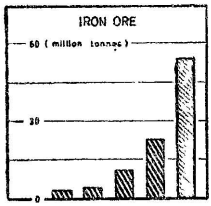


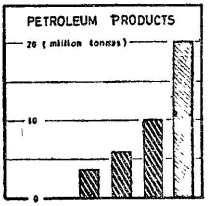


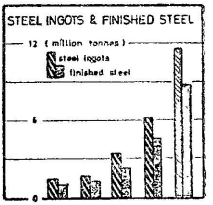


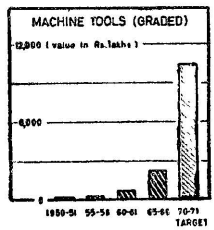


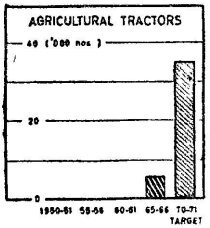


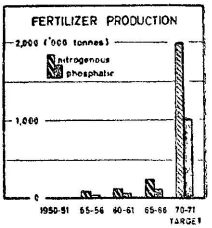




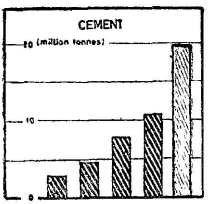


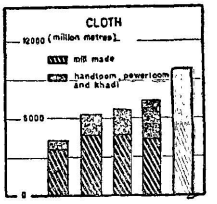


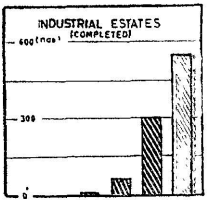


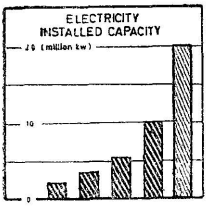


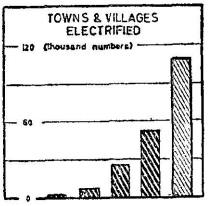
SELECTED FIRST, SECOND AND THIRD PLAN ACHIEVEMENTS AND FOURTH PLAN TARGETS

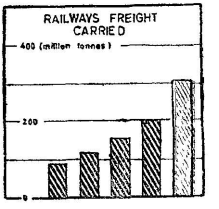


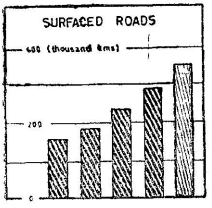


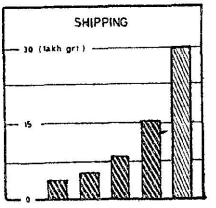


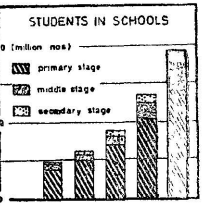


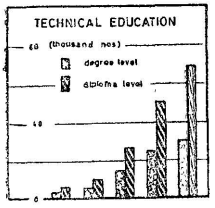


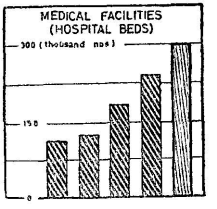


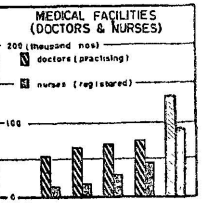


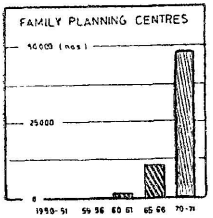


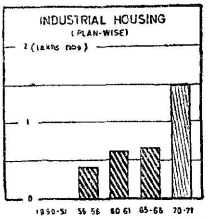


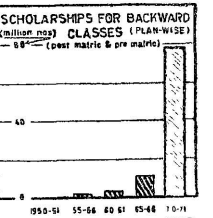












CHAPTER III

THE FOURTH PLAN IN OUTLINE

I

PHYSICAL TARGETS

THE principal aims of the Fourth Plan have been set out in the preceding Chapters. The physical targets of the Plan have been formulated keeping these ends in view. A detailed list of these targets is given in the statement at the end of this Chapter (Annexure I). A synoptic view of the Plan may be obtained from the selected Plan targets shown in the Table below :

Table 1. Selected targets

Item	unit	1964-65 (actuals)	1965-66 (estimates)	1970-71 (targets)	percentage increase in 1970-71 over	
					1964-65	1965-66
agriculture and cooperation						
Index number of agricultural production	1949-50=100	158·0	158·3*	207·8	31·5	31·3
foodgrains production	million tonnes	89·0	90·0†	120·0	34·8	33·3
nitrogenous fertilizers consumed	000 tonnes of N	555	600	2000	260·4	233·3
phosphatic fertilizers consumed	000 tonnes of P_2O_5	149	150	1000	571·1	566·7
short and medium-term loans advanced	Rs. crores	331	400	650	96·4	62·5
industry						
Index number of industrial production‡	1956=100	174·7	181·6	306·0	75·2	68·5
production of :						
steel ingots	million tonnes	6·1	6·2	11·7	91·8	88·7
aluminium	000 tonnes	54	65	330	511·1	407·7
machine tools (graded)	value in Rs. crores	20·0	23·0	105	425·0	356·5
sulphuric acid	000 tonnes	695	664	2400	245·3	261·4
petroleum products	million tonnes	8·4	9·9	20	138·1	102·0
cloth :						
mill-made	million metres	4676	4434	5486	17·3	23·7
handloom, power-loom and khadi	million metres	3147	3146	4572	45·3	45·3
total	million metres	7823	7580	10058	28·6	32·7

*Based on 1965-66 base level (potential).

†Based on potential created. Actual was 72.3 million tonnes.

‡Relates to calendar years.

Item	unit	1964-65 (actuals)	1965-66 (estimates)	1970-71 (targets)	percentage increase in 1970-71 over	
					1964-65	1965-66
minerals :						
iron ore	million tonnes	15·1	23·0	54	257·6	134·8
coal	million tonnes	64·4	68·0	106	64·6	55·9
power						
installed capacity	million kW	8·6	10·2	20	132·6	96·1
transport						
railways : freight carried	million tonnes	194	205	308	58·8	50·2
surfaced roads	000 kms	275	284	334	21·5	17·6
road transport : commercial vehicles on road :	000 numbers	303	320	525	73·3	64·1
shipping : tonnage	lakh grt	14·0	15·4	30	114·3	94·8
education						
general education : students in schools	million numbers	63·0	67·7	97·5	54·8	44·0
technical education : admission capacity						
degree	000 numbers	24	25	30	25·0	20·0
diploma	000 numbers	46	50	68	47·8	36·0
health						
hospital beds	000 numbers	229	240	300	31·0	25·0
doctors-practising	000 numbers	82·3	86·0	131	59·2	52·3
per capita levels						
foodgrains production	ounces per capita per day	15·4	15·4**	18·1	17·5	17·5
cloth	metres per capita per annum	15·1	14·9	16·9	11·9	13·4

II

Outlays and Investments

2. The size and pattern of outlays and investments now proposed for the Fourth Plan for the public and private sectors are given in Table 2. The total outlay proposed is Rs. 23,750 crores, consisting of Rs. 16,000 crores in the public sector and Rs. 7750 crores in the private sector. The position regarding financial resources for the Plan, in both public and private sectors, is discussed in Chapter IV of this document.

**Based on potential created. Actual was 12.4 ounces.

Table 2. Outlay and investment: public and private sectors

(Rs. crores)

	public sector			private sector investment	total investment	total Plan outlay (public and private sectors)
	total	current outlay	investment			
agriculture, community development and cooperation	2410	835	1575	900	2475	3310
irrigation	964*	—	964	—	964	964
	3374	**835**	**2539**	**900**	**3439**	**4274**
power	2030	—	2030	50	2080	2080
small industry	370	140	230	320	550	690
organised industry and mining	3936	—	3936	2350	6286	6286
transport and communications	3010	—	3010	630	3640	3640
	9346	**140**	**9206**	**3350**	**12556**	**12696**
education	1210	740	470	90	560	1300
scientific research	140†	50	90	—	90	140
health	492	343	244	—	244	587
family planning**	95					
water supply	373	—	373	—	373	373
housing and construction***	280	—	280	1500	1780	1780
welfare of backward classes	180	115	65	—	65	180
social welfare	50	40	10	10	20	60
craftsmen training and labour welfare	145	65	80	—	80	145
public cooperation	10	7	3	—	3	10
rural works	95	—	95	—	95	95
hill areas and special areas	50	15	35	—	35	50
rehabilitation	90	30	60	—	60	90
	3210	**1405**	**1805**	**1600**	**3405**	**4810**
other programmes	70	20	50	—	50	70
inventories	@	@	@	1900	1900	1900
total	**16000**	**2400**	**13600**	**7750**	**21350**	**23750**

*Includes Rs. 24 crores for Tenughat Dam (Bokaro).

†An additional amount of about Rs. 70 crores has been provided for scientific research under agriculture, health, industry, irrigation, power, transport, etc., bringing the total provision to Rs. 210 crores for scientific research as a whole.

**Department of Family Planning has proposed an additional outlay of Rs. 144 crores in the Fourth Plan. It has been decided that any additional amount that this programme can usefully spend will be provided through the Annual Plans.

***In addition, funds are likely to be available from the Life Insurance Corporation and the Employees' Provident Fund for investment in housing programmes.

@Part of the inventories under public sector is covered in sectoral outlays part will be financed through the banking system.

3. The public sector will account for 64 per cent of the total investment in the Fourth Plan as against 61 per cent envisaged in the Third Plan and is expected to raise its share in the reproducible tangible wealth of the country from 35 per cent in 1965-66 to 43 per cent in 1970-71. Table 3 shows the investment pattern in public and private sectors in the Fourth Plan compared to the pattern envisaged in the Third Plan document. The actual amounts of investment in the Third Plan are likely to be higher than those given in the Table.

Table 3. Investment in the Third and Fourth Plans

(Rs. crores)

head of development	Third Plan			Fourth Plan		
	public sector	private sector	total	public sector	private sector	total
agriculture, community development and cooperation	660	800	1460	1575	900	2475
irrigation	650	—	650	964	—	964
power	1012	50	1062	2030	50	2080
village and small industries	150	275	425	230	320	550
organised industry and mining	1520	1050	2570	3936	2350	6286
transport and communications	1486	250	1736	3010	630	3640
social services and other programmes	622	1075	1697	1855	1600	3455
inventories	200	600	800	@	1900	1900
total	6300	4100	10400	13600	7750	21350

4. It may be mentioned that as against the total outlay of Rs. 23,750 crores indicated in Table 2, the outlays proposed earlier were Rs. 21,500—22,500 crores suggested in the Memorandum presented to the National Development Council in October, 1964, and Rs. 21,480 crores indicated in the document on "Resources, Outlays and Programmes" presented in September, 1965. The provision in the Third Plan was Rs. 11,600 crores (Rs. 7,500 crores in the public sector and Rs. 4,100 crores in the private sector). It may be noted that the Fourth Plan outlay proposed at present and the earlier figures mentioned above are not strictly comparable on account of the devaluation of the rupee.

5. Table 4 shows the relative position of the likely expenditure in the Third Plan and the outlays now proposed under each head of development :

@Part of inventories under public sector is covered in sectoral outlays and part will be financed through the banking system.

Table 4. Comparative position of outlay in the Fourth Plan and likely expenditure in the Third Plan

(Rs. crores)

head of development	likely expenditure in the Third Plan*	outlay proposed for the Fourth Plan
agriculture, community development and cooperation	1103	2410
irrigation	657	964
power	1262	2030
small industry	220	370
organised industry and mining	1735	3936
transport and communications	2116	3010
education	596	1210
scientific research	75	140
health		492
family planning	357	95
water supply		373
housing and construction	110	280
welfare of backward classes	102	180
social welfare	19	50
craftsmen training and labour welfare	72	145
public cooperation	2	10
rural works	41†	95
hill areas and special areas	—	50
rehabilitation	48	90
other programmes	116	70
total	8631@	16000

6. The distribution of the overall outlay between different sectors, as also between the Third and Fourth Plans, is not strictly comparable. In sectors like industry, transport and power, which have large imported components, the price has gone up substantially in rupee terms as a result of devaluation. If programmes and projects of direct benefit to agriculture included in other sectors are counted the total provision for agriculture will be over Rs. 5,000 crores in the Fourth Plan and double of that in the Third Plan.

Distribution of Outlay between the Centre and the States

7. The distribution of outlay between the Centre, States and Union Territories under different heads of development in the Fourth Plan, may be seen from Table 5.

*The Third Plan figures have been worked out on the basis of the actuals for the first four years of the Plan and likely expenditure for 1965-66. However, it is felt that the total expenditure may be lower than Rs. 8,631 crores.

†Includes Rs. 22 crores for local works.

@A lump sum cut of Rs. 3 crores was affected by Punjab State Government in 1965-66, break up of which is not available. Therefore, the expenditure figure will be Rs. 8,628 crores.

Table 5. Fourth Plan Outlay—Centre, States and Union Territories

(Rs. crores)

head of development	Centre				States	Union Territories	total (Centre, States and Union Territories)
	schemes to be executed by the Centre	schemes to be executed through States	Centrally sponsored schemes (Centre's share)	total			
agriculture, community, development and cooperation	150	—	282	432	1918	60	2410
irrigation	44	—	—	44	912*	8	964
power	260**	—	—	260	1717	53	2030
village and small industries	151	—	20***	171	191	8	370
organised industry and mining	3751	—	—	3751	178†	7	3936
transport and communications	2146	348@	81	2575	380	55	3010
education	243	—	80	323	815	72	1210
scientific research	140	—	—	140	—	—	140
health	116	—	48	164	291	37	492
family planning	—	—	86@@	86	9	@@	95
water supply	—	—	3	3	335	35	373
housing and construction	55	—	85@@@	140	105	35	280
welfare of backward classes	—	—	90	90	85	5	180
social welfare	8	—	22	30	16	4	50
craftsmen training and labour welfare	15	—	70	85	56	4	145
public cooperation	3	—	4	7	2	1	10
rural works	—	—	95	95	—	—	95
hill areas and special areas	—	—	6	6	39	5	50
rehabilitation	90	—	—	90	—	—	90
other programmes	40	—	4	44	24	2	70
total	7212	348	976	8536	7073	391	16000

*Includes provision of Rs. 13 crores for Anti-sea erosion works in Kerala and Rs. 35 crores for Rajasthan Canal Project.

**Includes provision for :

	(Rs. crores)
(*i*) Atomic power stations	157
(*ii*) Neyveli power station	27
(*iii*) D.V.C.	46
(*iv*) other schemes	30

***For Rural Industries Projects.

†Includes Rs. 25 crores for Talcher Complex.

@Includes provision of Rs. 236 crores for national highways, Rs. 70 crores for the Lateral Road and Rs. 42 crores for others.

@@Outlay for Union Territories included under Centre.

@@@Includes provision of Rs. 15 crores for urban development.

8. A final view about the classification of Centrally sponsored and State Plan schemes has yet to be taken. The estimates indicated above are on the basis of the classification as discussed with the Central Ministries. A large part of the differential step up between the Centre and States is explained by the fact that the former has a larger import component, the cost of which in rupee terms has gone up as a result of devaluation. Some additional provision for items like irrigation, power, village and small industries, technical education and water supply in the States' sector may be considered if the States are in a position to raise resources additional to what have been envisaged in the present estimates.

9. More detailed information about the expenditure under the various heads of development in the Third Plan and their corresponding outlay position in the Fourth Plan, as also the break-up for the Centre, States and Union Territories is given in Annexure II at the end of this Chapter.

1966-67—Plan Outlay

10. The Annual Plan for 1966-67, the first year of the Fourth Plan period, was finalised in March, 1966. The outlay in the first year of the Fourth Plan constitutes about 14·0 per cent of the total outlay envisaged in the Fourth Plan. This is slightly higher than the proportionate expenditure in the intitial years of the preceding three Five Year Plans. In the First Plan it was 13·2 per cent, in the Second Plan it was 13·6 per cent and in the Third Plan it was around 13·1 per cent. It may, however, be pointed out that the Annual Plan for 1966-67 had been prepared under certain emergency conditions and, therefore, does not bear the same relationship to the Fourth Plan, as it would have under normal conditions. Apart from the needs of defence, the sharp setback in agricultural production in 1965 due to severe drought conditions largely influenced the size and pattern of outlay. Thus, although the overall percentage outlay in the first year is slightly higher than in previous Plans, the outlay in such sectors as education, health and housing are in fact below the average for the first year. The rise in prices during the year 1965-66 resulted in an increase in non-Plan expenditure on pay and allowances and highlighted the urgent need for avoiding inflationary forces and deficit financing.

Sectoral Programmes

11. The broad pattern of outlay given above indicates a measure of the overall effort and the relative emphasis on different sectors envisaged in the Plan. The Plan comprises a number of concrete programmes

of development, details of which have been given in the subsequent Chapters of this document. A brief account of these programmes is, however, given in the following paragraphs.

AGRICULTURE, COMMUNITY DEVELOPMENT AND CO-OPERATION

12. In view of the critical importance of agriculture and the recent experience of short-falls, agricultural programmes as well as the production and supply of various inputs for agriculture will be given the highest priority during the Fourth Plan. Taking into consideration the likely increase in demand for foodgrains and other related factors, efforts will be made to step up foodgrains production to 120 million tonnes by the end of the Fourth Plan. In making this estimate the actual production in 1964-65 (as well as the production potential created by 1965-66) has been considered as the base and not the actual production in 1965-66 as that year was very abnormal. Table 6 indicates the estimates of agricultural production for the Fourth Plan along with the achievements (in terms of production potential) at the end of the Third Plan :

Table 6. Production estimates

commodity	unit	1964-65	1965-66 (base level potential)	1970-71 (estimated production)
foodgrains	million tonnes	89·0	90·0	120·0
sugarcane (gur)	„	12·3	11·0	13·5
oilseeds	„	8·3	7·5	10·7
cotton	million bales*	5·4	6·3	8·6
jute	„	6·0	6·2	9·0
mesta	„	1·6	1·8	2·0
pepper	000 tonnes	na	30·0	35·0
cardamom	„	na	3·3	3·8
ginger	„	na	22·0	27·0
cashewnut	„	na	136·0	328·0
tobacco	million tonnes	0·4	0·4	0·5

The realisation of these estimates would result in a compound rate of growth of 5·59 per cent per annum in agricultural production—5·92 per cent in the case of foodgrains and 5·01 per cent in the case of non-foodgrains. The yield per acre is expected to go up by about 26 per cent in the case of foodgrains, 20 per cent in the case of oilseeds, 14 per cent in the case of sugarcane, 30 per cent in the case of cotton and 13 per cent in the case of jute.

*Bale of 180 kgs each.

13. The physical programmes included in the Fourth Plan to achieve the level of production mentioned in the above Table are indicated below :

Table 7. Programme targets

programme	unit	Third Plan target	Third Plan achievement	Fourth Plan target
irrigation utilisation (additional-gross)				
(*a*) major and medium	million acres	12·80	5·50	9·00
(*b*) minor . .	,,	12·80	13·10	17·00*
soil conservation (additional)	,,	11·80	9·80	20·00
land reclamation (adbitional)	,,	3·60	4·20	2·50
chemical fertilizers				
(*a*) nitrogenous .	million tonnes of N	1·02	0·60	2·00
(*b*) phosphatic	,, of P_2O_5	0·41	0·15	1·00
(*c*) potassic .	,, of K_2O	0·20	0·09	0·35
organic manures and green manuring				
(*a*) urban compost .	million tonnes	5·10	3·40	5·40
(*b*) green manuring .	million acres	41·00	21·50	64·00
area under improved seeds				
(*a*) high yielding varieties	,,	—	—	32·5
(*b*) other varieties .	,,	204·0	120·0	241·5
plant protection .	,,	50·0	41·0	137·0

As compared to the achievements in the Third Plan, the targets for the Fourth Plan imply a considerable increase in physical programmes. There will be about fourfold increase in fertilizers and doubling of the programme under soil conservation and improved seeds. Green manuring is expected to be increased threefold during this period.

14. The programme of Community Development and Panchayati Raj will be more closely linked with the economic development of the country. Emphasis will be placed on an integrated approach to rural development, the provision of extension services over manageable area units and a coordinated field agency maintaining close liaison with both the Panchayati Raj organisation and the field staff of development departments. The extension network of Community Development will be harnessed for programmes of nation-wide priority and coverage like agriculture and family planning. The structure of Panchayati Raj institutions will be made more efficient and utilised to mobilise local resources for implementing local projects and maintaninig the assets created. Special development and welfare programmes in the field of nutrition, tribal welfare, rural manpower and village youth will also be taken up by these agencies.

*Includes 12 million acres newly irrigated area besides the area benefited by drainage, flood control, etc.

15. In the plans for agricultural development in the Fourth Plan, the cooperative form of organization for credit, marketing, processing, animal husbandry, dairying, fisheries and related sectors will have a very important part to play. The main emphasis in cooperative development in the Fourth Plan will be on consolidation, building up the cooperative movement's own resources in the shape of share capital, reserves and deposits and eliminating the existing weaknesses such as a high-level of overdues and the existence of institutions which are not viable. Stress will also be laid on linking of credit with marketing as part of a concerted attempt to develop cooperative marketing and processing and building up a strong and well-trained administrative machinery in cooperaive institutions and cooperative departments.

16. The total outlay in the Fourth Plan under agriculture and allied programmes in the public sector will be around Rs. 2,410 crores, of which Rs. 1,944 crores will be devoted to agricultural programmes, Rs. 260 crores to commnuity development and panchayats and Rs. 206 crores to cooperation. Out of the outlay proposed for agricultural programmes, 37 per cent will be utilised for agricultural production (including ayacut development), 26·7 per cent for minor irrigation, 11· 2 per cent for soil conservation, about 16 per cent for animal husbandry, dairying and fisheries and about 6 per cent for forestry development. This public sector outlay will be additional to the private sector investment which is expected to be around Rs. 900 crores. The total provision for minor irrigation under different heads is double of that in the Third Plan.

Irrigation, Flood Control and Anti-sea Erosion

17. Under major and medium irrigation, additional potential of the order of 13 million acres (gross) and utilisation of 9 million acres (gross) is envisaged by the end of the Fourth Plan. This would bring the total of irrigation potential available from major and medium irrigation schemes to about 55 million acres (gross); of which 31 million acres would be the addition since 1950-51.

18. The outlay proposed for irrigation and flood control programmes in the Fourth Plan is Rs. 964 crores. Of this Rs. 115 crores are for flood control, anti-waterlogging and anti-sea erosion schemes. The emphasis in the Fourth Plan is on the speedy completion of continuing schemes. A few new schemes have been included to keep up the pace of irrigation programme, as also to meet the special needs of scarcity areas.

POWER

19. The installed generating capacity will be 20 million kW by March, 1971 as against 10·2 million kW at the end of the Third Plan. Under rural electrification programmes, 11·8 lakh electrical pump-sets will be energised and 110,000 villages and towns will be electrified by the end of Fourth Plan as against 4·8 lakh electrical pump-sets and 52,300 villages and towns electrified by the end of Third Plan.

20. An outlay of Rs. 2030 crores has been provided in the public sector for power in the Fourth Plan. Of this, Rs. 1755 crores will be for generation, transmission and distribution and Rs. 250 crores for rural electrification. In addition, about Rs. 50 crores is expected to be invested by the private sector.

21. In the Third Plan emphasis was on generation. In the Fourth Plan the aim will be to establish a better balance between generation, transmission and distribution. Further, the Plan is based on the integrated operation of power systems of neighbouring States and establishment of regional grids.

VILLAGE AND SMALL INDUSTRIES

22. The development of village and small industries, as in the past, will continue to be undertaken as an integral part of the industrial development of the country. The programmes for the development of various small industries, *viz.*, handloom, powerloom, industrial estates, handicrafts, khadi and village industries and small scale industries during the Fourth Plan mainly relate to provision of direct financial assistance, development of institutional credit, development of intermediate technology, supply of scarce raw-materials, expansion of training programmes, decentralised manufacture of equipment and organisation of cooperatives. The programme under the Rural Industries Projects is expected to be expanded considerably in the light of the suggestions of the Study Team which is currently evaluating the programme.

23. The target of production of cloth in the decentralised sector which includes handloom, powerloom and khadi has been set at 4572 million metres by the end of the Fourth Plan, as against the estimated production of 3146 million metres in 1965-66. The production of raw silk is envisaged at 31·0 lakh kgs by the end of 1970-71 as against 21·5 lakh kgs in 1965-66. It is proposed to set up 250 new industrial estates as against 300 completed by 1965-66.

24. A total provision of Rs. 370 crores is being made in the public sector for these programmes during the Fourth Plan. Additional funds will be available from other programmes like community development and rehabilitation of displaced persons. Investment in the private sector is estimated at about Rs. 320 crores, excluding inventories.

Industry and Mining

25. The programme for the Fourth Plan provides highest priority to the industries manufacturing industrial inputs for agriculture, such as, fertilizers, pesticides, farm equipments, etc.; metals and machine building industries including steel, aluminium, zinc, etc.; intermediate goods industries, namely, industrial chemicals, petroleum, coal, iron and steel castings and forgings, refractories and cement; and industries which produce essential consumer goods such as sugar, cloth, kerosene, etc. In implementing the above industrial programme, efforts will be made to utilise the existing capacity fully through appropriate balancing investments, to complete the projects carried over from the Third Plan quickly and to create additional capacity more expeditiously and with less investment by the expansion of the existing units in preference to the establishment of new units. The fairly substantial spill over from the Third Plan, although regrettable in itself, makes the task in the Fourth Plan less difficult than it may *prima facie* appear to be.

26. The industries in which a major role has been assigned to the public sector in the Fourth Plan are iron and steel, coal, industrial machinery including heavy electrical machinery, petroleum including refining, fertilizers, basic chemicals and essential drugs, etc. Although a capacity of about 14·8 million tonnes of steel ingots is expected to be created by the end of the Fourth Plan, the production is likely to be of the order of 11·7 million tonnes. Besides expansion of existing plants both in the public and private sectors, the fourth steel plant at Bokaro will provide an additional capacity of 1·7 million tonnes of steel ingots and 880,000 tonnes of pig iron. Provision has also been made for preliminary work on some new sites for steel plants. To meet the demand for alloy and tool steel, the capacity of the Durgapur plant will be trebled and other capacities in the public and private sectors will be increased so that the need for imports of special steel may be eliminated by the end of the Fourth Plan. Aluminium production will be substantially increased and the development of additional copper mines at Rakha, Daribo and Agnigundala will be taken in hand on a priority basis. In the field of heavy machinery and machine building industries, self-sufficiency will be achieved in

respect of thermal and hydro-generating sets, power boilers, transformers, large-sized electric motors, etc. The heavy machine building complex at Ranchi with a capacity of 80,000 tonnes of metallurgical and other heavy equipment will be completed and production will be increased to meet about half the demand for metallurgical equipment in the new steel plants by 1970-71. The Fourth Plan programmes also include the establishment of new fertilizer units at Durgapur, Kotah, Goa, Cochin, Madras, Kanpur, Kothagudium and Haldia, besides expanding some of the existing units. The State Governments are expected to assume a special responsibility in regard to Industrial Development Corporations, industrial development areas and promotion of cooperative enterprises in cotton spinning, sugar and other agricultural processing industries.

27. The targets of production to be achieved by 1970-71 may be seen in Annexure I at the end of this Chapter. A short list of important industrial and mineral production targets is given in the following Table :

Table 8. Selected targets of industrial and mineral production

item	unit	1960-61	1965-66 (likely achievement)	1970-71 (targets)
iron ore	million tonnes	11·0	23·0	54·0
coal	„ „	55·7	68·0	106·0
petroleum refining	„ „	5·8	9·9	20·0
steel ingots	„ „	3·4	6·2	11·7
pig iron for sale	„ „	1·1	1·2	3·0
machine tools	Rs. million	70·0	230·0	1050·0
aluminium	000 tonnes	18·3	65·0	330·0
agricultural tractors	000 numbers	neg.	5·6	35·0
diesel engines (stationary)	„	43·2	85·0	200·0
nitrogenous fertilizers	000 tonnes of N	99·0	233·0	2000·0
phosphatic fertilizers	000 tonnes of P_2O_5	54·0	111·0	1000·0
drugs and pharmaceuticals	Rs. million	n.a.	1500·0	2500·0
paper and paper board	000 tonnes	350·0	550·0	900·0
newsprint	„ „	23·3	30·0	150·0
cement	million tonnes	8·0	10·8	20·0
cotton cloth (mill-made)	million metres	4649	4434	5486
sugar	million tonnes	3·03	3·6	4·5
commercial vehicles	000 numbers	28·4	34·0	80·0
motor cycles, scooters and mopeds	„ „	17·6	50·0	120·0
bicycles	million numbers	1·1	1·7	3·5
electric fans	„ „	1·1	1·5	3·5

28. The investment visualised in the Fourth Plan for industry and mining is Rs. 6286 crores of which Rs. 3936 crores would be in the public sector and Rs. 2350 crores in the private sector. Investment in public sector projects includes an amount of Rs. 393 crores for assistance to institutional financing agencies, State financial and industrial development corporations, etc.

TRANSPORT AND COMMUNICATIONS

29. The basic approach in drawing up plans for transport is that the various transport services should be developed as organic parts of a composite transport network and that the requirements of industrial and economic development should be met adequately and at minimum cost to the economy. Detailed programmes for the Fourth Plan are being drawn up against a long-term perspective covering a period of 10 to 15 years. A series of technical and economic studies are under way with a view to assessing the transportation requirements of the economy as a whole, as well as of different regions in the country in relation to the perspectives of national and regional economic growth over the period ending 1975-76. These studies will provide the basis for drawing up long-term plans as also detailed programmes for the period of the Fourth Plan. Development programmes which have been formulated in keeping with these broad targets will entail an outlay of Rs. 3640 crores of which Rs. 3010 crores are expected to be in the public sector and Rs. 630 crores in the private sector.

30. The originating freight traffic on the railways is expected to increase by about 50 per cent, from 205 million tonnes in 1965-66 to 308 million tonnes in 1970-71. The volume of goods traffic carried by road during this period is estimated to increase by 82 per cent from 33 billion tonne-kilometres to about 60 billion tonne-kilometres. Traffic handled by the ports is expected to go up from 59 million tonnes to about 95 million tonnes. Programmes for road development provide for an addition of about 50,000 kilometres of surfaced roads in the country and those for road transport for an increase of about 64 per cent in the number of commercial vehicles on the road from 320,000 in 1965-66 to 525,000 in 1970-71. Shipping development programmes envisage doubling of the tonnage in the country from 1·5 million grt at the end of the Third Plan to about 3 million grt at the end of the Fourth. The available capacity in tonne-kilometres of the Indian Airlines Corporation is expected to increase during the Fourth Plan from 155 to 342 millions and of Air India from 338 to 594 millions. The programme for tele-communications provides for installation of 6·5 lakh additional telephone

connections bringing the total number of telephones in the country from 8·7 lakhs at the end of 1965-66 to over 15 lakhs at the end of 1970-71. The broadcasting programmes provide for the strengthening of external services, extension of rural broadcasting and for increase in coverage of internal services to about 82 per cent of the country's area and 85 per cent of the population by 1970-71 as against 52 per cent and 70 per cent respectively reached at the end of the Third Plan.

EDUCATION

31. During the Fourth Plan, an attempt will be made to link education more purposively with the requirements of the country's development. It is also intended to improve the content and quality of education and one of the instruments will be upgrading the quality of the teaching personnel and reducing the shortages in specific disciplines. In the field of general education, primary education and work-orientation of the curriculum will be given more attention. Educational programmes in other stages will be so adjusted as to be more responsive to social needs. High priority will be accorded to technical education. Adult literacy programme will be stepped up considerably and made functional in character so that it becomes an effective tool for economic and social reconstruction.

32. The programmes under education are expected to increase the enrolment from 78·5 to 92·2 per cent in the age-group 6—11, from 32·2 to 47·4 per cent in the age-group 11—14 and from 17·8 to 22·1 per cent in the age-group 14—17. The admission capacity of diploma and degree holders in engineering and technology will be increased to 68,000 and 30,000 in 1970-71 from 49,900 and 24,700 in 1965-66 respectively.

33. An outlay of Rs. 1210 crores is being provided in the public sector for the various educational programmes. Of the total public sector outlay, 26·6 per cent will be earmarked for elementary education, 20·2 per cent for secondary education, 14·5 per cent for university education and 20·9 per cent for technical education. Social education and teacher education will account for 5·2 per cent and 7·6 per cent respectively.

SCIENTIFIC RESEARCH

34. Scientific research, design and development directed to economic ends and a strong instruments industry are essential requirements for a self-reliant economy. Although a large capacity has been built up and some useful work done in the field of scientific research and development, their contribution to economic growth has not yet been adequate. There is need for planning of scientific research

and development as a whole in a purposeful way to strengthen basic research in association with the training of research personnel and to orient applied research, design and development with the highest priority to projects concerned with food, import substitution and export promotion. A provision of Rs. 140 crores has been made for scientific research in the Fourth Plan.

Health and Family Planning

35. Most of the programmes in this sector are of a continuing nature. Top priority is being given to family planning. Training facilities for different categories of medical personnel will be increased in order to overcome the shortage of qualified personnel. The campaigns against communicable diseases will be intensified.

36. It is proposed to increase the number of medical colleges from 87 at the end of the Third Plan to 112 at the end of the Fourth. It is estimated that during the Fourth Plan the outturn of doctors would be in the neighbourhood of 45,000 in addition to 86,000 expected to be available by the end of the Third Plan. This is expected to raise the doctor-population ratio to 1 : 4600 as against 1 : 5800 at the end of the Third Plan period. Training of nurses and nurse-midwives will be stepped up so that by 1970-71, an additional 42,000—45,000 nurses and 60,000 auxiliary nurse-midwives would be available as against 45,000 nurses and 35,000 auxiliary nurse-midwives at the end of the Third Plan. It is proposed to add 60,000 beds in the Fourth Plan in order to maintain the present bed-population ratio of 0·49 per thousand. Small pox eradication programme will enter the maintenace phase during the Fourth Plan after achieving 100 per cent coverage of the population.

37. The basic objective of the family planning programme is to reduce 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. It is intended to cover the whole country with about 5500 rural family planning welfare centres, about 41,000 sub-centres and about 1800 urban centres.

38. All conventional methods of contraception will be utilised with particular emphasis on the IUCD because of its efficacy, reversibility and acceptability. The target for IUCD insertions is 6 million in 1966-67 rising up to 10·5 million by 1970-71. At present 30,000 loops are being produced daily in a public sector factory at Kanpur.

To meet the entire need, production is being stepped up to 60,000 loops per day.

39. To meet the training needs of a large number of personnel engaged in this programme, the existing 16 family planning training centres will be upgraded and 28 new centres on the basis of one training centre per 10 million population will be established.

40. For the success of this programme, active association and participation of voluntary agencies, private medical practitioners, local leaders, local bodies, labour organisations and other associations is being secured.

41. The total outlay proposed for health and family planning is Rs. 587 crores. Of this, Rs. 95 crores have been earmarked for the family planning programme but any additional amount that this programme can usefully spend will be provided through the Annual Plans.

Water Supply and Sanitation

42. Priority will be given to rural water supply schemes, particularly where scarcity conditions exist, and schemes for urban and rural areas endemic with cholera and filariasis. Provision is also being made for metropolitan and other urban areas. A total provision of Rs. 373 crores has been made in the Fourth Plan for all these schemes. The provision for rural water supply in the Fourth Plan is three times that in the Third Plan.

Regional and Urban Development

43. Apart from the completion of the master plans and regional plans already in hand, it is proposed to take up the preparation of plans for 157 towns/cities and 49 tourist/pilgrim centres. Detailed plans will also be formulated for certain regions in the country which have been growing fast and where haphazard growth has taken place creating substantial problems. Urban research cells in the States, as well as, at the Centre are being set up. It is also proposed to include in the Fourth Plan provision for implementing certain important aspects of city development plans. It is necessary to evolve a rational urban land policy in order to control the use and value of land. Steps to this end will be taken in the Fourth Plan. A provision of Rs. 28 crores has been made for regional and urban development.

Housing

44. The housing programmes initiated during the three Plans related to specific categories like industrial workers, persons in low and middle income groups, slum dwellers, plantation workers, etc.

In addition to the continuation of these programmes, the Fourth Plan aims at creating financial institutions for promotion of house building, provision of developed land, building materials and technical personnel and establishing effective organisations both at the Centre and in the States to tackle the problem in an integrated and efficient manner.

45. As against the expenditure of about Rs. 110* crores on housing and construction in the Third Plan, the outlay would be Rs. 252 crores in the Fourth Plan. Additional funds are likely to be available from the Life Insurance Corporation and the Employees' Provident Fund for investment in housing programmes. The outlay envisaged for the Fourth Plan would aim at the construction of 4·5 lakh houses. It may be noted that the bulk of the investment in housing will be in the private sector, in which, it is estimated that Rs. 1500 crores will be spent. Special attention will be paid to the provision of house sites, particularly for members of backward communities, landless agricultural workers, etc. for which an amount of Rs. 50 crores has been provided under different heads.

Social Welfare

46. Social welfare programmes, for which a provision of Rs. 50 crores has been made, aim at providing certain important supplementary welfare services mainly at the level of the local area and the local community and at supporting the work of voluntary organisations and voluntary workers. The most important programme is that of family and child welfare along with certain special schemes for women and children. The family and child welfare programme envisages a concerted effort in 800 development blocks jointly by Panchayati Raj institutions and voluntary organisations and supplemented by voluntary effort elsewhere. It is hoped that over two or three Plan periods, the essential services for women and children will become available in all rural areas. Other programmes of social welfare to which special attention will be given during the Fourth Plan include pre-vocational training for school drop-outs in the age-group 11—14, welfare of non-student youth, eradication of beggary, social defence and rehabilitation of handicapped persons. Voluntary organisations are to be helped to build up cadres of trained and experienced workers who will be available on a continuing basis. Local self-governing institutions, both in urban and rural areas, are to be involved fully in social welfare programmes to be implemented at the area and community levels.

*Includes expenditure on regional and urban development.

Youth Development Programmes

47. The Planning Commission Working Group on Youth Programmes recently reviewed the existing programmes relating to both student and non-student youth. It recommended a national programme for developing their potential and enabling them to participate fully in community and national programmes. Removal of illiteracy, eradication of social evils and participation in works programmes are some of the suggested national tasks in which youth needs to be involved. The compulsory national service scheme suggested by the National Service Committee (Deshmukh Committee) could be considered for adoption with such modifications as are considered necessary. Several developmental measures, such as, libraries and reading rooms, gymnasia, recreation camps, provision of scholarship loans, and part-time and evening courses for improvement of qualifications, part-time employment, student aid fund, counselling and guidance were suggested for student and non-student youth to provide them with opportunities for study and recreation. In promoting the national youth programmes, the setting up of an autonomous National Youth Board for coordinating the welfare activities of the appropriate departments, both at the Centre and in the States, and voluntary organisations was suggested. Details of the composition of the proposed Board, its activities and the financing of these activities, are still to be worked out. Student youth welfare activities would be mostly in the programmes of University Grants Commission and various universities and colleges. The resources required for non-student youth activities would have to be found from the outlays provided for Education (adult literacy programmes), Community Development and Social Welfare Ministries.

Welfare of Backward Classes

48. The Plan provides for Rs. 180 crores for programmes for the welfare of backward classes. These programmes are supplemental to general development programmes, their essential object being to enable tribal communities and other backward classes to obtain their fair share of the benefits of general development and of the provisions made in different fields. Hitherto, tribal development blocks were set up in areas in which the tribal population accounted for two-thirds or more of the total population. In the Fourth Plan, areas with 50 per cent or more of tribal population will also come within the scope of tribal development blocks. Tribal development blocks situated within a district will be brought into one or more tribal areas. This will make it possible to plan more adequately for communications, irrigation, forestry, processing industries and vocational and secondary education and to draw into these areas resources

out of provisions in different sectors to a greater extent than before. For each tribal development area, there will be a systematic plan of development related to local needs and conditions and harnessing local institutions and leadership to the greatest extent possible. Groups of villages inhabited by tribal communities, which are not sufficient to form tribal development blocks, will be taken up as tribal pockets and special attention given to them as part of tribal development areas or otherwise. Problems concerning the rehabilitation of tribal groups, whose economy may be affected on account of industrial, irrigation or other major projects, will receive close attention. It is also proposed to reorient educational and cooperative development schemes in these areas and take steps to strengthen the existing administrative machinery and provide trained personnel who will identify themselves with tribal communities. Local institutions with which these communities are closely associated at the village, block and higher levels will be strengthened and helped with resources and personnel to function effectively. Efforts will also be made to strengthen voluntary organisations to work among tribal communities.

49. Special programmes for scheduled castes are intended to supplement benefits and facilities which they obtain through schemes undertaken in the interest of the community as a whole. Educational programmes for scheduled castes and other backward classes are to be strengthened in several directions, so that they are able to take full advantage of reservations made for them in educational institutions as well as in the public services. In several schemes for economic development appropriate proportions of the available resources are to be earmarked for cooperative programmes so that the backward classes may benefit more fully from them. A major national programme for the provision of house sites for Harijans, landless labourers and small peasants is to be initiated during the Fourth Plan. This will draw upon resources provided under the general housing programme and schemes for backward classes and will also draw upon the support of Panchayati Raj institutions and local communities. Voluntary organisations are to be assisted in building up cadres of social workers who can educate public opinion and help members of scheduled castes and other backward classes to organise themselves for mutual self-help through cooperative and other agencies. The Plan also embodies proposals for a more specific approach to the problems of denotified tribes and nomadic and semi-nomadic groups.

PUBLIC CO-OPERATION

50. The aspect of securing public cooperation and participation through voluntary organisations, educational institutions and other

non-official agencies needs much greater attention. It is necessary to harness the time and energy and other resources of millions of people for constructive activities. There are certain national tasks, crucial to the development of the economy 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. The principal programmes are rural and urban Lok Karya Kshetras, planning forums, National Consumers' Service, research, training and pilot projects including Central Institute of Research and Training in Public Cooperation, construction service of voluntary organisations and prohibition. An allocation of Rs. 10 crores has been provided in the Fourth Plan.

Training of Craftsmen and Apprentices

51. The capacity of industrial training institutes is to be increased from 116,570 seats at the end of the Third Plan to 213,000 seats at the end of the Fourth Plan. During the plan period industrial training institutes are expected to provide about 7 lakh trained craftsmen. The apprenticeship programme is also to be expanded, the number of apprentices being increased from 26,000 to about 100,000. Other training programmes to be implemented include schemes for training of instructors and rural institutes for vocational training of youth.

Hill Areas and Special Areas

52. Special efforts are to be made during the Fourth Plan to accelerate economic and social development in the markedly less developed areas of the country. These include hill areas including border areas, predominantly tribal areas, chronically drought affected areas, areas with high density of population and low levels of income and employment and desert areas. For hill areas including border areas, and certain other special areas, the Plan makes a supplementary provision of Rs. 50 crores. An outlay of Rs. 100 crores is provided for tribal development. The agricultural plan makes a provision of Rs. 40 crores for special schemes in chronically drought affected areas to be undertaken after necessary study of their requirements. Provisions under the rural works programme will be utilised so as to make the maximum impact on the development of tribal areas, hill areas, chronically drought affected areas and densely populated regions with markedly low levels of income and employment. In selected desert areas, pilot projects will be initiated by the Desert Development Board. It is hoped that the additional resources indicated

will, in turn, enable the different categories of areas mentioned above to obtain a more adequate share of the benefits of development envisaged in various sectors under the Plans of States than has been possible in the past.

Rural Works Programme

53. A provision of Rs. 95 crores has been made for the rural works programme in the Fourth Plan. The programme aims at providing additional employment opportunities in rural areas, for the utilisation of rural manpower resources for productive activities and for building community assets in the rural areas, particularly in densely populated and scarcity affected areas.

Rehabilitation

54. An outlay of Rs. 90 crores has been provided for the rehabilitation of displaced persons during the Fourth Plan period. The entire expenditure will be in the Central sector of the Plan. In the Fourth Plan period, provision has to be made not only for about 40,000 families involving 200,000 persons who are still in transit and relief camps, but also for possible additions to them. The likelihood of a sizable repatriation of Indians from certain other countries has also to be kept in view. The majority of displaced persons are agriculturists. But on account of shortage of good agricultural land it may not be possible to settle all of them in agriculture. In the Fourth Plan, a substantial proportion of displaced persons will be re-settled in small-scale, medium and cottage industries, in agro-industries and in trade and other professions.

Other Programmes

55. Programmes included under this head are : statistical programmes of the Department of Statistics of the Central Government and States' Statistical Bureaux, study of natural resources, research programmes in the field of social sciences, training for management, administration and planning, evaluation organisations, manpower units, schemes for social assistance, welfare of government employees, State capital projects, expansion of government printing capacity and plan publicity programmes both at the Centre and in the States.

Employment

56. During the Fourth Plan period, increase in the labour force will be of the order of 23 million. The Plan as formulated is expected to provide additional employment opportunities to the extent of about 14 million outside agriculture and 4·5 to 5 million in agriculture, or

a total of 18·5 to 19 million. The rural works programme is likely to provide work during slack agricultural seasons to about 1·5 million persons in terms of 100 days of work in the year. In many parts of the country, it would be necessary to maintain a close watch on the employment situation and to be in readiness to provide additional work opportunities. This would be specially important in densely populated and the more backward regions. At the same time, through coordinated implementation and efficient use of available capacities at the district and area levels, efforts should be made to achieve the maximum employment possible.

National Income

57. If the targets envisaged for the Fourth Plan are fully achieved, national income, it is estimated, will rise to Rs. 30,530 crores by 1970-71 at 1965-66 prices. However, in view of factors like adverse weather, delays in securing external credits or in implementation and other unforeseen developments, it may be prudent to allow for a margin in the estimate of increase in national income over the Fourth Plan period; likely national income in 1970-71 may, therefore, be put at about Rs. 29,500 crores at 1965-66 prices. If this level of national income is achieved, it will imply an increase of 38 per cent over the 1964-65 level (Rs. 21,400 crores) or 48 per cent over the estimated actual level of national income in 1965-66 (Rs. 19,990 crores) at 1965-66 prices. Since 1965-66 was an abnormal year, the increase between 1965-66 and 1970-71 appears rather large. It would be more realistic to look at the increase in terms of the rise over 1964-65. On this basis, the compound rate of growth for the period 1964-65 to 1970-71 would be about 5·5 per cent per annum. Per capita income will go up from Rs. 448 in 1964-65 to Rs. 532 in 1970-71 *i.e.* by 3 per cent per annum (compound).

Note :—The corresponding figures of national income at 1960-61 prices will be as follows :

National income in 1970-71 (on the basis of the Plan targets)	—	Rs. 23,900	crores
National income in 1970-71 (assumed achievement)	—	Rs. 23,100	crores
National income in 1964-65	—	Rs. 16,630	crores
National income in 1965-66	—	Rs. 15,930	crores
Per capita income in 1964-65	—	Rs. 348	
Per capita income in 1970-71	—	Rs. 417	

ANNEXURE I

Production and development—progress and targets

item	unit	1950-51	1955-56	1960-61	1964-65	1965-66 (likely)	1970-71	percentage increase in			
								1964-65 over 1950-51	1965-66 over 1950-51	1970-71 over 1964-65	1970-71 over 1965-66
1	2	3	4	5	6	7	8	9	10	11	12
1. agriculture and community development.											
1.1 agricultural production											
foodgrains	million tonnes	54·92	69·22	82·02	88·95	72·29	120	62·0	31·6	34·9	66·0
cotton	million bales@@	2·62	4·03	5·29	5·41	4·73	8·6	106·5	80·5	59·0	81·8
sugarcane (gur)	million tonnes	6·92	7·29	11·20	12·32	12·12	13·5	78·0	75·1	9·6	11·4
oilseeds	million tonnes	5·09	5·63	6·98	8·30	6·14	10·7	63·1	20·6	28·9	74·3
jute	million bales@@	3·51	4·48	4·13	6·02	4·48	9·0	71·5	27·6	49·5	100·9
tea	000 tonnes	273	285	321	n.a.	376	n.f.	..	37·7	..	..
tobacco	000 tonnes	261	303	307	370	400	475	41·8	53·2	28·4	18·7
fish	million tonnes	0·7	1·0	1·4	n.a.	1·15@	1·53	..	64·3	..	33·0
milk	million tonnes	17	19	22	n.a.	24·60	32·25	..	44·7	..	31.1
wool	million lbs	60	65	72	n.a.	83	94	..	38·3	..	13·2
eggs	million numbers	n.a.	1908	2880	n.a.	4675	11000	..	145·0$	..	135·3

1.2 agricultural services:										
minor irrigation† (additional)	million acres (gross)	..	9·5	9·0	9·3	13·1	17·0	..	37·9£	82 8*	29·8£
land reclamation† (additional)	million acres	..	2·8	2·3	3·34	4·2	2·5	19·3**	50·0£	..	..
soil conservation† (additional)	„	..	0·7	2·5	6·28	9·8	20·0	797·1**	n	218·5*	104·1£
nitrogenous fertilizers consumed	000 tonnes of N	56	107	210	555	600	2000	891·1	971·4	260·4	233·3
phosphatic fertilizers consumed	000 tonnes of P_2O_5	7	13	70	149	150	1000	ρ	ρ	571·1	566·7
potassic fertilizers consumed	000 tonnes of K_2O	6	12=	26	69	90	350	ρ	ρ	407·2	288·8
organic and green manures											
(a) urban compost	million tonnes	..	2·15	3·05	3·66	3·40	5·40	70·2$	58·1 $	47·5	58·8
(b) green manures	million acres	..	..	11·8	18·6	21·5	64·0	..	..	244·1	151·2

NOTE :—For the items : foodgrains, cotton, oilseeds, jute and tobacco, the figures for the years—1950-51, 1955-56 and 1960-61 are adjusted estimates with 1960-61 as the base, while in the case of sugarcane (gur), the base taken is 1961-62 (fully revised).

@Basis of estimation has been revised.

@@Bale of 180 kgs each.

$ Increase over 1955-56.

†Figures relate to the five year period ending with that year except those for 1964-65 in which case it relates to the four year period 1961-62 to 1964-65.

£Increase over additionals over the respective Plan periods.

=Relates to supply position.

ρ Represents increase over ten times.

n. a. Not available.

n. f. Not fixed.

*Represents increase over the addition during 1961-62 to 1964-65.

**Represents increase in the addition of 1961-62 to 1964-65 over the achievement of the First Plan.

n= £ & ρ

ANNEXURE—I (*continued.*)

item	unit	1950-51	1955-56	1960-61	1964-65	1965-66 (likely)	1970-71	percentage increase in			
								1964-65 over 1950-51	1965-66 over 1950-51	1970-71 over 1964-65	1970-71 over 1965-66
1	2	3	4	5	6	7	8	9	10	11	12
plant protection	million acres	..	..	16·0	38·0	41·0	137·0	..	..	260·5	234·1
area under improved seed	million acres	..	4·7	55·0	102	120	274	ρ	ρ	168·6	128·3
2. irrigation and power											
2.1 major and medium irrigation (additional) potential at channel outlets	million acres (gross)	23·8	6·5*	11·7*	15·8*	18·0*	31·0*	66·4	75·6	96·2	72·2
utilisation	„	23·8	3·1*	8·3*	12 1*	13·8*	22·8*	50·8	58·0	88·4	65·2
2.2 power											
electricity installed (capacity)	million kW	2·3†	3·4†	5·6	8·6	10·2	20·0	273·9	343·5	132·6	96·1
electricity generated	million kWh	6575†	10777†	20123	29280	36400	80000	345·3	453·6	173·2	119·8
towns and villages electrified	thousands	3·7	7·4	24·2	43·6	52·3	110·0	ρ	ρ	152·3	110·3
pumps energised	lakh numbers	—	—	1·6	4·0	4·8	11·8	..	..	195·0	145·8

3.	minerals										
	iron ore	million tonnes	3·0	4·3	11·0	15·1	23·0	54·0	403·3	666·7	257·6	134·8
	coal	„	32·8	39·0	55·7	64·4	68·0	106·0	96·3	107·3	64·6	55·9
4.	large scale industries											
4.1	metallurgical industries											
	finished steel	million tonnes	1·04	1·3	2·3	4·43	4·6	8·8	326·0	342·3	98·6	91·3
	pig iron (for sale)	„	0·36	0·39	1·1	1·0	1·2	3·0	177·8	233·3	200·0	150·0
	steel ingots	„	1·47	1·74	3·4	6·1	6·2	11·7	315·0	321·8	91·8	88·7
	copper (virgin metal)	000 tonnes	7·1	7·6	8·9	9·4	9·8	37·5	32·4	38·0	298·9	282·7
	aluminium (virgin metal)	„	4·0	7·4	18·3	54·1	65·0	330·0	ρ	ρ	510·0	407·7
4.2	mechanical and electrical engineering											
	cement machinery	value in Rs. lakhs	—	40	60	220	350	2000	450·0§	775·0§	809·1	471·4
	sugar machinery	„	—	20	420	910	800	1600	ρ	ρ	75·8	100·0
	machine tools (graded)	„	30	80	700	2000	2300	10500	ρ	ρ	425·0	356·5
	ball and roller bearings	million numbers	0·1	0·9	3·2	5·9	9·0	30·0	ρ	ρ	408·5	233·3

ρRepresents increase over ten times.

*The figures are cumulative for the schemes taken up in the first three Plans.

†Calendar year.

§Increase over 1955-56.

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ANNEXURE—1 (continued)

Item	unit	1950-51	1955-56	1960-61	1964-65	1965-66 (likely)	1970-71	percentage increase in			
								1964-65 over 1950-51	1965-66 over 1950-51	1970-71 over 1964-65	1970-71 over 1965-66
1	2	3	4	5	6	7	8	9	10	11	12
diesel engines (stationary)	000 numbers	5·5	10·4	43·2	74·1	85·0	200·0	p	p	169·9	135·3
tractors (agricultural)	"	—	—	neg.	3·2	5·6	35·0	..	..	993·8	525·0
electric transformers (33 kV and below)	000 kva	178	625	1392	3000	3300	5000	p	p	66·7	51·5
electric cables (ACSR conductors)	000 tonnes	1·7	9·4	23·7	48·8	55·0	120·0	p	p	145·9	118·2
4.3 railway locomotives : steam, diesel and electric	numbers	7	179	272	266	276	417	p	p	56·8	51·1
4.4 chemical fertilizers :											
nitrogenous]	000 tonnes of N	9	80	99	234	233	2000	p	p	754·7	758·4
phosphatic .	000 tonnes of P_2O_5	9	12	54	131	111	1000	p	p	663·4	800·9
sulphuric acid	000 tonnes	101	167	361	695	654	2400	588·1	557·4	245·3	261·4

	soda ash	000 tonnes.	45	82	148	286	331	600	535·6	635·6	109·8	81·3
	caustic soda	,,	12	36	99	192	218	500	ρ	ρ	160·4	129·4
4.5	other industries :											
	sewing machines	000 numbers	33	111	303	330	450	900	900·0	ρ	172·7	100·0
	bicycles	,,	99	513	1071	1442	1700	3500	ρ	ρ	142·7	105·9
	automobiles	,,	16·5	25·3	55·0	70·8	68·5	170·0	329·1	315·2	140·1	148·2
	cotton textiles (mill-made)	million metres	3401	4665	4649	4676	4434	5486	37·5	30·4	17·3	23·7
	sugar	000 tonnes	1134	1890	3029	3260	3550	4500	187·5	213·1	38·0	26·8
	cement	million tonnes	2·73	4·67	7·97	9·79	10·8	20·0	258·6	295·6	104·3	85·2
	petroleum products	,,	0·2	3·4	5·8	8·4	9·86	20·0	ρ	ρ	138·1	102·8
	electric fans	million numbers	0.20	0·29	1·06	1·27	1·5	3·5	535·0	650·0	175·6	133·3
	paper and paper board	000 tonnes	116	190	350	494	550	900	325·9	374·1	82·2	63·6
	newsprint	,,	—	3·6	23·3	29·2	30	150	711·1 $	733·3 $	413·7	400·0
5.	village and small industries :											
	handloom, powerloom and khadi*	million metres	917	1643	2072	3147	3146	4572	243·2	243·1	45·3	45·3
	sericulture* (raw silk).	million kgs	1·14@	1·40@	1·50	1·88	2·15	3·10	64·9	88·6	64·9	44·2
	Industrial estates (completed)	numbers (cumulative)	—	1	66	235	300	550	n	n	134·0	83·3

$ Increase over 1955-56.

ρ Represents the increase over ten times.

n = $ + ρ

*Figures relate mostly to calendar years.

@Figures relate to the years 1951 and 1956.

ANNEXURE—I (continued)

Item	unit	1950-51	1955-56	1960-61	1964-65	1965-66 likely)	1970-71	percentage increase in			
								1964-65 over 1950-51	1965-66 over 1950-51	1970-71 over 1964-65	1970-71 over 1965-66
1	2	3	4	5	6	7	8	9	10	11	12
6. transport and communications											
6.1 transport services : railways : passenger kilometres	000 million	66·5	62·4	77·7	93·5	96·0	119·0	40·6	44·4	27·3	24·0
freight carried	million tonnes	93	116	156	194	205	308	108·6	120·4	58 8	50·2
roads : surfaced	000 kms	156	183	235	275	284	334	76·3	82·1	21·5	17·6
shipping	lakh grt	3·9	4·8	8·6	14·0	15·4	30·0	259·0	294·9	114·3	94·8
commercial vehicles on road	000 numbers	116·3	165·6	224	303	320	525	160·5	175·2	73·3	64·1
major ports : traffic handled	million tonnes	19·3	23·4	38·8	48·4	50·2	82·5	150·8	160·1	70·5	64·3
6.2 communications:											
post offices	000 numbers	36	55	77	97	98	110	169·4	172·2	13·5	12·2
telegraph offices	"	3·6	5·1	6·9	8·2	8·7	10·6	127·8	141·7	29·3	21·8
number of telephones		168	278	463	766	873	1523	356·0	419·6	98·8	74·5

7. education											
7.1 general education											
tudents in schools. (age-group 6-17)	million numbers	23·49	31·34	44·65	62·99	67·74	97·5	168·2	188·4	54·8	43·9
school going children as percentage of children in the respective age-groups :											
primary stage	6—11 years	42·6	52·9	62·2	75·4	78·5	92·2	77·0	84·3	22·3	17·5
middle stage	11—14 years	12·7	16·5	22·5	30·0	32·2	47·4	136·2	153·5	58·0	47·2
higher secondary stage	14—17 years	5·8	7·8	11·7	16·0	17·8	22·1	175·9	206·9	38·1	24·2
institutions :											
primary/junior basic schools	000 numbers	209·7	278·1	330 4	387·0	405·9	n.f.	84·5	93·6	..	..
middle/senior basic schools	000 numbers	13·6	21·7	49·7	69·3	72·6	n.f.	409·6	433·8	..	..
high/higher secondary schools	000 numbers	7·3	10·	17·2	23·6	24·1	n.f	223·3	230·1	..	..
multipurpose schools	000 numbers	..	0·9	2·3	n.a.	2·7	n.f.	..	..	..	..

n. f.—Not fixed.
n. a.—Not available.

ANNEXURE—I (concluded.)

Items	unit	1950-51	1955-56	1960-61	1964-65	1965-66 (likely)	1970-71	percentage increase in			
								1964-65 over 1950-51	1965-66 over 1950-51	1970-71 over 1964-65	1970-71 over 1965-66
1	2	3	4	5	6	7	8	9	10	11	12
7.2 technical education											
engineering and technology :	(admission capacity)										
degree level	000 numbers	4·1	5·9	13·8	23·8	24·7	30·0	480·5	502·4	26·1	21·5
diploma level	000 numbers	5·9	10·5	25·8	46·2	49·9	68·0	683·1	745·8	47·2	36·3
agriculture :											
degree level (intake)	number	1060*	1989	5634	8935	n.a.	11500	742·9	—	28·7	—
veterinary :											
degree level (intake)	number	434*	1269	1300	1319	n.a.	n.f.	203·9	—	—	—
8. health											
8.1. institutions :											
hospitals and dispensaries	000 numbers	8·6	10·0	12·6	n.a.	14·6	n.f.	—	69·8	—	..
hospital beds	000 numbers	113	135	186	229	240	300	102·7	112·4	31·0	25·0
primary health units	numbers	—	725	2800	4500	4800	5200	520·7$	562·1$	15·6	8.3
family planning centres	„	—	147	1649	7701	11474	48405	ρ	ρ	528·6	322·6

personnel:											
doctors (practising)	000 numbers	56·0	65·9	70·0	82·03	86·0	131·0	46·5	53·6	59·7	32·3
nurses (registered)	,,	15·0	18·5	27·0	39·0	45·0	87·0 to 90·0	160·0	200·0	123·1 to 130·8	93·3 to 100·0
midwives (registered)	,,	8·0	12·8	19·9	31·0	35·0	95·0	287·5	337·5	206·5	171·4
dais (registered)	,,	1·8	6·4	11·5	n.a.	30·0	280·0	—	ρ	—	833·3
sanitary inspectors	,,	3·5	4·0	6·0	14·0	18·0	n.f.	300·0	414·3	—	—
health visitors	,,	0·5	0·8	1·5	n.a.	3·5	5·5	—	600·0	—	57·1

*—Relates to 1951-52. n.f.—Not fixed. n.a.—Not available.
$—increase over 1955-56.
ρ—Represents the increase over ten times.

ANNEXURE—II

Anticipated outlay during the Third Plan and the outlay in the Fourth Plan—by heads of development

(Rs. crores)

head of development	anticipated outlay in the Third Plan					outlay in the Fourth Plan				
	States	Union Territories	States and Union Territories	Centre	Total	States	Union Territories	States and Union Territories	Centre	Total
1	2	3	4	5	6	7	8	9	10	11
agricultural production	176	7	183	20	203	539	27	556	164	720†
minor irrigation	264	2	266	3	269	504	4	508	12	520
soil conservation	65	2	67	11	78	191	5	196	22	218
animal husbandry	38	2	40	4	44	119	5	124	18	142
dairying and milk supply	31	1	32	4	36	53	1	54	5	59
forests	39	4	43	4	47	71	14	85	37	122
fisheries	20	2	22	2	24	72	4	76	37	113
warehousing and marketing	4	neg.	4	30	34	10	—	10	40	50
agricultural programmes	637	20	657	78	735	1559	50	1609	335	1944
cooperation	57	2	59	17	76	137	5	142	64	206
community development and panchayati raj	281	8	289	3	292	222	5	227	33	260
community development and cooperation	338	10	348	20	368	359	10	369	97	466
agriculture, community development and cooperation	975	30	1005	98	1103	1918	60	1978	432	2410

Irrigation . } flood control }	647	4	651	6	657	912*	8	920	44	964
power	1131	35	1166	96	1262	1717	53	1770	260	2030
irrigation and power	1778	39	1817	102	1919	2629	61	2690	304	2994
village and small industries .	95	5	100	120	220	191	8	199	171	370
organised industry and mining.	101	1	102	1633	1735	178**	7	185	3751	3936
industry . .	196	6	202	1753	1955	369	15	384	3922	4306
railways	—	—	—	1323	1323	—	—	—	1410	1410
roads	247	33	280	165	445	318	42	360	400	760
ports . . .	19	neg.	19	72	91	9	1	10	160	170
shipping . . .	1	—	1	40	41	—	—	—	90	90
civil air transport . .	—	—	—	50	50	—	—	—	125	125
road transport . .	21	6	27	—	27	45	10	55	10	65
telecommunications and postal services.	—	—	—	118	118	—	—	—	235	235
Farakka barrage@ . .	—	—	—	—	—	—	—	—	65	65
light houses . . .	—	—	—	4	4	—	—	—	7	7
inland water transport . .	—	—	—	3	3	4	1	5	8	13
tourism	3	neg.	3	3	6	4	1	5	20	25
broadcasting . . .	—	—	—	8	8	—	—	—	45	45
transport and communications.	291	39	330	1786	2116	380	55	435	2575	3010
education	408	32	440	156	596	815	72	887	323	1210
scientific research . .	—	—	—	75	75	—	—	—	140	140
health .						291	37	328	164	492
family planning } . .	289	25	314	43	357	9	—	9	86***	95
water supply }						335	35	370	3	373
housing and construction .	64	26	90	20	110	105	35	140	140	280

†Includes Rs. 40 crores for chronically drought affected areas.
*Includes provision of Rs. 13 crores for Anti-sea erosion in Kerala and Rs. 35 crores for Rajasthan Canal Project.
**Includes provision of Rs. 25 crores for Talcher Complex.
@Expenditure on Farakka Barrage project was kept outside the Third plan.
***Includes provision for Union Territories also.

ANNEXURE—II (concluded)

head of development	anticipated outlay in the Third Plan					outlay in the Fourth Plan				
	States	Union Territories	States and Union Territories	Centre	Total	States	Union Territories	States and Union Territories	Centre	Total
1	2	3	4	5	6	7	8	9	10	11
welfare of backward classes.	60	4	64	38	102	85	5	90	90	180
social welfare* . . .	6	1	7	12	19	16	4	20	30	50
craftsmen training and labour welfare.	21	2	23	49	72	56	4	60	85	145
public cooperation . .	—	—	—	2	2	2	1	3	7	10
rural works . . .	—	—	—	41φ	41	—	—	—	95	95
hill areas and special areas .	—	—	—	—	—	39	5	44	6	50
rehabilitation . . .	—	—	—	48	48	—	—	—	90	90
social services	848	90	938	484	1422	1753	198	1951	1259	3210
other programmes . .	67	8	75	41	116	24	2	26	44	70
total . .	4155	211	4366	4265	8631=	7073	391	7464	8536	16000

NOTE :— The Third Plan figures have been worked out on the basis of the actuals for the first four years of the Plan and likely expenditure for 1965-66. However, it is expected that the total expenditure will be lower than Rs. 8631 crores.

*Includes part of the expenditure on States and Union Territories on account of public cooperation during Third Plan.

φ Includes Rs. 22 crores for local works.

=A lumpsum cut of Rs. 3 crores was affected by Punjab State Government in 1965-66, break-up of which is not available. Therefore, the expenditure figuae is Rs. 8628 crores.

CHAPTER IV

FINANCIAL RESOURCES FOR THE FOURTH PLAN

IN the document on the Fourth Plan presented to the National Development Council in September, 1965, the broad scheme for financing plan outlays as well as the basic policy requirements for internal mobilization had been set out in considerable detail. Developments since then have, however, had significant repercussions on public revenues and expenditure, monetary and price situations and levels of national production. These changes in the economic situation have been taken into account in formulating the proposals for mobilization of resources contained in this document.

2. While the estimates now being presented are somewhat different from those given earlier, the basic principles that should govern the resource mobilization effort in the coming years remain the same as those set out in the September, 1965 document. The substantial increase in the budgetary deficits for 1965-66, higher domestic prices, devaluation, and continuing imbalance between imports and exports, make it more important than ever that financing should be on a completely non-inflationary basis. At the same time it is necessary to bear in mind the intimate relationship between more effective mobilization of internal resources and the progress towards self-reliance. In recent years, external credits which were needed to cover the balance of payments gap have also served the purpose of supplementing the resources available for investment. In the Fourth Plan period also, the credits that we will need for balancing the external payments account will *inter alia* constitute a sizeable source of funds for meeting plan obligations. To move effectively towards self-reliance, it is necessary to adopt a resource mobilization policy which will minimise the dependence on such budgetary support during the Fourth Plan period, and eliminate it altogether as early as possible thereafter. These fundamental considerations underlie both the quantum and the nature of the resource mobilization effort envisaged for the Fourth Plan period.

3. The forecast of resources likely to be available for the Fourth Plan is based on the assumption that the increases in output anticipated for the various sectors of the economy will materialise. In the initial years of the Fourth Plan, much of the increase in production is to be realised from the investments already completed or due for completion.

It is, further, reasonable to expect agricultural production in the current year to register a substantial increase with a normal monsoon. With the measures being taken to enable fuller utilization of the productive capacity that exists, the trends in industrial production in the next two years should be much more favourable than in the recent past. There are, in other words, elements in the economy which favour a fairly rapid increase in national production in the immediate future; and, if effective measures are taken from now on to maintain this momentum during the later years of the Fourth Plan period, it should not be difficult to realise the anticipated rate of growth in the national product. However, any deviations in actual trends will need to be suitably taken into account in Annual Plans.

4. A number of measures were taken by the Central and State Governments to enlarge their tax revenues and revenues of public enterprises, even before the budgets for the current year. These resource mobilization efforts have been carried further in the current year and in addition, concrete steps are at present being worked out for securing economies in both revenue and capital expenditures at the Centre as well as in the States. If, in the remaining years of the Plan, rigorous discipline is exercised in the incurring of public expenditure and if additional mobilization of the order indicated later in this Chapter is carried out, it is expected that the financial requirements of the Fourth Plan can be met without deficit-financing.

Internal Resources for the Public Sector

Resource Mobilisation in the Third Plan

5. Before indicating the scheme of financing for the Fourth Plan, we may review here briefly the position in regard to the financing of the Third Plan.

6. At the time of the formulation of the Third Plan, the resources in sight for financing the development programme in the public sector were estimated at Rs. 7500 crores. The cost of the physical programmes included in the Plan was, however, assessed at a higher level — more than Rs. 8000 crores. It was stressed, therefore, that the resources position should be kept under continuous review so that timely action could be taken to reduce the gap between requirements and resources.

7. The Table below shows the pattern of financing the Third Plan as originally envisaged and as it works out now on the basis of the latest estimates.

Table 1. Financial Resources for the Third Plan

	(Rs. crores) original scheme of financing	latest estimates
balance from current revenues at 1960-61 rates of taxation	550	—470
railways' contribution at 1960-61 rates of fares and freights	100	80
surplus of other public enterprises at 1960-61 prices of products	450	395
loans from public (net)	800	915
small savings	600	585
unfunded debt (net)	265	340
compulsory deposits and annuity deposits (net)*	—	115
steel equalisation fund (net)	105	35
miscellaneous capital receipts (net)	170	150
budgetary receipts corresponding to external assistance	2200	2455
additional taxation, including measures to increase the surplus of public enterprises	1710	2880@
deficit financing	550	1150
total	7500	8630

8. It will be seen that the yield over the Third Plan period from additional taxation, including measures to raise the surplus of public enterprises, has considerably exceeded the target of Rs. 1710 crores. The yield from the measures adopted by the Centre is estimated at about Rs. 2270 crores, which is more than twice the amount of Rs. 1100 crores envisaged in the Plan. In the case of States, the yield is estimated at Rs. 610 crores, or approximately the same as indicated in the Plan. The details of additional resource mobilization by the Centre

*These were introduced subsequent to the formulation of the Plan.
@Details given in Table 2.

and States are given in Table 2 below:—

Table 2. Yield from Additional Taxation, including Measures for Raising the Surplus of Public Enterprises, over the Third plan period

(Rs. crores)

	total receipts over Third plan	yield from additional taxation
A. CENTRE		
taxes—		
(*a*) income and corporation taxes	2433	303
(*b*) union excises	3481	1020
(*c*) customs	1722	690
(*d*) wealth tax, expenditure tax, estate duty and gift tax	88	19
(*e*) other taxes and duties	101	18
total	7825	2042
railway fares and freights	2848	211
postal revenue*	281	17
total A		2270
B. STATES		
agricultural income tax	50	7
land revenue	559	50
irrigation rates	170@	24
state excise duties	370	36
stamps and registration	303	49
taxes on motor vehicles and passengers & goods	349	93
general sales tax	985	157
inter-state sales tax	240	74
sales tax on motor spirit	120	17
entertainment tax	114	19
electricity duty	129	46
changes in electricity tariffs and charges of public transport undertakings	**	17
others	98	21
total B	3487**	610
Grand total (A+B)		2880

*All postal receipts including those from telegrams, telephones etc. but excluding miscellaneous receipts.

@Gross receipts (*i.e.* without deducting working expenses and interest charges).

**The total of gross receipts from electricity tariffs and charges of transport undertakings in the public sector is not available.

9. A good part of the fresh taxation undertaken at the Centre and in the States during the Third Plan period was, however, absorbed by increases in non-plan expenditures—including, among others, defence and additional emoluments and allowances to Government employees—so that the contribution of additional taxation towards Plan resources was smaller than might appear from the total yield. However, in the presentation adopted here, all increases in non-plan expenditure have been allowed for in calculating the balance from current revenues at 1960-61 rates of taxation; consequently, this balance is now estimated at about (—) Rs. 470 crores as against the Plan estimate of Rs. 550 crores, representing a reduction of Rs. 1020 crores. Taking both the balance from current revenues at 1960-61 rates of taxation and additional resource mobilization together, the latest estimate for the Third Plan period (Rs. 2410 crores) shows an improvement of Rs. 150 crores over the original estimate (Rs. 2260 crores). Even allowing for the shortfall in the anticipated contribution of railways at 1960-61 rates of fares and freights and of other public enterprises at 1960-61 prices of their products as compared to the Plan targets, the aggregate resources made available for the Plan from current revenues show a net improvement of about Rs. 75 crores as compared to the original expectation.

10. The public sector's draft on private savings through market loans, small savings, provident funds and so forth amounted to Rs. 1955 crores, or Rs. 290 crores more than the Plan estimate. Of this total, Rs. 1040 crores was in the form of receipts under small savings, State provident funds, compulsory deposits and annuity deposits—the larger part of which comes directly from earners in the middle and lower ranges. It may also be noted that a substantial proportion of loans from public represents investments from accumulations in provident funds for employees in the private sector. Life insurance funds constitute another major source of investment in Government securities. Altogether, therefore, a good part of the private savings transferred to the public sector comes from people belonging to middle and lower income groups. Like the draft on private savings, the accrual of budgetary resources from external credits and PL480 assistance was also higher than was originally anticipated. However, despite all these increases in receipts, the total budgetary deficits of the Central and State Governments amounted to Rs. 1150 crores for the five-year period. Deficit-financing was particularly large in 1965-66, when it amounted to Rs. 385 crores. In view of the price increases and other strains which have developed in the economy, it is of the utmost importance to avoid further deficit financing. The scheme of financing for the Fourth Plan has been framed against this background.

Estimates for the Fourth Plan

11. For financing the outlay of Rs. 16000 crores envisaged for the public sector programmes, the resources likely to be available are set out in Table 3 below:

Table 3. Estimates of Financial Resources

(Rs. crores)

	Third Plan			Fourth Plan		
	Centre	States	total	Centre	States	total
balance from current revenues at pre-plan rates of taxation	—650	180	—470	2090	920	3010
contribution of railways on the basis of pre-plan rates of fares and freight charges	80	..	80	260	..	260
surplus of other public enterprises on the basis of pre-plan prices of products	290	105	395	760	325	1085
loans from public (net)	420	495	915	700	800	1500
small savings	220	365	585	360	640	1000
unfunded debt (net)	240	100	340	400	165	565
compulsory deposits and annuity deposits (net)	115	..	115	150	..	150
miscellaneous capital receipts (net)	505	—320	185*	1330	—665	665
budgetary receipts corresponding to external credits—						
(*a*) other than those under PL480	1575	..	1575	4340**	..	4340**
(*b*) PL480 aid	880	..	880	360**	..	360**
economies in non-plan expenditure				85	250	335
additional mobilization of domestic resources	2270	610	2880	1745	985	2730
(*a*) measures adopted in 1966-67				805	125	930
(*b*) further measures to be adopted in the remaining period of the Fourth Plan				1100	700	1800
(*c*) Adjustment for accrual of resources to States on account of additional taxation undertaken by the Centre in 1966-67				—160	+160	..
deficit financing	1025	125	1150	—	—	—
aggregate resources	6970	1660	8630	12380	3620	16000

*Inclusive of receipts from Steel Equalization Fund.

**These figures are at the new rate of exchange. Consequently they are not comparable with the figures of the Third Plan period which are in terms of the pre-devaluation rupee.

12. In working out the balance from current revenues at rates of taxation obtaining prior to the 1966-67 budgets, the revenue receipts have been estimated on the basis of anticipated increases in production and national income during the Fourth Plan period. It has, further, been assumed that effective steps will be taken to reduce tax evasion and tax avoidance through improvements in the machinery of tax collection and to recover the arrears in respect of taxation and other payments due to Government under non-tax heads. On loans extended by Government, it will be necessary to avoid, except in certain special cases, subsidies and waivers in regard to interest. Likewise, in respect of public enterprises, it is anticipated that there will be effective utilisation of available capacity, strict economy in operating expenses, minimisation of inventory holdings and prevention of leakages in revenue. In the case of loans given by Government to public enterprises, it is assumed that the going rates of interest will be charged.

13. From the revenue receipts so estimated, the non-developmental and non-plan developmental expenditures of Central and State Governments have been deducted to arrive at the balance. The computation is on the assumption that the rate of increase in the expenditure on administrative services, and tax collection as well as the non-plan development expenditure will be restricted to 5 per cent per year. However, the Commission is of the view that in the circumstances existing at present, an even stricter control on such expenditure is necessary if public financial policy is to be of material assistance in achieving the objectives of development and stability. With determined effort by the Central and State Governments, it should be possible to keep these expenditures significantly below the level provided for in computing the balance from current revenues. Credit for the additional amount that could be found for the Plan by the Central and State Governments in this manner has been taken separately under the head "economies in non-plan expenditure", to which reference is made in para 21 below.

14. An important factor contributing to the increase in public expenditures in recent years has been the periodic stepping up of the salaries and dearness allowances of Government employees consequent upon increases in consumer goods' prices. In estimating the balance likely to be available for Plan purposes, account has been taken of the increases in emoluments and allowances which have already become effective at the Central or State levels. Obviously, further increases in these will, if revenue receipts do not rise at a faster rate than has been anticipated, reduce the balance available for Plan purposes at existing levels of taxation. Whether in the public or the private sector, the demands for higher salaries or allowances can be held in check to the

extent that increases in the prices of essential consumer goods are prevented in one way or another. Especially in the case of low-paid employees, the increase, if any, in the price of basic consumer articles would need to be compensated by adjustments in emoluments or allowances. It will further be necessary to allow for corrections of obvious anomalies in relative wages or salaries. Apart from such changes which have a basis in equity, any general increase in the wage or salary structure as a whole would add to inflationary pressures and affect the resources available for development purposes adversely. In the public as in the private sector, price increases induced by policy decisions of the Government to curtail imports, to generate surpluses for exports or to reduce consumption for other reasons, will have to be absorbed by wage and salary earners as by other sections of the people. Unless such a broad principle is accepted, and restraints on consumption expenditures made operative, the financial resources for the Plan may not reach the levels anticipated.

15. A second element to which attention was drawn in this context in the September, 1965 document is the increasing devolution of resources to local authorities in many States. It is essential that corresponding to the transfer of resources to local authorities, expenditures in State budgets should be reduced and the responsibility for meeting certain plan or non-plan expenditures should also be passed on to the local authorities. Indeed, these transfers should be such as will encourage local authorities to raise additional local resources for development works and thus augment the total resources for the Plan. The resources directly raised by local authorities have by and large not been taken into account in the estimates given here; and any revenues they can raise without detriment to the State Governments' resources will, therefore, constitute a net addition to the Plan effort envisaged in this outline.

16. Over the years, the investment in public enterprises like railways, electricity undertakings, irrigation projects, steel, machinery and so forth, has increased very substantially and there will be a further enlargement of such investments in the Fourth Plan period. Due partly to delays in the execution of projects and partly to operational deficiencies, the surpluses generated by the enterprises, which could be considered as available for reinvestments have not been commensurate with the potentialities of the enterprises. Mention has already been made of the urgent necessity of securing improvements both in implementation of new projects and operation of the running concerns. Various steps for achieving such improvements are being considered by the C entral and State Governments. It is necessary that decisions

regarding administrative or other changes aiming at improving the working of public enterprises should be taken expeditiously so that maximum benefit could be obtained from the investments that have been, and will continue to be, made in public undertakings.

17. In estimating the likely contribution of public enterprises at existing prices of their products, sufficient allowance has been made for their working expenses, normal replacements, interest payments, taxes and dividends, again on the basis of prevailing prices. It has, however, to be recognised that as a result of devaluation, the cost of maintenance imports required by public enterprises will be higher than originally anticipated. It is extremely important that these undertakings should, as far as possible, seek to offset the higher cost of imported raw materials by better utilization of capacity, larger import substitution, adjustments in their product-mix and general improvement in operational arrangements. It is only with a concerted effort to reduce costs along these lines that a rate of return on capital employed — of not less than 11 to 12 per cent — can be achieved without undue increases in the prices of products or services sold by public enterprises.

18. As in the case of revenue resources at existing rates of taxation, there is an element of extra effort implicit in the magnitudes assumed for mobilization through the borrowing programmes. In regard both to market borrowing and small savings, the estimates taken into account here allow not only for trend increases but also for special programmes of popularisation and intensification of collections. The possibilities of introducing new types of institutions or instruments, which could enlarge the contribution of households and other private agencies, will have to be explored.

19. Budgetary receipts corresponding to external credits, other than those under PL480, have been derived from the balance of payments estimates for the Fourth Plan period, the details of which are given in later paragraphs. The gross external credit requirements (excluding PL480 inflows) have been taken at a total of $8.4 billion for the Fourth Plan period. Deducting loan payments of about $1.7 billion, and an estimated direct inflow into the private sector of $0.9 billion, the accrual to the budget has been taken at the equivalent of $5.8 billion—or Rs. 4340 crores at the new rates of exchange. Rupee receipts corresponding to PL 480 imports of foodgrains and raw cotton are on the assumption that the food imports under PL480 would be of the order of 19 million tonnes during the Fourth Plan period --- mostly in the initial years—and the raw cotton imports at around 890,000 bales. The computations in the case of foodgrains are at issue prices, which involve

considerable subsidization. While a certain measure of subsidization of food prices may be warranted from the viewpoint of preventing increases in costs of living, the policy regarding such subsidies will have to be reviewed from time to time in order to ensure that it does not generate budgetary deficits.

20. It has to be emphasised that since the gross inflow of external credits will depend on the actual trends in imports and exports during the Fourth Plan period as well as on the policies of countries and institutions extending such credits, the budgetary receipts corresponding to this item will remain an uncertain magnitude. It will obviously be necessary to reassess this magnitude on the basis of the commitments that will in fact be undertaken on a continuing basis by the countries and institutions concerned. But for purposes of resource estimation, a view has been taken here of the gross requirements which would be consistent with the objectives of self-reliance set out in an earlier Chapter.

21. We come finally to the additional resource mobilization effort required for the Plan. This covers the measures for further economies in non-Plan expenditure on the one hand, and raising of additional funds on the other. As regards economies, it was pointed out in para 13 above that in computing the balance from current revenues, expenditure on administrative services and tax collection as well as non-plan developmental expenditure were assumed to rise at the rate of 5 per cent per annum. If the rate of increase in these expenditures is limited to $3\frac{1}{2}$ per cent rather than 5 per cent per year, an additional amount of Rs. 335 crores will be available for Plan purposes. This amount will become available only if very special efforts are made from now on to operate effective restraints on the growth of such expenditures outside the Plan. In restraining the increase in non-plan development expenditure to $3\frac{1}{2}$ per cent per annum, it is necessary to avoid undue rigidity in determining the allocations for the facilities for social and human development created during the past Plan periods. Adequate and effective maintenance of the existing facilities is as important as plan expenditures for their enlargement; and such maintenance should not be jeopardised in the process of economising on non-plan development expenditures. This will imply that the effort to contain public expenditure outside the Plan for functions other than adequate maintenance of developmental facilities should be much more determined than has been the case so far. To the extent effective steps are not taken for this purpose, additional mobilization will have to be larger than the Rs. 1800 crores envisaged in these resource estimates.

22. As will be observed from the Table in para 11, the scheme of financing the public sector programme envisages an yield of Rs. 930 crores from the measures included in the Central, States and railway budgets for 1966-67. These are, as it were, part of available resources. What remains to be undertaken is additional mobilization of the order of Rs. 1800 crores in the remaining period of the Plan. These additional resources are to be obtained through change in taxation and in pricing policies of public enterprises as well as through improvements in receipts from small savings, provident fund contributions and so forth. While details of the actual instruments to be used for such mobilization have to be worked out from year to year, it is anticipated that about Rs. 700 crores will be mobilized through State budgets and State undertakings, and the remainder through the budget and public undertakings at the Centre.

23. The broad directions along which the additional mobilization effort might be undertaken in the coming years are indicated briefly in the succeeding paragraphs. In this context, the Planning Commission has kept in view the multiple objectives which are to be served by public finance policy under existing conditions. The more important of these objectives are price stability, self-reliance and more effective contribution by the public sector to economic development as well as to the attainment of social justice. In the current situation, it is necessary for Government to assume a significant measure of responsibility for maintaining the prices of essential articles of mass consumption at a reasonable level. For this purpose, it might be necessary for Government to undertake trading activities both at the wholesale and at the retail level, in respect of some of the basic articles of consumption. It will also be necessary to provide budgetary subsidies in regard to foodgrains, fertilizers and so forth for some time. Since these activities have to be carried out within the constraint of a balanced budget, the expenditures needed in these areas have to be financed out of the current revenues accruing to the Government.

24. Further, the fiscal structure has to facilitate an improvement in the balance of payments position. This will require the use of fiscal instruments to provide an effective stimulus to exports, directly as well as by restraining domestic consumption of exportable commodities. There will also be need to regulate imports through fiscal measures wherever such a policy is advantageous from the economic or administrative points of view. Concurrently with these, tax policy should aim at preventing scarce resources—whether domestic or external—going into the production of relatively inessential commodities.

25. Along with the above purposes, the objective of narrowing down disparities in economic status and power has to be a major consideration in fiscal policy. This will require on the one hand the use of tax constraints on accumulation of property and wealth in the hands of private individuals, and on the other the enlargement of public expenditure on essential facilities such as education, rural water supply, public health and so forth. The instruments used for achieving one or more of these objectives should be such as will enable an enlargement of public savings also, since public investment has a strategic role in developing new industries and adding to the infrastructure facilities. It would be one of the tasks during the Fourth Plan period to adapt the tax structure to meet all of these requirements.

26. The lines along which additional resource mobilization could be undertaken during the Fourth Plan period consistently with the objectives of fiscal policy described above have been indicated in the document submitted in September, 1965. In the period since then, some steps have been taken by the Central and State Governments, as well as public enterprises, on the lines suggested. However, these have to be further strengthened and new measures adopted to ensure that budgetary resources are adequate to meet the Plan requirements. The main directions of necessary effort are indicated in the paragraphs below.

27. The Committee on the Working of State Electricity Boards (Venkataraman Committee) has recommended that the rate of return on capital employed in electricity undertakings should be raised to 11 per cent per annum on the basis of a phased programme. This has already been accepted in principle. In accordance with this policy, electricity tariffs and duties have in the past year been adjusted in some of the States. But the pace at which these adjustments are being made has as yet not been adequate to enable the reaching of the target rate of return before the end of the Fourth Plan. Steps should be taken to secure a proper adjustment in electricity tariffs and duties expeditiously so that a substantial part of the resources required for expansion of electricity supply and distribution is generated by the undertakings. Similarly, with regard to other public sector enterprises, decision should be taken early on the policies they should implement in order to get a rate of return of not less than 11 to 12 per cent on capital employed.

28. In the conditions following devaluation, it is, however, possible and desirable to make adjustments in both direct and indirect taxes to prevent accrual of unduly large profits to domestic producers and to push more of available supplies to the export sector. Such measures will be particularly necessary in the case of commo-

dities whose imports have been banned or continue to be severely restricted, as well as in respect of exportable articles whose supplies cannot be rapidly increased, or increased only on the basis of additional imports. Care will of course have to be taken to see that excise and other indirect taxes levied for this purpose do not affect the prices of essential commodities of mass consumption. Leaving these, the other consumer goods, especially durable consumer goods, should be brought within the scheme of relatively high duties both for enforcing a measure of austerity in private consumption and for diverting supplies to foreign markets.

29. As the economy develops and becomes more diversified, a variety of new commodities will become available, not all of which will fall in the category of basic essentials. The market for many of these commodities within the country will be a protected one, so that such commodities are likely to command from the very start fairly high prices. Given this situation, it might be proper to subject them to an excise duty from the very beginning. Indeed, adoption of such a policy could also facilitate the direction of available domestic resources into the priority industries or activities.

30. In view of the high priority accorded to agriculture in the Plan, the price support policy which has been adopted, and the price increases in respect of agricultural commodities which have already occurred, it is reasonable to expect a considerable increase in agricultural incomes during the Fourth Plan period. The existing structure of agricultural taxation is not such as would enable any significant part of this increase to flow into financing of development expenditures; nor are the financial institutions in rural areas sufficiently developed to facilitate the accumulation of private savings out of the additional incomes in a convenient form. There is, therefore, need for adjustments in the tax and institutional structures which could promote larger reinvestment of the gains that accrue to agriculturists.

31. In the last year or so, some States have imposed additional agricultural taxation by way of surcharges on land revenue, higher irrigation charges, surcharges on commercial crops and so forth. Taking all these types of measures together, it is imperative to add to the effort which has been initiated in a modest way. Either through revisions in land revenue rates or through adjustment in irrigation charges or by levy of special surcharges on commercial crops, substantial resources can be mobilized in the remaining years of the Plan. In respect of irrigation rates, particularly, there is urgent need for implementing the recommendations of the Committee appointed to suggest ways and means of improving returns from irrigation projects (Nija-

lingappa Committee). The Committee has recommended that irrigation rates should be fixed at 25 per cent to 40 per cent of the additional net benefit to the farmer from irrigated crop; and where it is not possible to measure this net benefit, the Committee has suggested that the rates should be 5 to 12 per cent of the gross income from irrigated crop. The Committee has also suggested that compulsory water charges, sufficient to cover at least the maintenance and operation costs of irrigation works, should be made applicable to the entire area served by irrigation projects irrespective of whether water is drawn by the cultivators or not. These recommendations of the Nijalingappa Committee still remain to be implemented. Because of the comprehensiveness of these recommendations, it may not be possible for all of them to be carried out immediately. A phased programme for their implementation should, therefore, be adopted by each State as early as possible. Through a proper schedule of irrigation rates, it should be possible to collect for the exchequer a relatively larger share of the profits accruing to the cultivators of commercial crops. As regards land revenue, it will be necessary to revise the rates both for securing additional resources and for introducing an element of progression in their incidence on holdings of different sizes.

32. In the field of property and wealth taxation, which obviously impinges on the relatively richer sections of the community, there is much scope for further action. Yields from such taxes have been exceedingly small, despite the steep rise in property values that has occurred, and the additional wealth that has been amassed. From many points of view, including those of resource mobilization, it is essential that this part of the tax structure should receive particular attention in terms both of new measures of taxation and more effective administration of the taxes levied. This is furthermore an area in which the policies of local governments in regard to urban land and property rights require major revisions. The measures relevant in this connection are indicated in the Chapter XIX (Regional and Urban Development and Housing). These measures are also relevant from the viewpoints of social justice and prevention of speculative investments based on unaccounted money.

33. Finally, it will be necessary to increase the coverage and effectiveness of income tax both for revenue purposes and as a means of promoting austerity in consumption standards. Even though income tax payers will continue to be a small proportion of the total earning population in the country for many years to come, a very large number of people will attain income levels at which direct taxes in one form or another can be levied. And having regard to the lower level of per capita income, increased commodity taxation will neither be just

nor generally acceptable if very little of direct taxation impinges on those with annual incomes of Rs. 3000 and over in both urban and rural areas.

34. The measures mentioned above are all justifiable in terms of more than one plan objective; and together they could enlarge the responsiveness of tax revenues to increases in domestic production and incomes. If the fiscal structure is strengthened on the revenue side, by these and other means that may be practicable, and if strict discipline is exercised in the incurring of public expenditure, the task of financing public investments and welfare expenditures in the succeeding plan periods should become less strenuous than at present.

Resources for the Private Sector

35. For estimating the savings likely to be directly available to the private sector for investment, the Planning Commission had appointed a technical committee of officers from the Ministry of Finance, the Reserve Bank of India and the Planning Commission. This Committee has assessed such savings during the Fourth Plan period at about Rs. 7750 crores, taking into account the draft that the public sector will be making on the pool of resources in the form of taxation and borrowing. This aggregate is exclusive of the transfers included in the Plan outlays of the public sector, which will in the main facilitate private investment in the agricultural and industrial sectors. Details of the estimates are given in Table 4 below :

Table 4. Estimated availability of resources for private investment during the Fourth Plan period

	(Rs. crores at 1965-66 prices)
private saving	9670
(i) non-financial corporate sector	1165
(ii) financial corporate sector	
(*a*) specialised financial institutions	15
(*b*) commercial banks	21
(*c*) other financial institutions	7
(*d*) insurance companies	12
(iii) cooperatives	80
(iv) households	8370
government draft on private saving	3650
private saving available for private investment	6020
retained surplus of the Reserve Bank available for private investment	125
net inflow of funds from abroad	685*
surplus available from depreciation provision in the private corporate sector	910
resources available from private investment (exclusive of capital transfers to the private sector included under public sector outlay)	7740
or say	7750

*Equivalent of Rs. 435 crores of pre-devaluation rupees.

36. Since the larger part of the savings in the private sector will originate in the household sector, a variety of instruments and institutions will be needed to transfer household savings to the different sectors in the manner envisaged in Chapter III (Plan in Outline). In particular, for enabling the attainment of investments envisaged for the industries and minerals sector, it will be necessary to enlarge the transferability of private savings through organised credit institutions and the capital market. While the dependence of the organised industrial sector on the special financing institutions will be larger in the Fourth Plan than in the Third Plan, it will still be necessary for the corporations themselves to ensure on the one hand larger retention of their profits for reinvestment and, on the other, exploit the capital market more intensively. Without a sustained effort at resource mobilization on the part of the productive enterprises it would be difficult to fulfil the programme envisaged in the private sector in a manner consistent with the avoidance of undue credit expansion.

External Resources

37. The estimates of import requirements and export anticipations for the Fourth Plan period are indicated in Chapter V (Development of Foreign Trade). In aggregate terms, payments for maintenance and project imports are expected to amount to Rs. 12,050 crores at the new rate of exchange. In addition, provision has to be made for external debt servicing charges of Rs. 2284 crores. Thus, the payments on the external account which have to be financed from the country's foreign exchange earnings and further external credits add up to about Rs. 14,330 crores.

38. As against this, the export earnings envisaged for the five-year period are of the order of Rs. 8030 crores. Apart from these earnings from exports, there will be certain receipts under invisibles and inward remittances, which may benefit to some extent from devaluation. However, there will also be certain additional payments, such as the increased freight charges and foreign exchange on PL 480 imports, which have to be debited to the invisibles account. On balance, net receipts from all these transactions are not likely to be of any substantial magnitude. Nor are there any foreign exchange reserves which can be drawn upon for financing import payments or debt servicing charges. Consequently, the balancing of the external payments account will require a gross capital inflow of the order of Rs. 6300 crores (or Rs. 4000 crores at the pre-devaluation rates of exchange) as will be seen from the Table

below :—

Table 5. Estimate of External Payments and Receipts

(Rs. crores)

	in pre-devaluation rupees	in post-devaluation rupees
I *payments*		
1 imports	7650	12049
(*a*) maintenance imports	5200	8190
(*b*) project imports	2450	3859
2 external debt servicing charges	1450	2284
total I	9100	14333
II *receipts*		
1 exports	5100	8033
III *gap to be covered by external credit* (I minus II)	4000	6300

39. A part of this gross inflow will be in the form of direct foreign investments, principally in the private industrial sector. Such direct investment in the Third Plan period has been estimated at approximately Rs. 150 crores; it is expected that in the Fourth Plan period, an amount larger than this will be available in this form. For the remainder of gross credit requirements, arrangements will have to be made for loans and grants from developed countries and international institutions.

CHAPTER V

DEVELOPMENT OF FOREIGN TRADE

I

EXPORTS

INDIA'S exports were virtually stagnant during the decade 1951-52 to 1960-61. Total exports during the First Plan period amounted to Rs. 3029 crores, or an annual average of about Rs. 606 crores. During the Second Plan period exports aggregated to Rs. 3046 crores, or Rs. 609 crores on an average per year. The level of exports during the Second Plan was thus only marginally higher than during the First Plan, although there was a marked upward trend in exports during the last two years of the Second Plan. Over the decade, India's share in world exports declined from 2.1 per cent in 1950 to 1.2 per cent in 1960.

THIRD PLAN : 1961-62 TO 1965-66

2. At the time of the formulation of the Third Plan, export earnings were estimated at Rs. 3700 to 3800 crores for the plan period, and the level of exports was expected to rise by about Rs. 200 crores to Rs. 850 crores in 1965-66.

3. The stagnancy in exports witnessed during the 1951-60 decade was broken during the Third Plan period, and exports showed a degree of buoyancy from the very first year. In 1961-62 exports amounted to about Rs. 680 crores which showed an increase of about Rs. 20 crores over the level of exports in 1960-61, the last year of the Second Plan. Exports of a number of commodities recorded increases in 1961-62 as compared to 1960-61. In 1962-63 exports increased further by Rs. 34 crores to Rs. 714 crores. The year 1963-64 recorded a substantial increase in exports. Exports in that year amounted to Rs. 793 crores, thus registering an improvement of as much as Rs. 79 crores over the preceding year. Moreover, this improvement in the value of exports was due primarily to increases in the volume of goods exported rather than to increases in export prices.

4. The spurt in exports witnessed during the three years 1961-62 to 1963-64 was, however, not maintained during the last two years of the Third Plan. Exports in 1964-65 amounted to Rs. 816 crores, registering a small increase of Rs. 23 crores over the previous year. The performance of exports in 1965-66—the final year of the Third Plan—was more discouraging. Exports during that year amounted to Rs. 810

crores, showing an actual fall of Rs. 6 crores as compared to the preceding year. This decline in exports was due partly to a fall in the international price of sugar and to lower earnings from tea and cotton fabrics. A part of the decline is attributable to the bad agricultural harvest which adversely affected exports of a number of agricultural commodities. Exports in 1965-66 were also affected by the Pakistan-India hostilities.

5. Over the Third Plan period as a whole exports amounted to Rs. 3812 crores, which works out at an average of Rs. 762 crores a year. The level of exports during the plan period rose by about 23 per cent—from Rs. 660 crores in 1960-61 to Rs. 810 crores in 1965-66. It may be pointed out that this increase would have been larger if the production of agricultural and plantation crops had not been seriously affected by the failure of the monsoon and serious drought conditions in 1965-66.

6. The commodity composition of India's export trade registered some significant changes during the Third Plan period. Thus, although the three traditional commodities, *viz.*, tea, cotton textiles and jute manufactures continued to be the principal export earners, their share in total exports declined from 48 per cent in 1960-61 to 43 per cent in 1965-66. The Third Plan also saw a large expansion in the exports of a number of commodities, *viz.*, iron ore, sugar, iron and steel, handloom fabrics and engineering goods. Moreover, a number of new items, principally in the engineering and chemical fields, figured for the first time in export trade. The actual trends in exports of the principal commodities during the Third Plan are shown in the following Table :—

Table 1. Exports of principal commodities during the Third Plan

(value: Rs. crores)

commodity	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	total Third Plan
vegetable oils (non-essential)	8·5	5·8	13·2	19·9	7·1	4·1	50·1
oilcakes	14·3	17·3	31·1	35·4	39·8	34·6	158·2
tobacco (unmanufactured)	14·6	14·0	18·0	21·1	24·4	19·6	97·1
spices	16·6	17·5	13·8	16·0	16·7	23·1	87·1
sugar	2·4	14·6	16·9	26·0	21·2	11·3	90·0
fruits and vegetables	26·0	25·5	26·7	30·1	36·7	34·8	153·8
fish	4·6	3·9	4·0	5·7	6·8	6·8	27·2
tea	123·6	122·6	129·8	123·4	124·6	114·8	615·2
iron ore	34·0	35·4	35·3	36·4	37·3	42·1	186·5

commodity	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	total Third Plan
cotton piece-goods	57·6	48·3	48·2	54·3	57·6	55·2	263·6
(*a*) mill-made	52·8	43·3	41·5	47·5	48·0	46·9	227·2
(*b*) handloom	4·8	5·0	6·7	6·8	9·6	8·3	36·4
jute manufactures	135·2	145·9	149·5	154·2	168·2	182·9	800·7
engineering goods	5·6	6·9	8·0	14·9	14·3	20·0	64·1
iron and steel	5·5	4·0	1·0	1·9	4·4	8·3	19·6
chemicals and allied products	3·4	3·7	3·9	4·0	6·8	9·1	27·5
other exports	208·3	214·3	214·2	249·9	250·4	242·9	1171·7
total exports* including re-exports	660·2	679·7	713·6	793·2	816·3	809·6	3812·4

7. There were also notable shifts in the geographical distribution of India's export trade during the Third Plan. As will be seen from Table 2, the value of India's exports to West Europe recorded a small decline during this period. Exports to the Americas, on the other hand, recorded an appreciable increase. This was mainly accounted for by exports to U.S.A., whose share in India's exports rose from 16 per cent in 1960-61 to 18·3 per cent in 1965-66. However, the largest increase in India's exports was in relation to East European countries (including U.S.S.R) whose share in India's exports rose from 7·7 per cent in 1960-61 to 19·3 per cent in 1965-66, the U.S.S.R. mainly accounting for this increase. Exports to Africa and the ECAFE countries increased only moderately in value terms.

Table 2. Direction of exports during the Third Plan

(Rs. crores)

region	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	total Third Plan
I *West Europe*	239·8 (37·3)	233·3 (34·3)	245·4 (34·4)	251·2 (31·7)	241·8 (29·6)	220·0 (27·2)	1191·7 (31·3)
of which:							
(*i*) E.E.C.	51·8 (8·1)	56·2 (8·2)	56·5 (7·9)	62·2 (7·8)	57·0 (7·0)	55·3 (6·8)	287·2 (7·5)
(*ii*) U.K.	172·5 (26·8)	160·9 (23·7)	164·5 (23·1)	163·7 (20·6)	167·3 (20·5)	146·4 (18·1)	802·8 (21·1)

*Include exports from Goa; these are estimated at Rs. 18 crores for each of the two years 1960-61 and 1961-62.

region	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	total Third Plan
II *Asia and Oceania*	165·7 (25·8)	175·9 (25·9)	168·0 (23·5)	214·9 (27·1)	203·8 (25·0)	187·6 (23·2)	950·2 (24·9)
of which:							
(*i*) ECAFE countries	142·3 (22·1)	152·0 (22·4)	144·9 (20·3)	185·0 (23·3)	176·9 (21·7)	158·6 (19·6)	817·4 (21·4)
III *Africa*	49·0 (7·6)	56·3 (8·3)	50·0 (7·0)	46·4 (5·8)	46·2 (5·7)	61·9 (7·6)	260·8 (6·8)
IV *Americas*	138·2 (21·5)	149·5 (22·0)	157·4 (22·1)	171·8 (21·7)	180·6 (22·1)	180·2 (22·3)	839·5 (22·0)
of which:							
(*i*) Canada	17·6 (2·8)	17·6 (2·6)	22·2 (3·1)	21·2 (2·7)	17·5 (2·1)	20·3 (2·5)	98·8 (2·6)
(*ii*) U.S.A.	102·5 (16·0)	115·7 (17·0)	115·4 (16·2)	129·9 (16·4)	146·9 (18·0)	147·8 (18·3)	655·7 (17·2)
V *East European (Rupee Payment Area) countries*	49·6 (7·7)	64·4 (9·5)	92·7 (13·0)	108·9 (13·7)	143·9 (17·6)	156·6 (19·3)	566·5 (14·9)
of which:							
(*i*) U.S.S.R.	28·8 (4·5)	32·2 (4·7)	38·3 (5·4)	52·1 (6·6)	77·9 (9·5)	93·0 (11·5)	293·5 (7·7)
grand total	642·8*	679·7	713·6	793·2	816·3	809·6	3812·4

8. A number of institutional, fiscal and other measures were adopted during the course of the Third Plan to promote exports. The institutional framework for promoting exports was strengthened considerably during the Third Plan. A new Department of International Trade was set up in the Ministry of Commerce early in 1962 and a high-level Board of Trade was constituted to review all aspects of trade and commerce and to advise Government on export promotion. A new institution called the Indian Institute of Foreign Trade was set up as an autonomous organisation for developing programmes of training, research and market studies. A number of new Export Promotion Councils were set up during the Third Plan, raising their total number to 19. The Minerals and Metals Trading Corporation (MMTC) was established to promote exports of minerals and metals.

9. An important factor contributing to the increase in export earnings during the Third Plan period was the operation of special export promotion schemes in respect of various manufactured and processed products. Many of these schemes were started before the beginning of the Third Plan but these were rationalised and revised in the course of the Plan period.

10. Fiscal measures also played a role in promoting exports. Fiscal incentives in the form of drawback of import duty and refund of

*Figures for 1960-61 are exclusive of exports from Goa.

Note:—Figures within brackets show percentages of total exports.

excise duty were extended to a number of commodities during the Third Plan period. The export duty on tea was reduced by stages and finally abolished altogether. A Marketing Development Fund was established in July, 1963 and specified sums were provided in the Central budgets from 1963-64 onwards for grants to the Export Promotion Councils and for financing schemes and projects for development of foreign markets for Indian export commodities. Beginning with the Central budget for 1962-63 certain direct tax concessions were extended to exporters. In the Central budget for 1965-66 the Government announced a scheme for the issue of tax credit certificates to exporters, ranging from 2 per cent to 15 per cent of the value of such exports. Twenty-two export items were initially listed as qualifying for tax credit.

11. In order to ensure that commodities exported from the country are of the requisite quality, the Export (Quality Control and Inspection) Act was passed by Parliament in 1963. Thereafter, a number of additional commodities were brought under the purview of the Act and by the end of the Third Plan about 80 per cent of the country's export goods had been brought under the quality control and pre-shipment inspection scheme.

12. During the Third Plan India's exports grew less slowly than world exports so that India's share in the world exports fell from 1.2 per cent in 1960 to 1.0 per cent in 1965.

Export Programme for the Fourth Plan

13. The importance of securing a sizeable expansion in export earnings during the Fourth Plan cannot be over-emphasised. India's requirements of maintenance imports as well as project imports are estimated to rise substantially during the Fourth Plan, as a consequence of the increases in the levels of production and investment that are envisaged in the Plan period. The country's external debt servicing charges will also be substantially higher than in the Third Plan. Unless, therefore, efforts are made to raise the level of exports substantially by the end of the Fourth Plan, dependence on foreign aid would continue to be unduly heavy and progress along the road to self-reliance would be seriously jeopardised.

14. Bearing these considerations in mind, a series of studies on the prospects for exports during the Fourth Plan have been made both in the Planning Commission and the Ministry of Commerce from early 1964. In September 1965, a paper on "Export Programme for the Fourth Plan" was prepared in the Planning Commission, in consultation with the Ministry of Commerce, and presented to the National

Development Council for consideration. In this paper, total exports during the Fourth Plan period were placed at Rs. 5100 crores. Exports were envisaged to rise from a level of Rs. 850 crores in 1965-66 to Rs. 1110 crores in 1970-71—an increase of 30·6 per cent over the five-year period.

15. As shown earlier, the actual out-turn of exports in 1965-66 was Rs. 810 crores, which was Rs. 40 crores lower than the estimate given for that year in the National Development Council paper. In view of this lower base of exports in 1965-66 it was felt for some time prior to the devaluation of the rupee that a much greater effort than had been visualised earlier would have to be made in order to achieve exports of the order of Rs. 5100 crores during the Fourth Plan period. No detailed studies of the export prospects during the Plan period, in the light of this and other relevant factors, were, however, made at that stage.

16. The Government of India decided to lower the par value of rupee by 36·5 per cent with effect from 6th June 1966. As a consequence, the par rate of exchange between the rupee and the dollar became Rs. 7·50 per $1 instead of Rs. 4·76 per $1 prior to the devaluation of the rupee. Along with the lowering of the par value of the rupee, the Government announced the levy of export duties on 12 export commodities at specified rates. These commodities are : jute manufactures, tea, coffee, black pepper, oilcakes, tobacco (unmanufactured), raw cotton, cotton waste, wool, mica, hides and skins, and coir and coir manufactures. Furthermore, the Government announced the abolition of all existing special export promotion schemes, providing import entitlements against exports. The scheme for tax credit certificates introduced in the budget for 1965-66 was also abolished.

17. The devaluation of the rupee together with the other attendant measures introduced an altogether new element in the situation, and fresh studies had necessarily to be made in order to estimate export earnings during the Fourth Plan. Certain preliminary studies made in the Planning Commission, in consultation with the Ministry of Commerce and the concerned Ministries, show that it would be realistic to envisage total exports during the Fourth Plan period of the order of Rs. 5100 crores in pre-devaluation rupees or Rs. 8030 crores in post-devaluation rupees. As a result of devaluation, exports are likely to go up. However, it will take some more months for all the measures which Government are taking in the post-devaluation period to stabilise and become effective. Any revision of the target will therefore have to await a detailed examination, commodity-wise and destinationwise, of our export trade by the Planning Commission and the Commerce Ministry.

18. As for the phasing of exports during the Fourth Plan period, it is tentatively assumed that exports may rise from an actual level of Rs. 810 crores in 1965-66 to Rs. 825 crores in 1966-67 and to Rs. 1225 crores in 1970-71—all these figures being expressed in pre-devaluation rupees.* On this basis, the level of exports is expected to register an increase of 51·2 per cent over the Fourth Plan period. This may be compared with the estimates of September 1965, according to which, as stated earlier, the export level was expected to rise by 30·6 per cent during the Plan period.

19. The principal increases in exports envisaged during the Fourth Plan period are in respect of tea, iron ore, engineering goods, jute manufactures, fruits and vegetables (including cashew kernels), vegetable oils (non-essential), oilcakes, fish, tobacco (unmanufactured), cotton fabrics, iron and steel and chemicals and allied products. Somewhat smaller increases are anticipated in the case of sugar, coffee, spices, coir yarn and manufactures, and handicrafts.

20. The achievement of total exports of the order of Rs. 8030 crores in post-devaluation rupees (or Rs. 5100 crores in pre-devaluation rupees) during the Fourth Plan will require determined and well-articulated export promotion efforts in various directions, and will call for a measure of sacrifice and social discipline on the part of the community in the immediate future. It is, therefore, important to recognise clearly the various conditions that must be fulfilled and the positive measures—both general and specific—that will have to be taken if the aggregate export target is to be realised.

21. The most important pre-condition for the fulfilment of the export programme is the realisation of the production targets set for exportable commodities in the agricultural, mineral and industrial sectors. In the production and investment programmes under the Plan, special attention has been paid to this aspect of the problem. The requirements of exports should be specially taken into account in licensing additional industrial capacity during the Fourth Plan.

22. It would further be necessary to restrain growth in the domestic consumption of commodities where domestic consumption competes seriously with export sales. To this end, suitable measures, fiscal, administrative or other, would have to be devised, so that exports have a prior claim on increased production as compared to internal sales.

23. A large increase in the export of manufactures, particularly in the metallurgical, engineering and chemical fields is envisaged during

*In terms of post-devaluation rupees, the figures for 1966-67 and 1970-71 are Rs. 1300 crores and Rs. 1929 crores.

the Fourth Plan. An important condition of success in this area is that costs and quality of Indian manufactures should be competitive with those of foreign suppliers. A determined drive for improving productive efficiency through rationalisation of methods of production, better management, development of technology, etc. leading to a reduction in the cost of production must be made during the Fourth Plan. This aspect of the export promotion effort has to be fully recognised by productive enterprises in both the private and public sectors.

24. It would be worthwhile exploring the possibilities of setting up specific export units which would be up-to-date in technology and which would devote themselves wholly to production for exports. It may be necessary to establish such units in the public sector.

25. In view of the increased production achieved by public sector undertakings in metallurgical, engineering and other fields in the last few years and also in view of the additional investment that is planned to be made, the public sector enterprises are expected to be in a position to make a more positive contribution to exports during the Fourth Plan period. In order to do this, the public sector enterprises will need to re-orient their production programme and organisational set-up suitably, including the establishment of special overseas sales departments.

26. In order to fulfil the export programme which would involve both a diversification of export commodities and widening of export markets, it would be necessary to provide all the requisite facilities for the development of export markets, including the allocation of foreign exchange for travels abroad by exporter and businessmen, sales promotion, opening of offices, depots and emporia abroad.

27. It is vital that the export programme does not suffer for lack of raw materials, intermediate products and components needed for the production of export commodities. Bearing this in mind, Government has placed a number of commodities such as raw jute, cashew nuts, hides and skins, and tanning materials on the open general licence. Furthermore, under the existing policy of licensing maintenance imports, actual users in priority industries, which include a number of export industries, will be able to secure their full requirements. It will, further, be necessary to assure export industries that any additional supplies of raw materials and any balancing equipment that they may need for enlargement of their exports will be provided on a priority basis. This aspect of the export promotion effort will need to be kept under constant review.

28. In addition to the general measures for export promotion indicated above, specific and concrete steps may have to be taken in

regard to individual export commodities. This question is being examined by the Government in the light of the altered situation created by the devaluation of the rupee and related measures.

II

IMPORTS

29. Apart from the year 1951-52 when the value of imports increased sharply to Rs. 970 crores from Rs. 651 crores in 1950-51, owing mainly to the increase in world prices of imports because of the Korean war, the level of imports rose only moderately during the First Plan period, imports in 1955-56 being Rs. 678 crores. Total imports during the Plan period amounted to Rs. 3617* crores which worked out at an average of Rs. 723* crores a year.

30. Imports rose more noticeably from the beginning of the Second Plan. They increased to Rs. 841 crores in 1956-57 and then sharply to Rs. 1035 crores in 1957-58, as a result of the quickening of the pace of development and the liberal import policy pursued during the closing years of the First Plan period. This sharp increase in imports, occurring with relatively stagnant exports, caused a serious foreign exchange shortage, which necessitated the adoption of a restrictive import policy and the scaling down of the investment programme in the Plan. Imports thus fell back to Rs. 906 crores in 1958-59 and rose only slightly in 1959-60. It was only in the last year of the Second Plan that imports increased substantially, rising to a level of Rs. 1140 crores. Over the Second Plan as a whole, imports amounted to Rs. 4882** crores or Rs. 976** crores per year.

THIRD PLAN : 1961-62 TO 1965-66

31. In the Third Plan document, the total requirements of imports during the Plan period, excluding food imports under the PL 480 programme, were estimated at Rs. 5750 crores. This was made up of Rs. 3650 crores of maintenance imports, Rs. 200 crores of components, intermediate products etc., for raising the production of capital

*These import figures are based on Customs data. According to Exchange Control data, total imports during the First Plan period amounted to Rs. 3651 crores, which was close to the Customs figure.

**These figures are based on the Customs data. According to the Exchange Control data, total imports during the Second Plan were considerably higher, being of the order of Rs. 5403 crores or Rs. 1080 crores on an average per year. On the basis of Exchange Control data, total imports during the Second Plan period were thus about 48 per cent larger than in the First Plan period.

goods, and Rs. 1900 crores of imports of machinery and equipment required for the implementation of Plan projects. Foodgrain imports under the PL 480 programme which were not included in this total were taken at Rs. 600 crores in the Plan document.

32. On the basis of Customs data available so far, total imports during the Third Plan period amounted to Rs. 6209* crores of which PL 480 food imports inclusive of freight charges accounted for Rs. 849 crores. Thus actual total imports, other than PL 480 food imports, amounted to Rs. 5360 crores or Rs. 390 crores less than the estimated requirements indicated in the Plan document.

33. During the Third Plan period, there was a progressive rise in the level of imports except in 1961-62 when total imports declined from Rs. 1140 crores in 1960-61 to Rs. 1107 crores. In 1962-63 imports increased by Rs. 29 crores to Rs. 1136 crores. In 1963-64 the cuts which had been imposed in the preceding year in respect of established importers' quotas were partially restored. There was also an improvement in the rate of utilisation of foreign aid. As a result of these factors, the level of imports rose by Rs. 87 crores to Rs. 1223 crores in 1963-64.

34. In 1964-65 in expectation of an increase in non-project assistance, foreign exchange allocation for maintenance imports was somewhat increased, particularly for actual users. The level of imports rose by Rs. 126 crores to Rs. 1349 crores in 1964-65. The bulk of the increase—about Rs. 100 crores—was on account of increased imports of cereals and cereal preparations.

35. According to the provisional data available, imports in 1965-66 amounted to Rs. 1394 crores showing an increase of Rs. 45 crores compared to the previous year. As in the preceding year, the increase in imports in 1965-66 was mainly due to increased imports of cereals. Imports in the first two quarters of 1965-66 were somewhat larger than those in the last quarter of 1964-65 as a result of past import licensing. However, in the last two quarters of 1965-66 the level of imports declined as a consequence of further restrictions on imports imposed in 1965-66.

36. The trends in imports of principal commodities during the Third Plan period are shown in Table 3.

*Exchange Control data on imports are so far available only for the first four and half years of the Third Plan. On this basis total imports during the Third Plan period may be placed at Rs. 6160 crores which is close to the Customs figure.

Table 3. Imports of principal commodities during the Third Plan

(Rs. crores)

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	total Third Plan (1961-66)
cereals and cereal preparations	181·4	117·9	144·3	179·6	282·1	309·1	1033·0
of which: PL 480 foodgrains	150·0	71·0	112·0	173·0	225·0	268·0	849·0
cashewnuts	9·6	6·7	9·1	10·9	16·4	15·1	58·2
raw cotton other than linters	81·7	62·7	56·9	49·0	58·0	46·2	272·8
jute raw	7·5	5·3	3·0	1·9	7·3	5·6	23·1
fertilisers crude and manufactured	12·1	15·0	30·0	37·6	32·9	44·8	160·3
mineral fuels, lubricants and related materials	69·5	95·9	88·0	104·5	68·7	68·3	425·4
chemical elements and compounds	39·3	35·6	38·1	32·1	34·0	35·8	175·6
medicinal and pharmaceutical products	10·5	11·3	9·3	8·6	8·2	8·8	46·2
dyeing, tanning and colouring materials	10·5	14·5	12·1	8·0	9·2	6·6	50·4
synthetic plastic materials	5·7	7·8	6·5	4·7	6·5	5·8	31·3
crude rubber and rubber manufactures	14·0	13·6	12·0	11·7	6·8	6·0	50·1
paper, paper board and manufactures thereof	12·1	16·0	13·6	12·5	13·1	13·4	68·6
art silk yarn	11·1	9·4	7·1	3·5	2·7	0·8	23·5
base metals	169·9	157·3	144·2	148·2	163·4	166·4	779·5
(*i*) iron and steel	122·6	108·0	89·0	93·2	105·0	97·8	493·0
(*ii*) non-ferrous metals	47·3	49·3	55·2	55·0	58·4	68·6	286·5
machinery and parts thereof	260·6	304·2	315·3	365·9	404·2	419·5	1809·1
transport equipment	72·4	64·6	72·0	71·1	73·5	70·0	351·2
others	171·8	169·3	174·1	173·1	162·0	171·8	850·3
total imports	1139·7	1107·1	1135·6	1222·9	1349·0	1394·0	6208·6

Source : Customs data except for PL 480 food imports.

37. As will be seen from Table 3, the major increases in imports during the Third Plan period were in respect of cereals, fertilisers, and machinery, spares, and components. Imports of iron and steel declined during the first two years of the Plan but increased in the following two years. There was again a decline in these imports in the last year of the Plan. In the case of non-ferrous metals the trend in imports was continuously upward during the Plan period. Taken together, imports of iron and steel and non-ferrous metals went down during the first two years of the Plan but rose in the subsequent three years. Imports of petroleum products which showed an upward trend during the first three years of the Plan declined in the last two years as a consequence of increased internal production. Imports of transport equipment went down moderately over the Plan period. Imports of a number of other commodities such as chemical elements and compounds, medicinal and pharmaceutical products, dyeing, tanning and colouring materials, rubber, art silk yarn, raw cotton and raw jute declined during the Plan period as a result of the efforts to achieve substitution of imported goods by increased production and the restrictive import policy followed during this period. Imports of some of the commodities which go into the production of export items such as cashew nuts recorded an increase. In regard to certain other commodities like paper and synthetic plastic materials, imports fluctuated from year to year but the levels in 1965-66 were only marginally higher than those in 1960-61.

38. Total imports of machinery and transport equipment, according to the data given in Table 3, amounted to Rs. 2160 crores during the Third Plan period. Of this total, a sizeable amount consisted of replacement machinery and spares. It would appear, therefore, that actual imports of machinery and components for Plan projects were lower than the estimate of Rs. 2100 crores indicated in the Plan document in respect of project imports and components, intermediate products etc., required for raising the output of capital goods. In the case of maintenance imports as well, it appears that actual imports were smaller than the estimate given in the Plan document.

Import Requirements during the Fourth Plan

39. The total requirements of imports during the Fourth Plan, excluding PL 480 imports, are estimated at Rs. 7650 crores in pre-devaluation rupees (or Rs. 12,049 crores in post-devaluation rupees). Of this total of Rs. 7650 crores, the requirements of maintenance imports, including imports of components needed for the domestic manufacture of machinery and equipment as well as imports of replacement machinery and spares, have been put at Rs. 5200 crores. The

remainder—Rs. 2450 crores—is accounted for by project imports, comprising mainly whole machinery and equipment required for the implementation of the projects included in the Plan.

40. The estimates of maintenance import requirements totalling Rs. 5200 crores in pre-devaluation rupees (or Rs. 8190 crores in post-devaluation rupees) have been made in terms of the major commodities, in the light of expected domestic requirements and domestic production during the Fourth Plan and taking into account the policy of import liberalisation announced by the Government in June 1966 in respect of 59 priority industries. Furthermore, a number of assumptions have been made in working out the estimates for the major commodities or commodity groups. First, it has been assumed that steps will be taken to ensure that the targets of production set out in the Plan are fully realised. To the extent there is any slide-back in the Plan schedule of production from year to year, particularly in important sectors like steel and fertilisers, the requirements of maintenance imports will increase. A second assumption is that the present restrictions on imports of consumer goods—durable as well as non-durable—will continue during the Plan period. Thirdly, as for raw materials required by consumer goods industries, it has been postulated that imports of raw materials for these industries will also continue to be restricted except to the extent they are specifically required for the production of export commodities. Fourthly, in the case of certain commodities, such as, kerosene and newsprint where demand may continue to exceed availability, it has been assumed that suitable measures will be taken to restrain the growth of demand. Fifthly, in the case of nitrogenous fertilizers, considering that the value of imported equipment for a 200,000-tonne plant is nearly half the annual value of an equivalent quantity of imported fertilisers, the presumption is that immediate steps will be taken for increasing the production of fertilizers in the later years of the Fourth Plan. Sixthly, in regard to non-ferrous metals for which India has inadequate or no natural resources, it is assumed that all possible measures will be taken to economise their use by the adoption of processes which require less of these metals per unit of output (such as electro-tinning in place of hot-dipping process), and by the substitution of imported metals by domestically produced metals, *e.g.*, zinc and copper by aluminium.

41. In regard to capital goods industries, the assumption is that, in pursuance of the policy of import liberalisation, the demand of these industries for imported raw materials and components will be met in full. At the same time, it is expected that effective and prompt policy measures would be taken to ensure the maximum use of indigenously

produced machinery. The liberal import policy in regard to components would be of assistance in increasing the supply of indigenous machinery and equipment which could be substituted for imports of whole machinery and equipment. However, it will be necessary to ensure that, in regard to the components themselves, a progressively larger part of the supply comes from domestic manufacturers, and the import content of whole machinery produced in the country is significantly reduced.

42. The greater part of the requirements of maintenance imports during the Fourth Plan period—about two-thirds of the total—is on account of iron and steel, non-ferrous metals, petroleum and petroleum products, fertilisers (including fertiliser raw materials), and components and spares for machinery and transport equipment. As for the year-to-year phasing of imports during the Plan period, it is expected that imports of iron and steel, non-ferrous metals, fertilisers and fertiliser raw-materials, and components and spares for machinery and transport equipment will increase appreciably in the course of the Plan period. On the other hand, imports of petroleum and petroleum products and vegetable oils are not expected to register any significant increase over the present levels. Again, in the case of chemicals, drugs and dyes, textile fibres and paper, paperboard and newsprint, imports are likely to decline moderately in the course of the Plan period.

43. The estimate of project import requirements at Rs. 2450 crores in pre-devaluation rupees (or Rs. 3859 crores in post devaluation rupees) is based on broad studies of the requirements of machinery and equipment in different sectors of development and of the expected production of machinery and equipment of different kinds in the country in the course of the Plan period. The great bulk of the requirements for project imports is accounted for by the three sectors of industry and minerals; transport and communications, and irrigation and power. Together, their project import requirements constitute about 90 per cent of the total.

CHAPTER VI

EMPLOYMENT AND RURAL MANPOWER

BETWEEN 1951 and 1961, the labour force in India increased by over 21 million. Against this, non-agricultural employment is reckoned to have increased by about 12 million. Increase in agricultural employment is difficult to estimate, but may be placed at about 5 million. Unemployment at the end of the Second Plan is estimated at about 7 million. Over the Third Plan period, the labour force increased by 17 million and the additional employment created is estimated at 14·5 million, 10·5 million being in the non-agricultural sector and 4 million in the agricultural sector. Thus, on these estimates, which are admittedly rough, the backlog of unemployment at the beginning of the Fourth Plan is 9 to 10 million, of whom about three-fourths are in the rural areas. Though these statistics are not as precise as they should be, they highlight the fact that the additional employment generated during the First, Second and the Third Plan periods has fallen short of the overall demand for employment opportunities arising from growth of population, migration from rural into urban areas, and development of education.

2. To achieve a balance between development and investment on the one hand and growth in employment on the other, is an essential objective of planning. However, such a balance has to be sought as an indirect rather than as a direct consequence of planning. In drawing up a plan, a wide range of constraints and possibilities have to be taken into account. Considerations bearing on employment can be taken into account only broadly in terms of policies concerning choice of techniques and programmes for utilising surplus manpower or promotion of village and small industries or other forms of small scale activities and self-employment. In each sector there are compelling requirements which have to be met, so that the scope for large changes in the plan from the angle of employment is somewhat limited. Yet, the ability to absorb at least the net addition to labour force into productive and gainful employment is a test which a plan of development should endeavour to meet at the very stage of formulation.

APPROACH DURING THE FOURTH PLAN

3. Each Five Year Plan is a segment of a longer term plan for the development of the economy. If a view is taken of the shape which the problem of employment is likely to assume over a period

of a decade or more, including the structure and composition of the labour force and categories of potential workers for whom a marked imbalance in employment opportunities is anticipated, it is both possible and necessary to influence development policies, priorities and allocations in a more decisive manner than may be immediately feasible. The following table shows the net addition to the labour force estimated for different States over the periods 1961-76 and 1966-76 :

Increase in Labour Force during 1961-76

(figures in millions)

State	labour force in 1961	net addition 1961—76	net addition 1966—76	col. (3) as percentage of col. (2)	col. (4) as percentage of col. (2)
(1)	(2)	(3)	(4)	(5)	(6)
Andhra Pradesh	16·13	4·76	3·53	29·51	21·88
Assam	4·67	2·18	1·67	46·68	35·76
Bihar	17·12	7·68	5·93	44·86	34·64
Gujarat	7·75	3·70	2·74	47·74	35·35
Jammu and Kashmir	1·36	0·29	0·20	21·32	14·71
Kerala	5·51	2·95	2·15	53·54	39·02
Madhya Pradesh	14·99	5·20	4·05	34·69	27·02
Madras	13·99	4·10	3·00	29·31	21·44
Maharashtra	17·18	6·51	4·81	37·89	28·00
Mysore	9·40	3·75	2·78	39·89	29·57
Orissa	6·86	2·49	1·87	36·30	27·26
Punjab	6·26	4·02	2·96	64·22	47·28
Rajasthan	8·27	3·82	2·83	46·19	34·22
Uttar Pradesh	25·71	10·98	8·26	42·71	32·13
West Bengal	11·29	5·78	4·33	51·20	38·35
Nagaland and Union Territories	3·06	1·82	1·38	59·48	45·10
all India	169·55	70·03	52·49	41·30	30·96

4. The Third Plan had envisaged that over the fifteen years, 1961-76, the entire increase in the labour force of about 70 million would be absorbed into productive and gainful employment. From this aspect, it is necessary to review proposals for development during the Fourth Plan both in the public and private sectors, not only for the country as a whole but also separately for each State. In doing so, allowance would have to be made for such possibilities as there might be for promoting inter-state mobility on the part of both skilled and unskilled workers. In relation to those States and regions which are densely populated and in which there is a clear lag in employment opportunities, it is necessary to find ways of orienting development plans so as to achieve greater and quicker impact on employment. In considering increase in employment during the Fourth Plan, account

has to be taken both of expansion in employment opportunities consequent upon new investment and of measures to achieve maximum production and employment through effective utilisation of productive capacities which have been already created. On present estimates, it appears that against a 23 million of net addition to the labour force during the period of the Fourth Plan, increase in employment opportunities outside agriculture may be about 14 million and in agriculture of the order of 4·5 to 5 million, making a total additional employment potential of 18·5 to 19 million. There may be, thus, a gap in employment of 4 million or more. Plans of development envisage creation of new and expansion of existing capacities as well as more efficient use of existing capacities. This latter aspect will have increasing importance for employment policy in the future. In view of the substantial development which has already occurred in the economy, it must be a major objective of economic and industrial policy to sustain current employment at the highest levels feasible. In watching the progress of employment, it is difficult to separate the impact of new investment from that of investments made in the past and the current performance of the economy. Keeping these considerations in view, an attempt is being made at present by the Planning Commission and the Ministry of Labour and Employment to improve the system of reporting of employment market information at the State and district levels and in relation to different branches of the economy. It is proposed that progress in employment should be reviewed at regular intervals, both at the State level and for the country as a whole, and should be checked against measures taken to implement Plan projects and programmes and to secure the fullest operation of the existing capacities. From the aspect of employment, such periodical reviews may not only indicate certain adjustments in measures and policies but may also reinforce the need in areas specially exposed to unemployment and under-employment to implement some of the labour-intensive programmes earlier than envisaged in the Plan.

5. In recent years attempts have been made to estimate the volume of employment likely to be generated as a result of various investment and production programmes. Continuous efforts have also been made to test the assumptions underlying these estimates and to obtain more accurate data. The scope of employment studies is now being extended to include not only the establishment of carefully tested employment norms but also study of the structure of employment in different branches of the economy and in different regions. As a first step, a study of the coal industry is being undertaken with a view to ascertaining the structure of employment and skills and relationships between employment on the one hand, and investment, output and levels of

technology on the other. This study will be followed by similar investigations concerning construction activities, machine tools and other engineering industries and the road transport industry. In the light of these studies a further programme of investigations will be formulated. Similarly, since in several parts of the country the problem of unemployment is largely linked with the rate of growth and the pattern of development of the regional economy, a beginning has been made with a study of the structure of employment in Kerala which will include the appraisal, from the aspect of employment, of developments in different sectors over the past decade. This study may provide useful indications of the directions in which the future development of an economy like that of Kerala should be planned so that, over a period of years, the problem of unemployment may be eliminated. Later, it is hoped to undertake similar studies in a few other regions in which the character and dimensions of the problem of employment are such as to call for a long-term approach to the development of the regional economy.

6. Whatever the limitations of a plan from the angle of employment at the stage of formulation, its effects on employment will depend entirely on the efficiency and resourcefulness with which it is implemented. Frequently, in the past, slow implementation and lack of effective coordination between related programmes have tended to reduce the volume of employment generated much below the levels envisaged in the Plan. Employment is a significant indicator of the quality of plan implementation which can be kept under close observation in relation to (a) different branches of the economy, (b) different areas and (c) different categories of workers, specially skilled workers and educated unemployed persons and workers engaged in construction. To this end, employment market information reporting is in the process of being reorganised and improved. It is at present difficult to watch employment trends in rural areas, specially in respect of unskilled workers and rural youth who have a modicum of education but not enough skill or training to be readily absorbed in new and productive avenues which are being opened up as a result of development both within and outside the agricultural economy. Schemes are being formulated for establishing rural manpower cells as part of the machinery of employment exchanges as well as rural vocational centres for imparting new skills to rural youth. These schemes will be implemented in association with the rural works programme to be undertaken during the Fourth Plan.

Rural Unemployment and Under-employment

7. The fact that, under present conditions, successive plans of development are unable to find gainful employment for all the net

addition to the labour force and continue to add to the backlog of unemployed persons has two sets of implications. First, as stated earlier, to the extent possible, the content and manner of implementation of development programmes should be such as to make the maximum impact on employment. Secondly, there should be additional programmes for making effective use of the available manpower resources. These resources become available partly on account of unemployment, but even more because of the prevalence of large-scale under-employment. In varying degrees, under-employment exists both in urban and in rural areas. The total number of under-employed persons available and willing to take up additional work is reckoned roughly at about 16 million. Many of the development programmes undertaken and carried out through the Five Year Plans, as in agriculture and in small industries, provide a measure of relief to the under-employed. However, in many rural areas, because of the extent to which under-employment prevails, the available manpower cannot be effectively utilised without undertaking special programmes for public works and small rural works which can provide employment to large numbers of persons, particularly during the slack agricultural seasons.

8. In many parts of the country, there is heavy pressure of population on land. The agricultural economy is unable to provide continuous work through the year. The slack agricultural season frequently extends from three to six months. The growth of population, the pace at which non-agricultural activities are developing within and outside the rural economy and greater resort by owners of land to personal cultivation have tended to increase the strains of poverty for cultivators with marginal holdings and large numbers of landless agricultural workers. To the extent agriculture becomes more intensive and less dependent on the weather, there is scope for fuller utilisation of the labour force engaged in cultivation. However, even favourably situated areas show a considerable surplus of manpower. The problem presented by chronic under-employment on the part of large numbers of landless agricultural workers is of a long-term character. Very low wage levels and low levels of productivity are but symptoms of this problem. A permanent solution can only be achieved through the development of a system of scientific, diversified and assured agriculture, the building up of a wide range of small and processing industries in rural areas, rural electrification, growth of new skills and general economic and industrial development. Since the period over which these objectives will be attained through the Five Year Plans is likely to spread over several plan periods, programmes for utilising available manpower resources at the area level have to be regarded as an indispensable and organic part of the scheme of economic development. By putting

available manpower resources to productive use, agricultural and economic development can be accelerated. In areas in which there is considerable rural unemployment and under-employment, whose economy has remained markedly under-developed, the productivity of substantial sections of the rural population can be increased through special rural works programmes. Their labour can be harnessed for strengthening the local economy and assuring minimum purchasing power and improved levels of living. In other areas also in which, though conditions are favourable for intensive agricultural development, but the pressure on land is so great as to leave large manpower resources unutilised, manpower has to be thought of positively as a resource to be used productively to accelerate agricultural progress.

Rural Works Programme

9. This approach to rural manpower had been stressed in the Third Plan, which visualised a rural works programme on a mass scale capable of providing work for 2·5 million persons in terms of 100 days work in the year. However, while indicating an outlay of the order of Rs. 150 crores over the five-year period, a specific allocation for the programme was not made in the Plan and it was proposed that funds should be allotted from year to year. A beginning was made during the Third Plan, but the scale of the effort undertaken was much smaller than had been hoped for, largely because of several unexpected developments which occurred and the consequent limitations on resources. In all, only a sum of Rs. 19 crores could be made available for the rural works programme. In the last year of the Third Plan, expenditure stood at a level of nearly Rs. 8 crores and the employment provided could be reckoned at about 400,000 in terms of work for 100 days in the year.

10. The Fourth Plan, as at present formulated, shows a gap of 4 million or more between the net addition to the labour force and the additional employment likely to be generated. In view of this factor and recognition of the role which rural works can fill, this programme has now been incorporated as an integral part of the Fourth Plan. Although employment provided in the slack agricultural season is not a substitute for the creation of opportunities for gainful work such as accrue from the building up of the economy through the provision of basic capacities and an adequate infra-structure, the rural works programme has a vital contribution to make, both towards relief of unemployment and under-employment and assuring of minimum earnings and towards acceleration of the pace of agricultural and rural development. From data already furnished it is apparent that if the rural works programme is to fill the anticipated gap in employment,

there would be justification for a programme large enough to provide work during the slack agricultural seasons to about 4 million persons. However, having regard to the various claims on the available resources, a provision of Rs. 95 crores has been made. The possibility of a larger programme being undertaken on an assessment of performance and results during the next two or three years or of acceleration in certain areas has to be kept open. Given a selective approach to the areas where rural works programmes are specially needed and a careful watch on the state of employment, the rural works programme should serve as an effective but flexible instrument of rural employment policy.

11. By the end of the Fourth Plan, the proposed outlay should enable State Governments to provide employment to about 1·5 million persons in slack agricultural seasons in terms of work for 100 days in the year. The tentative phasing of expenditure and anticipated employment are shown below:

Year	outlay (Rs. crores)	employment potential (lakhs)
1965-66	7·5	3·75
1966-67	8·2	4·0
1967-68	12	6·0
1968-69	16	8·0
1969-70	24	12·0
1970-71	30	15·0
total	90·2	

In addition to expenditure on works, a provision of Rs. 5 crores has been made for imparting skills to rural youth in the age group 15 to 25 years. These resources will be supplemented by funds available under the Plan of the Ministry of Labour and Employment which makes a provision of about Rs. 4 crores for rural training institutes. Through this programme of skill formation, by providing on-the-job training in development projects, it is hoped to build up corps of young trained workers in rural areas, who can serve as task forces for new works. It is expected that such workers will be able to find employment in various works programmes undertaken by Government and Panchayat agencies and can work on a continuing basis with labour cooperatives. A proportion of these skilled workers may also be able to find work on their own. Skill-formation programmes in rural areas can be of great significance in diversifying the rural economy and reducing the dependence on land. Skill-formation need not be linked only with projects taken up under the rural works programme proper, for considering their small size and seasonal character, it will

also be necessary to arrange for training in other programmes and on selected projects. Depending on the availability and nature of projects, the district or even a larger area might serve as units for the purpose of training.

Organisational Aspects and Priorities

12. Experience gained in implementing the rural works programmes has been carefully reviewed in the light of evaluation studies undertaken by the Programme Evaluation Organisation and the Directorate General of Employment and Training. In a number of directions the programme will need to be strengthened and reoriented, so that it may fulfil the objectives in view. The more important aspects to be emphasised are the following:

(*i*) In the selection of areas, the first priority is to be given to those areas in which there is considerable unemployment and under-employment, either because of serious lags in development or because of the pressure of population and the presence of masses of landless agricultural labour. Predominantly tribal areas, scarcity-affected areas and hill areas will fall within this group and will require special consideration. Areas characterised by extremely heavy pressure of population and retarded growth, in which, however, there is scope for utilising the available manpower as a means for accelerating agricultural and rural development will also need attention. The detailed selection of areas will be made in consultation with the States.

(*ii*) While the rural works programme is conceived of as a supplementary programme in the areas in which the programme is to be undertaken, in actual implementation, it has to be fully integrated with the programme of development at the district and block levels. The choice of works would take into account local needs and possibilities and the aim would be to utilise surplus manpower to strengthen the local economy as rapidly as possible. It is proposed to continue the existing pattern of finance for the rural works programme under which the Centre advances one-half of the amount as loan and one-half as grant. It is expected that Panchayati Raj institutions will endeavour to contribute as much as they can towards the programme.

(*iii*) In drawing up works programmes in selected areas, special attention will be given to small works of a productive nature such as minor irrigation, soil conservation, afforestation, rural roads, etc. These works should supplement the

development programmes of the district and the block and enhance the total impact of development on the local agricultural economy. In areas where the rural works programme is in operation, there may be scope also for supporting the programme for development of house-sites and housing for Harijans and landless workers and small peasants.

(*iv*) As stated above, particular stress is to be placed on building up new skills among rural youth. Wherever possible, the programme for organising labour cooperatives would be integrated with the rural works programme, specially in areas in which there are large bodies of agricultural labourers. Through these cooperatives, it is hoped to provide not only additional work, but also other facilities for improving the economic and social conditions of agricultural labour.

(*v*) An extensive programme of works has been under way in recent months in a number of areas in which scarcity conditions have prevailed. In selecting areas in which the rural works programme should be implemented during the Fourth Plan, the needs of these areas should be taken into consideration. Such integration would facilitate the execution of programmes of permanent improvements in a sustained manner and on an extensive scale.

13. The rural works programme is an essential element in the strategy of economic development in several parts of the country. While supplementing schemes undertaken as part of the development plans of different agencies, this programme focusses attention on manpower as an important resource which is at present not adequately utilised. Since the programme aims at exploiting opportunities for building up productive assets at the level of the local community and at drawing on local initiative to the maximum extent, it has a degree of flexibility and can serve as a catalytic agent in the process of development. All the works undertaken are comparatively small and can materialise quickly. As against these considerations, it should be stressed that since the rural works programme comprises a large number of small works which are inevitably spread over many villages or groups of villages, its efficient organisation requires special attention. The principal emphasis should be on efficiency and on the intensity with which the programme is implemented. To ensure more effective implementation, while individual schemes have to be executed at the block level, for planning and for linking up the rural works programme more effectively with other development programmes, it is proposed that overall responsibility should be placed at the district level.

CHAPTER VII

MANPOWER REQUIREMENTS AND RESOURCES

THE supply of trained manpower constitutes a major determinant of economic development. At the same time, it needs probably the longest 'lead time' among the various inputs required. In the case of high level manpower it is five years or more after the period required for basic education. Even in cases where the period is less, the actual mechanics of increasing educational and training facilities takes considerable time. This makes manpower planning difficult and requires that both at the Centre and in the States appropriate machinery for advance planning of manpower should be established. During the Third Plan, arrangements for manpower research and planning were strengthened at the Centre to some extent. In 1962, the Government of India set up an Institute of Applied Manpower Research in New Delhi. During the Fourth Plan, suitable units for manpower planning will be set up in each State.

2. The first three Plans witnessed a very rapid expansion of facilities from a relatively low base in the field of technical and professional education. During this period, facilities for engineering education were increased by about six times at the degree level, about eight times at the diploma level and over ten times at the craftsman level. In medicine, facilities at the degree level were increased by about four times and in agriculture by over eight times. The Fourth Plan starts with the distinct advantage that in some fields, especially engineering, acute shortages except in certain specialised lines have largely been eliminated and it is now possible to plan for future development from a much larger base of training facilities than before. The programmes included in the Fourth Plan for meeting the needs of trained manpower of different sectors are reviewed briefly under the following categories :

(*i*) Engineering personnel including craftsmen;
(*ii*) Scientific personnel;
(*iii*) Personnel for agriculture and allied sectors;
(*iv*) Personnel for services in the fields of Education and Health; and
(*v*) Personnel for management.

ENGINEERING PERSONNEL

3. The recommendations of the Working Group on Technical Education and Vocational Training (1959) formed the basis of

expansion of engineering education during the Third Plan. After the emergency in 1962, the programmes were reviewed and expanded in the light of Defence requirements. A substantial expansion of facilities has taken place both at the degree and diploma levels during the period 1950-51 to 1965-66 as will be seen from the following table:—

Table 1. Expansion of engineering education at the degree and diploma levels

year	degree level				diploma level*			
	no. of institutions	sanctioned** intake	actual intake	outturn†	no. of institutions	sanctioned** intake	actual intake	outturn†
1950-51 .	49	4119	4119	2198	86	5903	5903	2478
1955-56 .	65	5888	5888	4017	114	10484	10484	4499
1960-61 .	102	13824	13692	5703	195	25801	23736	7969
1965-66 .	133	24700	23315	10282	301	49900	43984	18029

When all the programmes approved for the Third Plan are implemented there will be 4000 more seats at the degree level and 3400 more seats at the diploma level.

4. During the Third Plan the number of graduate engineers in the country is estimated to have risen from about 58,000 in 1960-61 to about 93,000 in 1965-66 and of diploma holders from 75,000 to about 133,000. In spite of this expansion, shortages in certain specialised fields and regional imbalances still persist.

5. The outturn during the Fourth Plan will increase the number of graduate engineers to approximately 166,000 and that of diploma holders to approximately 254,000 by 1970-71. The projected addition to the number of graduates and diploma holders is likely to be sufficient to meet the demand of the Fourth Plan estimated at 86,000 for graduates and at 1,40,000 for diploma holders.

6. While making estimates of future requirements, the more important task is to consider the adequacy of training facilities with reference to the requirements of the Fifth Plan. The programmes requiring engineering manpower during the Fifth and subsequent Plans are not known in sufficient detail at present with the result that

*Including Polytechnics for Girls.

†The outturn in a year is relatable not to the intake in the same year but to that of the relevant earlier year, taking into consideration the duration of the course.

**The difference between sanctioned intake and actual intake is largely due to the fact that new institutions in the process of establishment had to limit admissions to available facilities.

it is not possible to estimate requirements during the Fifth Plan of engineering manpower by fields of specialisation and levels of education. In the absence of such detailed estimates derived from actual programmes, reliance has to be placed on estimating requirements on global terms on the basis of broadly acceptable yardsticks. Engineering intensive sectors are expected to grow at an annual rate of 10·3 per cent during the Fourth and subsequent Plans. In order to meet the needs of this growth and the needs of non-Plan programmes and replacement requirements, it has been assumed that the number of graduates and diploma holders should grow at about 11 per cent per year during the Fourth and subsequent Plans. The perspective of development also envisages that by 1986 there should be about 3 diploma level technicians to every graduate for efficient utilisation of technical manpower. In order to ensure a growth of 11 per cent per year in the number of engineers with a view to meeting the demands of the Fifth and subsequent Plans and in order to pave the way for achieving the projected ratio between graduates and diploma holders by 1986, the number of engineering graduates and diploma holders should increase as in the Table below :—

Table 2. Estimated requirements of engineering personnel during 1971-1986

year	projected pool of engineering manpower 000 numbers	
	graduates	diploma holders
1971	166	254
1976	256	464
1981	347	876
1986	520	1550

7. On the basis of present intake and programmes already approved in the Third Plan, there will be a 9 per cent growth in the number of graduates during the Fifth Plan. Consistent with the need for gradually increasing the number of diploma holder per graduate engineer, the projected rate of increase in the number of graduates is considered adequate for the Fifth Plan and the expansion of facilities necessary for securing 11 per cent annual growth in the combined number of graduates and diploma holders should take place at the diploma level. At this level, on the basis of approved programmes of the Third Plan, the outturn during Fifth Plan will fall short of requirements and in order to meet the anticipated shortage during the Fifth Plan admission

capacity of diploma courses will be raised by 18,100* seats during the Fourth Plan.

8. The accent during the Fourth Plan will be on upgrading the quality of engineering education at all levels. The current concentration of intake capacity in traditional fields like civil engineering and mechanical engineering should also be carefully reviewed in the light of the changing needs of economic growth. However, in certain specialised branches where at present there are no facilities at all or the admission capacity is inadequate, some marginal expansion may be necessary.

9. The demand for craftsmen during the Fourth Plan is roughly estimated at 14-15 lakhs of whom 10-11 lakhs would be skilled and the rest semi-skilled. At the end of the Third Plan, there were 357 Industrial Training Institutes having an intake capacity of 116,570 in 29 engineering trades and 22 non-engineering trades. During the Fourth Plan, it is proposed to increase the training capacity by about one lakh partly by expanding existing Industrial Training Institutes and partly by setting up 113 new Institutes. The Apprenticeship Training Programme, under which at the end of the Third Plan about 26,000 apprentices were undergoing training, will be further expanded and diversified during the Fourth Plan so that the number trained under the programme could be increased three fold by 1970-71. The programme of part-time classes for industrial workers will further help to upgrade the knowledge and skills of workers. Besides these programmes, some of the main users of craftsmen like the Railways, Defence and certain public sector undertakings meet their demand through their own programmes. There are also other regular or *ad hoc* programmes organised by the Small Scale Industries Organisation, Handicrafts Board, State Governments, etc., to provide training to artisans and workers in their respective fields.

10. Special attention has to be given to the supply of trained craft instructors and for this purpose 7 Central Training Institutes with a sanctioned capacity of about 1900 have already been set up to impart training in 21 trades. It is proposed to increase the capacity to 3100 in the Central Training Institutes during the Fourth Plan.

Scientific Personnel

11. In a developing economy which seeks to widen its industrial base, there will be increasing demand for scientists. The main

*Includes 3400 approved in the Third Plan but not materialised by March, 1966.

source of information regarding the sectors of employment, qualifications, remuneration, etc., of scientific personnel is the National Register maintained by the Council of Scientific and Industrial Research where persons having a diploma or higher qualifications in engineering and technology and persons having a degree or higher qualifications in science or medicine are requested to register their names. The National Register has a separate section for Indians who are studying or working abroad. Registration in the National Register is voluntary and therefore the coverage is not complete. The number of registrants under broad categories as on March 1, 1966 was as follows:

	general registration	Indians abroad section
scientists	47794	3413
technologists		
(*a*) graduates	6972	892
(*b*) diploma holders	4705	
engineers		
(*a*) graduates	63952	5000
(*b*) diploma holders	53361	
doctors	24847	1910
total	201631	11215

The Scientists' Pool set up in 1958 provides temporary placement to well qualified Indian scientists, technologists and doctors returning from abroad. A limited number of places are available for persons with Indian qualifications. Till the end of 1965, 1762 scientists, technologists, doctors etc. joined the Pool and 1017 left the Pool after getting suitable employment.

12. Between 1950 and 1965 the proportion of students in the age-group 17-23 enrolled in science classes among students in arts, science and commerce subjects increased from 37 per cent to about 40 per cent. In order to meet the likely demand for scientists and also to provide for the necessary flow of students into science-based professional and technical courses, an effort will be made to raise the percentage of enrolment in science subjects in the total enrolment in arts, science and commerce subjects to 50 per cent by the end of the Fourth Plan. To ensure adequate supply of research personnel, a special programme for the training of research scientists will be initiated during the Fourth Plan.

Agricultural and Allied Personnel

13. Since 1951, the facilities for agricultural and veterinary education at graduate level have been progressively expanded as will be evident from Table 3.

Table 3. Annual admission and outturn of agricultural and veterinary graduates

year	no. of colleges	annual* admission	annual outturn
agricultural graduates			
1951-52	19	1060	1065
1955-56	30	1989	886
1960-61	53	5634	2090
1964-65	66	8935	4731
veterinary graduates			
1951-52	9	434	220
1955-56	14	1269	322
1960-61	17	1300†	858
1964-65	19	1319†	1149

The estimated additional requirements of agricultural and allied personnel during the Fourth and Fifth plans are shown in the following table :

Table 4. Estimated additional requirements of agricultural and allied personnel

	Fourth Plan	Fifth Plan
agricultural graduates and post graduates	29000	44750
veterinary graduates and post graduates	7800	7900
dairy personnel	4000	
forestry :		
(*a*) forest officers	768	
(*b*) rangers	2000	
(*c*) foresters	5600	

14. The high priority accorded to the development of agriculture makes it imperative that agricultural and allied personnel should be available in time. There will be an overall numerical balance between the Fourth Plan additional demand and supply. In order to meet

*The outturn in a year is relatable not to the intake in the same year but to that of the relevant earlier year taking into account the duration of the course.

†Although admission capacity increased, the courses did not attract a sufficiently large number of students.

the anticipated demand in the Fifth Plan, admissions should be expanded from the present level of 8900 to 11,500 by the close of the Fourth Plan. This will still leave a small deficit uncovered which may be left as such until more definite information becomes available about the size of the Fifth Plan. Eighty Gram Sevak Training Centres, where selected gram sevaks are given higher training to improve their professional competence and effectiveness, are proposed to be upgraded during the Fourth Plan. There will be a shortage of about 2200 veterinary graduates during the Fourth Plan even after the increase in intake capacity to 1900. This gap is intended to be met by upgrading the knowledge and skills of emergency diploma holders through special training programmes. The existing training capacity for 1000 dairy personnel will be expanded to 4000 during the Fourth Plan. Apart from strengthening the Officers' and Rangers' College at Dehra Dun, a new Rangers' College will be set up.

15. The programme of strengthening the existing co-operative societies and of rapidly expanding the co-operative sector in relatively under-developed fields like agricultural marketing, processing and consumers co-operatives will require a large number of trained personnel like secretaries, auditors, supervisors, etc. Besides the National Co-operative College and Research Institute for the training of Senior Officers, there are at present 13 centres for the training of intermediate level personnel, 67 centres for the training of junior level personnel and 612 training units intended for members and office bearers of societies. During the Fourth Plan, the training programmes for cooperative personnel will be further strengthened. The number of personnel trained at various levels during the first three Plans and the estimates for the Fourth Plan may be seen in the following table :—

Table 5. Training of co-operative personnel during the first three Plans and estimates for the Fourth Plan

category of personnel	number of persons trained			Fourth Plan target
	First Plan	Second Plan	Third Plan	
senior level personnel . .	188	355	330	800
intermediate level personnel .	246	5696	5862	8050
junior level personnel . . .	3000	28250	21738	80000

MEDICAL PERSONNEL

16. Despite a substantial increase in the facilities for medical education during the last fifteen years, the shortage of medical personnel

continues to be acute. The number of medical colleges increased from 30 in 1950-51 to 87 in 1965-66 enabling the intake to be raised from 2500 to 10,625. In spite of this increase, however, the doctor-population ratio has remained more or less constant at 1:5800 because of rapid increase in population.

17. During the Fourth Plan on the basis of the admissions that have already taken place, approximately 45,000 doctors would be additionally available. The intake would be stepped up to 19,000 per year partly by expanding the existing colleges and partly by setting up 25 new colleges which will make it possible for the country to reach a doctor-population ratio of 1:3500 by 1976.

18. Facilities for post-graduate education will require substantial expansion as it is the main source of medical teachers, specialists and research workers. The existing annual intake of 800 will be raised to about 4000 by 1970-71. For optimum utilisation of graduate doctors and for expanding the medical and health services commensurate with the growing needs of society, middle-level medical manpower like nurses and other para-medical personnel will also have to be trained in adequate numbers. The training facilities for nurses will be considerably augmented so that 42,000-45,000 additional nurses would become available during the Fourth Plan. The targets in respect of para-medical personnel are given below :—

categories	number available in 1965-66	target for Fourth Plan (addition)
auxiliary nurses and midwives	35000	60000
health visitors	3500	2000
dais	30000	250000
sanitary inspectors / health inspectors	18000	63000

19. In order to meet the requirements of the proposed net work of medical and health services during the Fifth Plan, it is tentatively estimated that approximately 125,000 nurses, 73,500 auxiliary nurses and midwives, 250,000 dais, 13,500 health visitors and public health nurses and 85,000 sanitary inspectors will be additionally required. While these estimates will help to indicate the areas which would require substantial expansion of training facilities, firm estimates can be made only when sufficient details of the health and medical programmes in the Fifth Plan become available.

Personnel for General Education Programmes

20. The demand for teachers is determined by the enrolment targets for the Plan period, the teacher-pupil ratio to be achieved and the replacement needs. The additional requirements (including replacement requirements) during the Fourth and Fifth Plans are estimated as follows :—

	Fourth Plan	Fifth Plan
elementary stage	779000	1270000
secondary stage	209000	300000
university stage	30000	50000
total	1018000	1620000

The shortage of teachers occurs mostly in science and mathematics disciplines. Measures have therefore been contemplated in the Fourth Plan so as to secure relative increases in students in these subjects. Emphasis will also have to be placed on improving the knowledge of teachers through condensed courses, summer institutes, etc., with a view to upgrading the quality of education. Arrangements will have to be made to provide training to a large number of untrained teachers through whole-time pedagogic institutions as well as through correspondence and short-term courses. It is expected that 140,000 elementary teachers and 17,660 secondary teachers will be trained through correspondence courses during the Fourth Plan.

Personnel for Management

21. The successful and efficient running of industries in the public and private sectors will depend upon the availability in adequate numbers of managerial personnel and on their quality and calibre. According to present practices, formal training in management courses is not an essential condition for entry into management cadres; the emphasis is on in-service and on-the-job training. This position is likely to continue for some time. In view of the likely heavy demand for managerial personnel during the Fourth and subsequent Plans, from the the public as well as private sectors, there is need for formal management training in educational institutions, management development programmes in industrial and business establishments and well designed refresher courses for serving managers. Greater attention should be paid to equipping and training middle level managers. The problem of managerial requirements of new industrial enterprises particularly in the public sector, could partly be met by co-operative arrangements with established units in allied industries as was done with TISCO and

IISCO for training personnel for Hindustan Steel Limited. The facilities at the Institutes of Management at Calcutta and Ahmedabad and the Administrative Staff College, Hyderabad are proposed to be expanded. Management courses have been started in seven universities and these will be extended to several others.

Conclusion

22. The estimate of manpower requirements made at the national level has to be broken up into various components based upon regional, occupational, industrial and educational classifications. It is also necessary to review continuously the estimates made in order to ensure that economic development and manpower development do not move out of step with each other. There is a special need to estimate and provide for the requirement of high level personnel in both technical and general fields for which there will be a growing demand as the economy develops. Provision of suitable in-service training and refresher courses deserves urgent attention in this context. These are some of the aspects which should be studied by the Institute of Applied Manpower Research and the proposed units in the States.

CHAPTER VIII

LAND REFORM

OBJECTIVES

THE land reform programme outlined in the Five Year Plans is an integral part of the scheme of agricultural development and rural reconstruction. Its objectives are to remove such motivational and other impediments to increases in agricultural production as arise from the agrarian structure inherited from the past, to create conditions for evolving an agricultural economy with high levels of efficiency and productivity, and to eliminate elements of exploitation and social injustice within the agrarian system. With these objectives in view, the policy of land reform to be followed in the States, as part of the national plan, was outlined in the First Plan and further elaborated in the Second and the Third Plan. "Land to the tiller" was adopted as the main plank in the scheme of land reform, which contemplated that owner-cultivation should be established on the widest possible scale and all cultivators should come into direct relation with the State.

PROGRESS

2. Fifteen years ago when the First Plan was being formulated, intermediary tenures like *zamindaris*, *jagirs* and *inams* covered more than 40 per cent of the area. There were large disparities in the ownership of land held under ryotwari tenure which covered the other 60 per cent area; and a substantial portion of the land was cultivated through tenants-at-will and share-croppers who paid about one-half the produce as rent. Most holdings were small and fragmented. Besides, there was a large population of landless agricultural labourers. In these conditions, the principal measures recommended for securing the objectives of the land policy were the abolition of intermediary tenures, reform of the tenancy system, including fixation of fair rent at one-fifth to one-fourth of the gross produce, security of tenure for the tenant, bringing tenants into direct relationship with the State and investing in them ownership of land. A ceiling on land holding was also recommended so that some surplus land may be made available for redistribution to the landless agricultural workers. Another important part of the programme was consolidation of agricultural holdings and increase in the size of the operational unit to an economic scale through co-operative methods.

3. *Abolition of Intermediaries.*—During the past 15 years, progress has beem made in several directions. The programme for the abolition of intermediaries has been carried out practically all over the country. About 20 million tenants of former intermediaries came into direct relationship with the State and became owners of their holdings. State Governments are now engaged in the assessment and payment of compensation. There were some initial delays but considerable progress has been made in this direction in recent years and it is hoped that the issue of compensatory bonds will be completed in another two years.

4. *Tenancy Reform.*—To deal with the problem of tenants-at-will in the ryotwari areas and of sub-tenants in the zamindari areas, a good deal of legislation has been enacted. Provisions for security of tenure, for bringing them into direct relation with the State and converting them into owners have been made in several States. As a result, about 3 million tenants and share-croppers have acquired ownership of more than 7 million acres :—

State	number of tenants (in 000 s)	area in respect of which ownership conferred (in 000 acres)
Gujarat	462	1408
Madhya Pradesh	358	--
Maharashtra	618	1674
Punjab	22	147*
Uttar Pradesh	1500	2000
West Bengal	--	800
Telangana region of Andhra Pradesh	33	202
Delhi	29	39
Himachal Pradesh	24	28
Tripura	10	12

5. Provisions for regulation of rent have been adopted in all States. In Assam, Bihar, Gujarat, Kerala, Maharashtra, Mysore, Orissa, Rajasthan and the Union Territories, the maximum rent has been fixed at a quarter or less of the produce. In Andhra area, Jammu and Kashmir, Madras, Punjab and West Bengal, the fair rent or the share of the produce as fixed by law is still a third to one-half of the gross produce.

6. *Ceiling on Holdings.*—Laws imposing ceiling on agricultural holdings have been enacted in all the States. In the former Punjab area, however, the State Government has the power to settle tenants on land in excess of the permissible limit of the landowners although it has not set a ceiling on ownership. According to available reports

*Area in standard acres.

over 2 million acres of surplus lands in excess of the ceiling limits have been declared or taken possession of by Government in the following States :—

State	surplus area (in 000 acres)
Assam	34·0
Gujarat	38·8
Jammu and Kashmir	450·0
Maharashtra	162·5
Madhya Pradesh	67·1
Madras	20·2
Punjab	368·5*
West Bengal	776·5
Uttar Pradesh	222·7

More land will become available as implementation proceeds. The surplus lands are being distributed to tenants, uneconomic holders and landless agriculturists.

7. *Extension of owner-cultivation.*—The "land to the tiller" policy followed during the last 15 years has helped to establish owner-cultivation on a large scale. This is borne out by the data collected in the Census of 1961. Out of every 100 cultivators 76 were owner-cultivators, 16 were owner-cum-tenant cultivators and only 8 were pure tenant-cultivators.

8. There were, however, shortcomings in several directions. Substantial areas in some regions of the country are still cultivated through informal crop-sharing arrangements; there were ejectments of tenants through the device of voluntary surrenders; the fair rent provisions were not enforced effectively in all cases; and the ceiling had been evaded through the well-known device of transfers and partitions and not much land was made available for distribution to the landless.

9. *Review by N.D.C. Committee.*—In November, 1963, following the Mid-term Appraisal of the Third Plan, the National Development Council reviewed the progress made in the implementation of land reforms in different States. It noted that on account of legal and other factors in some States the laws had not been fully enforced. The Council emphasised that speedy execution of land reforms was vital for increasing agricultural production and strengthening the rural economy, and called upon all State Governments to complete the implementation of land reform programmes before the end of the Third Plan. The Council constituted a Committee with the Minister of Home Affairs as Chairman and the five Chief Ministers who are Vice-Chairmen of Zonal Councils, the Minister of Food and Agriculture and the Mem-

*Area in standard acres.

ber in charge of land reforms in the Planning Commission as members to review the progress of land reform in different States and propose measures for securing the implementation of the land reform legislation. Officers were deputed to visit the States to review the progress of implementation and examine the difficulties encountered in giving effect to the programme. Most of the States have since been visited by the officers. Their reports and the resulting recommendations in respect of the States of Andhra Pradesh, Bihar, Gujarat, Madras, Maharashtra, Orissa, Rajasthan, Uttar Pradesh and Himachal Pradesh have been examined in the Committee in consultation with the States concerned and their attention has been drawn to the problems faced. As a result several States have taken steps to strengthen implementation.

Programme for the Fourth Plan

10. The land policy to be pursued in the States has been outlined in the first three Plans. The emphasis in the Fourth Plan should necessarily be on finding solutions to the problems which have been observed in the States in which implementation has lagged behind. The main points which call for immediate attention are set out in the following paragraphs :

(*i*) Administrative arrangements for enforcement and supervision are often inadequate and public opinion has not been sufficiently built up to quicken the pace of reforms. These arrangements need to be strengthened to ensure better implementation by following a phased programme to be drawn up by the State Governments. It would be necessary to supplement administrative action by enlisting support and assistance of public workers. A high level committee comprising Ministers and representatives of public opinion may be set up in each State, which should keep the progress of implementation of the policy under constant review, district by district, so that timely action is taken to fill the gaps in the law and expedite implementation.

(*ii*) Records of tenants do not exist in several States and are often incomplete and out of date even where they do. For effective enforcement of tenancy reform, it is imperative that records of tenancies should be prepared and kept up to date whatever the difficulties in the way. It should assist in the preparation and revision of records if tripartite committees representing landlords and tenants and presided over by an independent person or a revenue official are constituted for groups of villages. Entries in the records so prepared should have presumptive evidence value. Each tenant, so recorded, should be issued a certificate indicating his rights in the land and the

rent payable by him. Such a step will facilitate enforcement of the legal provisions. To help the States to bring the records of tenancies up-to-date, a Centrally sponsored scheme has been included in the Fourth Plan.

(*iii*) The economic condition of tenants, even where they have been conferred permanent rights, still continues to be weak. It is important to confer on them the right to make permanent improvements to the land and to ensure adequate compensation in the event of eviction. Adequate and timely agricultural credit should be available to them. For this purpose, they should enjoy the right to mortgage their interest and title with the Government agency, co-operative society and other lending institutions for raising loans for effecting various improvements on their land. It will help expeditious disposal of loan applications if the co-operative societies are supplied with a copy of the tenants' record of rights.

(*iv*) In some States, such as Andhra Pradesh, Assam, Bihar, Madras and West Bengal (in respect of *bargadars*), the existing provisions for security of tenure are of an interim nature. Comprehensive measures for converting tenants and share-croppers into owners have not yet been adopted. Delay in enacting comprehensive legislation creates a great deal of uncertainty which is inimical to efforts for increasing agricultural production. Speedy action is called for to rectify this situation.

(*v*) Even the apparently restricted right of resumption for personal cultivation has, in practice, widened the scope of ejectments. Besides, such resumption upsets the economy of small owner-*cum*-tenant farmers who had leased in small areas to make up viable units of cultivation. The right of resumption was originally intended for exercise only during a limited period of 5 years. This period having elapsed the right of resumption should now be terminated, and permanent and heritable rights conferred on all tenants.

(*vi*) Numerous ejectments of tenants have occurred under the guise of 'voluntary surrenders'. This has tended to defeat one of the major aims of land reform, namely, providing security of tenure for the tiller of the soil. The Third Plan document drew the attention of State Governments to this distressing phenomenon and made two recommendations :

(*a*) surrenders should not be regarded as valid unless they were duly registered with the revenue authorities; and

(*b*) even where the surrender was held to be valid, the landowner should be entitled to take possession only up to his right of resumption permitted by law.

This has been acted upon by only a few States, namely, Kerala, Madhya Pradesh, Mysore, Manipur and Tripura and partially by Bihar, Gujarat, Jammu & Kashmir, Maharashtra and Rajasthan. As the *bona fides* of most surrenders are open to doubt, it is important that early steps are taken to remove legal and administrative loop-holes. As no more resumption is visualised, all surrenders should here after be made to Government only, without any right for the landowner to take possession of the land so surrendered.

(*vii*) The rents as fixed by law are still high in Andhra area, Jammu and Kashmir, Madras, Punjab and West Bengal and should be brought down to the level recommended in the Plans—to one-fourth or one-fifth of the gross produce. Besides, produce rents which are difficult to enforce should be abolished and replaced by fixed cash rents so that uncertainties arising out of annual fluctuations in rents may be eliminated and the tiller assured of the full benefits of his investment. As suggested in the Third Plan, it would facilitate enforcement if fair rent is fixed as a multiple of land revenue. The difficulty arising out of variations in the land revenue rates for lands of equal productivity owing to different dates of settlement and other factors might be met by adopting a range of multiples so that different multiples can be adopted in different areas according to local conditions and the date of settlement. In areas where regular settlement has not taken place, it might be convenient to work out and notify cash equivalents of one-fourth or one-fifth of the gross produce on the basis of data available with the State Governments about yields of different classes of lands.

11. Security of tenure for the tiller is crucial to the whole scheme of tenancy reform. It enables him to obtain various aids and inputs and to participate fully in the production programmes. Experience has shown that it is difficult to ensure security of tenure and effective enforcement of rentals so long as the landlord-tenant bond remains unbroken. Besides, ownership provides the psychological stimulus for maximising agricultural production. The objective should therefore be to put a complete end to the landlord-tenant nexus and convert the tenants into full owners. To this end, the State might step in, acquire ownership of leased land and transfer it to the tenants. In States where legislation has been enacted for converting tenants into owners, gaps in the law, if any, should be filled immediately and the legislation implemented with speed. In States where such legislation

has not been enacted, steps should be taken to pass the necessary law. As a first minimum step, there should be immediate legislation to break the direct landlord-tenant relationship, the State interposing between landlords and tenants to collect fair rents from tenants and pay them to landlords after deducting land revenue and a collection charge. As State Governments are already equipped to collect land revenue from millions of small holders, such a step is not likely to throw any excessive additional burden on them. This should apply to all tenants who held land on a given date, say, April 1, 1966. Provision should also be made for the restoration on application of those who may have been illegally dispossessed, say, during the past three years. The tenants who thus came into direct relationship with the State should have, besides permanent and heritable rights, an optional right to purchase ownership on payment of reasonable compensation to be prescribed in the law.

12. The programme of ceilings set out in the Plan has been diluted in implementation. There were deficiencies in the law and delays in its enactment and implementation resulting in large scale evasions. Several States had made provisions for disregarding transfers made after a specified date, but often these provisions proved to be ineffective and not much surplus land has been available for redistribution. The main object of ceilings which is to re-distribute land to the landless at a reasonable price on a planned basis has thus been largely defeated. In the absence of any reliable data it would also be difficult to say that as a result of transfers much land has passed into the hands of agricultural labourers or small farmers. However, as stated in the Third Plan, once legislation has been enacted, amendments should aim primarily at eliminating deficiencies and facilitating implementation rather that at introducing fundamental changes in the principles underlying the legislation. As transfers take place generally between the members of a family, the States might consider the suggestion earlier made by the Panel on Land Reform (and this has already been provided in some laws), namely, to apply ceilings to the aggregate area held by all the members of a family rather than to individual holdings, the family being defined to include husband and wife, their dependent children and grand-children.

13. Land reform has been too often regarded as something extraneous to the scheme of agricultural development and implemented in isolation. It needs to be re-emphasized that it is an integral part of the programme of agricultural development as it helps to establish owner-cultivation and removes an important impediment arising out of defects in the agrarian structure. At the same time it should be recognized that land ownership is just one of the components, though

an important one, of the package required for higher production. Unless the beneficiaries of land reform, namely, the tenants and the new owners created as a result of tenancy reform and settlements on lands, are provided with adequate agricultural credit, physical inputs and other essential services and facilities, it could not yield the expected results. This aspect needs special attention.

Settlement of Landless Labourers

14. Apart from the surplus lands above the ceilings, a sizeable area of culturable waste lands had vested in the State Governments on the abolition of intermediaries. Such lands had already belonged to the Government in ryotwari areas. During the past 15 years, about 10 million acres of such land are reported to have been distributed to landless agricultural workers. More lands for distribution are being located through surveys undertaken by the Union Ministry of Food and Agriculture and the State Governments.

15. It was emphasized in the Third Plan that such lands as became available on imposition of ceiling, along with the waste lands and lands donated to Bhoodan and Gramdan, should be pooled and systematic schemes of resettlement speedily implemented. A provision of Rs. 7 crores was made under a centrally sponsored scheme for the resettlement of landless agricultural workers. With a view to expediting implementation of the scheme, the matter was reviewed in consultation with the leaders of Bhoodan and Gramdan movement at a conference in November, 1963. Following the recommendations of the conference, the pattern of assistance for the scheme was liberalized. As a result, a number of schemes of resettlement have been worked out in the States which are now in progress. With a view to studying more closely the problems of resettlement and the impact of the schemes on the socio-economic conditions of the settlers, a survey is being undertaken through the Programme Evaluation Organization of the Planning Commission.

16. The Fourth Plan proposes an outlay of Rs. 45 crores for reclamation of land and another Rs. 10 crores for subsidy and loans to new settlers on waste lands and surplus lands. This programme ought to play an important role in favour of the weakest layers of our agrarian structure and should be pursued with vigour.

Sub-division and Fragmentation

17. A large number of holdings in India are small. They are becoming progressively smaller through the operation of the law of inheritance. Legislation has been adopted in several States to prevent sub-division below a prescribed minimum size. But on account

of excessive pressure on land and the difficulties in providing non-agricultural employment to the progressively increasing population such laws have not proved to be effective in practice. The solution seems to lie in promoting cooperative farming. The development of cooperative farming on a voluntary basis will take time. The immediate problem is to devise ways and means of raising the productivity of small holdings and the level of living of the small farmers. That this can be done is amply demonstrated by the experience of Japan, where, on quite small holdings, the farmers are able to achieve high productivity and produce enough for a reasonably comfortable standard of living. In this, the cooperative movement has to play an important role in providing credit and other important materials and facilities for increased production to small-holders by bringing them within the fold of service cooperative societies as early as possible. At the same time, the existing arrangements for credit and supplies need to be strengthened with a view to ensuring that they reach the tenants and the small farmers no less than the medium and large farmers.

Consolidation of Holdings

18. Another obstacle to planned development of agriculture arises out of the fragmental structure of holdings. Most holdings are not only small but they also consist of widely scattered fragments. Solution to the problem lies in the consolidation of holdings. The Third Plan set a target for the consolidation of 28 million acres which is likely to be fully achieved. About 25·5 million acres were consolidated during the first four years of the Third Plan as follows :—

(in million acres)

State	area consolidated upto 1960-61	Third Plan target (area)	area consolidated between 1961-62 and 1964-65
Andhra Pradesh	0·31	0·45	0·50
Assam	..	0·02	..
Bihar	0·06	0·50	0·09
Gujarat	1·12	1·20	0·64
Jammu & Kashmir	..	0·18	0·01
Madhya Pradesh	3·82	2·50	1·43
Madras	..	..	..
Maharashtra	1·54	3·26	3·22
Mysore	0·99	1·16	0·59
Orissa	..	..	..
Punjab	14·73	7·82	7·11
Rajasthan	1·40	1·50	2·57
Uttar Pradesh	5·39	9·00	9·16
West Bengal	..	..	..
Delhi	0·13	0·04	..
Himachal Pradesh	0·13	0·38	0·18
total	29·62	28·01	25·50

19. Consolidation of holdings is an important agricultural programme. It is desirable that the programme should be expanded to the maximum extent administratively feasible. In the Fourth Plan it is proposed to double the target and to provide for an outlay of Rs. 32 crores for consolidation of holdings. The distribution of the target by States is being worked out in consultation with the State Governments. In Punjab and Uttar Pradesh, the programme will have been completed over the entire area of the State during the Fourth Plan. Gujarat, Madhya Pradesh, Maharashtra and Rajasthan which have acquired wide experience in the field, should be in a position to accelerate the programme considerably. Some experience has also been gained in the Telangana area of Andhra Pradesh, in Bihar and in areas transferred to Mysore from the former State of Bombay. It should be possible to expand the programme substantially in these States. Other States should initiate preliminary steps and take up pilot projects in different regions to gain experience and demonstrate the potentialities of the programme so that it could be taken up in a big way in the Fifth Plan.

20. The lack of up-to-date records of owners and tenants has been a major hurdle in expanding the programme in some parts of the country. Once this obstacle is out of the way it should be expected to make rapid progress. It would be an advantage if the preparation or revision of records and consolidation of holdings are carried out as interlinked programmes area by area.

21. Consolidation of holdings facilitates management and promotes investment in the improvement of lands. In undulating areas it should assist in soil conservation measures by replanning consolidated holdings along contours and in other areas in developing irrigation and drainage projects. It is desirable that there should be close coordination in the execution of these programmes.

CHAPTER IX

CO-OPERATION

THE Five Year Plans have given an important place to Co-operation as a major form of organization in many branches of economic activity especially in agriculture, small industry, marketing and processing, distribution, and supplies. The main schemes of co-operative development in the Five Year Plans, therefore, relate to the re-building and strengthening of the co-operative credit structure in regard to resources, personnel, and procedures; building up an efficient structure for co-operative marketing and processing in conjunction with co-operative credit; provision of godowns for co-operative societies; organization of consumers' co-operative stores; development of industrial co-operative societies; strengthening the staff of the co-operative societies and banks and of the co-operative departments; and making suitable arrangements for training and education in co-operation. While these aspects of co-operative reform and reorganisation will continue in the Fourth Plan, greater emphasis will be placed on consolidation, eliminating the existing weaknesses and working for the creation of a viable co-operative credit structure. Special attention is being given to gearing the co-operative movement to meet the vastly expanded credit needs involved in the programme of high-yielding and high fertilizer responsive seed programmes and other expensive inputs needed for increasing agricultural production during the Fourth Plan period. Accordingly, some of the major lines of reform in the Fourth Plan will be in regard to the introduction of the crop loan system; linking of credit with marketing, as part of an intensified programme for the development of co-operative marketing and processing; and reduction of overdues and strengthening the resources of co-operative banks and societies. In addition, an accelerated programme for the development of consumers' co-operative stores will be undertaken as a Centrally sponsored scheme. Further, efforts will be made to develop and strengthen the co-operative form of organisation relating to dairying, animal husbandry and fisheries. Special programmes are also under discussion for assisting the weaker sections of the farming community.

2. For the development of Co-operation, the Fourth Plan provides an outlay of Rs. 206 crores as compared with an estimated expenditure of Rs. 76-77 crores in the Third Plan.

3. About 83 per cent of the villages in the country were covered by co-operative societies at the end of June 1964 as compared with a coverage of 75 per cent at the end of June 1961. The membership of these societies increased from 17 million to 24 million during the same period. Co-operative societies reached 33 per cent of the rural population at the end of June 1965 as against 24 per cent in June 1961. By the end of the Fourth Plan, primary agricultural credit societies are expected to have a membership of 45 million, effectively covering 75 per cent of the agricultural families and all the villages in the country.

Co-operative Credit

4. The volume of credit provided by co-operative societies has increased substantially since the Second Plan. In 1951-52, according to the All-India Rural Credit Survey of the Reserve Bank, the total annual borrowings of the cultivators were estimated for the whole country at about Rs. 750 crores and the proportion of borrowings from co-operative societies was 3·1 per cent. Ten years later, in 1961-62, according to the All-India Rural Debt and Investment Survey of the Reserve Bank, the total borrowings of cultivator-households from all sources were estimated at Rs. 1034 crores. The loans advanced by primary agricultural credit societies and land mortgage banks taken together, and by primary marketing and processing societies, totalled Rs. 244 crores and Rs. 23 crores respectively in 1961-62. Thus, the total amount of credit provided by co-operatives came to Rs. 267 crores, or 25·8 per cent of the total borrowings of cultivator-households in 1961-62.

5. Even though the increase in the volume of co-operative credit has been quite substantial, its incidence has been uneven. The proportion of co-operative credit to the total estimated borrowings of cultivators in 1961-62 was 55 per cent in Maharashtra, 41 per cent in Gujarat, and 31 per cent in Madras. In States such as Assam, Bihar, and Rajasthan, the proportion did not exceed 10 per cent. In other States, it did not exceed 30 per cent. What is even more unsatisfactory is that co-operative loans continue to be given generally against the mortgage of land, and there has not been any significant shift to the crop loan system in most States.

6. The Department of Co-operation of the Government of India is, however, making concerted attempts to persuade the State Governments and the co-operative banks to introduce the crop loan system. There has also been a programme for the creation of viable primary credit societies to be implemented by State Governments which have undertaken surveys to identify viable and potentially viable societies

having adequate business turnover for maintaining an office and a whole-time secretary. As a part of the programme, societies which are dormant and have no prospects for development are being put under liquidation, while a programme of amalgamation of weak societies has also been launched in the States. The aim is to reduce the number of primary credit societies from about 2,08,000 to about 1,28,000 or less before the end of the Fourth Plan.

7. Among the main weaknesses of the co-operative credit structure are a high level of overdues and inadequacy of owned resources, especially deposits. Taking the primary credit structure, overdues totalled Rs. 77·31 crores in 1963-64 and formed 22·5 per cent of the loans outstanding. In the same year, the total deposits of primary agricultural credit societies stood at Rs. 26·06 crores, or only 5·9 per cent of their working capital with deposits per society and per member standing at Rs. 1,243 and Rs. 11 respectively.

8. In the Fourth Plan, the operational efficiency of co-operative societies and banks will have to be improved substantially and efforts will have to be made by them to collect more deposits, so that co-operative societies and banks function not merely as loan disbursing agencies as at present, but also as banking agencies equipped to give good banking services in rural and other areas. In this context, one of the proposals under consideration is the extension of the deposit insurance scheme, which now covers commercial banks, to co-operative banks. Other measures being pursued include the removal of the restrictions in some States on the investment of surplus funds by local bodies, educational institutions etc., in co-operative banks, and a vigorous programme for the opening of branches by co-operative banks in rural areas. Besides, strong action will have to be taken by the co-operative departments and co-operative institutions to collect overdues and no leniency should be shown to the wilful defaulter.

9. There would, however, be occasions when either writing off or conversion of short-term loans into medium-term loans will be necessary in certain circumstances such as widespread famine or drought. For this purpose, two funds namely, the Agricultural Credit Relief and Guarantee Fund of the State Governments and the Agricultural Credit Stabilization Fund of co-operative banks will be strengthened in the Fourth Plan. The Relief and Guarantee Fund can be drawn upon for writing off co-operative loans and the Stabilization Fund for conversion of short-term loans into medium-term loans, if necessary.

10. It has been tentatively estimated that the total co-operative short-term and medium-term credit in the last year of the Fourth Plan

would be about Rs. 650 crores. These estimates may not fully cover the requirements of the intensive programmes of agricultural development in the Fourth Plan, particularly the high-yielding varieties programme. Action is being taken in the Fourth Plan, therefore, to meet these additional requirements by specific programmes and the provision of an additional line of credit from the Reserve Bank for meeting the credit needs of the members of co-operative societies who come under the high-yielding varieties programme.

11. The short-term and medium-term credit provided by primary agricultural credit societies has been estimated at about Rs. 331 crores in 1964-65 and Rs. 400 crores in 1965-66. For short-term credit and also for medium-term credit, co-operative banks are assisted by the Reserve Bank. The volume of short-term credit made available by the Reserve Bank to co-operative banks has increased sharply in recent years. Thus, the short-term credit limits sanctioned by the Reserve Bank, at a concessional rate of interest which is now 4 per cent (or two per cent below the Bank Rate), increased from Rs. 12·40 crores in 1951-52, to Rs. 200 crores in 1964-65. The amount of short-term loans outstanding stood at Rs. 6·45 crores in 1951-52 and at Rs. 151 crores in 1964-65. The amount of medium-term loans sanctioned to State co-operative banks rose from Rs. 1·22 crores in 1954-55 to Rs. 14·39 crores in 1964-65. The outstandings of medium-term loans came to Rs. 0·22 crore in 1954-55 and to Rs. 14·32 crores in 1964-65. The Reserve Bank will have a more crucial role to play in the Fourth Plan in providing the necessary short-term and medium-term credit and supporting the debentures of central co-operative land mortgage banks, together with functions of an advisory and regulatory nature. The Reserve Bank is now equipped with statutory powers to regulate the banking business of co-operative banks.

12. As regards co-operative long-term credit, it is expected that the outstandings of such loans at the end of 1965-66, will be Rs. 150 crores thus fulfilling the Third Plan target. The tentative estimate of the fresh loans to be advanced by co-operative land mortgage banks during the Fourth Plan is Rs. 300 crores. For fulfilling this programme, it has been estimated that the land mortgage banks will have to float debentures for about Rs. 275 crores. The target for long-term credit in the Fourth Plan cannot be reached without fuller support from the Reserve Bank, State Bank, Life Insurance Corporation, Government, and the co-operative credit structure itself.

13. The capacity of the co-operative credit structure to provide larger funds for agriculture in the Fourth Plan cannot be generated

merely or even largely by outside funds but will have increasingly to depend on its ability to raise resources, primarily by way of deposits and strengthening its owned funds, namely share capital and reserve funds and reducing the level of overdues substantially. The Reserve Bank will of course continue to assist the co-operative credit structure.

14. Apart from assistance from the Reserve Bank, the co-operative banks, with their growing strength, should be able to avail themselves of larger financial accommodation, especially for marketing and processing, from the State Bank of India. The extent of financial aid provided by the State Bank to the co-operative structure increased from Rs. 15 crores in 1958 to Rs. 50 crores in 1965. Besides, co-operative banks can also turn to the Agricultural Refinance Corporation which was set up in July 1963 to augment the resources available for the provision of medium-term and long-term finance for agriculture. There is, besides, the traditional system of Government loans for agriculture or *taccavi*. Even though the object of governmental policy is to discontinue *taccavi* for agricultural production direct to individuals and to disburse such loans through co-operatives, in areas where the co-operatives are very weak, *taccavi* may have to remain as a transitional measure. Care should, however, be taken to ensure that even such interim continuance does not vitiate the chances of development of co-operative credit, for instance, by *taccavi* being provided to members of co-operative societies or others at rates of interest which are lower than the rates of interest charged by co-operative societies on loans for similar purposes.

Supplementary Sources of Credit

15. With all this, it will not be possible to meet in full the credit requirements of agriculture in the Fourth Plan by the co-operative credit structure, partly because of the weaknesses of the structure in some areas and partly because of the fact that there are classes of cultivators who do not join co-operative societies. In this context, reference may be made to the proposal made by an Informal Group set up by the Reserve Bank of India in May 1964 to provide a supplementary source of credit in areas where the co-operative credit structure is very weak by setting up agricultural credit corporations which would disappear from the field as and when the co-operative credit structure is developed. The details of the proposal regarding agricultural credit corporations are under the consideration of the Government of India. In areas where the co-operative movement is weak, *taccavi* will have to continue as an interim measure without damaging the prospects for development of co-operatives. Besides, as agriculture becomes

more paying, the more affluent classes of cultivators should be able to seek accommodation from commercial banks.

16. Thus, in the Fourth Plan, the credit needs of agriculture will be met by a variety of credit institutions. The co-operative credit structure will of course be the main agency for provision of rural credit. It should be noted in this connection that whatever may be the agency for rural credit, whether it is the village credit society, the branch of a commercial bank or of a corporation or the revenue machinery, unless there are effective arrangements at all levels, especially at the local village level, for supervising the use of these loans and the prompt recovery of such loans, pumping in of additional funds for agricultural credit will not be productive.

Co-operative Marketing

17. For meeting the requirements of credit of the order envisaged in the Fourth Plan as well as for safeguarding farm incomes, programmes for regulation of markets and strengthening and expansion of co-operative marketing and processing facilities are of the utmost importance. Further, co-operative credit has to be effectively linked to co-operative marketing.

18. Compared to co-operative credit, co-operative marketing of agricultural produce is of recent development. Commencing from the Second Plan, steps were taken to set up new marketing societies and to reorganize existing societies by State partnership and assistance, especially in regard to participation in share capital, construction of godowns, and subsidy for appointment of managerial personnel. At the end of June 1965, there were 2231 primary marketing societies, in addition to over 900 societies which had sprung up outside the programmes under the Plan. There were also 160 district-level marketing societies, 19 apex marketing societies, 3 State-level commodity federations and one national co-operative marketing federation. The total value of agricultural produce handled by co-operative marketing societies rose from about Rs. 53 crores in 1955-56 to Rs. 174 crores in 1960-61 and to Rs. 301 crores in 1964-65. In addition to marketing of agricultural produce, in certain States, co-operative marketing societies are entrusted with the responsibility for procurement of foodgrains. In 1964-65, co-operative marketing societies procured foodgrains of the value of about Rs. 100 crores as compared with a value of about Rs. 40 crores in 1963-64.

19. In the Fourth Plan, the structure for co-operative marketing will be further strengthened. It is proposed to set up 450 new primary marketing societies so as to have a co-operative marketing society in

every important marketing centre in the country by the end of the Fourth Plan. The target set for co-operative marketing of agricultural produce at the end of the Fourth Plan is about Rs. 850 crores of which foodgrains are expected to account for Rs. 400 crores.

20. As part of the programme for the development of co-operative marketing, the National Co-operative Development Corporation has initiated various schemes such as the one for establishing technical cells in apex marketing societies, creation of a pool of key marketing personnel, establishment of price fluctuation funds in marketing societies to safeguard against losses arising from outright purchases, and further strengthening of share capital of marketing societies.

Co-operative Processing

21. Marketing and processing are linked together. In the Second Plan, 464 co-operative processing units of various types, other than co-operative sugar factories, were assisted by the State Governments. In the Third Plan, 504 processing units were aided by the State Governments. In addition, the National Co-operative Development Corporation helped in setting up 470 small rice mills and 5 modern rice mills. As a result of these various steps, there has been a significant increase in the activities of co-operative processing societies. The most promising development has been in the field of co-operative sugar factories. In 1955-56, there were only three co-operative sugar factories accounting for about 1·6 per cent of the national production of sugar. In 1965-66, there were 51 co-operative sugar factories which accounted for about 26 per cent of the national production. As regards cotton, in 1964-65, co-operatives accounted for 8·8 per cent of raw cotton ginned and 10 per cent of lint cotton pressed in the country. In the Fourth Plan, it is proposed to set up about 1500 processing units of various types. In pursuance of this programme, it is expected that by the end of the Fourth Plan, the capacity of co-operative sugar factories will account for about 37 per cent of the total capacity of the sugar industry; the capacity of co-operative cotton-ginning units will account for 27 per cent of the estimated national production. Further development is also envisaged in regard to paddy processing, groundnuts, fruits and vegetables. Besides, in the Fourth Plan, a new Centrally sponsored scheme will be started under which export-oriented co-operative processing units and modern rice mills will be developed in the co-operative sector.

Processing is intimately linked with marketing, and one of the weak areas in co-operative organisation even where it is well developed is the marketing and processing field. While the expansion of co-operative processing on conventional lines may be pursued under the

programme provided for, a much bolder policy for the spread of co-operative processing in the Fourth Plan is essential in regard to progressive reorganisation on co-operative lines of units which are at present privately owned. Attention to this was drawn in the Third Five Year Plan where this aspect was stressed as important on wider considerations because it was the aim of public policy to reorient the organisation of processing industries from a private to a co-operative basis and also for the reason that in many of these industries there was either excess capacity or limited scope for adding to existing capacity. If a big programme for co-operative processing is to be pursued in the Fourth Plan, apart from provision of additional outlay, it will be essential to involve long-term industrial financing agencies fully in regard to provision of credit.

Co-operative Agricultural Supplies

22. Supply of agricultural requisites such as chemical fertilizers, seeds, pesticides and implements, has been one of the normal activities of the co-operative sector. In 1955-56, the value of such requisites handled by co-operatives was only about Rs. 3 crores. During 1964-65, the corresponding figure was Rs. 104 crores. During 1964-65, co-operatives handled fertilizers of the value of Rs. 73 crores which accounted for nearly 73 per cent of the total value of fertilizers sold in the country in the same year. In the Fourth Plan, co-operative societies will have to play a more active role in the sphere of distribution of fertilizers and other agricultural requisites. For this purpose it is necessary to equip them with trained staff.

Linking of Credit with Marketing

23. The progress made in regard to the linking of co-operative credit and co-operative marketing has not been appreciable so far. This will be rectified in the Fourth Plan. In 1964-65, out of over 2 lakh primary agricultural credit societies, only about 1·25 lakh societies were affiliated to marketing societies. In the Fourth Plan, it is proposed to affiliate most of the primary credit societies to marketing societies. During 1964-65, co-operative marketing and processing societies and credit societies recovered about Rs. 30 crores from the sale proceeds of members' produce, or about 10 per cent of the total loans recovered during the same period. This is not a satisfactory position. It is proposed, therefore, to intensify the efforts for linking credit with marketing in the Fourth Plan, particularly in the areas where special programmes of agricultural development are in progress.

Co-operative Storage

24. A scheme for building godowns for co-operative societies was started in the Second Plan and this was continued in the Third Plan. In the Second Plan, assistance was provided for the construction of about 1716 mandi-level godowns and 4985 rural godowns. In addition to these godowns, co-operatives have constructed about 1000 godowns at mandi-level and 1500 godowns in rural areas with their own resources. In the Third Plan, nearly 800 godowns of marketing societies and 6600 rural godowns were assisted under the co-operative plans.

25. In the Fourth Plan, it is proposed to construct 1500 godowns in the market centres and 20,000 godowns in the rural areas. It is expected that the storage capacity of godowns of co-operatives will be increased to 4 million tonnes at the end of the Fourth Plan from about 2 million tonnes likely to be reached at the end of the Third Plan.

26. There is a scheme in the Fourth Plan for setting up about 100 co-operative cold storage plants. The capacity of these plants is expected to increase from 0.5 lakh tonnes at the end of the Third Plan to 1.2 lakh tonnes at the end of the Fourth Plan.

Co-operative Farming

27. The role of co-operative farming in the reconstruction of the rural economy was stressed in the Five Year Plans. During the Third Plan, 318 pilot projects, each comprising 10 co-operative farming societies, were planned to be organized in selected community development blocks in the country to demonstrate to cultivators that by pooling of their land, manpower and other resources, they could increase agricultural production. Societies formed outside the pilot areas were also to be encouraged and assisted. By the end of December 1965, 2485 societies in the pilot areas covering 264,245 acres and 2527 societies in other areas covering 289,840 acres had been set up.

28. To assess the progress made by co-operative farming and to evaluate the working of the pilot projects, a Committee of Direction was appointed by the Government of India in July 1963. The Report of this Committee, submitted in September, 1965, has stressed that in the Fourth Plan, special attention must be paid to consolidation rather than expansion and that whatever expansion is aimed at should be based on purposive selection of areas in each State for starting intensive programmes. The reorganization and strengthening of existing co-operative farming societies will also receive attention in the

Fourth Plan. The Committee of Direction has drawn attention to the point that the programme has been officially inspired and guided in most areas; bigger farmers have sometimes dominated the societies; and non-viable societies have been formed in some areas. Moreover, technical and financial support has not been forthcoming in adequate measure either from the Government or from co-operative societies. Inspite of these handicaps the Committee has noted that the programme has demonstrated its capacity to increase agricultural production and create a potential for future development. Co-operative farming has thus a positive role to play in the country's agricultural economy.

29. The programme for co-operative farming in the Fourth Plan should not get isolated from the mainstream of agricultural development. In fact, it should be looked upon as an important element in schemes for achieving new advances in agriculture. In the intensive areas where conditions for agricultural growth are considered to be specially favourable, co-operative farming should come naturally into the scheme of development especially for the farmers with small holdings. In the Fourth Plan, efforts will be made to promote co-operative farming as one of the important measures of assistance to the poorer sections of the farming community. The cohesion and viability of co-operative farming societies are of the utmost importance. Furthermore, apart from co-operative farming in the sense of pooling of land and joint cultivation, there may be prospects for providing certain basic facilities e.g., a common pump-set or a common tractor to groups of cultivators to start with. As these activities grow, other functions can be added gradually and fully co-operative farming societies might come into existence as a result of this process.

CONSUMERS' CO-OPERATIVES

30. The most outstanding recent feature of the consumers' stores movement has been its link with a scheme of the Government of India started in 1962 to check rising prices and ensure supply of consumer goods to the public at fair prices. There were 230 wholesale stores and 7332 retail stores at the end of December, 1965. The individual membership of the wholesale stores and primary stores came to 2 million in 1965. The value of sales of the wholesale stores increased from Rs. 22.4 crores during the period January-June 1964 to Rs. 54.2 crores during the corresponding period in 1965.

31. In the Fourth Plan, it is proposed to cover towns with a population of 25,000 and more in the initial years and thereafter gradually cover towns with a population of 10,000 and more. District wholesale stores are federated into apex federations which in turn are members

of a national federation. The objective in the Fourth Plan is for the consumers' stores, under the Centrally sponsored scheme, to cover 20 per cent of the urban population and capture 20 per cent of the retail trade.

32. The Department of Co-operation put into operation, in June 1966, an accelerated programme for the development of consumers' stores under the Centrally sponsored scheme with a view to keeping a check on prices in the context of devaluation. The scheme envisages the organization of about 100 new wholesale stores, 2000 retail units or primaries and about 43 big departmental stores in major cities in 1966-67. As part of the programme, a central purchase and sales organisation will be built up in the Department of Co-operation and supervisory personnel would be strengthened.

33. While it is true that initiative by the Government has done and can do a great deal to promote consumers' stores, it has to be noted that ultimately their success depends upon the loyalty of the members. Attention to this important aspect has been drawn in the interim report on the subject issued by the Programme Evaluation Organization of the Planning Commission in 1965. In the Fourth Plan, efforts will be made to develop members' loyalty to their stores primarily by giving them more and better facilities and service. In this connection a policy decision has been taken to enlarge the volume of credit which ultimately determines the magnitude and product-mix of the consumers' co-operative movement. This is being done by linking credit with trading operations instead of a multiple of the share capital of consumers' co-operative societies.

34. Complementary to the scheme of co-operative stores in the urban areas, there is a similar Centrally sponsored scheme for distribution of articles in rural areas, which was initiated by the Government of India in 1963 to ensure equitable and fair distribution of consumers' goods in rural areas. The scheme envisages that marketing societies would undertake retail distribution of articles in *mandi* towns and procure commodities for supply to village societies for distribution in rural areas. The value of consumers' articles distributed under the scheme increased from Rs. 28.40 crores in 1962-63 to Rs. 101.89 crores in 1964-65 and is expected to touch about Rs. 200 crores by the end of the Fourth Plan.

WEAKER SECTIONS

35. One of the principal objectives of the co-operative movement is to enable persons of relatively small means to combine together and benefit from common action. Positive steps will have to be taken in the Fourth Plan to strengthen the co-operative form of organisation

so that the weaker sections can be benefited. In order that the relevant co-operative programme can be meaningful, a definition of the term 'weaker sections' was evolved by the Department of Co-operation and communicated to the State Governments in April, 1965.

36. The main emphasis in regard to Co-operation as a measure of assistance to the weaker sections in the Fourth Plan will be on (a) orientation of general programmes, with ear-marked funds, to ensure that benefits flow to the weaker sections as defined; (b) special programmes for the backward classes; and (c) specific programmes including co-operative farming, labour co-operatives, etc. The principle of earmarking of funds will be applied initially with regard to programmes such as dairy and animal husbandry, fisheries, and housing. A brief reference to these is made in the following paragraphs:

Dairying and Animal Husbandry

37. At the end of 1963-64, there were 5052 milk co-operatives with 348,316 members. The value of milk purchased by the societies was Rs. 8.74 crores and the sales totalled Rs. 9.96 crores. The primary milk societies are affiliated to 108 milk unions. The value of milk and milk products sold through these unions amounted to Rs. 11.49 crores in 1963-64. In a circular letter issued to the State Governments in July 1965, the Union Ministry of Food and Agriculture stressed that the objective should be to form strong co-operatives to utilise at least 75 per cent of the Plan resources ear-marked for dairy and poultry schemes. It was further suggested that out of this allocation, 50 per cent of the funds meant for giving assistance to individuals should be ear-marked for the weaker sections of the community having special skills with regard to dairy and poultry farming.

38. The following guide-lines for the development of the dairy industry on a co-operative basis will be adhered to in the Fourth Plan:

(*i*) The area selected should be compact and developed intensively to ensure that resources are not thinly spread and production is not affected.

(*ii*) A project approach should be adopted, that is, all technical aspects, including survey, location of the project etc., should be decided by the technical department concerned.

(*iii*) Common services such as supply of feed, fodder, veterinary and other facilities should be provided by the central organization as an integral part of the scheme. This society should also take care of marketing activities.

(*iv*) Collection of milk should be through primary milk co-operatives or service co-operatives. 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.

(*v*) As many of the dairy plants in the co-operative as well as in the public sector are working far below the installed capacity, urgent steps should be taken to increase the milk supply in the milk-shed areas of these dairies.

FISHERIES

39. The number of fisheries' co-operatives stood at 2912 in 1963-64 with 295,705 members. The value of sales made by these societies during 1963-64 was Rs. 2.44 crores. The Study Group on Fisheries Co-operatives has recommended that at least 50 per cent of the production should be forthcoming from the co-operative sector in the Fourth Plan. The Conference of Directors of Fisheries held in June 1965 recognised the important role of co-operatives in mechanised fishing and recommended that in future mechanised boats should be issued only through co-operatives. This and the following other guide-lines were commended to the State Government by the Department of Co-operation in October, 1965:

(*i*) Primary fisheries' co-operative societies should be organised and affiliated to the marketing and supply unions around each important fishing harbour. The unions should undertake collection, marketing, processing, supply of requisites, provision of ice and freezing facilities and also construct boats.

(*ii*) Trawlers may be operated departmentally or through some other agency if the co-operatives cannot take up the programme immediately.

(*iii*) There should be a co-operative cell in the Fisheries Department.

(*iv*) Well-trained and qualified persons having business experience should be appointed as Managers of fisheries co-operatives.

40. The programme for fisheries' co-operatives in the Fourth Plan will be generally on the above lines.

FOREST CO-OPERATIVES

41. In 1963-64, there were 1017 forest contract societies with 98,739 members. The value of works carried out by these societies was to the tune of about Rs. 3 crores. In the Fourth Plan, the objective

will be to ensure that forest labour co-operatives progressively take over from the contractors the exploitation of forests, e.g., felling of trees, conversion into logs, firewood, and charcoal and their transport and sale as well as collection, processing and disposal of minor forest products.

Labour and Construction Co-operatives

42. The number of labour contract and construction co-operatives stood at about 4000 in 1964-65 with a membership of 2.78 lakhs. The value of works executed by the societies during 1964-65 is estimated at about Rs. 10.5 crores as compared with Rs. 6.93 crores in 1963-64.

43. To intensify the work of labour co-operatives, a scheme of pilot districts has been introduced in eleven States so far. Some of the operational steps recommended by the Government of India to the State Governments which have launched the programme are establishment of a co-ordination committee at the district level, listing out by the co-ordination committee of the various labour intensive programmes and preparation of an integrated work schedule to provide continuous employment and the establishment of district federations.

44. The proposals for strengthening labour and construction co-operative societies in the Fourth Plan include aspects such as reservation of all unskilled work for labour contract co-operatives without calling for tenders and provision of intensive technical assistance.

Industrial Co-operatives

45. At the end of 1964-65, the total number of industrial co-operatives was estimated at 51,000 with a value of sales of Rs. 117 crores. About 50 per cent of the existing handlooms are in the co-operative sector.

46. In September, 1962, the Government of India set up the Second Working Group on Industrial Co-operatives. The Government of India announced its decisions on the recommendations of the Working Group in February, 1966. Among the various measures agreed to for building up a strong structure of industrial co-operatives in the country in the Fourth Plan, reference may be made to the scheme for revitalization of dormant societies; special training courses for members and officers of industrial co-operatives; assistance to individual members to purchase shares of industrial co-operative societies; specific allocations in each State budget for the development of industrial co-operatives; and Government contribution to special bad debt funds of co-operative banks.

47. In the Fourth Plan, efforts will be made to ensure a quicker pace of growth by co-operatives in the industrial sector keeping in view the estimates made by the Working Group namely, 68,000 societies with a membership of 6.5 million. Accelerated growth is envisaged in regard to co-operatives of small industrialists in the field of mechanised industries, especially of the service type, including co-operative industrial estates. Special efforts will be made in the Fourth Plan to revitalize inactive societies.

Housing Co-operatives

48. There were 9,885 housing co-operatives of various types at the end of 1963-64. An important development which has significance in regard to the growth of housing co-operatives in the Fourth Plan has been the decision by the Union Ministry of Works and Housing, communicated to the State Governments in May, 1964, to ear-mark for the co-operative sector, 20 to 25 per cent of the funds allocated under the housing schemes, the percentage to be raised to 40 in States where the co-operative housing structure is of an advanced character. Some of the States have agreed to such ear-marking of funds.

49. The co-operative programmes in the Fourth Plan also cover other types of co-operatives such as transport societies, rickshaw-pullers' societies, etc.

Co-operative Training, Education and Administration

50. The arrangements for co-operative training and education are in the charge of the National Co-operative Union through a special committee on co-operative training. Under this scheme, there is the National Co-operative College and Research Institute at Poona for the training of senior officers, 13 intermediate and 67 junior centres for the training of intermediate and junior level personnel respectively and 612 peripatetic units for training members and office-bearers of societies. At these centres, the officers of the co-operative departments and co-operative institutions are given training in co-operative theory and practice. The programme for training of secretaries, members of managing committees, including office-bearers, and members of co-operative societies are implemented by State and district co-operative unions under the general supervision of the National Co-operative Union. At the end of March, 1966, these institutions had trained 873 senior officers, 11,804 intermediate category officers and 52,988 junior officers. About 3,263,226 non-officials had been trained by the end of November, 1965, under the programme for member-education. These arrangements for training and education will be strengthened in the Fourth Plan.

51. The Committee on Co-operative Administration (1963) set up by the Government of India under the chairmanship of the late Shri V. L. Mehta had suggested detailed standards regarding co-operative departmental staff at various levels. The aim in the Fourth Plan will be to persuade and assist the State Governments to equip their co-operative departments with staff of the requisite number and quality in keeping with the recommendations of the Committee on Co-operative Administration.

52. Equally important is the need to ensure that the co-operative institutions have their own appropriately qualified staff for management and supervision. A recent study by the Programme Evaluation Organisation of the Planning Commission entitled *Study of Utilization of Co-operative Loans* (1965) has drawn attention to the fact that the field staff is generally burdened with procedural, administrative and accounting work and they have not been able to devote attention to the work of supervision of the use of the loans. This should be rectified in the Fourth Plan by the co-operative institutions having their own qualified staff, in sufficient number, for management and supervision.

53. In conclusion, it must be emphasised that co-operation, as a form of organisation of economic activity, is a crucial factor in the achievement of the social objectives of Indian Planning. Obviously this requires that the co-operative structure becomes increasingly efficient and self-reliant and able to stand on its own in competition with the private sector without leaning on special assistance from Government. This is possible only if the co-operative movement evokes more loyalty from its members in respect of repayment, purchases, sales and production. It is also essential that managerial efficiency should improve and more viability should be imparted to individual societies. Above all, it must not be forgotten that co-operation is not merely a form of economic organisation. It has deep social and ethical values and is intended to lead to a new and better way of life. More stress on this aspect of the movement seems necessary than has been the case so far.

54. Annexures I and II show the proposed outlay and targets on State, Central and Centrally sponsored schemes in regard to co-operative credit, marketing, processing, consumers' stores, etc. in the Fourth Plan.

ANNEXURE I

A. Proposed Outlay on State Plan Schemes during the Fourth Plan

(Rs. lakhs)

name of the scheme	Third Plan		Fourth Plan
	provision	anticipated expenditure (including Union Territories)	proposed outlay (excluding Union Territories)
credit	2285·00	1717·04	2800·00
marketing and storage	1654·00	1863·01	5050·00
processing other than sugar factories	420·00	438·38	2500·00
sugar factories	563·00	330·42	1000·00
co-operative farming (States' share)	608·00	282·18	450·00
training and education	635·00	521·52	750·00
consumers' co-operative stores	113·00	107·20	—
additional departmental staff	520·00	523·25	500·00
miscellaneous schemes	158·00	186·83	600·00
	6956·00	5969·83	13650·00

B. Proposed outlay on Central/Centrally sponsored schemes during the Fourth Plan

(Rs. lakhs)

name of the scheme	Third Plan			
	provision	budget provision	anticipated expenditure	proposed outlay in the Fourth Plan
co-operative training and education (grants to central committee for co-op. training and to national co-operative union of India)	200·00	161·70	127·46	300·00
distribution of consumers' articles in rural areas	60·00	55·00	46·35	100·00
co-operative farming	600·00	630·75	450·19	1350·00
special scheme for gramdan and bhoodan areas	100·00*	69·00	49·37	**

*By transfer from Agriculture Department.

**To be provided in the agriculture sector.

urban consumers' co-operative stores	1000·00	1147·10	1014·70	1800·00
additional assistance to Eastern States	100·00	75·00	63·00	200·00
agricultural credit stabilization fund	...	..	..	2000·00
large-sized processing units other than co-operative sugar factories	...	...	..	700·00
	2060·00	2138·55	1751·07	6450·00

Abstract

	(Rs. crores)
State Plan schemes	136·50
Central and Centrally sponsored schemes . . .	64·50
Union Territories	5·00
total	206·00

ANNEXURE II

Some Physical Targets—Fourth Plan and for the Year 1966-67

item	Fourth Plan target	target for 1966-67
agricultural credit		
(i) membership (in lakhs)	450	325
(ii) short-term and medium-term loans advanced in the last year of the Fourth Plan (Rs. crores) .	650	450
(iii) long-term credit-fresh loans to be advanced during the Fourth Plan (Rs. crores)	300	45
marketing and processing		
(i) no. of primary marketing societies (new) . .	450	20
(ii) value of agricultural produce to be handled (Rs. crores)	850	400
(iii) godowns of marketing societies (new) . .	1500	35
(iv) rural godowns (new)	20000	510
(v) sugar factories (new)	38	15
(vi) other processing units (new)	1500	92

CHAPTER X

IMPLEMENTING THE FOURTH PLAN

I

PLANNING AND ADMINISTRATION

THE object of this Chapter is to draw attention to some of the more important tasks of management and administration which must be accomplished if the Fourth Five Year Plan is to yield the results anticipated.

2. In each of the Five Year Plans, there has been a significant gap between planning and implementation. The burdens thrown upon the political system and the administrative structure have increased steadily. Although many innovations have been made and much has been done to strengthen administrative and technical agencies and build up trained personnel, both at the Centre and in the States, a great variety of tasks, old and new, have fallen in the main upon the same institutions, namely, Ministers, Secretariat Departments, executive agencies and the Collectors and other district officials. With increase in the size and scope of development programmes, the volume of work has grown considerably. Current problems such as rise in prices or shortages in essential commodities have also added greatly to the strains under which the administrative machinery functions. The Third Plan had stressed the need for far-reaching changes in procedures and approach and had made a series of recommendations for raising administrative standards, managing projects in the public sector with efficiency, building up personnel, achieving economies in construction and strengthening the machinery for planning. In several directions, as a result of work done during the Third Plan and the studies undertaken, deficiencies in implementation are now more closely identified, the use of improved methods and techniques has been more fully demonstrated and the improvements to be made in the immediate future and the conditions requisite for them are better known. The ground for a concerted drive for better implementation of plans has been prepared. When the recommendations of the Administrative Reforms Commission, which is engaged in a comprehensive study of all aspects of administrative reform, become available, it should be possible to go beyond the immediate tasks and to consider more basic changes in the structure and functioning of the administrative system

as a whole. In the meanwhile, in all branches of administration, efforts should be made to carry out over the next year those measures for strengthening implementation which have been already established.

3. In considering the tasks of management and administration in relation to the Fourth Plan, four preliminary observations may be made. First, whatever the nature of the task to be carried out, it is important not only to define the steps needed, but also to establish responsibility for action, and where need be, to indicate the machinery or the means through which the responsibility should be fulfilled. This is essential for ensuring accountability and for judging by performance and results. Secondly, many deficiencies in implementation arise from weaknesses in planning. Those charged with administration are frequently faced with tasks beyond their control. If the targets proposed in a plan are not matched by material and other resources or if the requisite personnel and finance are not made available in time, the executive agencies are not in a position to produce the results anticipated. Thirdly, beyond the scheme embodied in an overall plan, whether for the economy or for a sector, there is a great deal of detailed planning which must be done within an enterprise or in a department concerned with a specific development programme. Such planning greatly influences the quality of implementation and should receive the closest attention. Finally, every project and every programme calls for a high degree of coordination between different agencies, for instance, in making the inputs available, in synchronising activities and in working closely with one another, so as to ensure that in each field investments will yield the maximum return. At every step planning and administration are inter-related. Efficient and speedy implementation depends on systematic and careful planning. In each sector of the Fourth Plan, the administrative tasks to be accomplished should be carefully analysed by the agencies responsible for execution. The sequence in which each task has to be undertaken and the conditions necessary for accomplishing it should be clearly stated and provided for. In every field, detailed administrative and operational plans are essential for the fulfilment of targets proposed in the Fourth Plan.

It is suggested that, both at the Centre and in the States, before the submission of the Final Report on the Fourth Plan, a carefully coordinated effort should be made in pursuance of this recommendation and the various Departments should endeavour to draw up such plans for their respective sectors. In these plans, each agency may define the precise tasks to be performed by it and those to be performed by other agencies; the relevant time elements should also be clearly specified.

II

Annual Planning

4. Since 1956-57, annual plans have been an integral feature of India's planning, both at the Centre and in the States. While there have been some improvements in processes associated with annual plannnig, certain important deficiencies still remain. The appraisal of economic trends which accompanies the preparation of the annual plans has to be more continuous and should be based on close analysis of economic and statistical data. Even apart from uncertainties concerning agricultural production, statistics of output in different branches of industry and several other statistical series become available only after a considerable time lag. The appraisal of performance, both for the preceding year and the current year, which accompanies the preparation of the annual plan, is generally incomplete and gaps in performance are not located with sufficient precision. Since accurate information is not always available for past and current performance and forecasts for the succeeding year contain a large element of guesswork, there is a temptation to proceed rigidly on the basis of estimates and targets embodied in the Five Year Plan without taking the opportunity, which the annual plan should provide, of revising the earlier estimates, bringing them up-to-date and preparing fresh forecasts for later years. In this connection, the bearing of the present fiscal year on the annual budget and the annual plan may also be mentioned. The fiscal year ends before the agricultural picture for the preceding year as a whole can be gauged. Work on the annual plan has to be undertaken before the outlook for the *kharif* harvest can be assessed. It would be useful to examine afresh in the light of present needs suggestions made on several occasions in the past for a review of the existing fiscal year. In relation to industrial programmes in the private sector, procedures now in vogue do not provide for systematic review of past performance and for a close enough appreciation of current needs and of plans for the following year. Plans for production, imports and exports, are not as closely integrated as they need to be. It has not been possible yet to prepare systematic annual balances and forecasts for key materials or to link up estimates of requirements adequately with plans drawn up for the more important industries, projects and programmes. Through careful annual planning, it should be possible not only to implement the Five Year Plan with greater flexibility, introducing such changes as may be called for by current developments in the economy, but also continuously to correct targets and estimates in the Five Year Plan and take a forward view of the growth of the economy and of favourable technological and economic possibilities.

5. In its operational aspects, the key role of the annual plan consists in the close links it provides with the annual assessment of resources and appraisal of performance. At the time of the annual plan, it is necessary to distinguish beween (a) continuing projects for which adequate resources must be made available to ensure completion and (b) new projects which should be taken up only when they are fully worked out and are ready for implementation and the resources for them, both internal and external, are assured. To achieve the targets for the Fourth Plan, as now formulated, the annual plans during the next two years, 1967-68 and 1968-69, will be of the greatest importance. During this period, as indeed for the period as a whole, it will be essential to avoid deficit financing and, at the same time, to secure adequate advance specially in the key sectors. Systematic follow-up of the annual plan is essential. Central Ministries and Departments in the States and the Union Territories should take early steps to equip themselves adequately to discharge this responsibility. Physical programmes should be drawn up in adequate detail. Along with financial provisions, the precise tasks to be fulfilled and the tests by which performance would be judged should be clearly laid down. It will be necessary for all the agencies concerned to keep continuous watch on implementation. Progress in industrial and other programmes in the private sector would also have to be followed up closely.

6. While, some of the improvements indicated above will take a period of sustained work, there are a few directions in which action can be initiated immediately:

(1) The schedule of operations associated with the preparation of the annual plan should be laid down well in advance and adhered to firmly.

(2) Statistical requirements for annual planning should be carefully set out and programmes should be initiated for eliminating existing deficiencies over a period.

(3) Existing procedures for annual plans should be simplified. The annual plan discussions should concentrate on broader matters, more specially, on resource mobilization, appraisal of performance in key areas in physical terms, matters of policy and approach and the requirements of the larger investment projects. Within such a framework, and with agreement on priorities, detailed planning and adjustments should be undertaken largely by the States themselves.

(4) To enable States to undertake planning in the manner envisaged above and to take a more integrated view of their

needs and resources, the existing planning machinery in the States needs to be considerably strengthened. Each State has to consider how this object can be best achieved. Planning units in the Central Ministries have also to be strengthened.

(5) Steps should be initiated for improving and simplifying the existing system of reports and flow of information, from project and district authorities to the State level, and between the States and the Central Ministries and the Planning Commission. Multiplicity of forms should be eliminated and only information relevant for action and management should be retained.

7. A mid-term appraisal of the progress and prospects of the Fourth Plan is proposed to be undertaken in 1968-69. This will involve assessment of the targets achieved and review of basic assumptions concerning resources and other aspects in the Five Year Plan. The mid-term appraisal should also be the occasion to take a preliminary view of the development of the economy in its broader trends beyond the five-year period. In the light of experience, the targets of the Plan should be revised and key parametres reviewed. The necessary forward planning for major investment projects and programmes for the early years of the Fifth Plan could also be secured.

8. As suggested earlier, as part of the scheme of the annual plan, it is necessary to work out balances for key materials. These will include materials such as steel and cement as well as scarce materials for which imports may have to be arranged in advance. In preparing these balances, an integrated view will have to be taken of the requirements of production and imports. The existing procedures bearing on the management of foreign exchange will also call for further consideration. Similarly, demands for transport and power will have to be assessed carefully in cooperation with the Ministries concerned. Wherever possible, within the forecasts for the year, efforts should be made to provide forecasts for shorter six-monthly or quarterly periods against which progress can be observed and adjustments made.

9. The need for strict control on public expenditure has been stressed earlier. Apart from correcting obvious sources of wasteful expenditure, a functional approach to public expenditure would involve a systematic review of various current activities in terms of the purposes actually served by them. There is more to be gained by cutting out an activity which may not be sufficiently significant than by starving worthwhile activities of the resources needed to produce results. In

relation to all projects and programmes, expenditures of a non-functional nature should be identified and steps taken to eliminate them. Secondly, the existing financial procedures should be reviewed so that, on the one hand, they will ensure adequate control over expenditure and, on the other, they will enable the authorities concerned to accomplish the tasks entrusted to them. Within the resources allotted, administrative agencies should have freedom to make such reasonable changes and adjustments as may be necessary. Thirdly, over a period there is need to introduce performance budgeting systems. Some preliminary work in this field has already been initiated. Performance budgeting systems, along with improvements in reporting and in accounts associated with them, can be of material help in ensuring careful analysis of expenditure in terms of the activities to be undertaken and evaluation of results in relation to money spent. Finally, having regard both to the need for economy and the need to secure results, reference may be made to the need, now being increasingly felt, for developing officer-based systems of administration over as large an area as possible. These could speed up the decision-making processes and make the administration more action-oriented.

III

Economies in Construction

10. In the Fourth Plan, construction will account for more than half the total outlay. Construction works have to be completed in time if the physical outputs are to be realised. Yet, in the light of past experience, there can be little doubt that unless considerable economies in design and construction are achieved and there is marked reduction in the cost of materials and increase in efficiency in the construction industry as a whole, it will not be possible to accomplish the physical tasks envisaged in the Fourth Plan within the financial outlay provided.

11. A number of studies have been made in recent years of the various processes involved in public works construction. They point to the fact that planning is often hurried and inadequate and, as a consequence, costs rise and estimates are exceeded. Works procedures now in use for examining, approving and administering projects are cumbersome and largely outmoded. Much effort on the part of engineers and technologists goes into seemingly infructuous work, with the result that design, works organisation, execution and supervision do not receive due attention.

12. The construction industry has not kept pace with modern developments and many of its practices are uneconomic. Because of the various constructional and financial risks involved, and the nature of conditions prescribed in contracts, the industry functions under several handicaps. Special measures will be required to enable the construction industry to expand on the scale required by programmes under the Fourth Plan. Administrators, financial advisers, technologists, specialists and contractors should function as teams engaged in carrying out common tasks. To this end, many existing administrative, financial and constructional procedures have to be improved.

13. It is against this background that the following aspects of construction have to be emphasised:

(*a*) need for adequate pre-planning,

(*b*) introduction of new methods and techniques,

(*c*) development and utilisation of existing and new construction materials,

(*d*) the business aspects of contract and construction work, and

(*e*) administration of public works.

14. *Pre-planning.*—Every authority responsible for major construction projects, both at the Centre and in the States, should have a planning and designs office under the control of its chief technical officer. This unit should be staffed with the best talent available and its personnel should be given opportunity to specialise in their fields of work. Responsibility for planning should be clearly defined and should rest with the principal technical officer, who should be given necessary resources in personnel and finance.

15. Projects of a repetitive nature, such as housing, hospitals, schools, industrial estates and roads should have appropriate 'technical development groups' which can keep problems in each field continually under review and provide advice and guidance. In addition, there is also need to encourage the formation of specialised groups of 'consulting engineers', who could bring into the construction industry the higher expertise such as is not available sufficiently at present.

16. In inviting tenders for works, sufficiently detailed information is not often given to construction firms and the time specified for submitting tenders is not always adequate. Drawings and specifications are not complete and inadequate attention is given to problems which are likely to face the contractor. Once the main contractor for a project has been selected, it should be normal for him to collaborate with the 'planning cell' of the department or authority concerned

in finalising drawings, specifications, rates etc., for each phase of the project before the work actually begins.

17. *Introduction of new techniques.*—The quantum of construction work under the Fourth Plan is much greater than under earlier plans. Therefore, the most economic use must be made of the available materials. Full use should be made of the latest design techniques. Factors of safety as at present adopted need to be reviewed.

Standardisation of building components and adoption of modular coordination systems would lead to significant economies in construction.

There is also need to evolve a National Buildings Code. Work on this is in progress.

18. *Development and utilisation of existing and new materials.*—In most projects materials account for about two-thirds of the construction cost. It is, therefore, essential to assess and plan for requirements of essential materials well in advance both for individual projects and on a wider basis for different sectors and regions. Measures should be taken to increase the productivity of existing materials industries, to promote the manufacture of materials from industrial wastes, and to encourage the production and use of new materials such as plastics, asbestos and polyethylene pipes and masonry cements. There is need to improve the quality of the products and to reduce the cost of local construction materials, specially bricks and tiles, timber, lime and quarried material. In the case of timber, in particular, the increasing use of secondary species after seasoning and treatment and of fibre and particle boards should be encouraged.

19. *Business aspects of contract and construction work.*—Large economies can be achieved through improvement in the business aspects of contract and construction work. The construction industry is not well organised. Design and construction tend to be treated as separate functions and the engineer or the architect and the contractor generally do not form a composite team. There are other aspects such as delays in payment of bills, conditions of contract, requirements of deposits,etc. which are responsible for higher costs.

20. *Administration of public works.*—The prevailing system under which all operations and important stages in construction and all materials at site are subject to almost continuous visual inspection by subordinate staff delays progress. It could be replaced by a system of periodic checks by responsible engineers employing scientific methods and testing and quality control. In construction work, a system of interal inspection supported by independent laboratory

checks inspires much greater confidence in those responsible for a project than 'post mortem' external examination. Experience shows that the so called 'technical examinations' often results in delays in resolving even legitimate differences of opinion regarding specifications and contractual requirements such as might arise in all but the simplest of civil engineering works.

21. The strengthening of technical agencies is a necessary step if recommendations such as those oultlined above are to be implemented effectively. The existing division of responsibility between secretariat departments and technical agencies leads to considerable duplication of work, delays and loss of initiative. Simplification of public works accounts procedures and grant of larger financial powers to various grades of engineers would speed up construction works.

In their report on Public Works Administration, the Buildings Projects Team of the Committee on Plan Projects had proposed that in each State there should be a Board of Engineers which could coordinate engineering activities and tender expert advice on important technical matters. It has also been suggested that each State should have a construction economy cell which can assist different agencies. These recommendations need early consideration.

IV

Project Planning and Management

22. A considerable part of investment under the Five Year Plans is devoted to large investment projects in industry, minerals, power, transport and irrigation. With efficient planning and management and appropriate price policies, these projects can earn sizeable surpluses and largely provide for their future development from within their own resources. However, experience to date has been that the majority of public sector projects have taken longer to complete than was initially estimated, benefits from them have come later than expected, the capital costs have been higher than orginally planned and, consequently, returns on capital have been smaller than was expected when the projects were approved. Several studies undertaken during the past few years have established the fact that, to a significant extent, cost over-runs, schedule slippages and unsatisfactory decisions on size, scope and location of projects are to be traced to incomplete preliminary planning and analysis. In fact, there are instances where some projects have taken as much as six to seven years from project conception to the start of construction. Conclusions flowing from studies of the working of public enterprises show that every authority concerned with public sector projects needs to draw up its own action

programme to bring about substantial improvements. These improvement programmes should be directed towards achieving better management performance in all phases of the life cycle of a project. The life cycle of any large project falls into three broad phases which, though overlapping to some extent, are in fact distinct and have their own specific management requirements. These phases are pre-construction, construction and operations.

23. *Pre-construction phase.*—The pre-construction phase normally encompasses that period of time which begins with project conception and terminates with the start of construction. There is a series of logical and definitive steps that should be taken during this period to achieve improved project development. To assist the Ministries and project authorities in this phase, a guide for "Feasibility Studies for Public Sector Projects" has been prepared by the Planning Commission in cooperation with the Ministries. This document indicates the steps which Ministries and project authorities should take in planning projects and providing the information necessary for their approval and sanction. It calls for the submission of a preliminary project formulation, followed by a feasibility study covering such aspects as demand analysis, technical development, cost estimates, profitability analysis and assessment of national economic benefits. Keeping in view the deficiencies observed in many projects, it is necessary now to lay down that for projects involving investments above a prescribed amount (say, Rs. 5 crores), feasibility studies should be presented by Ministries and project authorities before their proposals are included in the Plan and approved for specific action and before sizeable funds are committed for them.

24. The pre-construction phase also includes the formulation of the detailed technical and managerial plans to be used by the project authorities during the subsequent construction phase. These plans are embodied in the Detailed Project Report, which should be sufficiently definitive to provide the management with the tools for minimizing deviations from anticipated construction time and cost estimates. Such plans are also essential for synchronising the work of different agencies and of contractors responsible for specific operations.

The project definition process, described above, must include the manner of integration of the project under consideration with other interdependent projects. In all three phases, certain projects may be interrelated, the output of one constituting the input of another. Thus, a coal mine, a coal washery and a thermal power station may be linked directly, and in such instances, it is necessary to ensure that a total systems approach to the conception, planning, and management

is followed. This will help reduce the total systems costs of operation and increase the returns on investment.

25. *Construction phase.*—One of the early and most important steps which the project authorities should take before physical work on the project begins is the planning and scheduling of contracts. Frequently, contracts do not provide for adequate internal control and fail to relate payments and expenditure to the milestones or stages envisaged in the master plan. These milestones should be selected from the master plans developed with the use of network planning techniques prepared during the project definition process of the pre-construction phase.

The integration of contract activities with the overall project plan forms the basis for effective management control during the construction phase. Greater use needs to be made of these techniques along with management information systems for controlling and monitoring the progress of construction and the use of resources.

Just as the pre-construction phase should include detailed planning for carrying out construction, it is equally necessary to develop detailed plans for the production start-up and subsequent operations. These plans should include clear provisions for training the personnel needed so as to ensure that the project is staffed in time with competent persons at all levels.

26. *Operations phase.*—In the case of public sector enterprises, difficulties have been observed during the operations phase in certain areas, especially materials management, production scheduling, and financial planning and cost control. In dealing with these difficulties, the following are among the more important recommendations which need to be implemented as a matter of high priority :

(1) Each year, large public enterprises should prepare development and production plans, with corresponding financial plans, for at least three or four years ahead. This would ensure that the annual plan and the annual budget of the enterprise are part of a longer and continuous perspective.

(2) Modern production schedule and cost control systems should be introduced. Accurate information should be built up concerning production capabilities of machines, and input requirements of materials and components; in addition, greater attention should be given to developing work standards. Production plans are frequently made on an annual basis, but the lead time for procuring many materials may be nearer two years than one. Public enterprises

should be enabled to plan ahead and place firm orders in advance for their principal materials requirements, deliveries being phased so as to meet their requirements at each stage with the minimum stocks.

(3) In most public sector projects, inventories have tended to be on the high side. To some extent, procurement difficulties and shortages of foreign exchange account for excessive stock holding. Through the introduction of scientific inventory management practices, it should be possible for every public enterprise to determine optimum stocking levels on a selective basis, to distinguish costly items and items in high demand from others, and to improve existing procedures for disposal of surpluses.

(4) Existing budget and accounts procedures should be improved. The budget should be prepared as an integral part of the management operations plan and not merely for the purpose of obtaining sanctions for expenditure.

(5) In cooperation with labour, and accompanied by appropriate incentive schemes, management of public enterprises should evolve norms of labour productivity, specifically for repetitive tasks.

(6) Greater use should be made of management techniques such as work study, line of balance, statistical quality control and operations research to increase management effectiveness for production operations.

(7) Public enterprises should take advantage of training programmes in management control and planning techniques which are proposed to be developed under the Fourth Plan, to supplement and complement their own internal programmes.

27. Problems of organisation in public sector undertakings have been recently reviewed in a report prepared by the Parliamentary Committee on Public Undertakings. Similarly, on the subject of personnel policies, a number of recommendations have been made in a special report by the Estimates Committee. These recommendations should be considered carefully with a view to early decisions by the Government of India concerning the organization and administration of public enterprises and policies for the development of managerial and other personnel. One of the weaknesses from which public enterprises have frequently suffered has been transfer of key personnel at relatively short intervals. Sometimes important management positions have remained unfilled for long periods. It is also

essentia lthat delegations and autonomy, whether within an enterprise or between an enterprise and the Ministry to which it is responsible, should be accompanied by improved systems of management information and control, so that the progress can be watched closely from time to time and new problems may be identified as they arise and resolved at an early stage.

V

Programme Management

28. Management techniques which apply to projects apply equally to the administration of development programmes. In fact, the largest improvements in the existing systems of development administration are now likely to come from systematic application of the approach of modern management. In relation to programmes in the Fourth Plan, it is necessary to concentrate on action to bring about a marked increase in the capacity of technical and administrative agencies to achieve given results within agreed cost estimates and time schedules. In many fields, these results will depend partly on the efficiency of the technical and administrative agencies and partly on the success attained in extension activities and the quality of participation and cooperation elicited from Panchayati Raj and civic institutions, from cooperative institutions and from voluntary organisations. In recent years, the working of a large number of development programmes at the field level has been carefully studied by the Programme Evaluation Organisation, the Committee on Plan Projects and evaluation units in the States. These studies throw considerable light on the nature of the administrative deficiencies which occur most often and suggest the lines along which remedies could be found. In every sector there is need to make purposeful use of the findings of such studies. Specific proposals should be drawn up by Ministries and States to deal with the weaknesses which have been identified. So far these weaknesses have been acknowledged in a somewhat general way. The administrative departments concerned should now undertake more systematic and continuous follow-up action and training programmes to deal with them. It would be sufficient here to draw attention to a few of the more important common elements which should be taken into account with a view to improving implementation in relation to development programmes in the Fourth Plan :

(1) The administrative implications of each important development programme should be carefully analysed and an operational approach developed. This implies breaking down the programme in terms of the activities involved,

setting out various points of action in a logical sequence, determining the requirements of personnel and material inputs at each stage, phasing out the programme so that all the components become available in the proportions and at the time needed and specific responsibilities are assigned for specific tasks. On the basis of such breakdowns advance planning has to be assured.

(2) In most programmes, more than one agency is involved operationally. In cooperation with the other agencies associated with a programme, the primary agency concerned should define in advance the precise contribution due from each agency and indicate this clearly in the plan of action. In many programmes, responsibility tends to be somewhat diffuse, so that it becomes difficult to ensure accountability for results. In this context, it is also important to specify the nature of the coordination required at each stage and the agency specifically responsible for it.

(3) In formulating a development programme in any sphere, the administrative and technical agencies concerned should ensure that the lessons of such study, evaluation and research as are available have been taken into consideration and that aspects requiring further investigation are clearly indicated. In designing a programme, at the very start, there should be careful evaluation of costs and benefits involved.

(4) Each development programme should provide for the necessary in-service training and orientation of personnel at various levels. Frequently, in vital extension activities new recruits are assigned responsibilities without a minimum period of in-service training.

(5) A weakness frequently observed in the planning and management of development programmes concerns the imbalance between the targets set and the supplies of inputs and materials actually programmed for and assured. This imbalance arises in part from limitations in supply and in part from the tendency to spread resources thinly over a large field, and points to certain deficiencies in the existing approach and procedures which must be remedied. Here responsibility rests, first and foremost, with the administrative departments concerned, both at the Centre and in the States. They have to ensure that materials requirements are assessed methodically and phased correctly, and that arrangements to meet these requirements are firm

and adequate. Materials planning should also be an essential ingredient in the preparation of the annual plan and the annual review of performance.

(6) The administrative and technical organisation for each programme should be so designed that it is capable of achieving the results expected of it. Too often, new tasks are assigned without providing adequate personnel and organisation. The existing administrative structures need to be reviewed in terms of the tasks to be carried out during the Fourth Plan. Relations between secretariat departments and executive agencies should be clearly defined. The former should limit themselves to policy making, planning and provision of essential inputs; the latter should have adequate freedom and authority to implement. Within secretariat departments as well as within the executive agencies, adequate financial and administrative powers should be delegated all along the line. To ensure speedy implementation the tendency for a large body of work involving the making of decisions to be pushed up to higher levels has to be counteracted.

(7) Each programme should have built into its design and structure a regular reporting and information system between different levels which is limited strictly to items essential for effective management. In implementing programmes of development, at present too much attention tends to be given to the amounts of expenditure incurred. Targets should be selected with care. Targets for items of work in which quantitative measurement is not of great significance should be avoided. There should be greater emphasis on quality of performance.

(8) In implementing development programmes sufficient attention is not always given to supervision and inspection. Written instructions and reports claim a large proportion of the time of senior administrative and technical personnel. Personnel at lower levels do not receive personal attention and guidance from higher levels such as would help resolve their difficulties and encourage them to achieve better results. Greater personal contact and a team approach between those functioning at different levels are essential for securing improved performance.

(9) Several development programmes have suffered grievously because of short tenures and frequent transfers. As emphasised in the Third Five Year Plan, for tasks of any

importance, it is essential that the responsible officials should not only be selected with care but should also remain long enough to grow to the full measure of their responsibility. Transfers injure both continuity of operations and morale of organisations. Again, as was stressed in the Third Plan itself, there should be no hesitation in assuring reasonable expectations of promotion to persons who are required to continue on jobs held by them in pursuance of public policy.

VI

Area Development and Administration

29. For several years, it has been realised that integrated development at the area level is essential for carrying the benefits of development to the more backward sections of the community and also for increasing agricultural production and strengthening rural economy. It is on this assumption that stress has been laid on the preparation of district and block plans. During the Fourth Plan, effective co-ordination and administration at the area level will also be of great importance in the context of intensive agricultural areas, rural industries projects, tribal development areas, regions where major resources development projects are being undertaken and regions within the immediate influence of large industrial complexes. Although, much experience has been gained, specially in relation to district and block plans, from the administrative and planning aspects, there is continuing need for systematic efforts to evolve appropriate techniques. Some of the problems for which solutions have to be found may be briefly indicated.

30. Before a plan for integrated development can be prepared it is necessary to survey the resources and needs of the area and to identify the possibilities of development open to it within the framework of the State plan. In this task, developmental agencies need the support of institutions which may be specially equipped to study, analyse and evaluate area programmes, undertake field experiments and provide training to official and non-official personnel. Considerable difficulty is experienced in bringing activities in different fields into a common and agreed plan at the area level. At present different departments sponsor their respective development schemes and these are implemented by appropriate agencies at the district and block level. Since these schemes need to be adapted to the conditions and requirements of different areas, the question of authority to make

changes and to adjust resources as between one activity and another needs consideration. Within limits, to achieve coordinated development for an area, it may be necessary to effect adjustments and reappropriations as between different heads of development. The question also arises how greater integration should be achieved between programmes which are assigned to Panchayati Raj institutions and those administered directly under the instructions of the departments concerned at the State level. Similarly, there is need for viewing together and linking to the extent possible development plans for towns and for rural areas within the same district or region. When the main features of the plans of States for the Fourth Plan period have been determined, in a number of sectors it will be necessary to break them down for districts and blocks and for the intensive agricultural areas. This is important for effective implementation. Area plans have also a larger purpose, namely, to generate the maximum possible effort from local communities and to enable each community to work for the welfare of all its members and to utilise its land, manpower and other resources to the fullest advantage. Experience gained in different States needs to be sifted and pooled and the lessons tested further through intensive work in selected areas. In this manner, solutions may be found for some of the administrative and organisational problems which have been observed. There is little doubt that the contributions which Panchayati Raj and civic institutions and cooperatives can make will be greatly enhanced in the measure in which area plans become a normal and integral part of the scheme of development.

VII

Training for Management, Administration and Planning

31. Development in each sector of the Fourth Plan has to be supported by intensive programmes of training, not only in technicala spects but also for improving methods of planning and administration. The National Academy of Administration, Institutes of Management, institutions in the States for training administrative personnel, staff colleges and other specialised institutions in different fields as well as refresher and orientation courses have a vital contribution to make to the process of improving performance under the Plan. For each category of personnel there should be intensive and continuous programmes for in-service training and arrangements for the necessary follow-up. There are, in addition, five broad areas of training common to several sectors to which a great deal of attention will have to be given during the Fourth Plan. These areas are (a) management control

and planning of enterprises, (b) management and planning of development programmes, (c) area development planning and administration, (d) methods and techniques for economic planning and (e) training and orientation of managers, supervisors and workers, in both public and private sectors, in relation to two basic management tasks of the Fourth Plan, namely, reduction in costs and increase in productivity. Financial provision has been made in the Plan for carrying out systematic training programmes. Detailed proposals are proposed to be worked out in cooperation with Ministries and States and organisations in different fields. To the greatest extent possible, existing institutions will be utilised.

CHAPTER XI

AGRICULTURE AND ALLIED SECTORS

I

AGRICULTURE

PROGRESS 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 half 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 increased from 3.3* 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

*Adjusted for statistical changes with 1960—61 as the base.

fell to around 5 million bales. Oilseeds registered a marginal increase in the first three years but in 1964-65 production rose sharply to 8.3 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 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 the first charge on the nation's resources. In power, rural electrification programmes which energise tube-wells and pumps for irrigation purposes will get precedence. Similarly in transporation, 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 intens ty 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 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 (IADP) 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, IADP 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. All the same, 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, 646 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 IAAP 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 IAAP 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 holding.

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 procedure 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-size 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 seeds 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 content of food supply. 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, promotion of animal husbandry 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 of these areas.

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 cover 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 34 lakh acres by the end of the Fourth Plan. Production of tobacco is also proposed to be stepped up from 4 lakh tonnes under the Third Plan to the level of 4·75 lakh tonnes 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 5000 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 30 thousand tonnes to 50 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.

CO-ORDINATION

25. One of the most important lessons that we have learnt 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 Agricultural 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 departments and institutions concerned with agricultural production. He should act both as the secretary of the Agricultural Production Committee of the Zila Parishad and as 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 Organiser or the Panchayat Extension Officer.

26. In implementing major agricultural development programmes, the role of the Centre and the States is one of 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 block

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 are formulated, within the framework which they provide, steps should be taken to draw up district and block plans for agriculture and others sector. 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 a compulsory basis by the States is under preparation. A 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 the fact that the rate of growth of national income was lower than what was envisaged in the Third Plan, the estimate 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.

Commercial Crops

31. The per capita consumption of cloth in the Fourth Plan is esti mated 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 10,060 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, including imports, of cotton would amount to nearly 89 lakh bales. The estimate of cotton production for the Fourth Plan is put at 86 lakh bales. In regard to jute, estimated consumption requirements for the Fourth Plan are 107 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 khandsari 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 1. 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
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
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	,,	400	75	475	19
coconut	million nuts	4713	400	5113	8
arecanut	000 tonnes	101·9	8·5	110·4	8
lac	000 tonnes	30	20	50	67

Physical Programmes

33. The targets of selected programmes of agricultural development for the Fourth Plan to achieve the production estimates of various crops, alongwith anticipated achievements of the Third Plan are indicated on the next page :—

Table 2. Targets of Selected Programmes for Agricultural Development

programme	unit	Third Plan (1961-66) target	Third Plan (1961-66) achievement	Fourth Plan target
irrigation				
(a) major	million acres	12·80	5·50	9·0
(b) minor	„	12·80	13·10*	17·0**
soil conservation	„	11·80	9·80	20·0
land reclamation	„	3·60	4·20	2·5
chemical fertilisers				
(a) nitrogenous (N)	million tonnes	1·02	0·60	2·0
(b) phosphatic (P_2O_5)	„	0·41	0·15	1·0
(c) potassic (K_2O)	„	0.20	0.09	0·35
organic manures and green manuring				
(a) urban compost	million tonnes	5·10	3·40	5·4
(b) green manuring	million acres	41·00	21·50	64·0
area under improved seeds				
(a) high-yielding varieties	„	...	..	32·5
(b) other improved seeds	„	204·00	120·00	241·5
plant protection	„	50·0	41·0	137·0

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 3. Outlays of Development Programmes

(Rs. crores)

head of development	Third Five-Year Plan @allocation	Third Five-Year Plan estimated expenditure	Fourth Plan
agricultural programmes			
agricultural production (including ayacut development)	226·1	203	720***
minor irrigation	176·8	269	520
soil conservation	72·7	78	218
animal husbandry	54·5	44	142
dairying and milk supply	36·0	36	59
forestry	51·4	47	122
fisheries	28·6	24	113
warehousing, marketing and storage	41·5	34	50
total	687·6	735	1944
cooperation, community development and panchayats			
cooperation	80·1	76	206
community development and panchayats	322·5	292	260
total	402·6	368	466
grand total	1090·2	1103	2410

@Physical cost of the programmes given in the Third Plan.

*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.

***Includes Rs. 40 crores for chronically drought affected areas.

35. The National Development Council at its twentysecond meeting held in September, 1965 approved an outlay of Rs. 2372 crores for agriculture and allied programmes. This has now been revised to Rs. 2410 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, one million acre benefited by water conservation-cum-groundwater recharging schemes and one million acre of area benefited from drainage, flood protection and anti-sea water intrusion works.

37. Area plans for minor irrigation will be prepared to reach the optimum level. These plans will be closely linked with 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 will 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 will be properly serviced with extension, credit and supply facilities. In fact, each cluster of pump-sets will be treated as a project and special area treatment will be given to the areas served by these pump-sets.

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 acres. 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, 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 seed corporation or large seed 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 co-operative 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 also proposes 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 IADP and IAAP 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 millon 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 Seed 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 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 tonnes of K_2O. For the Fourth Plan targets of 2·0 million tonnes of nitrogen, 1·0 million tonnes of P_2O_5 and 0·35 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 advantage points and by making available timely and adequate credit.

Organic and Green Manures

48. The area under green manuring is estimated 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, and cattle urine, 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 this programme. It is proposed to instal about 5000 family-size gas plants, on the fields of progressive 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 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 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 Government 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 the 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 main-

tenance 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 in 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 water-logged lands, work will be taken up on easily reclaimable areas as 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 sub-water sheds which have greater sedimentation hazards will be given priority. A master plan approach will 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 24,000 sub-assistants would be required. The training programmes at the existing two officers' training centres and four assistant's 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 co-operative 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 cop ra, 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 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 jetting 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 and 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 8900 to 9500 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 gramsevaks 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 farmers' education. This will be done in the form of courses of varying duration for practising farmers as well as young farmers at Farmers' Education Centres, some of which will be located at Gram Sevak Training centres and others at seed farms for 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 the High Yielding Varieties Programme is the major plank of the policy for achieving self-sufficiency in food-grains. In this context, agricultural research work is being re-oriented radically. The Indian Council of Agricultural Research has been re-organised and placed under the charge of a senior 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. 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 cultivator's 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 gaushalas 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 Hariana, Tharparkar, 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 and 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 wooled 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 of wool 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 breeds. 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 and Education

88. With increasing tempo of livestock development, the demand for research and training connected with breeding, management and disease control is 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 investigations 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

Dairying 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 two-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 organised 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 conditions will be given preference.

(*e*) Setting up of milk plants in areas offering good scope for marketing and developing the hinterland for milk production;

(*f*) Expansion of indigenous manufacture of dairy machinery and equipment;

(*g*) Adoption of such measures and policies as may be conducive to the development of cattle;

(*h*) Encouragement of cooperatives in the dairy sector.

Milk Supply Schemes

91. The new milk supply schemes will each have a handling capacity from 6000 to 10,000 litres of milk per day and the rural dairies will have a capacity ranging from 500 to 4000 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, 198 rural dairying centres and 12 cattle feed compounding factories in conjunction with large dairy plants. The dairy extension programme which includes 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 and 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 purpose 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 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 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 11·5 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 8000 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 areas 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 Central Fisheries Education Institute 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, semal, 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 preservatory 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 wood, 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.

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, Gauhati 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 out-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 4. Physical targets of Forestry Programmes

schemes	unit	Third Plan		Fourth Plan target
		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 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 items such as ghee, 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 and 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 specificat.ons of the equ pment needed, there has been a shortfall in establish ng 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 will 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, 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 mill on tonnes. The bulk of the addit onal capacity proposed to be established would be owned by the Corporations.

114. The util.sation 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 Fert liser 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 15,00 *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 the 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, 1966, 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 a public sector commercial corporation like the F.C.I. is increasingly involved in the management of the food economy, it would also 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-term 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

Community Development

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 organisation 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 activised, 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.

Panchayati Raj

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 progamme 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 resources 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

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 1360 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 :

(Rs. crores)

	First Plan	Second Plan	Third Plan provision	Third Plan likely expenditure
irrigation	300	380	600	572
flood control	14	49	61	85
Total	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.

Benefits in the Three Plans

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

at the end of	(gross area in million acres-cumulative from First Plan) potential	on wards utilisation
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 :

benefits	million acres (gross)—cumulative from First Plan to end of 1960-61	1961-62	62-63	63-64	64-65	65-66 (anticipated)
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; and

(*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 in the Fourth Plan, and that before 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 lining canals given due consideration. Also 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' field (*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 water logging 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	964

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. To 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 to 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 3·42 million kW in 1955, 5·65 million kW in 1960-61 and 10·17 million kW at the end of the Third Plan. This includes some old and obsolete plants which are due for retirement. The target set for the Third Plan was 12·69 million kW. Shortfall 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.

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 24,209 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. 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. 28 crores. During the Third Plan, against a Plan provision of Rs. 1012 crores in the public sector, the investment is expected to be Rs. 1262 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 the 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. 1475 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 paise 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 380 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, 580 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 58,400 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 breakdown, 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) for growth of national income	
period ending March	6%	7%
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 the 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 and distribution	605
rural electrification	250
investigations and miscellaneous	25
total	2030

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 the

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 20·0 million kW of installed capacity has been set. With this installed capacity a power generation potential of 80,000 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 kilometres 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 24,209 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 lakhs at the end of the Fourth Plan.

Rural Electrification

47. Rural electrification has special significance in the development of the 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 Plan. The table below gives

the outlays and achievements in the Second and Third Plans and the proposals for the Fourth Plan :

item	unit	Second Plan achievement	Third Plan target	Third Plan achievement	Fourth Plan target
outlay	Rs. crores	75	105	125	250
towns and villages electrified	000 numbers (cumulative)	24·2	43	52·3	110
pumps energised	lakh numbers (cumulative)	1·6	[illegible]	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 new 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 benefits 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)

	1950	1955	1960-61	1965-66	1970-71 (estimated)
	installed capacity by ownership				
state-owned public utilities	0·63	1·52	3·35	7·30	16·97
company-owned public utilities	1·08	1·18	1·36	1·65	1·79
self-generating industrial establishments	0·59	0·72	0·94	1·22	1·24
total	2·30	3·42	5·65	10·17	20·00
	installed capacity by type of plant				
	1950	1955	1960-61	1965-66	1970-71 (estimated)
hydro plant	0·56	0·94	1·92	4·14	7·68
steam plant	1·59	2·27	3·43	5·61	11·47
oil plant	0·15	0·21	0·30	0·42	0·27
tomic plant	—	—	—	—	0·58
total	2·30	3·42	5·65	10·17	20·00

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 peiod of three to five years. In the second phase of the objective, the Boards should aim at achieving balance of revenue 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-generating 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 fundmental 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 proposed to be established.

ANNEXURE I

Names of major irrigation projects taken up in the first three Plans

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
	ANDHRA PRADESH				
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 construction.
	Tungabhadra High Level Canal Stage-I (see No. 42 under Myosre)	Second	17·66	0·12	practically completed
4	Poshampad	Third	40·61	0·57	
	BIHAR				
5	Kosi	First	39·59	1·41	advanced stage of construction.
6	Western Kosi Canal	Third	18·38	0·80	
7	Rajpur Canal	Third	6·86	0·40	
8	Badua	Second	6·28	0·10	completed
9	Sone	Second	16·33	0·31	completed
10	Gandak	Second	89·42	2·65	
11	Chandan Reservoir	Third	5·90	0·14	
	GUJARAT				
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	advanced stage of construction.
17	Ukai	Second	45·72	0·39	
18	(Kadana) Reservoir	Second	12·29	0·19	
19	Narmada (Broach)	Second	43·61	1·00	not yet started

ANNEXURE I—(*Continued*)

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
	KERALA				
20	Malampuzha	First	5·80	0·09	completed
21	Periyar Valley Scheme	Second	6·40	0·10	advanced stage of construction.
	MADHYA PRADESH				
22	Chambal Stage-I	First	35·60	0·55	practically completed.
	Ranapratapsagar (*see* No. 56 under Rajasthan)	Second	5·43	0·15	advanced stage of construction.
23	Tawa	Second	34·58	0·79	
24	Barna	Second	5·75	0·16	
25	Hasdeo	Third	9·00	Water supply scheme	Advanced stage of construction
	MADRAS				
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	
	MAHARASHTRA				
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	Itiadoh	Second	6·97	0·07	
37	Bagh	Second	5·99	0·06	
	MYSORE				
38	Ghataprabha Stage-I	First	5·74	0·05	completed
39	Ghataprabha Stage-II	Second	25·57	0·25	
40	Bhadra	First	31·94	0·24	advanced stage of construction.
41	Tungabhadra Project	First	34·43	0·67	pratically completed
42	Tungabhdra High Level Canal Stage-I	Second	4·52	0·07	advanced stage of construction.

ANNEXURE I—(*Continued*)

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
43	Kabbini	Second	10·20	0·05	
44	Malaprabha	Third	20·00	0·30	
45	Upper Krishna	Third	61·10	0·60	
	ORISSA				
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	
	PUNJAB				
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 Jamuna Canal Remodelling	First	7·57	0·55	
53	Gurgaon Canal	Second	5·77	0·25	
54	Beas Project-Unit-I (Sutlej Beas Link)	Third	10·8	0·80	
55	Beas Project-Unit-II (Pong Dam)	Third	29·7	0·79	
	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	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	1·8	Under Rajasthan Canal	
	Beas Project-Unit-II (Pong Dam) (*see* No. 55 under Punjab)	Third	63·1		
	UTTAR PRADESH				
58.	Matatila	First	7·90	0·41	completed

ANNEXURE I—(*Concluded*)

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
59	Sardasagar Stage-II .	Second	7·32	0·18	completed
60	Ramganga . .	Second	67·61	1·71	
	Western Gandak Canal (*see* No. 10 under Bihar) . . .	Third	36·39	0 60	
	WEST BENGAL				
61	D.V.C. Canals . .	First	42·50	0·88	practically completed
62	Mayurakshi . .	First	20·46	0·61	advanced stage of construction.
63	Kangsabati . .	Second	31·52	0·95	advanced stage of construction.

ANNEXURE II

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

	name of the station and State	total installed capacity in MW
	NORTHERN REGION	
1	Lower Jhelum hydro-electric scheme (Jammu and Kashmir)	112
2	Uhl hydro-electric scheme (Punjab)	93
3	Pong Dam project (Punjab/Rajasthan)	240
4	Beas—Sutlej Link project (Punjab/Rajasthan)	636
5*	Bhakra—Nangal project (Punjab/Rajasthan)	604
6	Bhakra Right Bank power station (Punjab/Rajasthan)	600
7	Yamuna hydro-electric scheme Stage II (U.P.)	340
8	Yamuna hydro-electric scheme Stage I (U.P.)	84
9	Ramganga hydro-electric scheme (U.P.)	165
10*	Harduaganj thermal station (U.P.)	110
11	Harduaganj Extension stages III and IV (U.P.)	210
12*	Kanpur Electric Supply Administration (U.P.)	106·5
13	Panki thermal station near Kanpur (U.P.)	64
14	Hindustan Aluminium thermal power station (U.P.)	125
15*	Rihand hydro-electric scheme (U.P.)	300
16	Obra thermal station (U.P.)	250
17	Obra hydro-electric scheme (U.P.)	100
18*	Delhi Electric Supply Undertaking (Delhi)	114
19	Indraprastha thermal station (Delhi)	242·5
20	Kotah hydro-electric scheme (Rajasthan/Madhya Pradesh)	100
21	Ranapratap Sagar (Rajasthan/Madhya Pradesh)	172
22	Ranapratap Sagar Atomic power station (Rajasthan)	400
	EASTERN REGION	
23	Barauni thermal station (Bihar)	145
24*	Sindri thermal station (Bihar)	80
25	Pathratu thermal station (Bihar)	400
26*	Maithon hydro-electric scheme (DVC)	60
27	Chandrapura thermal station Stages I and II (DVC)	420
28	Durgapur thermal station (DVC)	365
29*	Bokaro thermal station (DVC)	255
30	Durgapur coke oven plant thermal station (West Bengal)	435
31	Bandel thermal station (West Bengal)	330
32*	Calcutta Electric Supply Co. (West Bengal)	506 7
33*	Rourkela steel plant (Orissa)	75
34*	Hirakud hydro-electric project Stage I (Orissa)	123
35*	Hirakud hydro-electric project Stage II (Orissa)	147
36	Talcher thermal station (Orissa)	250
37	Balimela hydro-electric station (Orissa)	360
	WESTERN REGION	
38*	Gandhisagar Dam power station (Madhya Pradesh & Rajasthan)	115
39*	Amarkantak thermal station (Madhya Pradesh)	60

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

	name of the station and State	total installed capacity in MW
40	Korba thermal station (Madhya Pradesh)	290
41	Satpura thermal station (Madhya Pradesh/Rajasthan)	312·5
42*	Khaperkheda thermal station (Maharashtra)	90
43	Bhusawal thermal station (Maharashtra)	62·5
44	Paras thermal station (Maharashtra)	62·5
45	Purli thermal station (Maharashtra)	60
46	Tarapur Atomic Power station (Maharashtra/Gujarat)	380
47	Vaitharna hydro-electric station (Maharashtra)	60
48	Nasik thermal station (Maharashtra)	280
49*	Chola thermal station (Maharashtra)	118
50*	Bhivpuri hydro-electric station (Maharashtra)	72
51*	Trombay thermal station (Maharashtra)	337·5
52*	Khopoli hydro-electric scheme (Maharashtra)	72
53*	Bhira hydro-electric scheme (Maharashtra)	132
54	Koyna hydro-electric scheme Stages I and II (Maharashtra)	540
55	Koyna hydro-electric scheme Stage III (Maharashtra)	320
56*	Ahmedabad Electric Supply Co. (Gujarat)	217·5
57	Dhuvaran thermal station Stages I & II (Gujarat)	530
58*	Utran termal station (Gujarat)	67·5
59	Ukai hydro-electric project (Gujarat)	300
	SOUTHERN REGION	
60	Ramagundam thermal station (Andhra Pradesh)	100
61*	Machkund hydel scheme (Andhra Pradesh and Orissa)	115
62	Upper Sileru hydro-electric scheme (Andhra Pradesh)	120
63	Lower Sileru hydro-electric scheme (Andhra Pradesh)	400
64	Kothagudem thermal station Stages I & II (Andhra Pradesh)	240
65	Srisailam hydro-electric scheme (Andhra Pradesh)	440
66	Sharavathi hydro-electric scheme Stages I, II and III (Mysore)	891
67*	Jog hydro-electric scheme (Mysore)	120
68*	Tungabhadra Power stations (Mysore and Andhra Pradesh)	99
69	Ennore thermal station (Madras)	330
70	Basin Bridge thermal station (Madras)	128·8
71*	Pykara hydro-electric scheme (Madras)	71
72*	Kundah hydro-electric scheme Stages I, II and III (Madras)	425
73*	Mettur thermal hydro-electric scheme (Madras)	200
74	Neyveli thermal station Stages I, II and III (Madras)	600
75	Parambikulam hydro-electric scheme (Madras)	185
76	Kodayar hydro-electric scheme (Madras)	100
77*	Periyar hydro-electric scheme (Madras)	140
78	Kuttiadi hydro-electric scheme (Kerala)	75
79	Sholayar hydro-electric scheme (Kerala)	54
80	Idikki hydro-electric scheme (Kerala)	520
81	Sabarigiri hydro-electric scheme (Kerala)	300
	ASSAM REGION	
82*	Naharkatiya thermal station (Assam)	69

*Schemes fully commissioned at the end of the Third plan.

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 2013 million metres to 3056 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 3135 sheds to 2585 units, with an annual outturn 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 7105 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 limits 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 1450 new units had been set up in these Project areas up to 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 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 taxa-

tion 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 identification 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 to the small sector 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 widespread 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 resoures. 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 oultay as between different small industries and as between the Centre and the States and Union Territories is indicated

in Table 1, below, along with the corresponding likely expenditure under the Third Plan :

Table 1. Fourth Plan Allocations

(Rs. crores)

industry	Third Plan estimated expenditure	Fourth Plan			
		Centre	Centrally sponsored	States and Union Territories	total
handlooms	26·43	5·0	...	37·0	65·0
powerlooms			...	23·0	
khadi	90·05	60·0	...	5·0	105·0
village industries		40·0	..		
sericulture . .	5·30	2·0	...	11·0	13·0
coir . . .	1·84	1·5	..	2·5	4·0
handicrafts . .	4·51	8·0	...	10·0	18·0
small scale industries .	62·67	35·0	..	85·0	120·0
industrial estates .	23·35	..	..	25·0	25·0
rural industries projects .	5·41	...	20·0	..	20·0
total ..	219·56	151·5	20·0	198·5	370·0

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 programmes 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 programmes 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, the 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, 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 Central 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 exports 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 in Table 2.

Table 2. Fourth Plan Targets

industry	unit	Third Plan targets	Third Plan likely achievements.	Fourth Plan tentative targets
handlooms, powerlooms and khadi	production (million metres)	3185	3146	4572
	exports (Rs. crores)	..	12·0*	30·0*
sericulture (raw silk)	production (million Kgs.)	2·30	2·15	3·1
	exports (Rs. crores)	—	2·8@	7·0@
coir	exports (Rs. crores)	—	12·0	25·0
handicrafts	exports (Rs. crores)	—	27·0	52·0
	internal sales through public emporia (Rs. crores)	—	3·5	7·0 to 8·0
industrial estates	no. of new estates	300	234	250**

HANDLOOM AND POWERLOOM INDUSTRIES

13. Of the total production target of 10,060 million metres of cloth proposed for the last year of the Fourth Plan period, the share of the decentralised sector, namely, the handloom, powerloom and khadi industries, has been tentatively fixed at 4572 million metres, as compared to the current output estimated at about 3146 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

*Figures of exports pertain to handloom products only.

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

**Including cooperative industrial estates.

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 5000 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 aims of the programme 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

18. 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 coordinated 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 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-puchase terms and working capital. It is also proposed to supplement the provision made under the head 'Industries and 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 size 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 a 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 cities and large 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 programmes 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 and 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 unemployment 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 for 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 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 lakh 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.

CHAPTER XIV

INDUSTRIES AND 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 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 how 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, steel, 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 sectors, 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 the 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, 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 is now expected to be completed 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 Fourth 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 about 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, 1964 and 1965 respectively. The 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 instruments 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. The fertiliser production programme has fallen behind 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 233,000 tonnes against the target of 800,000 tonnes (revised to 500,000 tonnes at the time of the Mid-term Appraisal). The difference between the capacity at the end of Third Plan period and the actual production achieved in 1965-66 was primarily due to inadequate gas availability for the Rourkela fertiliser factory and power shortage which affected the output of some of the 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 paper 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 10.8 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 and 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 were shortfalls 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 68 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 10·5 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. 3000 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

Objectives and Overall Approach

19. 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 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 processes 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 sectors 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. 6193 crores. Of this amount Rs. 3543 crores will be in the public sector and Rs. 2650 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	
manufacturing industries					
metals	2040	1625	35	1660	380
machinery and engineering industries	797	337	10	347	450

Distribution of fixed investment outlay—1966-71

(Rs. crores)

	total	public sector			private sector
		Centre	State	total	
fertilisers and pesticides . .	493	268	5	273	220
intermediate goods . .	950	290	20	310	640
consumer goods . . .	722	52	30	82	640
miscellaneous . . .	260	20	20	40	220
	5262	2592	120	2712	2550
mining, mineral oil and related developments	991	876	15	891	100
grand total . . .	6193	3408	135	3543	2650

29. The public sector investment programme based on cost estimates of indivdual 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. 3,936 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 period.

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 so far available on specific projects. For some of the projects, the estimates are based on the physical progress that the project is likely to make during the Plan period. It follows that to the extent some of the projects enjoying high priority, particularly from import substitution angle, are implemented more speedily and require larger allocation, the same will need to be provided. In the case of some other projects, the pre-investment studies and the evaluation of the projects have yet to be taken up or completed. Investment decisions on these projects will have to be taken on the basis of these studies and tying up of their foreign exchange requirements. Pending completion of these studies, certain provisions have been made which in some cases are in the nature of token or enabling provisions. These estimates may, therefore, require modification apart from any changes resulting from rise in prices during the course of execution.

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 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. 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 envisages 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 has 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 licences or letters of intent.

42. Within the private sector programmes, 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 programmes 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 credits canalised through them) to the corporate and cooperative sectors 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. 300 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 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 and Mineral Programmes

Iron and Steel

44. 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 3·0 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 envisages 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	pig iron for sale
	(million tonnes)	
public sector		
expansion II of Bhilai	3·2	0·90
expansion II of Durgapur	3·4	
expansion II of Rourkela	2·5	..
Bokaro	1·7	0·90
Mysore iron and steel works*	..	0·10
Talcher complex	..	0·16
pig iron plant at Barbil	..	0·10
total	10·8	2·16
private sector		
Tata Iron and Steel Co.	2·2	..
Indian Iron and Steel Co.	1·3	0·30
pig iron schemes in the private sector	..	0·50 to 0·70
electric furnaces	0·5	..
total	4·0	0·80 to 1·00
grand total	14·8	2·96 to 3·16

Besides, provision is also being made for preliminary work on some new sites during the current Plan. The setting up of pig iron capacity

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

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.

Alloy and Tool Steel

48. 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. The 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 444,000 tonnes as under :

(*a*) in production	29,000 tonnes
(*b*) under implementation	38,600 „
(*c*) licensed	159,000 „
(*d*) letters of intent issued	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 tool and alloy steel to machine-building industry and the long gestation period involved for reaching the rated production, the perspective growth of demand for tool and alloy steels rather than merely the needs of the Fourth Plan will be kept in view.

ALUMINIUM

49. 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.

COPPER

50. 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 and production targets for copper have 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 Kolihan deposits. Development of some of the other copper mines such as Rakha, Daribo and Agnigundala will be taken in hand on a priority basis.

ZINC

51. 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 Metal Corporation of India, which has been taken over by Government, is likely to produce 18,000 tonnes by 1970-71. A private sector unit at Kerala is setting up a smelter capacity of 20,000 tonnes, based on imported concentrates. It is expected to be commissioned by the end of 1966. Work on expansion of the Zawar unit will be also taken up after preparation of the project report which is in hand. Setting up of additional capacity is under consideration.

MACHINERY

52. 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 transfomers, 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 and communications, steel and coal-mining. As for 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 the economy 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 objectives :

(*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 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 about Rs. 500 crores a year at present 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:

(Million K.W.)

	hydro	thermal	total
Bhopal	0·5	0·6	1·1
Hardwar	1·2	1·5	2·7
Hyderabad	..	0·8	0·8
total	1·7	2·9	4·6

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 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 Tiruchirapalli 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 boiler 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 Kotah 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 5 to 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 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 have been placed at about 2000 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 equipment.*—Substantial output of capacitors, switchgears and control gears and the special transformers for A.C. freight locomotives will be available from Bhopal either through the capacity under implementation 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 and 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 the 6000 tonnes press 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 metallurgical 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 a year. Whereas near self-sufficiency is likely to be achieved by the end of the Fourth Plan with regard to equipment up to and including steel melting shop, the production of rolling mill equipment will come a little later. By 1970-71, altogether, over 50 per cent 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 and Allied Equipment Plant with a capacity of 45,000 tonnes along with the existing 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 and 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 and 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 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 Tools Project of the Heavy Engineering Corporation 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 Pragas and Ambarnath factories by that year. It is proposed to set up two projects, one for medium heavy machine tools at Bhavanagar 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. 55 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 assumed 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 indigeneous 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.

66. *Electronics.*—In view of the importance and the vital role of electronic industry in our progress towards industrialisation, 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 consumer industries at Bharat Electronics and to some extent by the Indian Telephone Industries. There will also be 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. By 1970-71, it is proposed to achieve a production of about 30,000 T. V. receivers based on indigenous know how. It is aimed to increase the capacity in the field of electronics 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.

67. *Machinery inputs for Agriculture.*—The main items of machinery falling in this category are; electric motor 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 1100 crawler tractors in different HP ranges have been licensed/letters of intent issued. 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 8000 power tillers has been

licensed and letters of intent issued for additional 82,000. It may take some time before the demand and production get built up. The industry is being kept under review.

68. *Developments in Engineering Industries in Private Sector.*—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, switch gears 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 recourse to 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 in 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 to fill up 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 fertilisers 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 and 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.

73. 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 expceted 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.

74. 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 160-200 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.

75. 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.

PESTICIDES

76. 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 with addtional capacity in the public sector.

ORGANIC CHEMICALS AND PETRO-CHEMICALS

77. 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, vegetable oils and non-ferrous metals, which otherwise have to be met through imports, from local production of synthetic fibres, synthetic rubber, synthetic detergents 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 to be set up at Barauni. Tentatively the targets proposed for some of the important group of petro-chemicals are the following :

	('000 tonnes)
plastics	
polyethylene	100
P.V.C.	100
polystyrene	35
synthetic fibres	
nylon	28
polyester	10
acrylics	10
P.V.A.	10
synthetic rubber	
S.B.R.	30
poly butadiene/butadiene based rubber	20
butyl	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.

Inorganic Chemicals

79. The production targets tentatively proposed for sulphuric acid, caustic soda and soda ash are 2·4 million tonnes, 500,000 tonnes and 600,000 tonnes 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 assumes 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.

Pharmaceuticals and Drugs

80. The production programme for drugs and pharmaceuticals envisages 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.

Cement

81. The programme for the cement industry invisages 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 to 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.

Paper and Newsprint

82. The target of capacity envisaged for paper is 1·10 million tonnes and for newsprint 165,000 tonnes. Although schemes amounting to 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.

83. 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.

Sugar

84. In sugar, the production target is 4·5 million tonnes. Within this target, it would be possible to make available up to 750,000 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.

Vegetable Oils

85. In the case of vegetable oils, the requirements of which are expected to be of the order of 3·3 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 detriment to exports. These and other allied matters are currently under examination by an Expert Committee.

Cotton Textiles

86. 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 3,150 million metres respectively. The additional output in the fourth plan period is proposed 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 spindlage 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.

Jute Textiles

87. 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.

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 primarily through the expansion of existing units.

Plantation Industries

89. 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 454 million kg; the production achieved in 1965-66 is 375 million kg. The export target for tea 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.

Coal

90. 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 3·00 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.* 68 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 cutback 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.D.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 12·0 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 48 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 furnance oil by industrial units and that about 6·4 million tonnes of fuel requirements of thermal power stations would be met from washery middlings.

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 where it is required to meet the regional requirements of specific consumers like Talcher Industrial Complex, LTC Plant, etc.

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 :

(in million tonnes)

	Bengal-Bihar fields		outlying fields	
	Third Plan	Fourth Plan	Third Plan	Fourth Plan
coking and blendable coal .	19	36	..	..
non-coking coal . .	32	35	17	35
total . .	51	71	17	35

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.

Coal Washeries

91. 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. 275 crores and of coal washeries at Rs. 54 crores or a total of Rs. 329 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. 112 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, a part of which might spill over into the Fifth Plan.

A low temperature carbonisation plant for the production of domestic coke will be set up by Singareni Collieries Company. The project which is to be implemented in three stages each with a carbonising capacity of 900 tonnes of coal per day, is estimated to cost Rs. 15·5 crores, the outlay in the Fourth Plan being Rs. 8·9 crores. The first stage will be completed during the Fourth Plan and the remaining two stages early in the Fifth Plan.

Iron Ore

93. As compared with the level of production in 1965-66 of about 23 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 Bailadila and Daiteri,

(*b*) developing a second mine at Bailadila 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 Bailadila 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 cost of 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), Bailadila (Madhya Pradesh) and Kudremukh area (Mysore) with a view to establishing 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 the steel programme;

(*ii*) Mining and beneficiation of fluorite deposits in Gujarat and Rajasthan; and

(*iii*) Development of magnestite deposits in Almora.

Mineral Surveys

95. 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

96. The Third Plan provided for a programme for exploration and production of mineral oil by two agencies, *viz.* Oil and 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 and 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. 227 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 requirement of about 22 million tonnes by the end of the Plan period.

Petroleum Refining

97. 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 10·5 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 products 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

98. The demand for lubricating oils 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 the 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 I

FOURTH FIVE YEAR PLAN

Industrial 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	5
	metals			
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 VIth Blast Furnace (c) . .	Bhilai	32·50	23·00
4	Expansion of Rourkela Steel Plant 1st stage (c)	Rourkela	150·00	47·00
5	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 (u) x		13·00	13·00
9	Bokaro Steel Plant (a) . . .	Bokaro	701·16	646·16
10	New steel plants (u) x . . . . (preliminary work)	Not yet decided	Not yet decided	65·00
11	Mysore Iron and Steel Works (Conversion and expansion of pig iron) (c)	Bhadravati	24·25	14·15
12	Alloy, Tool and stainless steel plant (c)	Durgapur	75·00	32·00
13	Expansion of Durgapur Alloy Steel Plant (u) x	Durgapur	80·00	80·00
14	Koyna Aluminium (t) . . .	Koyna	56·30	38·70
15	Korba Aluminium (a) . . .	Korba	100·30	42·54
16	Khetri Copper Project (including Kolihan Copper project) (c) . .	Khetri	87·25	74·00
17	Rakha and other copper projects (a) x	Rakha	67·10	5·00
18	Hindustan Zinc Ltd. (c) . .	Udaipur	12·00	12·00
19	Expansion of Zawar Mines (u) x .	Udaipur	23·66	3·00
	total of metals . .			1625·25

1	2	3	4	5
	machinery and engineering industries			
20	Bharat Heavy Electricals (c) . .	Hardwar	84·30	56·00
21	Bharat Heavy Electricals (c) . .	Ramachandra-puram	35·49	12·60
22	Expansion of Bharat Heavy Electricals (a)	Ramachandra-puram	5·25	3·25
23	Heavy Electrical Plant (c) . .	Bhopal	78·34	20·75
24	Bharat Heavy Electricals (c) . .	Tiruchi	23·28	1·17
25	Expansion of Bharat Heavy Electricals (a)	Tiruchi	11·73	11·73
26	New unit for power boilers (u) x .	Not yet decided	21·56	5·00
27	Expansion of Heavy Electricals (Transformers (a)	Bhopal	3·60	3·60
28	Expansion of Heavy Electricals (Traction Motors (a)	Bhopal	3·20	3·20
29	H.T. Switchgear Plant (ASEA) (c) .	Hyderabad	2·80	2·80
30	Aluminium sheathed telecommunication Cables at Hindustan Cables (c)	Rupnarainpur	3·00	3·00
31	Expansion of Hindustan Cables (c) .	Rupnarainpur	7·62	7·62
32	Co-axial cables type 174 (a) . .	do.	0·11	0·11
33	Copper Ply conductors (a) . .	do.	2·65	2·65
34	Second Cable Factory (u) x . .	Not yet decided	13·90	13·90
35	Heavy Machine Building Plant (including structurals shop and balancing equipment) (c) . . .	Ranchi	57·75	10·50
36	Mining and Allied equipment projects (c)	Durgapur	39·24	11·30
37	Pumps and Compressors Project (t) .	Allahabad	18·70	18·70
38	Fabrication shop for fertilisers and chemicals (t)	Not yet decided	12·80	12·80
39	Heavy Plate and Vessels Project (t) .	Vishakhapatnam	17·80	17·80
40	Heavy Machine Tools Plant (c) .	Ranchi	26·75	15·00
41	Machine Tool Plant (t) . . .	Bhavnagar	14·60	14·60
42	Machine Tool Plant (t) . . .	Ajmer	8·50	8·50
43	Expansion of Machine Tool Plant (t) x	Pinjore	4·85	4·85
44	Expansion of Machine Tool Plant (u) x	Kalamassary	4·85	4·85
45	Expansion of Machine Tool Plant (u)	Hyderabad	4·85	4·85
46	Additional capacity for Machine Tools (u) x	Not yet decided	20·49	5·00
47	Precision Instruments (c) . .	Kotah	15·88	13·20
48	Precision Instruments (c) . .	Palghat		
49	Diversification of National Instruments (a)	Calcutta	1·41	0·28
50	Electronics (u) x		21·40	6·40
51	Agricultural Tractors (a) x . .	Not yet decided	18·41	10·00

1	2	3	4	5
52	Dry Dock Project (u) . . .	Vishakhapatnam	5·00	5·00
53	Hindustan Shipyard (c) . . .	do.	8·85	8·66
54	Expansion of Hindustan Shipyard (u)x	do.	2·20	2·20
55	Wet Basin (u) x	Cochin	35.00	15·00
56	Second Shipyard (first phase) (u) .			
	total of Machinery and Engineering Industries			336·87
	fertilisers and pesticides			
57	Namrup Fertilisers (c) . . .	Namrup	19·84	5·00
58	Gorakhpur Fertilisers (c) . .	Gorakhpur	27·44	8·80
59	Madras Fertilisers (t) . . .	Madras	41.80	41·00
60	Expansion of Trombay Fertilisers (u)	Trombay	30·90	30·00
61	Durgapur Fertilisers (a) . . .	Durgapur	35·90	35·00
62	Cochin Fertilisers (a) . . .	Cochin	33·52	32·60
63	Fourth Stage expansion of FACT(u)x	Alwaye	4.86	4·00
64	Modernisation and expansion of fertiliser plants (a)	Rourkela, Sindri	10·00	10·00
65	Other fertiliser projects (u) x . .	Not yet decided	140·00	100·00
66	Expansion of D.D.T. and B.H.C (u)x	Delhi and Alwaye	2·00	2·00
	total of fertilisers and pesticides			268·40
	Intermediates			
67	Foundry Forge Plant (c) . . .	Ranchi	113·39	54·10
68	Central Foundry Forge for HEL (t)	Hardwar	26·00	26·00
69	New Foundry Forge Project (t) .	Wardha	23·00	23.00
70	Heavy Structural Project (t) . .	Allahabad	6·80	6·80
71	Tungabhadra Steel Products (y) .	Tungabhadra	2·50	2·50
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	60·00	47·00
77	Petro-chemical complex (aromatic extraction plant) (u) . . .	Barauni	14·00	10·00
78	Organic Intermediate Plant (u) .	Panvel	40·30	28·00
79	Cement Corporation of India . .		45·00	25·00
80	Paper and Pulp Schemes (u) . .	Not yet decided	51·52	41·50
81	Salt Washery-cum sodium sulphate plant (u) x	Sambhar	1·65	1·65
82	Travancore Titanium Products (u) .	Kerala	2·50	2·50
	total of Intermediates . .			289·85

1	2	3	4	5
	consumer goods			
83	Additional capacity for watches (HMT) (u)	Bangalore	3·20	3·20
84	Synthetic Drugs Plant (c) . .	Sanatnagar	19·00	
85	Antibiotics Plant (c) . . .	Rishikesh	20·80	16·00
86	Opthalmic Glass Project (c) . .	Durgapur	5·03	3·80
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 (t) . .	Neemuch	0·60	0·60
91	Mandi and Kharagoda Salt Works .	Mandi and Kharagoda	1·00	1·00
	total of consumer goods . .			52·50
	miscellaneous			
92	Pre-Investment studies and other Miscellaneous Projects . . .		20·00	20·00

(c) Continuing Schemes from the Third Plan
(t) 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
(y) Taken over from the State Government and to be further expanded.

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)

name of the project	location	total cost	total investment during the Fourth Plan
1	2	3	4	5
1	Coal Production N.C.D.C. (t) (including washeries) . . .		126·19	68·90
2	Singareni colleries (c) . . .	Kothagudium (Andhra Pradesh)	25·29	12·20

1	2	3	4	5
3	Central Ropeways (c) . . .	West Bengal and Bihar	22·12	10·16
4	Neyveli Lignite Project (c) . .	Neyveli, Madras	123·00	1·70
5	Additional Coal Production, N.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 Washeries (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	Meghahataburu Iron Ore project .	Meghahataburu,	24·00	15·00
17	Pelletisation 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 Beneficiation 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	(a) Aerial Survey for Base Metals (t)		3·50	3·50
	(b) Experimental mining for various minerals			1·34
25	Oil and Natural Gas Commission (a)		227·00	227·00
26	Oil India Ltd.—Oil Exploration and exploitation (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	35·00
29	Haldia refinery (a)	Haldia, W. Bengal	39·20	39·20

	2	3	4	5
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			875·45

(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 :—Figures of total cost represent approximate estimates following devaluation and may undergo revision.

ANNEXURE II

Capacity and production in 1960-61, targets and estimates of capacity and production for 1965-66 and tentative targets for 1970-71 for important industries.

industry	unit	actuals for 1960-61		targets for 1965-66		estimated actuals for 1965-66		targets for 1970-71	
		cap.	prod.	cap.	prod.	cap.	prod.	cap.	prod.
1	2	3	4	5	6	7	8	9	10
metals									
1 *iron and steel*									
(*a*) steel ingots	million tonnes	6·1	3·4	10·2	9·3	7·0	6·2	14·8	11·7
(*b*) finished steel	,,	4·6	2·3	7·6	6·8	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 and 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	330·0**	330·0
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
machinery									
6 commercial vehicles	000 numbers	28·0	28·4	60·0	60·0	60·0	34·0	90·0	80·0
7 passenger cars	,,	20·2	26·6	30·0	30·0	30·0	24·5	50·0	60·0
8 jeeps and station wagons	,,	5·5		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	120·0

**Effective capacity

ANNEXURE II—*contd.*

industry	unit	actuals for 1960-61		targets for 1965-66		estimated actuals for 1965-66		targets for 1970-71	
		cap.	prod.	cap.	prod.	cap.	prod.	cap.	prod.
1	2	3	4	5	6	7	8	9	10
10 ball and roller bearings	mill. number	1·7	3·2	11·0	15·0	27·0	9·0	35·0	30·0
11 generators-thermal	mill. KW	..	..	..	..	0·6	..	2·9	1·4
12 generators-hydro	,,	..	..	..	..	0·5	..	1·7	0·8
13 turbines steam	,,	..	..	..	..	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	,,	1·13	0·73	2·2	1·9	1·5		3·75	3·5
20 switchgears and control gears	Rs. crores	N.A.	4·0	..	..	18·0	17·0	50·0	40·0
21 machine tools	,,	8·0	7·00	30·0	30·0	30·0	23·0	120·0	105·0
22 metallurgical and other equipment	000 tonnes	..	..	80·0	15 to 20	30·0	11·0	100.0	70·0
23 coal and other mining machinery	,,	..	..	45·0	20·0	45·0	7·0	60·0	50·0
24 cotton textile machinery	Rs. crores	12·0	10·4	22·0	20·0	40·0	28·0	60·0	55·0
25 jute machinery	,,	2·5	1·7	2·5	2·5	5·0	3·5	10·0	8·0
26 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 (*e*)	15 to 16	14·0	16·0	8·0	20·0	16·0

28 cement machinery	Rs. crores	1·1	0·6	4·5	4·5	20·0	3·5	25·0	28·0
29 railway wagons (in terms of 4 wheelers)	000 numbers	26·0	11·77	33·5	33 5	49·0	35·5	40·0	40.0
30 *agricultural machinery*									
(*a*) agricultural tractors	,,	..	..	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	66·0	100·0	85·0	200·0	200·0
31 radio receivers	,,	279·0	280·0	900	800	500	500	1500	1500
32 *electric lamps*									
(*a*) G. L. S. and others	mill. numbers	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 *fertilizers*									
(*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 *pesticides*									
(*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 *heavy chemicals*									
(*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	1,778	1,524	1,181	664	2600	2400

(*e*) Relates to calendar year.
*Inclusive of all items of pesticides.

ANNEXURE II—(*Concld.*)

industry	unit	actuals for 1960-61		targets for 1965-66		estimated actuals for 1965-66		targets for 1970-71	
		cap.	prod.	cap.	prod.	cap.	prod.	cap.	prod.
1	2	3	4	5	6	7	8	9	10
37 dyestuffs	000 tonnes	7·8	5·6	11·4	9·6	10·0	7·0	16·0	14·0
38 drugs and pharmaceuticals	Rs. million	..	N.A.	—	—	1500	1500	2500	2500
39 paints and varnishes (organised sector)	000 tonnes	90·0	53·5	163	142	106	73	160	140
40 automobile tyres	mill. Nos.	1·61	1·49	4·5	3·85	3·30	2·6	6·5	6 0
41 *paper and paper Board*									
(*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	,,	—	—	1·5	1·5	..	..	2·7	2·7
42 cement	mill. tonnes	9·4	7·97	15·3	13·2	12·0	10·8	23·0	20·0
43 *cotton textiles*									
(*a*) yarn	mill. kgs	12·7@	801	16·5@	1021	16·27@	907	19·35@	1232
(*b*) cloth (mill-made)	mill. metres	1·99†	4649	2·25†	5300	2·09†	4434	2·30†	5486
44 jute textiles	000 tonnes	1200	1,022	1200	1300	1200	1354	1700	1700
45 rayon filament	mill. kgs.	23·8	21·3	59·0	59·0	47·0	51·5	67·0	67·0
46 staple fibre	,,	21·8	21·8	34·1	34·1	26·0	42·0	42·0	42·0

47 woollen fabrics . . .	mill. metres.	43·6	14·0	43·6	31·8	43·6	10·0	43·6	37·3
48 sugar	mill. tonnes	[2·25	3·0	3·56	3·56	3·20	3·55	4·5	4·5
49 iron ore	,,	—	11·0	—	30·0	—	23·0	..	54·0
50 coal	,,	—	55·7	—	98·6	—	68·0	..	106·0
51 crude oil	,,	—	0·4	—	6·0	—	5·0	..	9·5
52 petroleum products* . . .	,,	6·1	5·8	10·92	9·97	10·5	9·86	22·25	20·0

@Million spindles.
†Lakh looms.
*Capacity is shown in terms of crude throughout.

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 railways	58276	kilometres
of which, broad gauge	28440	,,
metre gauge	25510	,,
narrow gauge	4326	,,
non-government railways	662	,,
roads	958000	,,
of which, surfaced roads	284000	,,
other roads	674000	,,
road transport—		
trucks	250000	
commercial buses	70000	
ports—capacity—		
major ports	57	million tonnes
intermediate and minor ports	9	,, ,,
shipping—		
overseas	1217715	grt
coastal	322761	grt
airlines—available tonne-kilometres		
Indian Airlines	155	million
Air India	338	,,
inland water transport—		
length of routes operated	13500	kilometres
Assam and North-East region	8500	,,
others	5000	,,

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 system and phased change-over 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 three and half 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 51 million tonnes in addition to about 8 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 especially 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		16·0
railway materials		23·0
general goods		109·5
of which, foodgrains	18·5	
petroleum products	14·5	
iron and steel (secondary movements)	9·4	
fertilisers	4·5	
all other goods	62·6	
total		308·0

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 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. The programmes to be carried out and outlays proposed for them are reviewed briefly in the paragraphs to follow.

Table 2. Outlays on transport and communications

(Rs. crores)

programme	Third Plan		Fourth Plan	
	initial provision	anticipated expenditure	as in the Memorandum of September 1965	proposed outlays
transport				
railways	890	1323	1310	1410*
roads	272	445	730	760**
road transport	25	27	65	65
ports	86	91	153	170
farakka barrage	..	@	50	65
shipping	57	41	90	90
inland water transport	7	3	13	13
lighthouses	6	4	6	7 @
civil air transport (including meteorology)	55	50	73	125 @
tourism	8	6	25	25
total for transport	1406	1990	2515	2730
communications	73	118	213	235
broadcasting	7	8	40	45
grand total	1486	2116	2768	3010

* In addition, Rs. 684 crores are expected to be made available from Railway Depreciation Reserve Fund.

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

@ Expenditure on Farakka Barrage project was kept outside the Plan.

@@ Includes Rs. 40 crores to be found from depreciation funds of the air corporations. Earlier figure of Rs. 73 crores is exclusive of contribution from this source.

RAILWAYS

9. 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

	procurement during Third Plan	(numbers) estimated requirements for Fourth Plan
locomotives-		
steam	1129	590
diesel	545	882
diesel shunters	7	100
electric	183	605
total	1864	2177
wagons (in terms of 4-wheelers)	144789	163250
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 programme

(Rs. crores)

programme	Third Plan	Fourth Plan
rolling stock	541·24	823
electrification	81·53	99
doubling	185·29	232
other line capacity works	128·00	133
gauge conversion	10·90	72
new lines	212·97	161
track renewals	236·15	260
other works	280·90	314
total	1676·98	2094
deduct expenditure from the depreciation reserve fund	353·70	684
Plan outlay	1323·28	1410

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.

ROADS

13. The Fourth Plan makes a provision of Rs. 760 crores for development of roads. Of the 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)
national highways	
(*i*) spill-over from the Third Plan	50
(*ii*) new national highways	10
(*iii*) development of existing national highways	166
other roads and bridges, including lateral road, inter-State roads, etc.	174
total	400

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 highways 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 roads, 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.

Road Transport

16. 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 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 formation 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.

PORTS

17. 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 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 projects 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.

INLAND WATER TRANSPORT

19. 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.

SHIPPING

20. 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 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.

LIGHTHOUSES

22. 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 at some of the existing lighthouses. The setting up of a factory for the manufacture of lighting equipment within the country is also under examination.

Civil Air Transport

23. 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.

Meteorology

25. 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 especially for aviation and 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 can 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 are provided for telecommunications (including postal services), Rs. 8 crores for Indian Telephone Industries, Rs. 9 crores for Overseas Communications Service 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. *Telecommunications.*—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 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 services 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 Communications Service.*—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 communication 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 in 1966-67 and to 8500 machines 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 Plan 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 Fourth Plan. Special attention is to be given to the areas inhabited by tribal people and also autonomous hill districts 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 a 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.

ANNEXURE I

Transport and Communications

Fourth Plan outlay compared with the outlay and expenditure in the Third Plan

(Rs. crores)

programmes	Third Plan			Fourth Plan	
	financial provision	cost of physical programmes	likely expenditure	as in Memorandum of Sept. 1965	proposed outlays
transport					
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	..	..	*	50	65
shipping	57	58	41	90	90@
inland water transport	7	9	3	13	13
lighthouses	6	6	4	6	7
civil air transport (including meteorology)	55	55	50	73	125†
tourism	8	8	6	25	25
total-transport	1406	1531	1990	2515	2730
communications	73	88	118	213	235
broadcasting	7	11	8	40	45
grand total	1486	1630	2116	2768	3010

*Expenditure on Farakka Barrage was kept outside the Plan.

@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.

†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 contribution from this source.

ANNEXURE II

Transport and Communications
Targets of development for the Fourth Plan and targets achieved in the Third Plan

programme	unit	Third Plan targets	Third Plan achievements	Fourth Plan targets
railways				
freight traffic	million tonnes	249	205	308
roads				
surfaced roads	000 kms	276	284	334
road transport				
commercial vehicles on the road				
buses	000 numbers	80	70	100
trucks	„	285	250	425
total	„	365	320	525
major ports				
traffic	million tonnes	50[1]	50	82·5
shipping				
tonnage	lakh grt	10·4	15·4	30·0
civil air transport				
Air India—available capacity	million tonne-kms	not specified	338	594
Indian Airlines—available capacity	„	not specified	155	342
communications				
post offices	000 numbers	94	98	110
telephone connections	„	763	873	1523
public call offices	„	10·4	10·1	12·1

[1] The target of 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.

CHAPTER XVI

EDUCATION

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 and 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 have 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 in the immediate future larger and more effective attention has to be paid 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 AND 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 materials 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 proper 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 :—

Enrolment Targets for Elementary Schools

(enrolment in million)

stage/age-group	1960-61 (actual)	1965-66 (likely achievement)	1970-71 (target)	additional 1961-66	additional 1966-71
primary (6-11)					
classes I-V					
enrolment . .	34·99	51·50	69·50	16·51	18·00
percentage of age-group	62·2	78·5	92·2		
middle (11-14)					
classes VI-VIII					
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 60 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 two classes 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 qualifications 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

(enrolment in million)

stage/age-group	1960-61 (achievement)	1965-66 (likely achievement)	1970-71 (targets)	additional 1961-66	additional 1966-71
secondary (11-17)					
classes IX-XI					
enrolment . .	2·96	5·24	9·00	2·28	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 on 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 requires 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 :

Progress in Girls' Enrolment

(figures in million)

	enrolment in classes I-V		VI-VIII		IX-XI	
	total	girls	total	girls	total	girls
1950-51 . .	19·15	5·38	3·12	0·53	1·22	0·20
1960-61 . .	34·99	10·96	6·70	1·47	2·96	0·53

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

(enrolment in million)

stage/age-group	1960-61 (achievement)	1965-66 (likely achievement)	1970-71 (target)	additional 1961-66	additional 1966-71
university/collegiate (17-23)@					
enrolment (Total) .	0·7	1·10	1·60	0·40	0·50*
percentage of age-group . . .	1·5	1·9	2·4		
enrolment in science courses . .	0·19	0·44	0·80	0·25	0·36

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

*Includes 0·05 million students to be educated through correspondence courere.

@Arts, Science and Commerce subjects (excluding Intermediate students).

facilities, incentive 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 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 promoting 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 779,000 (500,000 for additional enrolment and 279,000 for replacement at the rate of 3 per cent) for the elementary stage and 209,000 (152,000 for additional enrolment and 57,000 for replacement at therate of 4** per cent) for the secondary stage. To meet

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

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 17,660 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 shortage 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 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, 4000 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 recent years has severely strained the resources of 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 3500 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 proposal 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 especially for specialised courses.

21. At the Diploma level, admission capacity is proposed to be increased in the Fourth Plan by 18,100† to ensure the growth of the 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 :

Enrolment targets for Technical Education

admission capacity

	1965-66	1970-71 (total)	1966-71 (additional)
degree courses (nos.)	24700	30000	5300*
diploma courses (nos.)@	49900	68000	18100†

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

@Includes admission capacity in the polytechnics for girls.

*This includes 4000 seats already approved in the Third Plan, but not provided by March, 1966.

†This includes 3400 seats already approved in the Third Plan but not provided by March, 1966.

the Third Plan. These conduct full time courses o two year's 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 a 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 developement. This has not been adequately attended to 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 Plan it is proposed to launch a mass adult literacy movement which should help increase production both in the factory and on 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 laid

*Percentage refers 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 highest examination passed was to be recorded."—Census of India—1961, Vol. I—page XIV.

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 co-operation in covering the first stage of literacy on the lines of the Gram Shikshan Mohim 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 could 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 materials 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 Development Council is being constituted 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 gymnasia 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 and other Programmes

32. The programmes proposed under this head pertain to the Archaeological Survey of India, the Akademies, 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 Indian 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. 57 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, however, 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 payment 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. 1210 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. crores)
elementary education	322
secondary education	243
university education	175
teacher education	92
technical education	253
social education	64
cultural programmes	15
miscellaneous (general education)	46
total	1210

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 includes 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	1950-51 achievement	1960-61 achievement	1965-66 target	1965-66 likely achievement	1970-71 target
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
secondary education (classes IX-XI)						
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
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
technical education (admission capacity)						
A. diploma course	nos.	5900	25,800	37,390	49,900**	68,000
B. degree course	nos.	4120	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 28,700 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 pattern 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 so far only a 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 the 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.

ANNEXURE I

Progress in the number of students at schools and colleges

1950-51 to 1965-66

(figures in million except V (below)

stage and age-group	1950-51 (actuals)	1955-56		1960-61		1965-66	
		target	achieve-ment	target	achieve-ment	target	achieve-ment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I *primary* (6-11)/*classes I-V*							
enrolment	19·15	28·55	25·17	32·90	34·99	50·29	51·50
% age of age-group	42·6	60·0	52·9	58·5	62·2	76·4	78·5
II *middle stage* (11-14)/*classes VI-VIII*							
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
III *secondary* (14-17)/*classes IX-XI*							
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
IV *university education* (17-23) (arts, science and commerce)							
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
V *technical education* (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.

ANNEXURE II

Educational facilities for the Children in different classes

(enrolments 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)	0·68 (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	15·03 (66·5)	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)	2·66 (16·5)
5	Jammu and 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 (109·1)	24·32 (110·0)	28·99 (116·8)	3·81 (36·8)	6·61 (55·4)	9·48 (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 (66·4)	33·33 (85·4)	58·34 (132·4)	4·66 (21·3)	6·91 (31·6)	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 (27·8)	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 (34·9)	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)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
14	Uttar Pradesh	28·05	40·93	68·00	6·36	8·68	13·80	2·17	4·53	7·80
		(33·5)	(44·7)	(63·5)	(14·0)	(16·9)	(25·0)	(7·6)	(11·3)	(15·5)
15	West Bengal	24·68	29·27	41·88	3·78	5·18	8·10	1·72	2·18	4·18
		(73·6)	(64·9)	(78·0)	(19·4)	(21·7)	(29·9)	(9·1)	(10·1)	(17·1)
16	A. and N. Islands	0·02	0·044	0·094	0·003	0·005	0·017	0·001	0·002	0·009
		(63·3)	(62·9)	(100·0)	(4·6)	(14·3)	(42·5)	(5·0)	(5·7)	(11·5)
17	Delhi	1·86	2·72	4·11	0·68	1·07	1·83	0·25	0·53	1·07
		(78·4)	(79·1)	(95·8)	(48·5)	(58·5)	(78·2)	(18·6)	(31·4)	(48·4)
18	Goa, Daman and Diu	N.A.	N.A.	1·00	N.A.	N.A.	0·20	N.A.	0·05	0·09
				(123·5)			(45·5)		(12·05)	(18·4)
19	Himachal Pradesh	0·60	0·84	1·45	0·11	0·20	0·34	0·03	0·05	0·12
		(47·4)	(50·9)	(79·7)	(16·4)	(23·0)	(34·7)	(5·2)	(6·8)	(13·3)
20	Manipur	0·35	0·57	0·89	0·08	0·15	0·26	0·04	0·07	0·10
		(42·4)	(52·3)	(65·4)	(19·7)	(27·3)	(38·2)	(10·9)	(14·6)	(16·9)
21	Nagaland	N.A.	0·39	0·71	N.A.	0·07	0·12	N.A.	0·02	0·03
			(83·0)	(134·0)		(26·9)	(41·4)		(9·0)	(11·5)
22	Tripura	0·61	0·87	1·37	0·10	0·15	0·29	0·03	0·05	0·11
		(62·2)	(55·4)	(72·4)	(19·2)	(19·7)	(33·0)	(7·3)	(7·7)	(13·9)
23	L. M. and A. Isles.	0·02	0·034	0·052	0·003	0·0032	0·01	—	—	0·003
		(69·6)	(103·0)	(144·4)	(12·0)	(17·9)	(52·6)	—	—	(14·7)
24	N.E.F.A.	0·07	0·055	0·162	0·005	0·008	0·02	0·007	0·002	0·01
		(6·2)	(26·2)	(33·1)	(0·9)	(5·7)	(7·7)	(1·5)	—	(4·6)
25	Pondicherry	0·19	0·31	0·45	0·03	0·071	0·113	0·007	0·028	0·05
		(49·6)	(73·8)	(93·7)	(13·9)	(30·9)	(47·1)	(3·4)	(13·3)	(21·3)
	total	251·78	349·90	515·00	42·89	67·00	110·00	18·80	29·60	52·40
		(52·9)	(62·2)	(78·5)	(16·5)	(22·5)	(32·2)	(7·8)	(11·7)	(17·8)

NOTE.—Figures within brackets indicate percentages of children enrolled to population in the relavant age-group.

CHAPTER XVII

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.

Table 1.—Expenditure in First, Second and Third Plans and Outlays in the Fourth Plan.

plan period	Rs. crores		
	plan	non-plan	total
First Plan (1951-1956)	14	6	20
Second Plan (1956-1961)	33	34	67
Third Plan (1961-1966)	75	70	145
total (1951-1966)	122	110	232
Fourth Plan (1966-71)	140	130	270

2. Expenditure on Research and Development (R and 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 (1951-1966) 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 and 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 and 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.

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

Evaluation of Research and Development 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 prototypes 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, through 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 and D in recent years in a number of countries including Japan.

8. In India applied research has absorbed the greater part of the R and D expenditure without, however, leading to design and development in a 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 and 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 Research and Development

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 and 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 and 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 and 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 and 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 and 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 and 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 and D activities. To increase R and 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 and D staff, a much smaller amount of money per R and D scientist. 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 an 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 equal to 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 :

Table 2. Provision under the "Scientific Research"

	(Rs. crores)
department of atomic energy	50
council of scientific and industrial research	46
department of science, ministry of education	24
scientific research and research training	15
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 Rs. 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 consultation 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., such questions, 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, FAMILY PLANNING AND WATER SUPPLY

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 of 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 in 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:

	outlay adopted (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	492·00

A more detailed table is given in Annexure II. As in other sectors, priority has been given to spillover 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

*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.

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 2500 in 1950-51 to 5800 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 1:5800 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 1:4600 from 1:5800 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 4000 specialists will be needed for providing specialised treatment in district hospitals and polyclinics. At present only four post-graduate institutes exist at Delhi, Calcutta, Pondicherry and Chandigarh. Two more post-graduate institutions at Bombay and Hyderabad are expected to start functioning shortly. The State governments will also provide post-graduate 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 8000 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 phase (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 consoli-

dation 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 sizable groups of population, such as new-borns and those in the age group 0—4, who have escaped pimary 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 WHO/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. An 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, 2000 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 progammes, for the provision of under-ground sewerage and sewage disposal facilities in areas endemic for filaria and for the provision of protected water supply in the cholera infested areas.

Medical Care

22. There were 8600 hospitals and dispensaries and 113,000 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 240,100. 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 gowth 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 5200 centres, at the rate of one in each community-development block. In March, 1966, about 4800 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 medicinal 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, the programme was in operation in 213 blocks. Its coverage will be extended to an additional 1000 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 in 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 envisaged 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 were 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 now envisage an increase in the output of essential drugs from Rs. 150 crores in 1965-66 to Rs. 250 crores by 1970-71. With the completion of anti-biotic and synthetic drug factories at Rishikesh and Sanatnagar, a substantial increase in output of essential drugs will be achieved. For instance, the production capacity of penicillin, streptomycine, tetracycline and sulpha drugs will increase from 100 million mega units, 90 tonnes, 20 tonnes, and 350 tonnes, at the end of the Third Plan to 250 million mega units, 300 tonnes, 290 tonnes and 1500 tonnes respectively by the end of the 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.

II

Family Planning

General Approach

35. India's population according to the 1961 Census was 439·2 million. The estimated mid-year population of 1966 is 498·9 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 1·26 per cent per annum during the decade 1941—51 to 1·97 per cent per annum during 1951—61. The growth rate was estimated to be 2.4 per cent per annum during the period 1961—65. This rate of growth is expected to rise still further to 2·5 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 progamme 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 adminis-

trative 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 particulary 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 Plannning as Chairman and the Ministers of Finance, Information and Broadcasting, Food and 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 5200 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.

III

Water Supply and Sanitation

45. The backlog to be covered in both rural and urban water supply and sanitation facilities is still very large in spite of the efforts made during the first three Plans.

46. 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 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.

47. 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.

48. With the limited resources available, it is not possible to wipe out all the backlog 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

49. 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:

	(Rs. crores)
rural water supply schemes	150·00
areas endemic with cholera and filariasis	33·00
urban water supply and sanitation schemes (including metropolitan schemes)	190·00
total . . .	373·00

Rural Water Supply Schemes

50. 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

51. The position with regard to water supply and sewerage 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 fullfledged treatment of sewage or 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 and Sewerage Boards

52. Water supply schemes should be planned and executed, as far 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 sewer-

age 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

53. With rapid growth of industries and urban areas the danger of pollution of the rivers and natural streams has 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.

ANNEXURE 1

Achievements and Targets under Health : Second, Third and Fourth Plans

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)
hospital beds (including beds for primary health centres)	185600	240100	300100
primary health centres	2800	4800	establishment of the remaining 400 PHCs and strengthening of all the Centres.
medical colleges	57	87	112
annual admissions (undergraduate doctors)	5800	10625	19125
nurses intake (annual)	4000	8000	18500
annual admissions (dental)	281	600	1000
dental colleges	10	13	16
available manpower			
doctors	70000	86000	131000
nurses	27000	45000	87000 to 90000
aux. nurses-midwives and midwives	19900	35000	95000
health visitors	1500	3500	5000
dais/nurse-dais	11500	30000	280000
malaria :			
attack phase (units)	390·00	80·26	4·00
consolidation phase (units)	—	170·36	19·50
maintenance phase (units)	—	142·63	370·00
total	390·00	393·25	393·50
smallpox			
population covered	@	83% coverage	100% coverage & maintenance phase operations
T. B.			
district T. B. clinics (well equipped)	%	145*	345**
leprosy :			
(*i*) leprosy control units	135	200	300
(*ii*) survey, education and treatment centres	—	475	2475
(*iii*) training centres for non-medical Assistants	n.a.	8	14
V. D.			
(*i*) district clinics	83	101	161
(*ii*) head-quarters clinics		6	12
(*iii*) mobile V. D. teams (survey and study teams under the centre)	n.a.	—	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.

ANNEXURE II

Outlays on Health programmes : Third and Fourth plans

programme	(Rs. crores) outlays	
	Third Plan	Fourth Plan
1 *medical education, training and research* :		
(*i*) medical education :		
(*a*) undergraduate	42·10	50·00
(*b*) postgraduate		55·00
(*c*) postgraduate in public health	—	2·00
(*d*) establishment of opthalmic centres for post-graduate 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 *control of communicable diseases* :		
(*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 *medical care* :		
(*i*) primary health centres	16·68	103·00
(*ii*) hospital beds		
(*iii*) polyclinics	41·81	45·50
(*iv*) emergency medical services	—	4·00
(*v*) mental health	0·25	2·00
(*vi*) health insurance		
(*a*) cghs	0·85	8·00
(*b*) pilot projects		
(*vii*) prevention of eye diseases	—	0·50
(*viii*) blood transfusion and 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

4	*other services* :		
	(*i*) public health organisation	0·50	10·00
	(*ii*) public health laboratories	2·85	3·20
	(*iii*) students health programmes	1·28	6·20
	(*iv*) M. C. H.	2·26	
	(*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 Nagaland 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 outlays for Cholera and Filaria Control Programmes are meant for Administration and Control operations only. As for the sanitation and water supply part of the programme, those are included in the allocation for water supply and sanitation programme.

CHAPTER XIX

REGIONAL AND URBAN DEVELOPMENT AND HOUSING

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 agricultural, commercial and residential, 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

REGIONAL AND URBAN DEVELOPMENT

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 for 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-Bulandshahar 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 privisions 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 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)
town and regional planning preparation of master plans, city development programmes, regional plans and urban research cells.	13·00
implementation of certain vital aspects of urban development plans, urban community development and other LSG and municipal works	15·00
total .	28·00

Legislation and 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 of Manpower

15. It has been estimated that about 2000 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 school 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. crores)
subsidised 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 and residential accommodation for Central Govt. employees	50·0
total	252

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 made to obtain additional funds for housing from the Employees Provident Fund, particularly for the housing of industrial workers.

*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.

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 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 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 expanding 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.

CHAPTER XX

SOCIAL WELFARE

THE common purpose of development plans in all spheres is to seek, in the given circumstances, 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 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. 31 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 Rs. 19 crores. At the end of the Third Plan, there were 264 welfare extension projects for women and children functioning in coordination with community development, 306 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 are the principal programmes :

	(Rs. crores)
family and child welfare	13·0
special programmes for women	6·0
special programmes for children	8·0

welfare projects for non-student youth	2·0
eradication of beggary	3·0
social defence	5·0
rehabilitation of handicapped persons	9·0
aid to voluntary organisations	2·0
training, research and administration	2·0
total	50·0

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. *Institutions 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 can 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 not fully associated with welfare progra-

mmes. 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 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, the future programmes for women 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 programmes 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 programmes 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 famliy 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 subcentres for which full-time personnel (Balsevikas) 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. 39,500. 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 supervision 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 which would be responsible for running 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 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 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. In the course of the Third Plan 65 centres for pre-vocational training were established with the support of three agencies of the United Nations, namely, UNICEF, UNESCO and the International Labour Organisation. This programme has been recently reviewed and details for the scheme to be implemented during the Fourth 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 programmes set up by the Commission has recommended the establishment of a Central Youth Board and corresponding State Boards for enabling and assisting 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 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. It is proposed to extend the application of Children's Acts and to provide the necessary institutional services over the entire country. Special schemes are to be introduced to assist discharged prisoners in finding gainful occupations and entering the normal life of the community. In the field of moral and social hygiene, assistance will be given to voluntary organisations in developing their activities.

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. Besides developing existing institutions such as the Model School for Blind Children, the workshop for the Manufacture of Braille Appliances and the Central Braille Press at Dehra Dun, some new institutions were also established including the National Library for the Blind, Training Centre for the Adult Deaf and Model School for Mentally Deficient Children. Eight special employment exchanges were established for physically handicapped persons. Scholarships to blind, deaf and orthopaedically handicapped persons were provided for general education as well as for technical and professional training. 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, provision of scholarships on a larger scale 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 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 about Rs. 102 crores in the Third Plan. Of the total amount of Rs. 211 crores spent during the first three Plans, Rs. 115 crores have been devoted to scheduled tribes, about Rs. 72 crores to scheduled castes, about Rs. 22 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 Rs. 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 development	house sites, water supply and other schemes	aid to voluntary organisations	total
scheduled tribes .	22	68	10		100
scheduled castes .	30	15	21		66
denotified tribes .	2	2			5
other backward classes	6	—	1		6
common provisions	—	—	—	3	3
total	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 provisions 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 percent 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. Though 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 propor-

tion 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, in cooperation with the Department of community Development, 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, reorientation 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 tribal families.*—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 Five

Year 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 resettled tribal families 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 ensured 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 arrangement for implementing cooperative programme 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 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 cooperatives, which is examining the operational problems involved in working forest 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 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 forest 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 would 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 inaccesible 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 section 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)
post-matric scholarships and other educational schemes	30
house sites	15
economic development	15
improvement in working conditions in occupations such as scavenging, flaying, tanning, etc. . .	2
other schemes	4
total	66

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 availble to facilitate acquisition of land for the provision of house sites. Secondly, funds available under programme 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. To 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 homest eads, 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 wor-

kers 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 clearing the land and 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-kiln 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 those groups, specially drinking water supply, fodder, verterinary aid, credit, marketing and camping facilities. It has 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 role 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, women 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 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 fine funds. Matters such as wages, incentive schemes, fixation of workloads 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 workers' 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 scheme 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 81 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 cooperation 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 and 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 4,600 in 1951-52 to about 11,900 in 1963-64. The number of trade unions submitting returns was about 7,200 with a total membership of 3·9 million. The number of trade unions affiliated to all-India organisations was smaller—being, in 1962-63, 2,665 with a membership of 2·2 million. Compared to the total number of workers, membership of trade unions accounts for about 50 per cent in mines, 40 per cent in factories, 25 per cent in the railways and less than 20 per cent 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 perhapstwo-fold 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 those categories of workers whose wages are at present unduly low.

(6) Efforts should be made to extend the scope of wage systems. based on payment by results. Such systems should be evolved by agreement with workers and in an atmosphere of good industrial relations and should be applied discriminatingly 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 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 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. The Employees' State Insurance Corporation which has so far concerned itself mainly with the curative aspect of medical care has increasingly to address itself to preventive measures such as promotion of health education and environmental hygiene. Family planning facilities, which have been recently introduced in the E.S.I. dispensaries and hospitals, should be further extended during the Fourth Plan period. 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 Employees' State Insurance and Provident Funds and the conversion of the latter into pensionary benefits but should also provide strong financial and administrative base for such benefits as are at present not available.

14. The Coal Mines Provident Fund and Bonus Schemes Act, 1948, covers about 450,000 workers and the Employees' Provident Funds Act, 1952, now applies to 105 industries and covers more than 4·5 million workers. In 33 of these industries, provident fund contributions are made at 8 per cent of wages, including dearness allowance. In others, contributions are levied at the rate of 6¼ 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 to a number of industries in which the lower rate still prevails. These and other suggestions are under consideration.

15. Preliminary proposals for the introduction of unemployment insurance for subscribers to the two Provident Fund Schemes are at present under examination. 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 the 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 minimum penalties should be laid down at least for the graver offences. At present the labour inspectorates in the States are not adequately staffed and equipped.

17. *Safety.*—Questions pertaining to industrial safety are receiving considerable attention. A National Safety Council for Mines was set up in 1963. A National Safety Council for other industries has also been established recently. The latter is expected to develop into an all-India institution for propagating safety consciousness amongst management and labour, encouraging research on safety problems and disseminating information. The Central Labour Institute and the three Regional Institutes, which were set up during the Third Plan, are expected to expand their activities. The establishment of some feeder institutes is also visualised. The growth of chemical and petrochemical industries and other hazardous industries which may come up would require extensive research in industrial hygiene. There is also need for greater study of factors causing accidents in the more accident-prone industries. In view of the high rate of accidents in a number of industries, in addition to appointing safety officers, evaluation and investigation into health hazards and safety surveys, it is essential that workers' representatives should be associated closely with the working of national safety institutes, safety committees or other organisations which may be established for propagating safety consciousness or for imparting safety training. Manufacture of protective equipment suited to Indian conditions and not having imported components has to be encouraged. The evolution of safety standards in industry by bipartite agreement and adoption of self-regulation, as has been done in the cement industry, could also be tried out in other industries. As in the coal mining industry, suitable training

programmes with emphasis on safety should be encouraged for the benefit of new entrants into industry.

18. *Housing.*—It is essential to ensure certain minimum standards for industrial workers in respect of living conditions. During the Third Plan, shortfalls occurred in the schemes for industrial housing, housing for plantation workers and housing for dock labour. The recent decision to provide for a subsidy under the plantation labour housing scheme should encourage more rapid progress. The statutory Coal Mines Labour Welfare Fund has financed the construction of nearly 50,000 houses, but the tempo of work needs to be speeded up. In the Fourth Plan, outlays amounting to Rs. 45 crores have been provided for the subsidised industrial housing scheme, Rs. 2·5 crores for dock labour housing and Rs. 2 crores for the plantation labour housing. A five-year programme for housing has also been drawn up under the Coal Mines Labour Welfare Fund.

19. *Labour Welfare.*—Separate statutory welfare funds are proposed to be set up for workers in manganese, dolomite, limestone and other mines on the lines of the Coal Mines Welfare Fund. Several State Governments have established welfare funds and a number of Labour Welfare Centres has been set up. The activities of these centres have to be developed further during the Fourth Plan, and in their management workers should have greater initiative and responsibility. Fuller opportunities should be given for cultural and recreational activities for workers, while the statutory funds should provide housing, medical, water supply and other facilities, on an increasing scale specially in the larger establishments.

Some progress has been made during the Third Plan in setting up consumer cooperatives and fair price shops for industrial workers. It is important that cooperative stores and fair price shops are enabled to supply most of the requirements of workers. The establishment of such stores and shops in smaller undertakings and residential areas with working class concentrations should also be promoted. There is need also for greater emphasis on the development of cooperative credit societies among industrial workers, many of whom are heavily indebted.

A committee set up by the Ministry of Labour and Employment is engaged in examining the functioning of the various welfare schemes in operation in industrial establishments, and is expected to suggest improvements in the working of these schemes.

20. *Workers' Education.*—During the Third Plan, under the workers' education programme, 16 new regional centres were established, and 200 education officers, 6,314 worker-teachers and about 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, 9,960 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 proportions 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

21. At the end of the Third Plan, the training programme for craftsmen provided for 116,570 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. It is hoped to bring about a three-fold increase in the number of apprentices in the course 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 9,000 instructors will be trained.

22. Among the important training programmes visualised under the Fourth Plan may be mentioned the proposal to take over existing cluster type and other training centres and to reorganise them into rural training institutes. The expansion of these institutes will be of

great significance for the programme for imparting skills to rural youth to which reference has been made in the Chapter on "Employment and Rural Manpower". Increasing need is now being felt for training in newer or more difficult trades such as electronics and tool and die making and for training of a more advanced character required for foremen. Senior personnel at different levels have also to be trained. Special facilities will be established for such training. For training higher level personnel and conducting research into the techniques of trade training, it is proposed to establish a central staff training and research institute. With a view to upgrading the skill of workers, the existing part-time training schemes will be reorganised. Mine mechanisation training institutes will also be expanded according to requirements. Training organisations at the national and regional levels have to be strengthened with a view to carrying out these programmes.

23. As stated in an earlier Chapter, an intensive programme of employment studies is to be undertaken with a view not only to establishing carefully tested employment norms, but also studying the structure of employment in different branches of the economy and in different regions. In this task, the employment service has a major role to fill. With a view to providing vocational guidance to new entrants into the labour force from the wider perspective of economic development in different parts of the country, it would be necessary to undertake surveys of skills at the area level, industry and occupational surveys and rural and urban labour force surveys. The information which these surveys will provide will be of key importance in planning for the better utilisation of human resources in different parts of the country.

24. 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

25. 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, there is considerable under-employment. 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. The programme for provision of house sites for Harijans, landless agricultural workers and small peasants, which forms part of the Fourth Plan, has to be implemented with a sense of urgency. 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 & 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.

26. 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 bidi industry is already before Parliament. A bill to regulate the employment of contract labour is also under examination.

Labour Research and Studies

27. There is need for broadening the research base for formulating and executing plans for the well-being of workers. For this purpose, a number of schemes have been initiated during the past few years. The more important among them are the agricultural labour enquiries, family budget enquiries, wage

census and surveys of labour conditions in different industries. The Central and Regional Labour Institutes have also conducted a number of studies in the field of industrial hygiene, industrial medicine, industrial physiology, rationalisation of workloads, etc. The Ministry of Labour and Employment have carried out several case studies on industrial relations and the state of implementation of labour laws in public sector undertakings. Similar studies on industrial relations have been undertaken in the universities and research institutions under grant from the Research Programmes Committee. To encourage labour research, three labour research centres have been recently set up in Bombay, Delhi and Lucknow. It is necessary to strengthen the existing base of information and study in matters pertaining to labour by extending it to include areas which have not yet been covered and improving quality by emphasising research in depth. There is need for developing a trained cadre of research workers in this field. This is an area in which the main effort so far has fallen on the Government. It is important that trade unions and managements should now enter this field to supplement official effort and to promote the study of problems of special interest to workers.

Reappraisal of Labour Policy

28. From time to time suggestions have been made that there is need for a fresh and comprehensive review of the aims and working of labour policy. The Royal Commission on Labour reported as far back as 1931; to an extent the data were brought up-to-date by the Labour Investigation Committee, 1946. Since Independence the industrial scene has undergone radical changes. There has been marked diversification in industrial production, and the entry of the public sector in industry is a new development of great significance. The structure of management has changed in several respects, even more the structure of the working class. Important changes are likely to take place in the nature and composition of the labour movement in the years to come. There will also be other important developments in the economy as a whole. Having regard to these considerations, the Government of India have under consideration at present a proposal to appoint a National Commission on Labour.

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 28,000 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 relcaimed in the Dandakaranya Project area for settling 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. 42·4 crores.

NEW INFLUX

2. Since January, 1964, however, there has been fresh large scale immigration from East Pakistan. Over 800,000 persons migrated into India, of whom about 300,000 (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 sizable repatriation of Indians from certain other countries has also to be kept in view.

POLICY FOR RE-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 professions. 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

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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 :

Rehabilitation Schemes and Outlays

Scheme	(Rs. crores)
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

6. About 180 villages have so far been set up under the Dandakaranya Project in which nearly 9000 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 2000 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

*Includes Rs. 2 crores for social welfare programmes.

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 sizable number of displaced persons.

CHAPTER XXIV

PUBLIC CO-OPERATION 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 co-operation and participation in carrying out the development 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 due partly 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 greater attention 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. 180 crores. An important development in the voluntary sector has been the 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. 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 large measure on the work of voluntary organisations. In rural areas women workers can give useful service in the women's welfare extension projects linked with the community development programme. School lunch programmes are another example where voluntary work has already proved valuable and can be expanded. Voluntary workers have much to contribute in the programmes designed to secure a better life for Harijans 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 young men 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, colleges and civic organisations, Planning Forums comprising students and teachers or private citizens can bring the national goals closer to the people and enlist support for development programmes. Public co-operation 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 co-operation 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 Co-operation, which includes representatives of a number of leading voluntary organisations such as Bharat Sevak Samaj, Akhil Bharat Sarva Seva Sangh, All India Women's Council, Family Planning Association

of India, Indian Conference of Social Work, Indian Council of Child Welfare, Harijan Sevak Sangh, Gandhi Smarak Nidhi and others, has sponsored national programmes in public co-operation 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 co-operation schemes to be formulated on the basis of the recommendations made by the National Advisory Committee on Public Co-operation. These schemes are mainly intended to provide to the participating voluntary organisations and other non-official agencies facilities for research, training, pilot projects and evaluation, 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 comparable figures for the Third Plan :

scheme	Third Plan		Fourth Plan	
	physical targets/ units	expenditure Rs. lakhs	physical targets/ units	financial outlay Rs. lakhs
a. *grant-in-aid schemes* :				
lok karya kshetras (rural and urban)	500	86·54	700	190·00
planning forums	950	10·06	1,800	105·00
national consumer service	central and 3 State Units	1·74	Units in all States	30·00
research, training and pilot projects	—	33·52	—	300·00
educational work on prohibition	40 centres	4·26	—	75·00
total 'a'		136·12		700·00
b. *loan schemes* :				
construction service of voluntary organisations and labour co-operatives	out-turn Rs. 20 crores	80·75	out-turn Rs. 30 crores	300·00
commercial and semi-commercial activities with social objectives				
total 'b'		80·75		300·00
total 'a' + 'b'		216·87		1000·00

A brief explanation of some of the more important schemes is given below.

Lok Karya Kshetras (Rural and 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 and 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 constructive work.

National Consumer Service

10. The National Consumer Service has been set up with the main object of protecting the interests 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 co-operatives, development of consumer resistance, avoidance of extravagance and wastage, studies relating to market intelligence, suggesting measures for prevention of adulteration and other malpractices 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 Co-operation has started functioning recently. It will strengthen the voluntary organisations and other non-official agencies by providing them suitable facilities for research, training and evaluation. It will also help them in the preparation of their plans.

Construction Service of Voluntary Organisations and Labour Co-operatives

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 co-operatives, deputation of or subsidy for technical and managerial personnel and reservation of work for labour co-operatives. Apart from direct economies, the construction service has helped in maintaining standards of work, ensuring a better deal for workers and inducing public authorities to simplify administrative and financial procedures. The construction service of the Bharat Sevak Samaj has 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 the construction costs. Besides, in many areas completion of works by the service has left behind a pool of skills and ex perience. This has in turn encouraged voluntary organisations at the local level to take up construction work and other allied activities. This has made for greater self-reliance. The programme will be further strengthened.

Commercial and Semi-commercial Activities with Social Objectives

13. It is desirable that voluntary organisations should be encouraged to take up such activities as are intended to provide goods and efficient services 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 healthy competition and will assist in checking price rise. Such activities will also yield some modest income to the voluntary organisations for financing their 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 working 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. 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 loal 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 co-operation 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 of agricultural production, avoidance of wastage of food, increase in the rate of savings, and slum improvement. 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 co-operation and participation. Each important section of the society, such as farmers, industrial workers, teachers and students, public servants, members of legislatures and local bodies and social workers, will have to work out 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 provide training in information methods and techniques. All available publicity media and a large number of official and non-official organisations and institutions including educational institutions and voluntary organisations 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.

18. The country has made varying degrees of progress in literacy, availability of reading material and newspapers, and the establishment of an adequate communications system. The methods and techniques of conveying information and enlisting popular participation must, therefore, take into account the regional conditions. There should be a phased programme for developing channels of communications best suited to target areas and selected audiences. This can be arrived at on the basis of a study of existing conditions and future needs.

19. Publicity is a two-way traffic. It is as important to study popular reactions as to put across plans and policies. Radio station, field publicity organisations, teleprinter lines and other communications facilities provide one line of approach. Simultaneously, quicker and more scientific ways of public opinion analysis should be adopted as a source of information and as a guide to policies.

CHAPTER XXV

OTHER PROGRAMMES

PROGRAMMES included under this head are : statistical schemes of the Department of Statistics of the Central Government and States' Statistical Bureaux, study of natural resources, research programmes in the field of social sciences, management administration and planning, evaluation organisations, manpower units, schemes for social assistance, welfare of 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.—Head of Development—Other Programmes

(Rs. crores)

sector	total	Centre	States	Union Territories
Statistics	18·0	10·6	6·5	0·9
Study of Natural Resources	0·5	0·5	—	—
Research Programmes Committee	1·0	1·0	—	—
Social Science Research Committee	4·0	4·0	—	—
Evaluation Organisations	1·0	—	1·0	—
Manpower Units	0·5	0·5	—	—
Training for Management Administration and Planning	1·0	1·0	—	—
Schemes for Social Assistance	4·0	4·0	—	—
Welfare of Government Employees	8·0	8·0	—	—
State Capital Projects	11·0	—	11·0	—
Expansion of printing capacity	8·0	8·0	—	—
Plan Publicity	13·0	6·4	6·0	0·6
total	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 and accuracy. Progress would be necessarily 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 States also have Departmental units of statistics. Collection of primary statistics is thus done either as a part of the administrative work of departments and government agencies or through part-time investigators without adequate training at the village or higher levels. Compilation and tabulation, at the State and 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 trained investigating staff supported by a specialised group of experts on sampling and processing of data. It is serving as an independent source of data with all-India coverage on a uniform system, which also supplies 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 Bureaux.

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 pro

grammes. 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 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 for 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 co-ordination there can be increasing decentralisation of operational responsibilities.

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 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 inrespect 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. 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. 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 Co-ordinated 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 for 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 productivity in construction timber industry and the economics 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 co-ordinated 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 is 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. A provision of Rs. 1 crore has been made for the Fourth 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 discipline 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 balanced 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.

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 Government of States and Union Territories to build 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 of enterprises, (b) management and planning and development programmes, (c) area development planning and administration, (d) methods and techniques for economic planning and (e) training and orientation of managers, supervisors and workers both in public and private sector, in relation to two basic management tasks for the Fourth Plan, namely, reduction in costs and increase in productivity. 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 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 and Panchayati Raj institutions. 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 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

25. The living and working conditions of low paid Government employees in metropolitan towns need to be improved. This scheme is intended to provide relief in kind through a chain of consumers' co-operatives and better facilities, for housing, transport, and organising community welfare schemes on a self-help basis. 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 Bhubaneshwar (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 communications system geared to the needs of a rapidly developing society. During the Fourth Plan period greater emphasis will be laid on the development of select media and areas. 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 and agricultural and irrigation development 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 by establishing channels of communications which meet the specific needs of particular target areas and groups of people.

31. Fourth Plan provides for Rs. 13 crores for Information and Plan publicity Rs. 6·4 crores at the centre, Rs. 6·0 crores in the States and Rs. 0·6 crores for Union Territories.

APPENDIX I

Selected Economic Indicators

	item	unit	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
1	national income at 1960-61 prices	Rs. crores	9850	10150	10540	11190	11460	11670	12250	12100
2	per capita income at 1960-61 prices	Rs.	275	279	285	297	299	299	307	297
3	money supply with the public (as on last Friday)	Rs. crores	2016	1848	1785	1857	1981	2217	2342	2413
4	deposit liabilities of Scheduled Banks (as on last Friday)	Rs. crores	904	848	844	856	951	1051	1186	1481
5	treasury bills outstanding (as at the end of the period)	Rs. crores	358	314	315	335	472	595	836	1295
6	Plan outlay	Rs. crores	—	259·6	267·5	343·0	475·9	613·9	635	890
7	deficit financing	Rs. crores	—	2	45	36	93	157	253	497
8	cost of living index	1949=100	101	105	104	106	99	96	107	112
9	index number of wholesale prices (average of months)	1952-53=100	118·8£	118·0£	100·0	104·6	97·4	92·5	105·3	108.4
10	index number of industrial production (calendar years)	1956=100	—	73·5	75·8	77·8	83·1	91·9	100.0	104·2
11	index number of agricultural production	1949-50=100	95·6	97·5	102·0	114·8	117.0	116·8	124·3	115·9
	(i) food crops	1949-50=100	90·5	91·1	101·1	119·1	115·0	115·3	120·8	109·2
	(ii) non-food crops	1949-50=100	105·9	110·5	103·8	104·7	120·9	119·9	131·5	129·5
12	value of imports	Rs. crores	650	979	670	572	656	774	903	1036
13	value of exports	Rs. crores	601	733	578	531	594	609	620	635
14	balance of payments (current account-net)	Rs. crores	+38·9	—162·6	+60·2	+47·4	+6·0	+6·7	—312·8	—431·4

£Revised series.

APPENDIX I—(*Contd.*)

	Item	unit	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66
1	national income at 1960-61 prices	Rs. crores	12950	13180	14140	14490	14740	15460	16630	15930
2	per capita income at 1960-61 prices	Rs.	312	311	326	326	323	331	348	325
3	money supply with the public (as on last Friday)	Rs. crores	2526	2720	2869	3046	3310	3752	4080	4530*
4	deposit liabilities of Scheduled Banks (as on last Friday)	Rs. crores	1668	1935	1916	2088	2225	2493	2807	3231
5	treasury bills outstanding (as at the end of the period)	Rs. crores	1225	1298	1106	1175	1300	1382	1444	1612
6	Plan outlay	Rs. crores	1017	1012	1118	1128	1386	1709	2031	2374*
7	deficit financing	Rs. crores	140	112	—49	184	183	211	188	385
8	cost of living index	1949=100	118	123	124	127	131	137	157	169
9	index number of wholesale prices (average of months)	1952-53=100	112·9	117·1	124·9	125·1	127·9	135·3	152·7	165·1
10	index number of industrial production (calendar years)	1956=100	107·7	116·9	130·1	138·3	150·5	162·5	174·7	181·6*
11	index number of agricultural production	1949-50=100	133·5	130·3	142·2	144·8	137·5*	142·6*	158·0*	158·3‡
	(i) food crops	1949-50=100	130·6	127·9	137·1	140·3	130·4*	135·9*	150·1*	151·8‡
	(ii) non-food crops	1949-50=100	139·4	135·0	152·6	153·9	151·8*	156·2*	174·1*	171·3‡
12	value of imports	Rs. crores	904	961	1122	1092	1131	1290	1314	1350*
13	value of exports	Rs. crores	573	640	642	661	685	793	816	805*
14	balance of payments (current account-net)	Rs. crores	—327·0	—185·6	—392·4	—306·4	—345·5	—335·3	—436·7*	—319·8**

*Provisional
‡Based on 1965-66 base level (potential).
**Relates to April-September, 1965.

APPENDIX II

Selected First, Second and Third Plan achievements and Fourth Plan targets

	item	unit	1950-51	1955-56	1960-61	1965-66	1970-71
1	national income at 1960-61 prices	Rs. crores	9850	11670	14140	15930	23100
2	per capita income at 1960-61 prices	Rs.	275	299	326	325	417
3	employment generated (addl. Plan-wise)	million numbers	—	7·5	9·5	14·5	18·5 to 19·0
4	agricultural production—index numbers	1949-50=100	95·6	116·8	142·2	158·3	207·8
5	foodgrains production	million tonnes	54·92@	69·22@	82·02	72·29*	120·0
6	irrigation—utilisation (Plan-wise)						
	(a) minor—(addl.-gross)	million acres	—	9·5	9·0	13·1	17·0
	(b) major and medium —(addl.-gross)	,,	—	3·1	5·2	5·5	9·0
7	cooperation : short and medium-term loans advanced	Rs. crores	22·90	49·62	202·75	400·0	650·0
8	industrial production—index numbers	1956=100	73·5	91·9	130·1	181·6	306·0
9	coal	million tonnes	32·8	39·0	55·7	68·0	106·0
10	iron ore	,,	3·0	4·3	11·0	23·0	54·0
11	petroleum products	,,	0·2	3·4	5·8	9·9	20·0
12	steel						
	(a) steel ingots	,,	1·47	1·74	3·4	6·2	11·7
	(b) finished steel	,,	1·04	1·3	2·3	4·6	8·8
13	machine tools (graded)	value in Rs. lakhs	30	80	700	2300	10500
14	agricultural tractors	000 numbers	—	—	neg.	5·6	35·0
15	fertilizer production :						
	(a) nitrogenous	000 tonnes of N	9	80	99	233	2000
	(b) phosphatic	000 tonnes of $P_2 O_5$	9	12	54	111	1000
16	cement	million tonnes	2·73	4·67	7·97	10·8	20·0

@Adjusted for statistical changes with 1960-61 as base.

*Potential created was 90 million tonnes.

APPENDIX II—(*Contd.*)

	Item	Unit	1950-51	1955-56	1960-61	1965-66	1970-71
17	cloth :						
	(a) mill made	million metres	3401	4665	4649	4434	5486
	(b) handloom, powerloom and khadi	,,	917	1643	2072	3146	4572
18	industrial estates (cumulative)	numbers	—	1	66	300	550
19	electricity : installed capacity	million kw	2·3*	3·4*	5·6	10·2	20·0
20	electricity : towns and villages electrified	000 numbers	3·7	7·4	24·2	52·3	110·0
21	railways : freight carried	million tonnes	93	116	156	205	308
22	surfaced roads	000 kms	156	183	235	284	334
23	shipping	lakh grt	3·9	4·8	8·6	15·4	30·0
24	students in schools (enrolment)						
	(a) primary stage (age-group 6-11) :	million numbers	19·15	25·17	34·99	51·5	69·5
	(b) middle stage (age-group 11-14)	,,	3·12	4·29	6·7	11·0	19.0
	(c) secondary stage (age-group 14-17)	,,	1·22	1·88	2·96	5·24	9·0
25	technical education—engineering and technology : admission capacity						
	(a) degree level	000 numbers	4·1	5·9	13·8	24·7	30·0
	(b) diploma level	,,	5·9	10·5	25·8	49·9	68·0
26	medical facilities : hospital beds	,,	113	125	186	240	300
27	medical facilities :						
	(a) doctors (practising)	,,	56·0	65·9	70·0	86·0	131·0
	(b) nurses (registered)	,,	15·0	18·5	27·0	45·0	87·0 to 90·0
28	family planning centres	numbers	—	147	1649	11474	48405
29	industrial housing (Plan-wise)	numbers of houses/tenements	—	42200	61756	64549	150000
30	scholarships for backward classes (Plan-wise) (post-matric and pre-matric)	000 numbers	—	1900	4807	11999	77500

*Relates to calendar years.

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