

tion of the country. Keeping this in view, the second five year plan has provided a sum of Rs. 7 crores for an integrated publicity programme to be undertaken in coöperation by the Ministry of Information and Broadcasting and the States. The programme includes the setting up of a chain of information centres throughout the country, provision of publicity literature, films, audio-visual aids, organisation of mobile vans, exhibitions, community receiving sets and books and journals. It is proposed to bring out a new journal, to be called, *Yojna* (Plan) which will endeavour to carry to coöperatives and panchayats, voluntary organisations, public servants and non-official workers throughout the country an understanding of the plan and its aims and values. The nation's plan has a message for each citizen, and everyone has something to give to it.

CHAPTER V

DEVELOPMENT OF CO-OPERATION

CO-OPERATION AND NATIONAL PLANNING

Economic development along democratic lines offers a vast field for the application of co-operation in its infinitely varying forms. The socialist pattern of society implies the creation of large numbers of decentralised units, both in agriculture and in industry. These small units can obtain the advantages of scale and organisation mainly by coming together. The character of economic development in India with its emphasis on social change, therefore, provides a great deal of scope for the organisation of co-operative activity. The building up of a co-operative sector as part of the scheme of planned development is, thus, one of the important aims of national policy.

2. The limit to the range of activities to which the principle of co-operation can be applied is set by the fact that a co-operative group should be reasonably small for its members to know and trust one another. For certain purposes a number of small groups may, and indeed must, combine into larger organisations, but the strength of co-operation comes from relatively small and homogeneous groups which function actively. If strong primary units exist at the base, effective organisations can also be built at higher levels. The structure as a whole can then undertake activities and provide services which require large resources and organisation. From this aspect the fields which mark themselves out as being specially appropriate for the co-operative method of organisation are agricultural credit, marketing and processing, all aspects of production in rural areas, consumers' co-operative stores, co-operatives of artisans and construction cooperatives. In these fields the objective is to enable co-operation increasingly to become the principal basis for the organisation of economic activity. This implies that new activities should be co-operatively organised and also that by stages existing activities should be taken over by co-operatives.

3. In the areas appropriate to it the co-operative form of organisation has advantages which neither the system of private enterprise nor that of State ownership can match. In particular, it offers a means of achieving results valuable to the community by drawing equally upon incentives which are social and incentives which are individual. Where it succeeds co-operation brings large gains to the community, but the human factors involved in it are

complex and in some ways it is much more difficult for the co-operative form of organisation to succeed than it is for a completely socialistic enterprise or for an individual entrepreneur. It is therefore necessary to take effective measures to enable co-operation to succeed specially in fields which may be assigned to it in the scheme of national development.

4. This aspect has received special attention in the report of the Rural Credit Survey organised by the Reserve Bank of India. Programmes of co-operative development for the second five year plan have been drawn up broadly on the lines recommended in the Rural Credit Survey. Because of historical circumstances agricultural credit accounts for the greater part of development in the field of co-operation during the past fifty years. The provision of adequate credit on reasonable terms is undoubtedly a most important part of co-operation, but the movement has wider and more far-reaching aims. In co-operation the crucial unit is the village. In implementing the programme of co-operation, there are three aspects to which special attention has to be given. Firstly, credit is only the beginning of co-operation. From credit, co-operation has to extend to a number of other activities in the village, including co-operative farming. In co-operation hard and fast rules of development cannot be made and every step is determined by the experience of the people. The second aspect is that every family in a village should be member of at least one co-operative society. The third aspect is that the co-operative movement should aim at making every family in the village creditworthy. At present, even in areas in which the movement has spread most, only 30 to 40 per cent of families are able to satisfy the tests laid down. The primary co-operative society and the village panchayat have to work in unison if the needs of all the families in the village are to be met. In determining the size of the primary society, therefore, it is important that, on the one hand, the society should be large enough to be a viable unit to be able to provide a competent committee of management and, on the other, it should not be so large that the committee of management cannot keep in touch with individual families and undertake their rehabilitation. Co-operatives, like village panchayats, are institutional agencies for achieving social cohesion. In a country whose economic structure has its roots in the village, co-operation is something more than a series of activities organised on co-operative lines; basically its purpose is to evolve a system of co-operative community organisation which touches upon all aspects of life. Within the village community there are sections of the population who need special assistance. Co-operation should therefore mean an obligation towards all families in the village community and the development of land and

other resources and of social services in the common interest of the village as a whole.

PATTERN OF VILLAGE DEVELOPMENT

5. The manner in which the village economy is to be reorganised and developed over the next 10 or 15 years is a question of central importance in determining social and economic policies in several fields. For instance, the scheme of land reform, the place of village industries in the rural economy, the organisation of the co-operative movement, relations between urban and rural areas, the role of small-scale industries in the programme of industrialisation and the precise application of the concept of balanced regional development are all intimately related to the pattern of growth of the village economy which is visualised for the future. The community development and national extension programme provides a link between national planning and changes which are sought to be achieved within the rural economy. In this programme the expression 'community' refers specially to the group of families who belong to the social unit called the village. A community project is, therefore, best thought of as a programme for the development in a co-ordinated and planned way of all the village communities comprised in it. It is the social changes and the economic progress which are achieved at the level of the village which provide a true measure for the success of many of the development programmes which are now in progress. The reconstruction of the village along co-operative lines implies, firstly, that a more or less homogeneous social structure in which different sections of the community have equal opportunities is brought into existence, and secondly, that the economic basis of village life is greatly expanded and strengthened. Measures relating to land reform, development of village industries, establishment of village panchayats as well as other programmes have to be considered in relation to these two basic objectives.

6. For all sections in the village community to have equality of status and opportunity, removal of disparities in the ownership of land is doubtless the first step. The protection afforded to tenants and facilities given to them to become owners of the land they cultivate as well as the application of ceilings on individual holdings are steps in the right direction, but they are no more than the first steps. Substantial sections of the village community are without land and without adequate opportunities for work. As economic development proceeds, a growing proportion of the rural population will move to towns to take up new work. Even if employment opportunities in urban areas expand more rapidly than can be anticipated, there will still be very considerable pressure on

land. For the vast majority of potential workers in villages work has to be found on land and in occupations which can be developed in rural areas.

7. One of the most important questions, therefore, to which national planning has to address itself is the manner and the agencies through which new forms of work and service are to be developed within the rural economy. Industrialisation, and specially the development of basic industries, has an extremely important role in accelerating economic progress, but the secondary and indirect effects of industrialisation will not by themselves go far enough in creating and maintaining work opportunities in rural areas for the employment and utilisation of locally available manpower. To the extent a deliberate attempt is made to provide fields for small-scale industries and to locate large industries with due regard to such considerations as the needs of a balanced economy in different parts of the country, the rural problem will be easier of solution. In order that the rural economy may take advantage of opportunities which national policies along these lines may offer, certain changes internal to the village economy have also to be secured.

8. The average village has two main assets, its land and its manpower. In raising the productivity of land through irrigation, national extension and other means conditions are established for expansion in the village economy. But specially favoured areas apart, without reorganisation in the agrarian structure the problem of under-employment in the rural economy will continue to be one of large dimensions. Individual villages have to be brought into the scheme of national development as units of planning. For many purposes groups of villages rather than individual villages will constitute the appropriate planning units. The primary organisation, however, has to be at the village level. This is the reason for setting co-operative village management as the goal of reorganisation for the village economy.

9. Co-operative village management implies, in the first place, that the ownership of land belongs to peasants. With the progress of land reform the number of owners within the village community will increase and disparities in the ownership of land will be greatly narrowed. In the peasant community, apart from artisans and others engaged in non-agricultural activities, there will be a section of the population who will be dependent on agriculture but without being owners of land. Theirs is an important problem to which solution has to be found, specially since, as pointed out earlier, they and many small peasant owners will continue to be

in effect surplus to the rural economy. The second aspect of cooperative village management, therefore, is that it aims at developing the land and resources of the village and creating new employment opportunities from the point of view of the community as a whole. In other words, the community accepts a measure of responsibility for providing opportunities for gainful work in agricultural as well as non-agricultural activities to all persons in the village who are in need of work and are prepared to do whatever work can be made available.

10. To be able to provide a diversity of occupations within and outside agriculture, the village economy itself has to develop new techniques. Rapid technical change, including the utilisation of power and of improved equipment thus becomes a basic factor in further progress. So long as the small holding, often uneconomic and fragmented, remains the unit of *management* in agriculture, the possibilities of expanding the village economy to create adequate diversity and richness in the occupational structure are severely limited. A distinction should be made between the unit of management and the unit of *operation*. Even when a larger area or the village as a whole is the unit of management, for many years, the common unit of operation will be the peasant holding. If the village is the unit for planning, there could be co-operation in many operations such as, the use of improved seed, common buying and selling, in soil conservation, in the use of water, in the construction of local works and so on.

11. During the transition to cooperative village management, lands in the village will be managed in three different ways. Firstly, there will be the individual farmers cultivating their own holdings. Secondly, there will be groups of farmers who pool their lands voluntarily in their own interest into cooperative working units. Thirdly, there will be some land belonging to the village community as a whole. This will include the common lands of the village, the village site, culturable waste lands assigned to the village, lands whose ownership or management is entrusted to the village on the application of the ceiling on agricultural holdings and, lastly, lands which may be given as gifts for the settlement of the landless. Thus, one could visualise within the scheme of land management in a village an individual sector, a voluntary cooperative sector and a community sector. The relative proportions between these sectors will be a matter for growth and development as well as positive planning. The aim would be to enlarge the cooperative sector until the management of the entire land in the village becomes the cooperative responsibility of the community. Cooperation in credit, marketing and processing will also further cooperation

in production. These activities are inter-related. Those which are simpler to organise will naturally be taken up first. Cooperation in all forms and in all activities is to be welcomed because the habit and outlook of cooperation is as important as the forms through which it is expressed.

12. While cooperation is the principle of organisation, the agency which provides direction and leadership in the village is the panchayat. The panchayat has important functions in the agricultural programme, in land reform and in land management. The development of panchayats has therefore to be a fundamental item in the programme of national extension and community projects. As the functions of panchayats within the village economy grow and the rural people realise the opportunities for raising standards of living which cooperation gives to them, local opinion and leadership will move more rapidly in the direction of cooperative village management than may have seemed likely in the past. Participation in the national extension and community development programme brings a new understanding to the rural people and prepares their minds for change.

13. Once this stage of cooperative village management is reached, the distinction between those who have land and those who are landless loses much of its significance. The true distinction then is between workers with varying skills who are engaged in different occupations, both agricultural and non-agricultural. The resources of the village community derived from agriculture, trade and village industry will be employed in securing the maximum increase in production and employment through action within the village as well as through cooperation in activities extending beyond the village. Such a village community will have an integrated social and economic structure and will be linked organically as a production and business unit with the economic life of the tahsil and the district. Thus, a rural economic structure is visualised in which agricultural production, village industries, processing industries, marketing and rural trade are all organised as cooperative activities. The banking system of the country and, especially the Reserve Bank of India and the State Bank of India and the network of cooperative credit institutions will, undoubtedly, play a large and growing part, and the surpluses of rural areas will be available for the development of the rural economy. While providing such assistance as is needed from the State, from the Reserve Bank of India and other institutions, the aim is to build up a cooperative system in which the village community is the vital social and economic unit and leadership comes from the people. The essential function of cooperative credit, marketing and other institutions

which are to be built up in partnership with the State as recommended in the Rural Credit Survey will be to assist the development on a sound and business-like basis of an expanding cooperative sector on the lines described above.

DEVELOPMENT PROGRAMMES.

14. During the first five year plan, largely on the initiative of the Reserve Bank of India, several important steps have been taken to reorganise the cooperative movement with special reference to agricultural credit. The co-operative movement now includes 22 State cooperative banks, 499 Central banks and bank unions, 126,954 primary credit societies and 9 Central and 291 land mortgage banks. At the primary level, besides agricultural credit societies, there are 30,306 agricultural non-credit societies, 8,389 non-agricultural credit societies and 21,137 non-agricultural non-credit societies. The primary agricultural credit societies have a total membership of 5.8 million and non-credit societies of 2.7 million.

15. The recommendations of the Rural Credit Survey were accepted by the Reserve Bank of India, the Central Government and by the Indian Cooperative Congress and during the past year action has been taken to implement several of them. The main principle on which the reorganisation of cooperative institutions is based is that of State partnership. The form and degree of such partnership varies at different levels of the structure and for different types of institutions. The Reserve Bank of India Act was amended to enable the Bank to set up a national agricultural credit (long-term operations) fund and a national agricultural credit (stabilisation) fund. State Governments are now in a position to obtain assistance from the Reserve Bank for State participation in share capital in respect of the larger sized credit societies, Central banks, State cooperative banks and Central land mortgage banks on lines proposed in the Rural Credit Survey. Similarly the Central Government will assist States for participating in the share capital of marketing and processing societies and construction of storage godowns.

16. The conference of Ministers in charge of Cooperation in the States which met in April 1955 to consider the report of the Rural Credit Survey proposed that the long-term goal should be the reorganisation of rural business on a cooperative basis in such a way that within 15 years 50 per cent. of the total business, including credit, marketing, processing, etc., comes within the cooperative sector. It was proposed that during the second five year plan the active membership of primary agricultural credit societies should be

raised from 5 to 15 million and the amount advanced through the cooperative movement is short-term loans from Rs. 30 to 150 crores, as medium-term loans from Rs. 10 to 50 crores and of long-term loans from Rs. 3 to 25 crores.

17. Development programmes for cooperation for the second five year plan have been drawn up in consultation between the Central Government, States and the Reserve Bank of India. The principal targets in the cooperative programme, which have been worked out in detail for each State, are as follows:

Credit

Number of larger sized societies	..	..	12,000
Target for short term credit	..	..	Rs. 150 crores.
Target for medium term credit	..	..	Rs. 50 crores.
Target for long term credit	..	..	Rs. 25 crores.

Marketing and Processing

Number of marketing societies to be organised	..	..	1,700
Sugar factories	..	..	38
Cotton gins	..	..	77
Other processing societies	..	..	112

Warehouses and Storage

Warehouses of Central and State Corporations	..	..	350
Godowns of marketing societies	..	..	1,700
Godowns of larger sized societies	..	..	5,000

For achieving these targets, apart from the contribution which the Reserve Bank will make, the plan provides for a total amount of about Rs. 48 crores.

18. The Ministry of Food and Agriculture has prepared draft legislation for setting up Central and State warehousing corporations in accordance with the recommendations of the Rural Credit Survey. It is proposed to build up storage capacity of 2 to 2.5 million tons. The Central Warehousing Corporation is expected to establish nearly 100 Warehouses, each having storage accommodation of 10,000 to 20,000 tons or more. State warehousing corporations are expected to construct about 250 warehouses of 2,000 to 10,000 tons of capacity. Tentative locations for warehouses have been determined.

19. In the development of cooperative credit and marketing institutions, as indeed in all aspects of cooperative development, the training of personnel is of the highest importance. For higher cooperative personnel a training centre was set up by the Reserve Bank

at Poona and for training intermediate cooperative personnel three regional cooperative training institutes are at present functioning and two more are shortly expected to be established. For the training of subordinate personnel State Governments have established 21 training institutes and 10 more are shortly expected to be set up. A special scheme for training block level officers to work in national extension and community projects has also been undertaken.

20. This brief review of steps which have been taken since the Rural Credit Survey was completed suggests that cooperation has now entered upon an active phase of development fully supported by the resources of the Central Government and the Reserve Bank of India as well as by State policy. In the rapid progress of cooperation, large organisational and personnel problems are involved, both for the cooperative departments carrying out the programme and in terms of work at the village level. Cooperation is the vital principle of all rural development. While building up and strengthening institutions at higher levels, cooperative staffs along with national extension workers should give the utmost attention to work with primary societies. The programmes which have been drawn up for the development of cooperation in the States during the second five year plan concentrate mainly on credit and marketing and to a smaller extent on processing. Insufficient attention has been given so far to the programme for cooperative farming. This aspect needs to be reviewed further.

21. In the first plan a number of suggestions for encouraging and assisting small and middle farmers to group themselves voluntarily into cooperative farming societies were offered. These have been reviewed and elaborated by a committee of the Panel on Land Reforms dealing with the reorganisation of agriculture. The committee has suggested that in areas where property rights do not come in the way of establishment of cooperative farming, as in government waste lands which have been reclaimed or are suitable for cultivation and in surplus lands obtained through the application of ceilings on agricultural holdings, settlement should as far as possible be on cooperative lines. In these areas intensive efforts should be made to develop suitable methods for cooperative farm operations and the necessary technical guidance, financial aid and supervision should be made available. Agricultural holdings which are smaller in size than the basic holdings should receive special attention with the object of developing cooperation in all activities.

CHAPTER VI

LAND REFORM

INTRODUCTION

THE lines along which the structure of the rural economy is proposed to be reorganised have been set out in the preceding chapter. Cooperatives and village panchayats are the principal institutions through which such reorganisation is to be carried out as part of national planning. The pattern of organisation to be aimed at has been expressed as cooperative village management. In the process of social and economic change through which this objective is to be attained land reform programmes have a crucial role.

2. Land reform legislation in the States has been confined in the main to adjustments in relations between owners and tenants. While security of tenure has been assured and rents reduced in several States, progress in the transfer of rights of ownership to tenants has been slow. In a number of States difficulties in reconciling the claims of small owners with those of tenants have come to the surface. Very little has been done to provide land for landless agricultural workers and efforts in support of co-operative farming and cooperative village management have been half-hearted and meagre. Invariably the intentions of land reform legislation have not been fulfilled to the extent hoped for because of inadequate administrative action and weakness in organisation at the village level. The work of the Central Committee for Land Reforms, which includes the Planning Commission and the principal Central Ministers concerned, has helped to maintain a broad common approach in land reform programmes in the States, whose attention has been drawn from time to time to gaps in the implementation of land policy and to the need to carry out phased programmes of land reform.

3. With a view to formulating a comprehensive land policy for the period of the second five-year plan, a Panel on Land Reform was set up by the Planning Commission in the summer of 1955. The work of the Panel is being done through four committees dealing respectively with tenancy reform, size of holdings, re-organisation of agriculture and Bhoodan. The detailed programme of land

reform to be implemented during the second plan will be drawn up after the Panel has considered the reports of its committees and made its recommendations.

4. In the first five year plan reference was made to the lack of reliable information concerning the distribution and size of holdings and it was proposed that a census of land holding and cultivation should be undertaken. This census has now been carried out in most States. For 19 States the results of the census have become available; reports from other States are shortly expected. The eighth round of the National Sample Survey included an inquiry into land holdings, the results of which have been presented in a special report. The Rural Credit Survey has also brought out valuable new data. Thus, from the point of view of the information available, it is possible to appreciate more fully the implications of various aspects of policy and to ensure more satisfactory implementation.

RIGHTS OF OWNERS

5. The abolition of intermediary rights has now been completed over the greater part of the country. The multiplicity of tenures has been reduced, although it has not been altogether eliminated. Taking a general view, existing tenures are being modified in respect of two main categories of right holders, namely, (1) owners who hold land directly under the State, and (2) tenants who hold land from owners. It is desirable that a fairly uniform pattern of ownership should be evolved which conforms to certain commonly agreed rights and obligations. Small peasant-owners will in the immediate future form the main body of cultivators. A rural structure based on peasant owners can meet the requirements of food and raw materials of a growing national economy only if land is used with care, the advantages of cooperative work and organisation are fully realised and a progressive system of agriculture is integrated with a great deal of non-agricultural work through the development of village industries, labour cooperatives and processing of livestock and agricultural products. In the success of the land reform programme, the national extension and community development programme has an extremely important part to play. Increasingly land reform has to be viewed as part of the wider processes of social and economic development.

6. Ownership of land, like other rights in a progressive community, entails certain obligations and limitations. The most important obligation concerns the use and management of land, to which subject reference is made in a later section of this chapter. A ceiling on future acquisition of land already exists in several States. It is

important that where it does not already exist immediate steps should be taken to prevent acquisition of land above a ceiling through sale or otherwise. In a number of States, as part of legislation relating to consolidation of holdings, measures for preventing fragmentation have been adopted. It frequently happens, however, that such measures are not adequately enforced. Provisions against the creation of fragments or their further splitting up by transfer or partition and regulation of the transfer of existing fragments are essential in the interest of agricultural development and should be enforced with the active association of village panchayats.

7. It was visualised in the first five year plan that to the extent leases of land are permitted, it would be desirable that they should be made through the village panchayat. This would be a useful step from several points of view. Wherever the village panchayat is in a position to undertake this responsibility, there should be no direct leases.

TENANCY RIGHTS

8. The ensuring of protection to tenants is recognized as urgent. In the actual implementation of this policy difficulties have arisen which can be traced to the definition of the expression "personal cultivation". In the State laws, a degree of uniformity in the use of this term is desirable. Personal cultivation may be said to have three elements, namely risk of cultivation, personal supervision and labour. A person who does not bear the entire risk of cultivation or parts with a share of the produce in favour of another cannot be described as cultivating the land personally. The expression "personal supervision" may include supervision by the owner or by a member of his family, provided it is accompanied by residence in the village or in a nearby village during the greater part of the agricultural season. As an element of personal cultivation, the performance of minimum labour, though correct in principle, presents difficulties in practice. It is therefore suggested that in legislation relating to tenancy reform the expression "personal cultivation" should be defined so as to provide for the entire risk of cultivation borne by the owner and personal supervision being exercised in the manner described above by the owner or by a member of his family. When land is to be resumed for personal cultivation, however, it is necessary that each of the elements of personal cultivation, including labour participation in the main agricultural operations, should be insisted upon.

9. Existing legislation should be re-examined in terms of the definition of personal cultivation set out above. and suitable action

taken to confer tenancy rights on individuals who have in the past been treated merely as labourers or as 'partners in cultivation'. Because the definition of personal cultivation has been generally defective in the past, in a number of States crop-sharing arrangements which have all the characteristics of tenancy are not regarded as such and crop-sharers are denied rights allowed to tenants.

10. A number of difficult problems relating to the tenancy legislation centre on the issue of resumption of land for personal cultivation. It is common ground that a person suffering from a disability should be permitted to lease out land and should have the right to resume it for personal cultivation when the disability ceases. This concession is generally extended to unmarried women, widows, minors, persons serving in the armed forces and those suffering from mental or physical infirmities. In the first five year plan, it was proposed that the limit for resumption for personal cultivation should be set at three times the family holding. Resumption was to be on grounds of personal cultivation only and was to be limited to the area which the adult labour force of the family could actually bring under cultivation. These recommendations have not proved adequate in practice. It is therefore recommended that the limit of area which can be resumed for personal cultivation should now be fixed at one family holding and be subject to a minimum area being left to the tenant. A family holding has been defined by a committee of the Land Reform Panel as the area of land which yields a gross average income of Rs. 1,600 per annum, or a net annual income (including remuneration for family labour) of Rs. 1,200 and is not less than a plough unit.

11. Persons holding one family holding or less may be defined as small owners. In the light of the experience gained it is proposed that a small owner should be permitted to resume for personal cultivation one-half of the area owned by him but not less than a basic holding, that is, the minimum area needed for profitable cultivation in accordance with legislation relating to the prevention of fragmentation. Where, as a result of such resumption, the tenancy becomes smaller than a basic holding, the Government should endeavour to find land for cultivation so as to bring the tenancy to the level of a basic holding. This will be facilitated to some extent when land in excess of a ceiling becomes available.

12. It is desirable that the areas which the landlord is entitled to resume should be demarcated as speedily as possible. In areas in excess of the limit of resumption for personal cultivation, tenants should have continuing and heritable possession. Tenants of lands liable to resumption for personal cultivation should have heritable

(but not permanent) rights and also the right to make improvements.

In the first five year plan it was stated that a rate of rent exceeding one-fourth or one-fifth of the produce should be regarded as requiring special justification. Progress in the regulation of rents has been uneven and in several States legislation lags behind. It is difficult to visualise circumstances in any part of the country which could now justify a level of rents in excess of one-fifth of the produce of land. While reducing rents, where they consider necessary, State Governments could provide an option to owners to surrender their lands to Government in return for compensation as prescribed in legislation relating to ceiling.

13. It is desirable that steps should be taken immediately to bring all tenants of non-resumable areas into direct relationship with the State. The State should undertake the obligation to recover fair rent from the tenants and pay it to the landlord after deducting the cost of collection. As soon as it may be feasible and keeping in view the level of rents and the financial obligations involved, State Governments may consider buying out of the landlord's interest in the non-resumable areas on payment of compensation. In determining the rate of compensation, State Governments may take into consideration the aggregate of the net increase in revenue to the States (that is, fair rent minus land revenue) over a period not exceeding 20 years. Graded rates of compensation might also be considered. The compensation should be paid in the form of bonds redeemable over a period of 20 years. The tenants' liability to pay fair rent should continue so long as it may be necessary for enabling the State Government to meet the liability for payment of compensation. In addition, provision may also be made for voluntary purchase of ownership, the price being fixed at a suitable multiple of the rental value of land or of land revenue.

14. During the past two or three years, there have been instances in some States of large-scale ejection of tenants and "voluntary surrenders" of tenancies. Most "voluntary surrenders" of tenancies are open to doubt as bonafide transactions and it is desirable that reviews of cases of alleged voluntary surrenders over a period of, say, three years, should be undertaken and, to the extent necessary, action should be taken to restore the tenants. It is recommended that action should also be taken to stay ejections of tenants and sub-tenants except on ground of non-payment of rent or mis-use of land. Ejections of tenants which may have taken place during, say, the past three years should be reviewed with a view to restoration wherever circumstances justify.

CEILINGS ON AGRICULTURAL HOLDINGS

15. The first five year plan recommended in principle that there should be an absolute limit to the amount of land which an individual may hold. It was suggested that this limit should be fixed by each State, having regard to its own agrarian history and its present problems. The census of land holding and cultivation, which was proposed, was intended to provide data relevant to decisions pertaining to ceilings on agricultural holdings. As suggested earlier, sufficient information has now become available to support general proposals for the imposition of ceilings on agricultural holdings which individual States can adapt to local conditions.

16. It is proposed that during the second five year plan the policy of ceilings on agricultural holdings should be implemented throughout the country. In terms of the general proposals made in the plan the details of the policy would naturally have to be worked out carefully by each State. The ceiling would apply to owned land (including land under permanent and heritable rights) held under personal cultivation, tenants being enabled to acquire rights of ownership on leased land on lines indicated earlier. Lands held by all the members of a family should be considered together, a family for this purpose being deemed to consist of husband, wife, and dependent sons, daughters and grand-children. The expression "family holding" has been explained earlier. It is recommended that the ceiling should be fixed at three times the family holding for an average family whose members do not exceed five in number. Where the number of members is larger, the ceiling may extend to a maximum of six family holdings. Each State may determine according to prevailing local conditions the basis on which the size of family should be allowed for in the application of the ceiling. A question to which each State will have to give urgent attention is the effect of *malafide* transfers during the past two or three years on the application of ceilings on holdings.

17. The following categories of farms may be exempted from the purview of ceiling :

- (1) Composite enterprises such as tea, coffee and rubber plantations. In such enterprises income from land should be taxed along with income from industry. Such land should not be deemed to be agricultural land ;
- (2) orchards where they constitute reasonably compact areas ;
- (3) specialised farms engaged in cattle breeding, dairying, wool raising etc ;
- (4) efficiently managed farms which consist of compact blocks, on which heavy investment or permanent structural

improvements have been made, whose break-up is likely to lead to a fall in production.

These are general suggestions which will necessarily have to be adapted to local conditions in each State.

18. The question has recently arisen whether sugarcane farms operated by sugar factories should be treated as parts of composite enterprises or as instances of agricultural land. Various aspects of this problem are being studied.

19. Areas in excess of the ceiling should be acquired by State Governments on payment of compensation at rates to be determined. Compensatory bonds redeemable over 20 years may be issued to owners in respect of surplus lands. The amount of compensation (including interest charges) may be determined with reference to the aggregate of the net increased income accruing to the State (that is, fair rent minus land revenue) for a period of, say, 20 years. Where the surplus area is distributed, the recipients should become State-tenants, liable to pay fair rent to the State.

20. In the settlement of lands acquired in consequence of the application of ceilings, tenants displaced as a result of resumption of land for personal cultivation, farmers with uneconomic holdings and landless workers should receive preference. Where the surplus areas are in fairly sizeable blocks, they should be operated through co-operatives. Farmers with uneconomic holdings below the basic level should be admitted into these cooperatives on agreement to pool their lands.

LANDLESS AGRICULTURAL WORKERS

21. During the first five year plan, apart from enforcement of minimum wages in a number of States and measures relating to the allotment of residential sites, little has been done for the direct benefit of landless agricultural workers. It is imperative that during the second plan there should be a large enough programme for giving land to agricultural workers. It is recognised that with the existing pressure on land only a small proportion of agricultural workers can be settled on land. Nevertheless, for reasons of social policy no less than those of economic development, it is important that while the national economy develops and offers wider opportunities for employment to agricultural workers and others, some positive relief within the rural economy is given to a section of the population which has long suffered from disabilities and has been denied minimum social and economic opportunity. It is therefore recommended that in each State after the data relating to the census of land holding and cultivation have been studied and the areas

likely to become available assessed, detailed schemes for the resettlement on land of agricultural workers should be drawn up. Bhoodan lands to the extent they are made available may also be brought into the scheme for settlement on surplus lands above the ceiling indicated above.

22. While special personnel for organising the resettlement of landless workers will be required, the resources needed for development should be provided from agricultural, national extension and community development, village industry and other programmes for which provision exists in the plan. The extent to which such resources will be available will, however, have to be further examined. It would be desirable to set up in each State a special board, including non-official members, for advising on resettlement schemes for landless workers and reviewing progress from time to time. It would also be useful to have a similar board at the national level so that questions of policy and organisation and the progress of land resettlement schemes in the country as a whole can be reviewed from time to time.

23. In this connection, reference may be made to the Bhoodan movement. So far over 4 million acres of land have been collected by way of gift for the rehabilitation of landless workers and about 300,000 acres of land have been distributed. State Governments are passing laws to facilitate redistribution of Bhoodan lands.

LAND MANAGEMENT

24. In the first five year plan it was urged that in all States programmes for consolidation of holdings should be expanded and pursued with vigour. Appreciable progress in the consolidation of agricultural holdings has been made only in a few States. We would reiterate the recommendations made earlier and suggest that in national extension and community project areas consolidation of holdings should be undertaken as a task of primary importance in the agricultural programme.

25. In the first plan the principle that in the cultivation and management of land, individual owners should conform to standards of efficiency determined by law was commended. In its application, this was conceived in the first instance in relation to large holdings. The subject has been studied in some detail by a sub-committee of the Panel on Land Reform. The main proposals made by the sub-committee are as follows :

- (1) All cultivators should be under an obligation to maintain reasonable standards of efficient production and to

preserve and develop the fertility of the soil. Land management legislation should provide the necessary incentives and sanctions for the performance of this obligation. Such legislation, however, is not to be viewed as a means of coercion in isolation from other factors essential for the maintenance of efficient production. Preservation of standards should be linked with the fulfilment of certain conditions such as stability of tenure, consolidation of holdings, progressive development of cooperation and Government assistance in the provision of financial resources, technical guidance and supplies.

- (2) Land management legislation should provide for standards of efficient cultivation and management which will permit objective, qualitative judgements. A list of factors to be taken into account in judging the quality of management of a farm or a holding has been worked out by the sub-committee, so that it can be adapted suitably to the agricultural and economic conditions of different areas. On the basis of these factors, it should be possible to classify farms according to the quality of management into suitable grades, for instance, two grades above and two below the average grade. While farms which fall into the first two categories should be given suitable encouragement and recognition, steps should be taken to ensure that those falling below the average are assisted in improving their standards. The legislation should provide for such measures as warning, direction and supervision and, in the last resort, for assumption of management.
- (3) Sanctions should be provided in the legislation for the fulfilment of certain obligations such as (a) for large and medium holdings, the bringing of cultivable waste lands under cultivation within a reasonable period, (b) measures relating to levelling, bunding and fencing, maintenance of irrigation channels, control of insects and diseases and eradication of weeds and terracing of fields, and (c) use of improved seeds, composting of farm refuse, etc.
- (4) While land management legislation has to apply to all farms, with a view to gaining experience, and evolving suitable methods, it may be applied in the first instance

in each State to selected national extension and community project areas. At the village level, the implementation of the legislation should be undertaken mainly through village panchayats, but suitable arrangements for supervision should also be made.

26. These are the broad principles guiding land management legislation. Details of application have to be carefully worked out with reference to the conditions in each State. Effective arrangements for land management will be an important factor in increasing agricultural production and conserving the natural resources of the country and in national extension and community project areas special attention should be given to them.

CHAPTER VII

COMMUNITY DEVELOPMENT AND NATIONAL EXTENSION

COMMUNITY projects and the National Extension Service have come to occupy a place of central importance in those sectors of development which bear most closely upon the welfare of the rural population. Increasingly, the planning of programmes for agriculture, education, health, village industries and co-operation will be undertaken in terms of areas selected for intensive work on the pattern of national extension and community projects. These projects are intended to integrate and co-ordinate the field work of various agencies into well-knit programmes carried out in co-operation with the people and, as the extension movement expands, they will become the normal pattern of the Welfare State in action.

2. In the First Five Year Plan community development was described as the method and rural extension as the agency through which the process of transformation of the social and economic life of villages was to be initiated. The main elements in this approach are: firstly, the method of community development; secondly, the agency provided by the extension service for applying the method of community development in co-operation with the people; and thirdly, programmes of development which give substance to the community approach and bring official and non-official workers together in a common cause. Once the initial impulse has been given, a programme such as this grows out of its own experience and momentum. As it develops, it meets old needs and creates new ones. New methods are discovered, deficiencies long ignored come to be recognised, and in content and in the manner of its functioning the programme succeeds in solving some of the vital problems of the community.

3. All activities comprised in the community development and national extension programme are integral parts of activities in different sectors of development with which various governmental agencies are concerned. It has therefore been difficult to isolate results which could be ascribed more specifically to the community

development and national extension programme and those which are related more closely to action on the part of the various development agencies. This is part of the wider problem of assessment and evaluation of results achieved in a number of rural programmes, both individually and in relation to one another. The second report of the Programme Evaluation Organisation contained a careful analysis of various problems of organisation which have arisen in the implementation of the community development and national extension programme. While acknowledging the significant role of the programme in the intellectual, social and economic transformation of the countryside, it referred to the slow development of co-operative institutions, the role of the village panchayat, the need to ensure adequate administrative arrangements for supplies and the importance of developing village industries. Through regional seminars of community project and extension workers and other means a continuous effort is being made to enhance the effectiveness of the programme at the level of the village.

4. Concentrated efforts to educate the people in improved techniques of production go a long way to strengthen the rural economy. The results of national extension and community projects are to be judged less in terms of the direct expenditure involved or the physical achievements recorded than in relation to the influence which the programme exerts upon the activities of the people. The readiness of the people to respond is seen from the fact that what they have contributed is valued, at present, at about 60 per cent. of the expenditure incurred by the Government.

The participation of the people in the planning and execution of schemes has been a specially promising feature of the programme. Where a correct approach is made on behalf of the administration the people have come forward to give freely. It is perhaps natural that villagers should evince an initial preference for participation in those types of activities in which their contribution could be mainly in the form of labour such as construction of roads and school buildings.

5. Village institutions have played an important part in enlisting the participation of the people. Considerable use is being made of local organisations like panchayats, co-operative societies, and union boards for the execution of development programmes. In some areas development activities have been entrusted to *ad-hoc*, non-statutory and non-elective bodies, such as Gram Vikas Mandals in Madhya Pradesh, Gram Mangal Samities in Orissa, Gram Seva Sanghams in Madras and Palli Unnayan

Samities in West Bengal. The participation of the people in development activities organised by local bodies is helping to create leadership in the village. In many places students and N.C.C. Cadets have also played a valuable part in development activities.

6. In the community development and national extension programme the unit of operation is the development block which represents on an average 100 villages with a population of 66,000 spread over an area of 150 to 170 square miles. Since the inauguration of the programme in October, 1952, additional projects have been taken up from time to time with a view to reaching the target set for the first plan period, namely to bring one-fourth of the rural population of India within the orbit of this programme by 1955-56. Altogether 1200 development blocks comprising approximately 123,000 villages and a population of about 80 million have been allotted. Of these 1200 blocks, 700 will be of the more intensive type, namely, community projects.

7. As regards the future programme, the National Development Council approved in September 1955 that during the second five year plan the entire country should be served by the National Extension Service and that not less than 40 per cent. of the national extension blocks should be converted into community development blocks for intensive development. The question of converting a higher percentage upto 50 per cent. of the national extension blocks into community development blocks would depend upon sufficient resources becoming available for this purpose. This means undertaking of work in about 3800 additional national extension blocks, of which at least 1120 are to be converted into community development blocks during the period of the second plan.

8. The programme of development envisaged above is estimated to cost about Rs. 263 crores. As against this, a sum of Rs. 200 crores has been allocated. It is proposed that the programme already drawn up for the year 1956-57 should be implemented and the question whether the budget for community development and national extension blocks should be adjusted, or the programme staggered, or additional resources found, would be considered by the National Development Council at a later date, in the light of experience gained with regard to rate of progress, etc.

9. In the first plan period substantial results have been achieved under the programme in many fields, especially in the fields of agriculture, animal husbandry, irrigation, education, social education,

health and sanitation, communications etc. There are, however, vital gaps in the programme. While, therefore, the normal programme of work will be continued during the second plan period, the fields to which special emphasis will be given are, broadly speaking, the following:—

- (1) development of village and small-scale industries—with a view to providing additional income, and increasing the amount of employment in the countryside;
- (2) development of cooperative activities;
- (3) intensification of the programme of work among the women and youth; and
- (4) intensive effort in the tribal areas.

10. The requirements of administrative and technical personnel for the Community Projects and the National Extension Blocks are very large. It is estimated that at the end of the first five year plan the programme will have engaged nearly 84,000 persons in different categories such as, project executive officers, block development officers, village level workers, social education officers, veterinary personnel, cooperative inspectors, doctors, compounders, nurses, mid-wives, lady health visitors, sanitary inspectors, overseers, arts and crafts supervisors, mechanics, engineers, etc. The number of additional persons who are likely to be employed under these categories during the second plan period together with the clerical and menial staff will be of the order of 2 lakhs.

11. Arrangements have been made for the training of personnel of all categories. Beginning with 25 training centres for extension workers four years ago, now there are 43 with an annual out-turn of about 5,000. A total of 71 extension training centres and 95 basic agricultural schools/wings attached to training centres and agricultural colleges throughout the country will be in operation during the second plan period for imparting extension and basic training to village level workers. Provision has also been made for training in home science for women village level workers. An important step which has been recently taken is to start 26 pilot projects for the intensive development of village and small industries. Special arrangements have been made for giving training in cooperation and cottage industries for personnel selected for work in community projects and national extension blocks. Likewise, adequate arrangements have been made for the training of block development officers, social education organisers and health personnel.

12. The aim of the community projects and the National Extension Service is not merely to provide for ample food, clothing, shelter, health and recreation facilities in the villages. These are of

course essential. Equally important is the realisation that what is required is a change in the mental outlook of the people, instilling in them an ambition for higher standards. This is essentially a human problem—how to change the outlook of the 70 million families living in the countryside, arouse enthusiasm in them for new knowledge and new ways of life and fill them with the ambition and the will to live a better life. The results obtained so far have on the whole been encouraging and as the administration and leaders of village communities gain greater experience, there are grounds for hope that the movement will gather momentum.

13. Extension services and community organisations are one of the principal sources of vitality in democratic planning. The second five year plan will reach out to millions of people through the network of community projects and national extension service. These projects are the means by which, through cooperative self-help and local effort, villages and groups of villages can achieve in increasing measure both social change and economic progress and become partners in the national endeavour.

CHAPTER VIII
PROGRAMME FOR AGRICULTURE

AGRICULTURAL PRODUCTION

PROGRAMMES for agricultural development were given the central place in the first five year plan. Agriculture and community development, along with irrigation and power, accounted for about 45 per cent. of the total outlay. Although this priority was accorded in the special circumstances of shortage and inflation which existed when the plan was formulated, it has justified itself from the general standpoint of economic development. The increase in agricultural production which has taken place since 1952-53 has helped, more than any other factor, to end inflation, stabilise the economy and prepare the way for a higher rate of development during the second five year plan. The targets of additional production for the first plan are compared in the table below with the production levels expected at the end of 1955-56.

Commodity	Unit	Production in base year*	Production in 1954-55	Estimated production in 1955-56	Targets of addl. production		Increase over the base year	

							Actual %	
Cereals	million tons	46.0	55.3	55.0	6.6	9.0	19.6	
Pulses	"	8.0	10.5	10.0	1.0	2.0	25.0	
Total Foodgrains	"	54.0	65.8	65.0	7.6	11.0	20.4	
Major oilseeds	"	5.1	5.9	5.5	0.4	0.4	7.8	
Sugarcane (gur)	"	5.6	5.5	5.8	0.7	0.2	3.6	
Cotton	Million bales	2.9	4.3	4.2	1.3	1.3	44.8	
Jute	"	3.3	2.9	4.0	2.1	0.7	21.2	

*Base year for foodgrains (cereals and pulses) is 1949-50; for others 1950-51.

The index of agricultural production (base: 1949-50 = 100) which stood at 96 in 1950-51 is expected to go up to 115 in 1955-56.

2. The target of additional production for foodgrains for the period of the first plan had been worked out in terms of the contribution anticipated from different sources such as irrigation, more intensive use of fertilizers, supply of improved seeds and programmes of land reclamation and development. The additional area brought under minor irrigation during the first plan amounts

to about 10 million acres as against a target of about 11 million acres. The consumption of ammonium sulphate has more than doubled, from 275,000 tons before the first plan to 610,000 tons four years later. More than one million acres of land have been reclaimed through the Central Tractor Organisation and 1.3 million acres through State tractor organisations. Besides this, about 5 million acres have been developed through land development measures including mechanical cultivation, bunding and levelling and reclamation of land by manual labour. The total cropped area has increased from 326 million acres to 350 million acres in 1954-55. The area under food crops has risen from 257 million to 270 million acres and under commercial crops from 49 million to about 60 million acres. The area under other crops (20 million acres) has, however, shown little change. The area under commercial crops has increased from 15 per cent of the total cropped area to 17 per cent, while the area under food crops has diminished from 79 to 77 per cent of the cropped area.

3. The satisfactory results attained in the agricultural sector during the first plan suggest a change in the perspective for agricultural development during future plans. It is no longer necessary to place a dominant emphasis on the production of cereal crops. The aim now must be to diversify agricultural production, to put land to the best possible uses and to take all such measures as will increase the productivity of land and the yield of individual crops. As irrigation develops and improved agricultural practices are adopted, especially in areas served by national extension and community projects, aspects of land utilisation which have been neglected in the past such as horticulture, cultivation of fodder crops to support livestock development and dairy farming and village plantations for the supply of fuel, should receive sustained attention.

4. This approach has been kept in view in the formulation of the agricultural programmes of the Central Government and the States for the second plan. Programmes for agriculture and community development have to be considered together in terms of their total impact on the rural economy. In the first plan Rs. 90 crores were provided for national extension and community projects, of which amount nearly two-thirds are expected to be utilised. For the second plan, the amount provided is Rs. 200 crores. The provision for various aspects of agricultural development, as distinct from similar works undertaken in national extension and community projects, has been increased from Rs. 243 crores to

Rs. 350 crores. In the statement below the distribution of outlay under different heads in the first and second plans is compared.

Item	(Rs. crores) Outlay provided	
	in the first plan	in the second plan
Agriculture	195	164
Horticulture	1	9
Animal Husbandry and dairying	22	61
Forests and soil conservation	12	48
Cooperation	7	47
Fisheries	5	11
Others	1	10
TOTAL	243	350

The statement brings out the shift of emphasis contemplated in the plan. Appreciable progress will have been made in the direction of a diversified agricultural economy when the targets set for the plan are realised.

5. The principal targets of agricultural production in the plan are given in the table below:

Commodity	Unit	Estimated production in 1955-56	Target of additional production	Estimated production by 1960-61	Percentage increase
Foodgrains	m. tons.	65.0	10.0*	75.0	15.4
Oilseeds	"	5.5	1.5	7.0	27.3
Sugarcane (gur)	"	5.8	1.6	7.4	27.6
Cotton	m. bales	4.2	1.3	5.5	31.0
Jute	"	4.0	1.0	5.0	25.0

6. The increase in food production to the extent of 10 million tons is expected to be realised broadly from the following sources:

	(million tons)
Major irrigation	2.4
Minor irrigation	1.8
Manures and fertilizers	2.5
Improved seeds	1.0
Land reclamation and land development	0.8
Increased use of improved techniques including application of soil conservation methods and more economic use of water.	1.5
TOTAL	10.0

* The distribution of crops may be somewhat as follows :

	(figures in million tons)
Rice	4.0—5.0
Wheat	1.5—2.0
Other Cereals	2.0—2.5
Pulses	1.5—1.5

7. At the end of the plan, the level of consumption of foodgrains is expected to increase from 17.2 oz. per adult at present to 18.3 oz., and of sugar (in terms of raw sugar) from 1.4 oz. (1955-56) to 1.75 oz.

3. The additional area under irrigation from major and minor works to be undertaken during the plan will be about 21 million acres. Of this about 9 million acres will be from minor irrigation works including tube-well schemes which will irrigate about 1.2 million acres. This estimate takes into account minor irrigation programmes in national extension and community project areas as well as in other areas. The consumption of nitrogenous fertilizers (in terms of ammonium sulphate) is expected to increase three times from 610,000 to over 1.8 million tons per annum at the end of the plan. Effective measures will be taken for the production and multiplication of improved seeds. The Japanese method of paddy cultivation which has been tried over about 20 lakh acres by the end of the first plan will be extended to cover about 40 lakh acres at the end of the second plan. The use of this method has given very encouraging results and its extension will materially help increase the average yield of paddy. In the areas served by national extension and community projects and in all irrigated areas, special attention will be given to intensive cultivation and to the raising of average yields of crops.

9. For crops such as sugarcane, cotton and jute a number of special measures are proposed to be undertaken. Intensive sugarcane development schemes, are to be extended to non-sugar factory areas. The main features of these schemes are development of irrigation, intensive manuring and organisation of cooperatives for making, credit and production. About a million more acres are expected to be brought under sugarcane cultivation as the result of increased irrigation facilities. In cotton, efforts will be concentrated on increasing the area and production of long staple varieties. As large areas suitable for the production of long staple cotton will become available in the regions benefiting from a number of multi-purpose irrigation projects, cotton production will be considerably stepped up. In the case of jute, the emphasis will be on the improvement of quality. Improved seed will be supplied at concessional rates and the arrangements for retting will receive greater attention.

10. Development plans of States also provide for schemes for the cultivation of improved types of tobacco, for better methods of production and marketing of black pepper, lac, and cashewnut and for reducing the existing deficit in coconut oil (40,000 tons) and arecanut (35,000 tons) by increasing indigenous production.

11. Development programmes and other problems concerning tea, coffee and rubber are at present being examined by the Plantations Enquiry Commission. Between 1950 and 1954 the total

production of tea has varied from 613 to 644 million pounds and exports have ranged between 427 and 470 million pounds. It is hoped to work out a programme for increase in production up to, say, 700 million pounds and increase of exports up to, say, 500 million pounds. A fifteen-year development plan for coffee is being examined by the Coffee Board. This aims at additional production of 23,000 tons above the present level of 25,000 tons. Of this increase, about 10,000 tons is proposed to be secured from intensive cultivation and rehabilitation of existing estates and 13,000 tons through reclamation and fresh plantings. The production of rubber has increased from 15,599 tons in 1950 to 21,493 tons in 1954. During the five years 1950 to 1954, on the average, a little over 3,000 tons of rubber have been imported. A scheme drawn up by the Rubber Board for replanting 70,000 acres of the old rubber area at the rate of 7,000 acres a year and for bringing 10,000 acres of new area under rubber at 2,000 acres a year is being considered by the Central Government.

12. One of the more important aims in the agricultural sector during the second plan is to increase the production of fruit and vegetables. This is necessary both for increasing the supply of protective foods and for bringing about greater diversity in the pattern of agriculture. The plan allots Rs. 8 to 9 crores for promoting fruit and vegetable cultivation. It is proposed to advance long-term loans to farmers for bringing new land under orchards and also to provide short-term credit for rejuvenating existing orchards. For making plants and seed of suitable variety and quality available, new nurseries are to be established. The plans of States envisage the rejuvenation of about 500,000 acres of existing orchards and the growing of new orchards to the extent of 200,000 acres. The production of vegetables is to be encouraged, especially in the neighbourhood of towns, and schemes for the multiplication of nucleus potato seed are to be promoted. Considerable emphasis will be placed on building up marketing co-operatives of fruit and vegetables growers. The plan also provides for the development of the fruit and vegetable preservation and canning industry through loans for establishing canneries and cold storage plants. In this connection details of assistance to be given to the industry are under examination.

ANIMAL HUSBANDRY

13. At present only a fraction of the contribution which animal husbandry and dairying can make to the growth of the rural economy and to rise in living standards is being realised. In providing for an outlay of over Rs. 40 crores for animal husbandry and

about Rs. 22 crores for dairying, it is hoped that during the second five year plan greater progress will be made in this branch of agriculture than has been so far possible. Animal husbandry programmes, however, encounter serious practical difficulties. Before solutions for them can be found, it is necessary that the size of the problem and its essential features should be widely recognised.

14. According to the livestock census of 1951 the numbers of cattle in India were as follows:—

<i>Cow</i>		<i>Buffalo</i>		(In millions)
Breeding cows	46·34	Breeding buffaloes		20·99
Breeding bulls	0·65	Breeding bulls		0·31
Work stock :		Work stock :		
Males	58·41	Males		6·01
Females	2·31	Females		0·53
Young stock	43·49	Young stock		14·73
Useless cattle	3·89	Useless buffaloes		0·78
	155·09			43·35

Despite this large population in 1950-51 the net value of live stock products amounted to Rs. 664 crores or about 11 per cent of the income from agriculture. Studies of animal nutrition indicate that the available supplies of cattle feeds, whether by way of dry fodder or green fodder or concentrates, fall considerably short of requirements. In relation to the supplies available, it is commonly considered that one-third of the cattle population could be regarded as being surplus. Large numbers lead to poor feeding, and poor feeding comes in the way of attempts to raise productivity. Without reorganisation of the agricultural economy there is little likelihood of larger quantities of fodder becoming available. At the same time, as the effects of famines and of epidemic diseases have been brought under control, the number of surplus cattle are likely to increase. This trend will become more marked on account of action taken in recent years to place a total ban on the slaughter of cattle. The attempt made during the first plan through the *gosadan* scheme to find a solution for the problem of surplus cattle has not so far yielded promising results. Only about 20 *gosadans* have been organised and many of them have found it difficult to secure the grazing areas which were needed.

15. The plans of States for livestock development provide for expansion of veterinary facilities, Key villages, control of rinderpest and other diseases, *gosadans* and *goshalas*. Increased facilities for training and strengthening of the administration of animal husbandry programmes have been provided for. Provision has also

been made for poultry and sheep and wool development. During the first plan the number of veterinary dispensaries increased from about 2,000 to 2,650. During the second plan about 1,900 veterinary dispensaries are expected to be added.

16. In the past rinderpest and other cattle diseases have taken a large toll, rinderpest alone accounting for about 60 per cent. of the mortality. A pilot scheme for the eradication of rinderpest which has been carried out during the first plan has made it possible to draw up a programme which aims at the eradication of rinderpest over the entire country during the second plan.

17. The programme for the improvement of livestock is undertaken mainly through the operation of the key village scheme. The scheme envisages concentrated breeding operations in key villages which are controlled mostly by artificial insemination centres, each centre serving about 5,000 cows of breeding age. In this programme a comprehensive approach is made to cattle improvement, besides steps taken to castrate scrub bulls, fodder resources are to be developed, breeding of calves subsidised and cattle improvement organised on cooperative basis. During the first five-year plan 600 key villages and 150 artificial insemination centres were established. For the second plan these targets are to be doubled, and 1200 key villages and 300 artificial insemination centres established. These key villages are expected to produce 3000 improved bulls, 936,000 improved bullocks, and 10,000 cows. For certain well-known breeds with high milking qualities, breeding farms are proposed to be established.

18. The unfavourable economic circumstances under which animal husbandry is carried on, account for the low yield of milk. As compared to the yields of cows in other countries, which frequently average from 3000 to 4000 lbs. per lactation, the better Indian breeds yield about 1500 pounds per lactation. The general average is, however, only one-half of this figure. The per capita consumption of milk has been estimated as being a little over 5 ounces as against the consumption of 10 ounces per head which has been recommended as a suitable minimum goal for balanced nutrition. It is therefore important to have a programme for doubling milk production over the next 10 to 15 years. Such a target is clearly within the bounds of practical possibility if adequate feeding and systematic management can be organised on a large enough scale and steps are taken to control the numbers of cattle. Large increases can also be secured in the yield of buffaloes. Improved methods of cattle management would have an important bearing on increase in the efficiency of bullocks. Studies have shown that

for the country as a whole the efficiency of bullocks could be raised by one-half and in the eastern parts of the country to an even greater extent. With increased efficiency agricultural operations are likely to require one-fourth to one-fifth fewer draught animals than at present, thus reducing the pressure on land.

19. For increasing milk production and improving yields, efficient organisation of the supply of milk for urban areas can play an important part. This aspect of development is being emphasised in the second five-year plan, which contemplates the establishment of 36 milk supply unions, 12 cooperative creameries and 7 milk drying plants. The latter will produce butter, ghee and skimmed milk powder. In addition to large colonies on the lines of the Aarey scheme in Bombay, wherever these are considered indispensable, experience suggests that valuable results can be obtained by organising milk producers' cooperatives on a village basis. Milk producers are to be given loans for purchase of animals and for other purposes. If a milking shed is provided at a central place in the village, the milk can be sealed and transported to the processing centre from where distribution can be arranged. Efficient marketing and processing of surplus milk from villages can simultaneously help secure a remunerative price for the producer, improvement in the quality of cattle and supply of pure milk for the urban consumer.

20. During the second plan greater attention is proposed to be given to the development of poultry and of sheep and wool for which about Rs. 3 crores and Rs. 1.6 crores respectively have been provided. It has been estimated that the average egg-laying capacity of a hen in India is a little over 50 eggs per year, representing a volume of production which could be doubled over the next 10 years through improvement of the indigenous stock by grading up and control of disease. To develop sheep breeding it is proposed to establish three new farms for producing quality rams. It is also proposed to develop cross-breeding operations in certain areas for the production of the finer types of wools which are now imported. A fleece-testing laboratory is to be set up at each farm for testing wool produced at sheep and wool extension centres, of which it is proposed to establish nearly 400 during the second plan. In dry areas, where possibilities of irrigation are limited, there is considerable scope for increasing wool yields which are at present extremely low.

FISHERIES

21. The fisheries programme will be expanded in the second plan with a view to increasing the production and availability of fish and fisheries products. The schemes of the Ministry of Food and Agriculture envisage the expansion of off-shore and deep sea fishing and

for this purpose additional exploratory off-shore fishing stations will be established on the western and eastern coasts and in the Andaman islands. A fisheries technological station will also be set up. An efficient fisheries extension service is essential for a proper development of fishery resources of the country. A few extension units were established during the first five year plan for demonstrating the latest techniques in fish farming and fishing methods and provision has been made in the second plan for increasing their number. With a view to providing adequate facilities for refrigerated transport of fish from collection centres to the consuming centres, it is proposed to procure insulated rail cars. Ice and cold storage facilities already exist in the principal collection and consuming centres; in others it is expected that these will become available in the near future. Provision has been made in the plans of States for establishing 18 ice plants and cold storages and 10 freezers and refrigerators. In pursuance of the programme of off-shore fishing improved facilities at fishing harbours are to be developed. Problems relating to the utilisation of fish and other marine products and processing and storage of fish and fishing accessories will be investigated. In the maritime States special emphasis will be placed on the mechanisation of fishing craft. Work begun on these lines in the Indo-Norwegian project in Travancore-Cochin will be developed further. Efforts will be made to organise and develop fishermen's cooperatives, and fisheries requisites. The plan provides about Rs. 12 crores for the development of fisheries.

AGRICULTURAL MARKETING

22. The development programme for co-operative marketing of agricultural produce has been considered in an earlier chapter. The regulation of agricultural markets has to be undertaken so that the producer is assured of a fair deal. This was recognised in the first plan which recommended the extension of the operation of the Agricultural Produce (Markets) Act to all important agricultural markets. The number of regulated markets is expected to increase from 265 in 1950-51 to 480 at the end of the first plan. It is proposed to bring 500 to 600 agricultural markets under this scheme during the second plan. Legislation for regulating markets is being extended. The market regulation programme aims not only at the elimination of such malpractices as unauthorised reduction and the use of short weights but also provides for grading of produce, standardization of weights and measures and the organisation of an efficient market news service.

23. Grading of marketable produce encourages better quality production and facilitates transactions. For external trade grading and standardization have to be enforced on a compulsory basis, for,

on the integrity of standards depends the reputation of a country in foreign markets. The first plan recommended the extension of compulsory grading to a large number of export commodities such as wool, bristles, cashew kernels, pepper, etc. A scheme of wool and bristles grading has already been introduced. Grading of essential oils will be taken up by the end of the current plan. In all, Agmark standards have been notified for 110 items of agricultural and animal husbandry products, and investigations for fixing standards for 30 more items are in progress. Special attention has to be given to the wider adoption of standards and their enforcement.

FORESTS

24. Forests cover about 22 per cent of the total geographical area of the country as against the proportion of 33 per cent recommended in Government's resolution on forest policy. Sustained efforts have therefore to be made for the extension of forests and for raising timber and industrial plantations for meeting national requirements. Programmes for the second plan include proposals for raising plantations for timber, matchwood, wattle and blue-gum and for more intensive use of forest lands and fuller utilisation of available forest resources. The forest plan, for which about Rs. 25 crores have been provided, envisages afforestation to the extent of 600,000 acres, new plantations over an area of 300,000 acres, of which 100,000 acres will be devoted to industrial plantations including matchwood, wattle and blue-gum, and improvement of 50,000 acres of pasture lands. It is also proposed to construct or improve 7,000 miles of forest roads and, with the object of upgrading less well-known timbers through seasoning and chemical treatment and substituting them for more valuable timbers wherever possible, ten seasoning plants are to be established. More detailed consideration of the forest plan is necessary in view of the fact that forest statistics need to be improved and, in their present condition, they do not provide an adequate means for assessing the results of forest development programmes which are undertaken by the Government.

SOIL CONSERVATION

25. As recommended in the First Five Year Plan a Central Soil Conservation Board was set up at the end of 1953 for undertaking a programme of soil conservation and for organising in collaboration with the States a national soil conservation programme. Soil conservation boards have since been set up in 22 States. Four regional stations have been organised for research and for training of personnel. For the second plan Rs. 25 crores have been provided for soil conservation. A comprehensive programme has now been drawn up and envisages soil conservation measures over a total area of

3 million acres, which includes different types of land such as agricultural areas, catchment areas, ravine areas, waste areas and hilly regions. Provision has also been made for reconnaissance surveys. In desert areas the Central Government are undertaking soil conservation measures directly. In implementing soil conservation programmes, it is essential to secure the co-operation of farmers. Soil conservation measures should be given a great deal of emphasis in national extension and community project areas. Every effort should be made to educate villagers in the value of soil conservation and simple methods should be demonstrated as widely as possible. With the understanding participation of village communities, soil conservation programmes can be carried out with speed and economy.

RESEARCH

26. The experience of rural development work in recent years has brought home the importance of new research for the success of extension work in agriculture. During the second five year plan it is proposed to strengthen agricultural research work in institutions maintained by the Central and State Governments, linking their programmes directly with problems thrown up in the course of extension work. In particular, it is proposed to extend research in dry farming practices, soil conservation, land management and utilisation, development of selected crop varieties, utilisation of hybrid plants, control of pests and diseases and fertilizer use and manurial trials. Research programmes are also being organised in other fields such as forestry, fisheries, animal and poultry production, sheep and wool improvement and the development of fodder resources and of concentrates to provide better nutrition to cattle. It is hoped to bring about a degree of coordination between research programmes in different parts of the country and to arrange for the results of research in each State being made more widely known to research workers in other States, and to ensure that the period between research and its application is shortened as much as possible. An expert team has recently completed the comparative study of organisation and working of Indian and American agricultural colleges and research institutions and has made a number of recommendations which are under consideration. Among the new institutions to be established during the second plan is a National Dairy Research Institute. Agro-economic research, in which a beginning has recently been made, will be further developed.

TRAINED PERSONNEL

27. Lack of adequate and qualified personnel has been one of the major handicaps in the implementation of programmes in the first

plan. With a large programme of development, the need for trained personnel is greater than ever. Special arrangements have therefore been made for meeting the requirements of personnel for the second five year plan. In agriculture, about 4500 agricultural graduates are needed. Provision has been made for the establishment of four new agricultural colleges and for expanding facilities at existing colleges. For training village level workers, the centres and institutes opened during the current plan will be expanded during the second plan. To meet the requirements of veterinary personnel a number of emergency measures were indicated in the first plan, such as the institution of double shifts and introduction of short-term courses in existing colleges. These will be continued during the second plan for which the total requirements of veterinary graduates are estimated to be nearly 5000. Provision has been made for new veterinary colleges and for strengthening of a number of existing colleges. In order that agricultural, veterinary and animal husbandry education may be improved selected colleges in different parts of the country will be assisted in developing into well-equipped centres of post-graduate training.

28. Facilities for training forest officers and rangers have been increased at the Forest College, Dehra Dun and at the Regional Forest College, Coimbatore. For cooperation a college to train higher personnel has already been established at Poona. Cooperative personnel of intermediate grades will receive training at five regional centres; for subordinate personnel training institutes are being set up in the States. Arrangements for the training of State Government personnel in soil conservation methods have been made at the research-cum-demonstration centres which have been set up by the Central Soil Conservation Board. Facilities for training in the development and management of fisheries and in modern fishing methods are being developed at research stations at Mandapam, Bombay and Calcutta.

CHAPTER IX

IRRIGATION AND POWER

THE irrigation and power programmes in the first five year plan were undertaken as the first phase of a long-term plan. After examining the available data, targets of developments to be achieved over a period of 15 years were formulated. In doing so the primary aim was to ensure the utilisation of the water resources of the country to the maximum extent possible.

2. Apart from various technical and economic considerations, in selecting projects for irrigation and power two general principles have to be kept in view. The first is that there should be a balance between large projects and medium-sized projects. Large irrigation and hydro-electric schemes take several years to complete and generally yield full benefits after a considerable interval. Medium-sized projects, however, yield early results and ensure a measure of continuity in the flow of benefits. At the beginning of the first plan a number of major projects were already in progress, so that possibilities of selecting new projects were severely limited. In the second five-year plan, besides carrying forward the various multi-purpose and other large projects begun during the first plan, preference has been given to medium-sized projects. The second principle in drawing up a national plan for irrigation and power development is to keep in view as far as possible the requirements of all regions in the country. This aim has been followed in proposing projects for the second plan. This will be seen from the statement at the end of this chapter which indicates the additional area to be irrigated and the additional generating capacity to be installed in each State during the period of the second plan. During this period the total investment on irrigation and power will be of the order of Rs. 900 crores as compared to the provision in the first plan of Rs. 661 crores.

IRRIGATION

3. At the beginning of the first plan the total area under irrigation from all sources was 50 million acres. Of this, 18 million acres were irrigated by Government canals, 2 million acres by private canals, 13 million acres by wells, 9 million acres by tanks

and 8 million acres from other sources. The area that received secure irrigation from large and medium-sized irrigation works was only about 25 million acres. The doubling of this area by irrigation works, which would remain effective in years of low rainfall, was adopted as a target to be achieved over a period of about 15 years. Progress achieved during the first plan and programmes to be undertaken in the second plan suggest that this target is likely to be fulfilled.

4. During the first plan 7 million acres would have been brought under irrigation by large and medium-sized projects. During the second plan the area to be irrigated is expected to be 12 million acres. Out of this, 9 million acres will benefit from projects undertaken during the first plan and 3 million acres from new projects included in the second plan. The area which these new projects will eventually irrigate is 15 million acres. Like the first plan projects, the new projects included in the second plan will also yield the major part of their benefits during the period of the third plan. In this period the additional benefits of irrigation carried over from the earlier plans are expected to amount to 12 million acres. These figures illustrate the continuity of efforts and results in the development of irrigation.

5. Out of 188 new irrigation projects, 136 will cost less than Rs. 1 crore; 34 between Rs. 1 crore and Rs. 5 crores; 8 between Rs. 5 crores and Rs. 10 crores; 9 between Rs. 10 crores and Rs. 30 crores; and only one project, more than Rs. 30 crores. Thus, to balance the big multi-purpose projects which distinguished the first five year plan, most of the new irrigation schemes to be undertaken during the second plan are of medium or small size and will yield results in quick succession.

6. Smaller irrigation works, such as wells, tanks, and minor irrigation channels, play an equally important part in developing irrigation. In 1950 they accounted for about one-half of the irrigated area of the country. During the first plan 10 million acres would have been brought under irrigation from minor works. The second plan provides for the irrigation of 9 million acres from these works.

7. Programmes of the dimensions described above raise difficult questions of finance. The capital costs which they entail are much larger than those in the earlier projects. The costs of maintenance and operation have also risen a great deal. In considering these problems two principles have to be emphasized. The first is that areas which derived facilities for irrigation, especially canal and tubewell irrigation, should pay betterment contributions towards

the capital cost of the project. Secure irrigation adds considerably to the value of the land and it is fair that a proportion of this added value should accrue to the community for financing future development. The second principle is that irrigation rates have to be determined on a commercial basis. In several States irrigation rates were fixed many years ago and may not take sufficient account of the increase in the value of crops which has since occurred.

POWER

8. The growth of energy resources is one of the principal foundations of industrial development. The consumption of electricity is rightly cited as an index of economic development. Until a few years ago, in spite of her resources in water and coal, India's power development proceeded very slowly. At the beginning of the first plan the total installed capacity of power generating plants amounted only to 2.3 million kW. Of this about one-half was held by electricity supply companies, which operated mainly in the bigger towns. About a quarter of the installed capacity was in the public sector, the balance being in industrial establishments which generated their own power.

9. Even more than irrigation, power development requires long-term planning. In a developing economy power requirements frequently outpace even optimistic estimates. This has already happened in India. At the beginning of the first plan, with the greater emphasis on irrigation which was then imperative, it was reckoned that installed capacity should increase by 7 million kW over a period of 15 years. It is now likely that this target for installed capacity will be achieved much sooner. New developments may change the prospect in a manner which cannot yet be foreseen in detail. Promising beginnings have already been made in respect of nuclear energy.

10. During the first plan installed capacity has increased by 1.1 million kW to 3.4 million kW. In this the share of the public sector has grown from 0.6 to 1.4 million kW. In addition, work on power plants with an aggregate capacity of about 0.2 million kW has almost been completed, and these will be commissioned before the end of 1956. During the first plan period *per capita* consumption of electricity has risen from 14 to 25 units. About 19,000 miles of sub-transmission and transmission lines of 11 kV and above have been added, thus more than doubling the transmission network which existed at the beginning of the first plan. As against 3687 towns and villages electrified early in 1951, the number at the end of the first plan will be about 6,500.

11. It has been estimated that over the next 10 years installed capacity will need to be expanded by 20 per cent. annually. This

means that for 1966 the target should be about 15 million kW. This is the background against which the programme of raising installed capacity by the end of the second plan to 6.8 million kW has to be considered. Of the increase of 3.4 million kW between 1955-56 and 1960-61, 2.9 million kW will be from the public sector, 200,000 kW from electricity supply companies and 300,000 kW from industrial establishments which generate their own power. In the public sector hydel power will account for the addition of 2.1 million kW and thermal power for 800,000 kW. In all 42 power generating schemes (new schemes and extensions to existing power stations) will be undertaken during the second plan. These will include 23 hydro-electric and 19 steam power stations. During the next five years *per capita* consumption of electricity is expected to increase from 25 to 50 units. With the construction of 35,000 miles of transmission and sub-transmission lines of voltages of 11 kV and above, the transmission network will be nearly doubled. Energy generation which stood at 6.6 billion kWh before the first plan is expected to increase to 11 billion kWh in 1955-56 and to 22 billion kWh at the end of the second plan.

12. The growth of power consumption is closely related to the growth of industry. From public utility power stations, the industrial consumption in 1950 was 2.6 billion kWh. This rose to 4.6 billion kWh in 1955. It is estimated that in 1960 this will be of the order of 11.8 billion kWh. The proportion of electricity consumed by industries from public utility power stations has increased from 63 per cent in 1950 to 66 per cent in 1955, and is expected to increase to 72 per cent in 1960.

13. For the development of industry on a decentralised basis and for the progressive use of underground water resources for agriculture, electrification in small towns and rural areas is extremely important. By the end of the first plan about 95 per cent. of towns with a population above 20,000 have been electrified. The aim in the second plan is to provide electric supply for small towns with population between 5,000 and 20,000 which are centres for the development of the adjoining rural areas. In this group, there are about 4,000 small towns, of which only 40 per cent have been electrified so far. During the second plan 80 to 90 per cent. of these towns are expected to be provided with electricity. Large-scale electrification of the villages with a population less than 5,000 is a difficult problem. There are over half a million of them spread all over the country. Many of these are far away from the developed power resources. With the planning of the various grid systems covering large areas, power supply will be given to an increasing number of villages which lie in proximity to the grid lines. During the second plan electric supply will reach 7,500 towns and villages

in addition to those now served. The following statement gives the distribution by population of towns and villages to receive electric supply by the end of the second plan:

Population	Total number according to 1951 census	Number electrified in March 1956.	Number likely to be electrified in March 1961
Over 100,000	73	73	73
100,000—50,000	111	111	111
50,000—20,000	401	366	400
20,000—10,000	856	459	816
10,000—5,000	3,101	1,000	2,600
Less than 5,000	5,56,565	4,500	10,000
TOTAL	5,61,107	6,500	14,000

14. For the successful implementation of rural schemes a large amount of cooperative effort is needed from the people in national extension and community projects and in other areas. With the integrated operation of power systems in urban and rural areas, lower rates for supply of power to rural areas should become feasible.

FLOOD CONTROL

15. For a long time flood control was regarded as ancillary to irrigation. The floods which occurred in 1954 and 1955 have given to flood control measures a distinctive place in the irrigation plan. River commissions have been set up for the Ganga and the Brahmaputra and for rivers in the North-West and in Central India for working out flood control schemes for different river basins. Flood control programmes are coordinated by the Flood Control Wing of the Central Water and Power Commission and at the policy level by the Central Flood Control Board. During the second five year plan special attention will be given to schemes for revetments, spurs and embankments which can be undertaken over a short period and to schemes for embankments and for channel improvements which can be undertaken over the next five to ten years. Long-term measures such as construction of storage reservoirs on river and tributaries are being held over for a later period.

SURVEYS, INVESTIGATIONS AND RESEARCH

16. Detailed hydrological investigations for all important river systems will be continued during the next plan. A number of irrigation and power projects included in the second plan have yet to be investigated in full detail. Final decisions on these projects can be taken only after the investigations are completed and the technical and financial aspects become clear. To facilitate progress on this essential work, sufficient financial provision has been made in

the plans of the various States and the Centre. A systematic power load survey on a national basis will be made during the second plan. Irrigation programmes also include schemes for research on various basic problems in irrigation engineering. In view of the extensive power development envisaged and to meet the requirements of the electrical manufacturing industry, the plan provides for research on power engineering. The establishment of a Power Engineering Research Institute is also contemplated.

PUBLIC COOPERATION

17. Irrigation and flood control programmes provide considerable opportunity for seeking the cooperation of the people. In a vital field of national development, there is vast scope for voluntary effort. Few activities undertaken by the Government are so close to the well-being of the people. Labour cooperatives can be and should become one of the most fruitful methods for augmenting rural incomes and increasing employment in rural areas. Through betterment levies the capital cost of projects can be reduced and larger programmes undertaken with the available resources. The economic use of irrigation supplies accompanied by suitable rotation of crops can help expand the area under irrigation. The effective utilisation of power for small industries will increase employment opportunities and bring real assistance to the artisan and the small entrepreneur.

ANNEXURE

Statement showing by States benefits of Irrigation and Power Projects in the Second Five Year Plan

Name of State	Additional area to be irrigated in Second Plan ('000 acres)	Additional installed generating capacity in Second Plan (KW)
1	2	3
Andhra	290	140,300
Assam	*	21,500
Bihar	1,140	205,000
Bombay	1,000	425,000**
Madhya Pradesh	400	193,000
Madras	140	287,000
Orissa	1,600	247,800
Punjab	1,700	546,000
Uttar Pradesh	1,310	302,000
West Bengal	1,270	241,500**
Hyderabad	610	75,000
Jammu & Kashmir	120	11,000
Madhya Bharat	300	56,000
Mysore	200	47,000
PEPSU	250	†
Rajasthan	1,160	72,800
Saurashtra	40	50,000
Travancore-Cochin	140	161,000
Ajmer	14	170
Bhopal	12	5,000
Coorg	3	†
Delhi	21	†
Himachal Pradesh	20	3,100
Kutch	36	6,300
Manipur	*	340
Tripura	*	400
Vindhya Pradesh	68	23,000
Pondicherry	6	†
NEFA	*	1,150
TOTAL	11,850	3,121,960

*Irrigation to be done by minor works.

**Includes major plant additions by Companies in the electric supply industry.

†Provision has been made for availing bulk supply from adjoining power systems.

Note—The total under 'power' excludes the addition of 300,000 kW anticipated in self-generating industries.

CHAPTER X

INDUSTRIES AND MINERALS

I

INDUSTRIES

LARGE-SCALE INDUSTRIES

INDUSTRIES and minerals, together with transport and communications, account for about one-half of the outlay in the public sector during the second five-year plan. In the first five-year plan the emphasis was assigned to agriculture and irrigation and power; in the second plan industrial and mineral development will be the spearhead of economic development. This shift had been envisaged in the first plan; the advance in agriculture, irrigation and power achieved under it has prepared the ground for a substantial advance in industry. The magnitude of investment proposed for industry represents one aspect of this advance. Equally important is the approach towards industrialisation, the directions of emphasis, the pattern of industrial growth and the manner in which the development of modern industry is to be integrated with village and small industries as part of a wider social and economic perspective.

PROGRESS IN THE FIRST PLAN

2. The first five-year plan proposed targets of production and increase of capacity in 41 industries in the private sector. It also provided for a number of industrial projects in the public sector. The index of industrial production stood at 105 immediately before the plan. It rose steadily to 117.2 in 1951, 128.9 in 1952, 135.3 in 1953 and 146.6 in 1954. The average for the first 9 months of 1955 is 159.2. The index of industrial production, which had 1946 as base, has been recently revised with 1951 as base and includes a much larger number of commodities. The revised index shows the level of industrial production to have stood at an average of 125.7 during the first

10 months of 1955. The progress which the rise in the index suggests can be seen from the following illustrative statement:

Industry	Units	Annual Installed capacity		Actual production	
		1950-51	1955-56 Estimated	1950-51	1955-56 Estimated
1 Iron & steel—Finished Steel (main producers)	ooo tons	1,015	1,300	976	1,300
2 Aluminium Ingots.	tons	4,000	7,500	3,677	7,500
3 Cement	'ooo tons	3,280	5,100	2,692	4,800
4 Rayon Filament	Mill. Lbs.	4.0	28.1	0.75	16.0
5 Petroleum refining (a)	ooo tons	..	3,200	..	2,500
6 Paper & paper board	"	137	220	114	180
7 Railway Rolling stock.					
(a) Locomotives	Nos.	..	170	..	170
(b) Passenger coaches	"	850	1,200	479	950
(c) Wagons	"	6,000	14,000	1,095	12,000
8 Textile Machinery.					
(a) Carding engines	"	Nil	792	Nil	690
(b) Spinning ring frames	"	396	1,212	260	880
(c) Looms	"	3,600	5,000	1,894	2,900
9 Diesel Engines	"	6,320	21,000	5,540	10,000
10 Automobiles	"	30,000(b)	35,000	16,519	23,000
11 Bicycles	ooo Nos.	120	550	101	500
12 Electric motors	ooo HP	149	377	99	240
13 Transformers	ooo KVA	370	550	179	520
14 Heavy Chemicals					
(a) Sulphuric Acid	ooo tons	150	268	99	160
(b) Soda ash	"	54	90	45	80
(c) Caustic Soda	"	19	46	11	35
15 Cotton Textiles					
(a) Yarn	Mill. Lbs.	1,689	1,775(c)	1,179	1,600
(b) Mill Cloth	Mill. Yds.	4,744	4,922(c)	3,718	5,200
16 Fertilizers					
(a) Ammonium Sulphate	ooo tons	79	426	46	380
(b) Superphosphate	"	123	228	55	100
17 Sugar	"	1,540	1,750	1,120	1,650
18 Jute Manufactures.	"	1,200	1,200	892	1,000

(a) Data of new units.

(b) Capacity of the two recognised manufacturers only.

(c) Capacity as on 1st January, 1955.

3. A considerable proportion of the increase in production has been obtained through the fuller utilisation of the existing capacity as in textiles, sugar and vegetable oil. This has been possible mainly on account of the increased supply of raw materials. In some industries, as in cement, paper, soda ash, caustic soda, rayon and bicycles, the increase in production is accounted for both by more intensive

utilisation of the available capacity and by additions to production capacity. In some industries lack of domestic demand has held back production compared to targets as in some of the light engineering industries.

4. A number of industrial projects have been completed in the public sector, such as the Sindri Fertiliser Factory, the Chittaranjan Locomotive Factory, the Indian Telephone Industries, the Integral Coach Factory, the Machine Tools Factory, and factories for the manufacture of penicillin, DDT, and newsprint. Projects relating to iron and steel industry and the manufacture of heavy electrical plant, which were to be undertaken in the public sector, took much longer to prepare than had been anticipated when the plan was drawn up. Only about 60 per cent. of the investment of Rs. 101 crores proposed for projects in the public sector is expected to materialise. In the private sector, the total investment over the plan period is likely to be about Rs. 340 crores as against Rs. 383 crores estimated in the plan for new projects, replacement and modernisation.

5. The first five year plan recognised that while the Government would have the leading role in organising and guiding the development of industry, the private sector would also be called upon to make a large contribution. The Industries (Development and Regulation) Act of 1951 provides the institutional framework within which development in the private sector is to be undertaken so as to conform to the objectives of national planning and of social policy. All new undertakings and substantial expansion of existing undertakings are licensed under the Act, which also provides for the setting up of development councils for individual industries. Forty-two industries are now within the scope of the legislation and development councils have been so far constituted for ten industries. The setting up of the National Industrial Development Corporation, the Industrial Credit and Investment Corporation and of eleven State Finance Corporations and the reorganisation of the Industrial Finance Corporation are steps which will enable the Government to control, direct and guide industrial development in accordance with the approved objectives.

PRIORITIES FOR THE SECOND PLAN

6. Deficiencies in the industrial sector and in the organisation for achieving rapid industrial progress revealed by the experience of the first plan will be corrected to a considerable extent by the priorities and the programmes of industrial development proposed for the second five year plan. The most important single weakness was the low level of steel production. This is being made good by the programme for the expansion of steel production through the establishment of three new plants in the public sector and the expansion of

production capacity in the existing units. Although there has been marked progress in the manufacture of locomotives, electric motors and transformers, and in the manufacture of machinery for textiles, cement, sugar and jute industries, on the whole, development in the capital goods sector has generally lagged behind the needs of the economy.

7. If industrial development is to play its true role in the economic progress of the country the State should play a greater part in it. The total provision made by Government under the second five-year plan for industrial and mineral development amounts to about Rs. 710 crores. In addition Rs. 200 crores are allotted for the development of village and small industries. The private sector has a substantial contribution to make, but the public sector should expand both absolutely and relatively. For this task the public sector has to equip itself adequately with managerial and technical personnel and more especially with competent design organisations. Programmes of industrial development have to be viewed in an integrated manner over a period of 10 to 15 years, so that the relationship between the development of capital goods and consumer goods industries and of large-scale and small-scale units can be correctly visualised. Increasingly, development in other sectors of the economy such as agriculture, power, transport and even social services, will turn on the needs and tempo of industrialisation. The achieving of a balanced economy for the country as a whole and for its different regions calls for a carefully considered policy for the location of new industrial units, irrespective of whether they are established through the public sector or the private sector. Thus, as the country enters upon the phase of intensive industrialisation, the formulation of a dynamic and progressive industrial policy for the future becomes the central element in national economic policy. This aspect has already been considered in the first chapter. The priorities of industrial development during the second five year plan, the programmes of development which have been drawn up for industry and minerals, and the place assigned to scientific and technological research have to be viewed against this background.

8. The expansion of industrial capacity during the second plan is conceived in terms of the following priorities:—

- (1) development of iron and steel production, machine-building, heavy engineering, and heavy chemicals, including nitrogenous fertilizers;
- (2) expansion of capacity in respect of other developmental commodities and producer goods, e.g., cement and phosphatic fertilizers;
- (3) modernisation and re-equipment of national industries already in existence, e.g., jute, cotton and sugar;

- (4) fuller utilisation of installed capacity in existing industries wherever there are wide gaps between capacity and production; and
- (5) expansion of capacity for consumer goods.

In industries falling under (4) and (5) the need to assist production programmes in village and small industries and the requirements of common production programmes in related fields for large and small units have to be kept fully in view.

9. The level of production of iron and steel is a major factor in determining the rate of progress for the economy as a whole. Conditions in India are especially favourable for producing iron and steel at a relatively low cost. Heavy engineering and machine industries are a natural corollary of iron and steel and provide the base for large-scale industrialisation. It is intended that during the third five year plan India should be able to build the essential requirements of steel plants comprising coke-ovens, blast furnace and steel melting shops and machinery for power generating stations in addition to manufacturing in her own workshops the bulk of the machinery and capital equipment needed in different industries. The establishment of the heavy machine building industry which will ensure supplies of industrial plant and equipment from indigenous sources calls for action at several points. In addition to the expansion of steel and aluminium production, which has been already taken in hand, a plan for developing the machine building industry would include the manufacture of ferrous and non-ferrous alloys, tool steel and stainless steel and of specialised rolling facilities. An integrated programme of development would also have to provide for the establishment of heavy foundry, forge and structural shops and gear cutting shops and for the production of a wide range of machine tools. An expert committee has been recently appointed to advise on questions relating to the development of the machine tools industry. Besides the setting up of the necessary production facilities, the most important requirement for a machine building programme is the personnel with requisite experience and training in the preparation of designs of plant equipment. Personnel at lower levels also require opportunities of gaining experience in high precision work. The outline of a coordinated development programme for heavy machine building industries, which will include training of personnel is at present under preparation.

10. A few words may be added in respect of the other priorities mentioned above. Increase in the yield of agricultural crops and the growth of agricultural production generally will turn more and more on the supply of nitrogenous fertilizers. Basic chemicals like sulphuric acid, caustic soda and soda ash are needed in a large number of manufacturing industries. All development involves

construction, so that the demand for cement is likely in each phase to press heavily on the available supplies. Jute and cotton textile industries, although long established, are in urgent need of modernisation of equipment; failure in this direction will reduce earnings of foreign exchange. Much of the unutilised capacity in existing industries at the beginning of the first plan has been brought into use. Some scope for the fuller utilisation of existing capacity, however, still remains, especially in light engineering industries and in certain consumer goods industries. In drawing up programmes for these industries, special care has to be taken to provide for the decentralised sector and for more labour-intensive processes. This aspect is considered more fully in the chapter on village and small industries.

DEVELOPMENT PROGRAMMES IN THE PUBLIC SECTOR

11. During the second plan three steel plants of one million tons ingot capacity each will be established in the public sector. In addition, at one of these plants, 350,000 tons of pig iron will be produced. The plant at Rourkela in Orissa is expected to produce 720,000 tons of flat products of steel, hot and cold rolled. It is being designed to operate the L.D. process and will be equipped for the recovery of by-product chemicals from coke-oven gases and coal tar. The hydrogen from the coke-oven gases and the nitrogen from the liquid air plant can be harnessed at a favourable cost for the manufacture of nitro-lime-stone fertiliser. The second steel plant, which is to be located at Bhilai in Madhya Pradesh, is expected to manufacture 750,000 tons of saleable steel mainly heavy and medium products, including 140,000 tons of billets for the rerolling industry. The third plant to be set up at Durgapur in West Bengal is to be equipped to produce 750,000 tons per annum of light and medium sections of steel and billets. Steel production at the Mysore Iron and Steel Works is to be expanded to 100,000 tons. By the end of the second plan, plants in the public sector will produce about 2 million tons of finished steel.

12. The programme for the establishment of heavy engineering industries includes a heavy steel foundry at the Chittaranjan Locomotive Factory for meeting the requirements of railways for heavy castings, and the establishment of heavy foundries, forge shops and structural shops under the auspices of the National Industrial Development Corporation. For the manufacture of heavy electrical equipment consultants' agreement has been reached with a leading British firm and the project report is to be prepared before the end of 1956. The total investment on the project which is expected to take 7 or 8 years for completion, may be of the order of Rs. 25 crores. Heavy transformers, industrial motors, tractions motors and switch gears are likely to be produced before the end of the second plan, but the production of items of equipment like hydraulic

turbines and generators and generators for diesel sets is expected in the early part of the third five year plan. The Hindusthan Machine Tools Limited, which now undertakes the manufacture of high speed lathes of 8½" centre, will increase its production and will also undertake manufacture of lathes of larger sizes and other machines like milling machines and drilling machines. The Government Electric Factory at Bangalore is to be expanded. The Chittaranjan Locomotive Factory is to be expanded, so that its annual output will increase to 200 locomotives. The Hindustan Shipyard is also to be expanded and the rate of construction of ships at Visakhapatnam will be increased. Besides the construction of a dry dock at Visakhapatnam, preparatory steps for the establishment of a second Shipyard are to be taken. The Integral Coach Factory which went into production in October, 1955, will be completed and from 1959 its manufacturing programme provides for the production of 350 coaches per annum. In addition, a provision of Rs. 10.0 crores has been made under the Railway Plan for a metre gauge coach factory.

13. In view of the paucity of coal deposits in Southern India, high priority has been given to the multi-purpose Lignite Project at Neiveli in South Arcot district. Under this project 3.2 million tons of lignite are to be produced and used for (1) generation of power in a station of 211,000 kW capacity, (2) production of carbonised briquettes in a carbonisation plant of about 700,000 tons annual capacity, and (3) production of 70,000 tons of fixed nitrogen in the form of urea and sulphate nitrate. Besides the fertilizer factory to be established in South Arcot, two more fertilizer factories are proposed to be set up. One of these, to be located at Nangal, will produce nitro-lime-stone corresponding to 70,000 tons of fixed nitrogen per annum. It will also produce 7 to 10 tons of heavy water per annum. The third fertilizer factory is expected to be established at Rourkela and will produce nitro-lime-stone equivalent to 80,000 tons of fixed nitrogen per annum. The annual capacity for the manufacture of nitrogenous fertilizers at present is about 85,000 tons, but consumption by the end of the second plan is expected to be about 370,000 tons in terms of fixed nitrogen.

14. Among light and medium industries envisaged under the public sector during the second plan reference may be made to the expansion of the existing D.D.T. plant, Hindustan Cables, the National Instruments Factory and the Indian Telephone Industries and the proposal to establish in Travancore-Cochin a second D.D.T. plant. A silver refinery now under construction will come into production during the second plan and a security paper mill, which is to be constructed, will make the country self-sufficient in the supply of security and bond paper. A teleprinter factory has also been provided under the Ministry of Information and Broadcasting.

15. A number of industrial projects have been included in the plans of States. At Durgapur the West Bengal Government have a project for the production of foundry coke and by-products of coal carbonisation and thermal power based on waste gases. Electric porcelain insulators and transformers are to be manufactured in Mysore. The U.P. Cement Factory, the Bihar Superphosphate Factory, and the paper mill in Andhra are to be expanded and the Praga Tool Factory in Hyderabad is to be reorganised. It is intended that about 35 cooperative sugar factories and some cooperative spinning mills should also be established with the support of Government.

16. The National Industrial Development Corporation has in view a considerable programme of development during the second plan. The Corporation will assist the programme of modernisation in the cotton textile and jute industries. The greater part of its activities is however, of a pioneering nature, being intended to promote the establishment of basic and heavy industries. Projects under investigation by the Corporation include in addition to heavy foundries, forge and structural shops, refractories, chemical pulp and newsprint, dyestuffs and intermediates, carbon black, sulphur from pyrites and printing machinery. The Corporation also proposes to take steps leading to the establishment of a new unit in the aluminium industry and manufacture of heavy machinery like earth-moving equipment, high pressure boilers, rolls and rolling mill equipment required in ferrous and non-ferrous industries.

PROGRAMMES IN THE PRIVATE SECTOR

17. Programmes for industrial development in the private sector are governed by the scheme of priorities described earlier. By the middle of 1958, on the completion of expansion schemes of the Tata Iron and Steel Company and the Indian Iron and Steel Company, their combined production capacity will increase from 1.25 million tons to 2.3 million tons. The value of industrial machinery produced in the country is expected to increase five to six times. This includes machinery for cotton textiles, jute, sugar, paper and cement industries and the manufacture of electric motors and electric transformers. There are projects also for the manufacture of tea machinery, dairying equipment, roadmaking machinery and agricultural machinery.

18. In the chemical industry, development programmes relate mainly to soda ash, caustic soda, phosphatic fertilisers, industrial explosives, dyestuffs and intermediates. In soda ash and caustic soda, production is expected to increase four times. The expansion of sulphuric acid production is required mainly for meeting the demands of steel, fertilizer, rayon and staple fibre industries. The

third oil refinery at Visakhapatnam will be completed by 1957. With the expansion in the production of sugar industry larger quantities of molasses will become available. It is therefore proposed to increase the production capacity for power and industrial alcohol from 28 million gallons to 36 million gallons. Expansion in the production of D.D.T. and the manufacture of polyvinyl chloride and of butadiene will provide larger scope for the consumption of industrial alcohol.

19. Production will be expanded in a number of consumer goods industries. The output of paper and paper board is expected to be doubled and the production of sugar to be raised from 1.65 million tons to at least 2.25 million tons. Of the increase in sugar production, 350,000 tons are planned to be achieved through cooperative sugar factories. The production of vegetable oils is expected to increase from 1.6 to 1.95 million tons, the main emphasis being on the production of cotton seed oil and of oil from cakes by solvent extraction processes. The output targets for mill yarn and mill cloth are at present under consideration and final conclusions have not yet been reached. The pharmaceutical industry will benefit considerably from steps which are envisaged for developing the manufacture of dyestuffs intermediates. In various synthetic pharmaceuticals, in addition to increased production, stress is being laid on development from basic primary organic chemicals and intermediate products in place of the existing operations which are based generally on penultimate products. The entire programme relating to the production of essential drugs with basic chemicals is now being reviewed by a special committee appointed by the Planning Commission in collaboration with the Development Council for the pharmaceutical industry.

20. The annexure to this chapter sets out targets of production and capacity in relation to industrial development programmes to be undertaken in the private sector and under the auspices of the National Industrial Development Corporation. The total investment on industrial programmes in the private sector is expected to be of the order of Rs. 620 crores over the five-year period. This includes new investment of Rs. 470 crores and an outlay of Rs. 150 crores on replacements and modernisation in existing industries. Of the total investment about Rs. 100 crores are reckoned on account of foreign private investment, including suppliers' credit. Internal resources of industrial undertakings available for investment (including replacements) are estimated to amount to about Rs. 300 crores. New capital issues may provide Rs. 80 crores and miscellaneous sources such as advances from managing agents, etc. about Rs. 80 crores. Loans from the Industrial Finance Corporation, State Finance Corporations and the Industrial Credit and Invest-

ment Corporation may provide about Rs. 40 crores and about Rs. 20 crores may be provided from the equalisation fund, and as capital or loans by Central and State Governments. These estimates are necessarily extremely provisional.

21. From the brief statement given below it will be seen that the second five year plan will be a period of intensive and many-sided industrial effort. This programme is large and comprehensive enough to provide scope for a rapidly expanding public sector and also to utilise fully the resources in personnel, and experience available in the private sector. Its execution according to schedule and with due regard to economy in the use of resources will go a long way towards giving the country a strong, well-balanced and rapidly developing industrial structure.

Industry	Unit	1955-56		1960-61 (target)	
		Capacity estimated	Production estimated	Capacity	Production
1 Iron & Steel					
(a) Finished Steel (Main producers)	000 tons	1,300	1,300	4,500	4,300
(b) Pig Iron for foundries	000 tons	380	380	750	750
2 Structural Fabrication	tons	2,42,000	1,80,000	5,00,000	5,00,000
3 Heavy Foundry-cum-Forge shops					
(a) Steel Foundry	"	"	"	15,000	15,000
(b) Forging shops (3)	"	"	"	12,000	12,000
(c) Cast Iron Foundries	"	"	"	10,000	10,000
4 Ferro-Manganese	"	28,000	28,000	1,60,000	1,60,000
5 Aluminium	"	7,500	7,500	30,000	25,000
6 Locomotives	Nos.	170	170	300	300
7 Automobiles	Nos.	35,000	23,000	57,000	57,000
8 Heavy Chemicals					
(a) Sulphuric Acid	000 tons	268	160	500	450
(b) Soda ash	tons	90,000	80,000	2,80,000	2,57,000
(c) Caustic soda	"	46,000	35,000	1,33,000	1,20,000
9 Fertilisers					
(a) Nitrogenous (Fixed Nitrogen)	"	85,000	76,000	3,90,000	3,20,000
(b) Phosphatic as P ₂ O ₅	"	35,000	20,000	1,20,000	1,20,000
10 Ship-building	GRT		50,000		90,000
			(51-56)		(56-61)
11 Cement	000 tons	5,100	4,800	12,000	10,000
12 Refractories	tons	3,43,800	2,60,000	10,00,000	8,00,000
13 Petroleum Refining	mill. tons	3.625	2.5	4.31	3.8
14 Paper and Paper board	000 tons	220	180	450	350
15 Newsprint	tons	30,000	10,000	60,000	60,000
16 Rayon					
(a) Rayon filament	mill. lbs	28.1	16.1	55.0	55.0
(b) Staple fibre	" "	12.0	12.0	25.0	25.0
(c) Chemical pulp	000 tons	"	"	30.0	30.0
17 Diesel Engines	H.P.	2,00,000	1,00,000	2,16,000	2,05,000
18 Bicycles	000 No s.	500	500	765	1,000*
19 Electric Motors	H.P.	3,76,700	2,40,000	6,00,000	6,00,000
20 A.C.S.R. Conductors	tons	15,370	9,000	15,370	15,000

*2,50,000 bicycles are expected to be produced in the decentralised sector so that the total production would be 12,50,000.

II MINERALS

1. The rate at which mineral development takes place and the extent to which minerals are used for industrial production are among the principal indicators of a country's economic development. Development programmes for minerals and for industries have to be closely integrated. The fact that on the eve of the second plan, when ambitious industrial programmes are envisaged, the exploration of India's mineral resources is incomplete, emphasises the urgency of obtaining more detailed knowledge of them. During the second five-year plan, on account of the requirements of steel and transport, the development of coal production will claim the first attention.

COAL

2. The programme of industrial development in the first five year plan called for a relatively small increase in the volume of coal production. The main problems related to the transport of coal from pitheads to consuming centres. Coal production increased from 34.3 million tons in 1951 to 36.8 million tons in 1954, but the transport lags were never wholly eliminated.

3. The bulk of the production of coal is in the private sector, the public sector accounting only for 4.5 million tons. The Industrial Policy Resolution of 1948 envisaged that the future expansion of coal would be entirely in the public sector except where, in the national interest, the Government wished to secure the cooperation of private enterprise. On the basis of the targets proposed in the second five year plan for industries, for thermal power generation and for railways, the demand for coal at the end of the second five year plan is estimated to be about 60 million tons. This represents an increase of about 23 million tons over the level of production at the end of the first plan. It has been proposed that of this amount about 15 million tons should be produced in the public sector and about 8 million tons in the private sector. The exact distribution between the two sectors is, however, still under consideration.

4. In drawing up the detailed programme for coal production, an important consideration is to ensure the economic use of rail transport, especially since the bulk of coal production comes from West Bengal and Bihar. The coal production programme has been

drawn up so as to develop collieries in a number of different states. This will be seen from the following statements of the expected distribution of coal output at the end of the second plan as compared to the distribution in 1954.

	(million tons)		
	Output in 1954	Output in 1960-61	Increase
ASSAM.	0.50	0.50	..
WEST BENGAL			
Darjeeling	0.03	0.03	..
Raniganj	12.22	18.16	5.94
BIHAR			
Jharia	13.19	16.69	3.50
Karanpura	1.44	6.00	4.56
Bokaro	2.38	2.88	0.50
Giridih	0.26	0.26	..
Other small fields in Bihar.	0.14	0.14	..
MADHYA PRADESH			
Chindwara and Chanda	2.25	2.25	..
Korba . . . . .	..	4.0	4.0
Sasti	0.07	0.07	..
Central India Coalfields.	2.31	5.31	3.0
ORISSA.	0.52	0.52	..
HYDERABAD.			
Singareni	1.43	2.93	1.5
RAJASTHAN			
Bikaner	0.03	0.03	..
TOTAL	36.77	59.77	23.0

5. The target of 60 million tons includes the requirements of coking coal of the iron and steel industry and of other essential consumers. The production of this quality of coal has been pegged at 14 million tons and the actual production is a little short of this limit. As against this, the demand of essential consumers is only about 3.5 million tons and the balance of production is consumed by Railways and industries and a small quantity is exported. The expansion of steel production in the second plan will require 9.73 million tons of coking coal, while the requirements of other essential consumers have been estimated at 1.68 million tons. Thus, the total requirements amount to 11.41 million tons in terms of clean washed coal or about 16.5 million tons in terms of raw coal. In the interests of conservation and the need to supply coal of fairly uniform quality to the steel industry, washing of metallurgical coal has become necessary. It has therefore been decided that generally all coking

coal will be washed and to that extent provision has to be made for the setting up of washeries. One washing plant is proposed to be located in the Bokaro colliery to meet the requirements of the Rourkela plant and to some extent of the Bhilai plant. The location of additional washing capacity has yet to be determined.

OTHER MINERALS

6. For minerals other than coal, the following targets proposed for the second five year plan are intended to provide for internal requirements and in some cases for exports:—

Mineral	Unit	Production			Export target for	
		1950	1954	1960-61	1954-55	1960-61
Iron ore	(Million tons)	2.97	4.31	12.5	0.9	2.0
Manganese ore	do.	0.88	1.41	2.0	0.94	1.5
Limestone	do.	N.A.	N.A.	18.5*	..	..
Gypsum	do.	0.21	0.61	1.86*	..	..
Bauxite	(000 tons)	64	75	175	2.0	..

*The figures are based on the capacity envisaged for industries using these minerals and do not cover the requirements of miscellaneous consumers, data regarding which are not available.

7. During the second plan it is proposed to organise intensive surveys of the country's mineral resources. In established industries such as coal, new production has to come mainly from virgin areas, so that detailed prospecting of selected coalfields is an essential part of the production programme. The Geological Survey of India and the Indian Bureau of Mines will be expanded considerably. Details of their expansion programmes are under consideration. Their programmes of work will include investigations of all important minerals by geological and geophysical methods and drilling wherever necessary and the investigation of ground water resources and of the geological aspects of irrigation and power projects. Selected areas will be prospected in detail by the Indian Bureau of Mines. The more important investigations proposed are as follows :

Coal.—Detailed geological investigations followed by drilling of (a) Korba, (b) South Karanpura, (c) Raniganj, (d) Chirimiri, (e) Ramgarh, (f) Jhilmili and (g) North Karanpura in connection with coal production in the public sector and of the coalfields of Kota, Singrauli, Umaria, Sohagpur, Kanhan and Pench Valleys, Hyderabad, Talcher, Godavari valley and Assam for purposes of qualitative and quantitative assessment.

Copper.—Detailed mapping and prospecting of the copper deposits of Khetri, Daribo (Rajasthan) and detailed investigation of the old workings at Gani in the Kurnool district of Andhra.

Manganese.—Continuation of the detailed mapping accompanied by drilling of the manganese ore belt in Madhya Pradesh.

Chromite.—Detailed investigation of the chromite area of Southern Mysore and of the Naushai chromite deposits in Orissa.

Gypsum.—Detailed investigation by drilling of the gypsum deposit at Nagaur (Jodhpur) and Bikaner (Rajasthan).

Lead-Zinc.—Investigation by drilling of the lead-zinc deposits of Zawar (Rajasthan).

Magnesite.—Investigation by drilling of the deposits in the Almora district (Uttar Pradesh).

Tin.—Detailed investigation of the known occurrences in Bihar.

OIL

8. The exploration and development of the country's oil resources is one of the important tasks in the second five year plan. Explorations in the West Bengal basin are at present being carried out by the Standard Vacuum Oil Company with the participation of the Government of India. New oil wells have been struck recently in Assam and negotiations for participation with the Assam Oil Company are in progress. Exploration for oil has also been started in the Jaisalmer area of Rajasthan and is proposed to be extended to Kutch and Punjab. Industrial and economic development will proceed much more rapidly if oil exploration is attended by favourable results.

SURVEY OF INDIA

9. The work of the Survey of India has considerable bearing on the development of mineral resources, although it extends to several other fields as well. Maps are required for geological and geophysical investigations of minerals, mineral oil and groundwater and of the geological aspects of engineering. They are also required for other purposes like the development of forest resources, railways and roadways, irrigation and power projects. The work of the Survey of India, which is one of the oldest departments of the Government of India, was considerably dislocated during the second world war with the result that large arrears of work accumulated. In the post-war years additional demands have been placed on the organisation. To meet this situation, a programme of expansion and mechanisation was approved in 1953. The programme of

mechanisation is nearing completion. In view of the work load expected during the second plan, further expansion and mechanisation programmes, at a cost of Rs. 107 lakhs, have been approved for in the second five year plan. Provision has also been made for the reorganisation of the Geodetic and Research Branch of the Survey of India which is responsible for keeping up-to-date the levelling and triangulation work as well as magnetic data and for maintaining tidal and gravity surveys.

Industrial Development in Private Sector and under the N. I. D. C. during the Second Plan

Industries	Unit	Estimate of annual capacity as on 31st March, 1956	Estimated Production in 1955-56	Estimated requirements in 1960-61	Targets for 1960-61		REMARKS
					Annual capacity	Production	
1	2	3	4	5	6	7	8

HEAVY INDUSTRIES

I. METALLURGICAL AND HEAVY ENGINEERING INDUSTRIES.

(1) *Iron and Steel*

(a) Saleable steel by main producers in private sector.	Mill. tons	1.25	1.25	4.5	2.3	2.3	
(b) Pig Iron for foundries.	Tons	380,000	380,000	700,000	..	250,000	
(2) Structural Fabrication.	Tons	242,000	180,000	500,000	500,000	500,000	Capacity for heavy structurals to be developed by N.I. D.C. also

(3) *Heavy Foundry-cum-Forge Shops.*

(a) Independent Steel Foundry.	Tons	16,000	15,000	15,000	} To be developed by the N.I.D.C. in the public sector.
(b) Forging Shops (3)	Tons	..	..	12,000	12,000	12,000
(c) Cast Iron Foundries	Tons	..	..	10,000	10,000	10,000

1	2	3	4	5	6	7	8
(4) Ferro-Manganese	Tons	28,000	N.A.	160,000	160,000	160,000	**
(5) Aluminium	Tons	7,500	7,500	30,000	30,000	25,000*	**
(6) <i>Automobile, motor cycles and ancillary industries.</i>							80 per cent Indian content
(a) Automobiles	Nos.	35,000	23,000	57,000	57,000	57,000	
(b) Motor Cycles & Scooters.	Nos.	11,000	Negligible.	11,000	11,000	11,000	
(7) <i>Rly. Rolling Stock & other equipment.</i>							
Locomotives	Nos.	50	50	..	100	100	
(8) <i>Industrial Machinery.</i>							
(a) Cotton Textile.	Value (Rs. crores)		4.0			17.0	
(b) Jute Textile.	Do.		0.06 (1954)			2.5	
(c) Cement	Do.		0.56 (1954)			2.0	
(d) Sugar	Do.		0.28 (1954)			2.5	
(e) Paper	Do.		Negligible.			4.0	
(f) Printing	Do.					2.0	To be developed by N.I.D.C.
(g) Others (Heavy Machinery including machine tools).							Do.
(9) <i>Industrial Bearings.</i>							
Ball and roller bearings.	Nos.	600,000	700,000	1,800,000	600,000	1,800,000	

*Production lower on the basis that the additional 10,000 ton capacity at Hirakud or a new 10,000 tons unit will come into production by the middle of 1960 and operate to full capacity for only 6 months in 1960-61.

**Part of the new capacity to be developed by the N.I.D.C.

II. HEAVY CHEMICAL INDUSTRIES.

(10) <i>Acids and Salts.</i>								
Sulphuric Acid	Tons	268,175	160,000	450,000	500,000†	450,000†		
(11) <i>Alkalies.</i>								
(a) Soda Ash.	Tons	90,000	80,000	250,000	280,000	250,000		
(b) Caustic Soda.	Tons	46,000	35,000	120,000	133,000	120,000		
(12) <i>Fertilizers</i>								
(a) Nitrogenous (Fixed N.).	Tons	15,000	14,000	370,000	45,000	45,000		
(b) Phosphatic as P ₂ O ₅	Tons	35,000	20,000	120,000	120,000	120,000††		
(13) <i>Miscellaneous Heavy Chemicals</i>								
(a) Calcium Carbide.	Tons	5,000	3,000	24,000	25,000	24,000		
(b) Potassium Chlorate.	Tons	2,300	1,500	4,200	4,200	4,000		
(c) Industrial Explosives.	Tons	Nil.	Nil.	5,000	5,000	5,000		
(d) Carbon disulphide.	Tons	4,700	3,000	14,000	14,000	14,000		
(e) Carbon Black.	Tons	800	200	12,000	8,700	8,000		To be developed by N.I.D.C.
(14) Benzol recovery and rectification.	Mill. Glns.	2.4	1.5		10.0	9.0	} Partly under N.I. D.C. and partly under public sector & comprises road tar, naphthalene, creosote oil, etc.	
Coal-Tar Distillation.	Tons	75,000			150,000			
(15) <i>Dyestuffs and Intermediates.</i>								
(a) Dyestuffs	Mill. lbs.	22.0	3.0	32.0	22.0	20.0	} Partly under N.I. D.C.	
(b) Intermediates	Do.	..	..	..	..	44.0		

III. OTHER INDUSTRIES (HEAVY)

(16) Petroleum Refining	Mill. Tons (of crude-processed)	3.625	2.5		4.31	3.8	
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†Includes the capacity of plants in public sector like the sulphuric acid plant of Bihar superphosphate factory and auxiliary plants in steel works.

†† About 7,000 tons of super expressed as P₂ O₅ from the Bihar Superphosphate Factory included,

	1	2	3	4	5	6	7	8
(17) Paper and Paper Board	Tons		220,000	180,000	350,000	450,000	350,000	
(18) Newsprint.	Tons		Nil.	Nil.	120,000	30,000	30,000	Two new factories envisaged for development of which one is expected to be in full production and the other half way through. Partly under N.I. D.C.
(19) <i>Rayon.</i>								
(a) Viscose Filament & Acetate Filament	Mill. lbs.		28·1	16·0	55·0	55·0	55·0	
(b) Staple Fibre.	Do.		12·0	12·0	25·0	25·0	25·0	
(c) Chemical Pulp	Tons		Nil.	Nil.	30,000	30,000	30,000	Partly under N.I.D.C.
(20) Cement	Mill. Tons		4·8	4·5	10·0	11·5	9·5	
(21) Refractories	Tons		343,800	[260,000	800,000	1,000,000	800,000	
(22) Jute Manufactures	Tons		1,200,000	1,000,000	1,200,000	1,200,000	1,200,000	New unit envisaged in Assam.
(23) <i>Rubber Manufactures.</i>								
(a) Automobile tyres.	'000 Nos.		895·2	900	1,200	1,200	1,200	
(b) Bicycle tyres.	Do.		5,770·8	6,200	12,000	12,000	12,000	
(24) <i>Cotton Textiles.</i>								
(a) Yarn.	Mill. lbs.		1750*	1,600	1,950	2,010	1,950	*As on Jan. 1955. @Per capita consumption of 18 yards is envisaged.
(b) Mill Cloth	Mill. yds.		4,920*	5,200	8,200@	..	(under consideration.)	

(25) Sugar	Thousand tons.	1,750	1,650	2,250	2,500	2,250	Sugar season.
(26) <i>Pharmaceuticals.</i>							
Benzene Hexachloride	Tons	2,460	700	2,000	2,460	2,000	
(27) <i>Woollen Textiles.</i>							
(a) Wool tops	Mill. lbs.	Nil.	Nil.	18·0	9·0	9·0	
(b) Woollen and worsted yarn.	Mill. lbs.	38	19·35	27·0	45·0	27·0	
(c) Woollen cloth.	Mill. Yds.	48	13·75	20·0	50·0	20·0	

IV. LIGHT ENGINEERING INDUSTRIES.

(28) Bicycles.	Thousand Nos.	550	500	1,250	765	1,000	
(29) Diesel Engines.	H.P.	200,000	100,000	205,000	216,000	205,000	
(30) Power driven pumps.	Nos.	73,200	40,000	86,000	86,000	86,000	
(31) Sewing Machines	Nos.	41,500	90,000	300,000	85,000	220,000	
(32) Hurricane Lanterns	Mill. Nos.	5·5	5·0	6·0	5·5	6·0	
(33) Transformers (33 KV & below)	KVA	550,000	520,000	880,000	880,000	880,000	
(34) Electric Motors	H.P.	376,700	240,000	600,000	600,000	600,000	
(35) Dry batteries.	Mill. Nos.	225	160	225	225	225	
(36) Storage Batteries	Nos.	333,192	225,000	425,000	350,000	350,000	
(37) Electric Lamps G.L.S.	Mill. Nos.	31·0	27·0	50·0	50·0	50·0	
(38) Radio Receivers.	Nos.	162,000	80,000	200,000	162,000	200,000	
(39) <i>Cables & Wires.</i>							
A.C.S.R. Conductors.	Tons	15,370	9,000	15,000	15,370	15,000	

INDUSTRIES AND MINERALS

129

(b) Cotton seed oil.													
(c) Total including all sources.													
(50) Vanaspathi													
(51) Soap : Organised Factories.													
(52) Matches													
(53) Tanning & Footwear (organised sector only)													
(a) Footwear (Western Type)													
(b) Foot wear (Indian type).													
(54) Salt.													
(55) Biscuits and Confectionery													
(a) Biscuits.													
(b) Confectionery.													

General :—All capacity and production figures relate to organised factories and do not include the decentralised sector.

CHAPTER XI

VILLAGE AND SMALL INDUSTRIES

ALLOCATIONS AND ORGANISATION

IN the First Five Year Plan an attempt was made to set out the lines along which development programmes for village and small industries could be undertaken as part of the national plan. During the past three years new organisations for implementing and guiding these programmes have been at work and useful experience has been gained. In relation to the considerably larger programme of village and small industries to be carried out during the second plan the various problems and the development programmes have been recently reviewed by a committee appointed by the Planning Commission. The report of the Village and Small Scale Industries (Second Five Year Plan) Committee, has considered questions bearing on the basic approach towards the development of village and small industries in the context of planned economic development and has carried a stage further the statement of policy formulated in the First Five Year Plan.

2. In making its proposals the Committee kept three important aims in view, namely,

- (i) to avoid as far as possible, during the period of the second plan, further technological unemployment such as occurs specially in the traditional village industries,
- (ii) to provide for as large a measure of increased employment as possible during the plan period through different village and small industries; and
- (iii) to provide the basis for the structure of an essentially decentralised society and also for progressive economic development at a fairly rapid rate.

Two main issues are involved in this approach—the manner in which it is proposed to bring about technological changes and the concept of a decentralised sector in industry. The Committee envisages that even in the traditional village industries to the extent immediately possible technical improvements should be adopted, and for the future there should be a regular programme of advance to better techniques. At the same time, where new capital investment has to be made it should be as far as possible on improved equipment, the improvement being in some cases in the nature of additions to or adaptations of existing equipment.

3. The concept of a decentralised economy is not necessarily related to any given level of technique or mode of operation. What it implies is that technical improvements would be adopted in such a manner and to such extent as would permit comparatively small units which are widely scattered or dispersed throughout the country to undertake economic activities. On this view, whatever the villagers can undertake by way of improved industry in their own village should be organised on a village basis. The progressive expansion and modernisation of rural industry, the Committee suggests, can be best brought about by the spread of small industrial units, along with the necessary services, among large villages or small towns located all over the country. Industrial expansion in the periphery of large towns can scarcely be said to reduce the concentration of industry. What is needed, therefore, is a pattern of industrial activity in which a group of villages converging on their natural industrial and urban centre form a unit or, to use the Committee's expression, "a pyramid of industry broad-based on a progressive rural economy". Economies of scale and organisation could be secured by small units through cooperation in various forms.

4. Broadly speaking, the approach to village and small industries during the second plan is based on three related and inter-dependent concepts, namely, (1) common production programmes for large and small units in the same industry, (2) desirability of a decentralised sector of industrial production, and (3) positive programmes of support for small units through technical guidance and assistance in finance and supplies, research and training, and cooperative forms and organisation. Difficult questions may sometimes arise in the application of the idea of a common production programme, for instance, whether a limit should be set to the expansion in capacity of large units in an industry and at what point, whether cesses or excise duties should be imposed and at what level, whether spheres of production should be reserved and in what form, and so on. These differences however, relate not so much to principles as to the concrete problems thrown up when they are sought to be applied in given situations.

5. For carrying out the positive programmes for the promotion of village and small industries a network of organisations has been brought into existence by the Central Government during the past three or four years. These are, (1) the All India Khadi and Village Industries Board, (2) the All India Handicrafts Board, (3) the All India Handloom Board, (4) the Small Scale Industries Board, (5) the Coir Board and (6) the Silk Board. Of these, the Coir and the Silk Boards are statutory bodies. Expenditure on the development

of small industries incurred during the first five year plan through these Boards is shown below:

	(Rs. Crores)		
	1951-55	1955-56 (Budget)	1951-56
Handloom	6.5	4.6	11.1
Khadi	4.9	3.5	8.4
Village industries	1.1	3.0	4.1
Small-scale industries	2.0	3.3	5.3
Handicrafts	0.4	0.6	1.0
Silk and sericulture	0.8	0.5	1.3
TOTAL	15.7	15.5	31.2

6. The draft plans for the second five year period prepared by the various Boards were considered by the Village and Small Scale Industries Committee which had been set the task of preparing proposals, by industries and wherever possible, by States, for the utilisation of resources which were expected to be available during the second plan for the development of village and small industries. The Committee recommended programmes and allocations involving a total outlay of about Rs. 260 crores. The financial provision actually made in the plan is Rs. 200 crores. The distribution of the outlay between different industries as recommended by the Committee and as tentatively proposed at present is given in the statement below.

Distribution of outlay for village and small industries.

Industry	(Rs. Crores)	
	As recommended by the Village and Small Scale Industries Committee	As tentatively proposed in plan.
Handloom :		
Cotton weaving	80	63
Silk weaving	5	1.5
Wool weaving	3	2
	<hr/>	<hr/>
	88	66.5

Khadi :

Wool spinning and weaving	2.2	}
Decentralised cotton spinning and khadi	23	
	<u>25.2</u>	

Village Industries :

Hand pounding of rice	8.3	}	48.4
Vegetable oil (ghani)	13		
Leather footwear and tanning (Village)	6.2		
Gur and Khandsari			
Cottage match	1		
Other village industries	11		
	<u>47.5</u>		

Handicrafts	11	9
Small-scale industries	65	55
Sericulture	6	5
Coir spinning and weaving	2	1
General schemes (administration, research, etc.)	15	15
TOTAL	<u>260</u>	<u>200</u>

7. In the revised plans of States the total allocation made for village and small industries is about Rs. 127 crores. These allocations will be revised so as to accord more closely with the pattern of distribution visualised in the Village and Small Scale Industries Committee's report. The objects to be achieved are that the allocations between industries should broadly conform to the Committee's scheme, that the various Boards should be able to operate effectively in their chosen fields and, at the same time, in the States, the entire programme of village and small industries development should be worked as a coordinated and well-knit programme in terms of their districts and local plans. In this connection there are some questions of procedure which will be resolved in the near future. In each group of industries a further distinction will be necessary between programmes which Central agencies (Ministries or Boards concerned) will implement themselves, for which specific allocations will be necessary, and those which will be implemented by States, but on the advice of the various agencies which have been set up by the Central Government.

8. The allocations proposed by the Committee for the different village and small industries included provision for working capital.