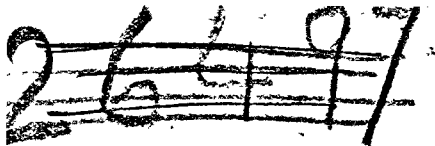


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First five  
Year plan

GOVERNMENT OF INDIA  
PLANNING COMMISSION

THE FIRST FIVE YEAR PLAN



Volume I

*(Chapter I to XXVI)*

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No. PC(P)/62/52  
Planning Commission  
New Delhi  
December 7, 1952.

Dear Prime Minister,

I am desired by the Planning  
Commission to submit the First Five Year  
Plan to the Government.

Yours sincerely,

Gulzarilal Nanda

Shri Jawaharlal Nehru,  
Prime Minister,  
New Delhi.

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## INTRODUCTION

The Planning Commission was set up in March, 1950 by a Resolution of the Government of India which defined the scope of its work in the following terms:

"The Constitution of India has guaranteed certain Fundamental Rights to the citizens of India and enunciated certain Directive Principles of State Policy, in particular, that the State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice, social, economic and political, shall inform all the institutions of the national life, and shall direct its policy towards securing, other things, -

- (a) that the citizens, men and women equally, have the right to an adequate means of livelihood;
- (b) that the ownership and control of the material resources of the community are so distributed as best to subserve the common good; and
- (c) that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment.

Having regard to these rights and in furtherance of these principles as well as of the declared objective of the Government to promote a rapid rise in the standard of living of the people by efficient exploitation of the resources of the country, increasing production, and offering opportunities to all for employment in the service of the community.

The Planning Commission will:-

- (1) make an assessment of the material, capital and human resources of the country, including technical personnel, and investigate the possibilities of augmenting such of these resources as are found to be deficient in relation to the nation's requirements;
- (2) formulate a Plan for the most effective and balanced utilisation of the country's resources;

- (3) on a determination of priorities, define the stages in which the Plan should be carried out and propose the allocation of resources for the due completion of each stage;
- (4) indicate the factors which are tending to retard economic development, and determine the conditions which, in view of the current social and political situation, should be established for the successful execution of the Plan;
- (5) determine the nature of the machinery which will be necessary for securing the successful implementation of each stage of the Plan in all its aspects;
- (6) appraise from time to time the progress achieved in the execution of each stage of the Plan and recommend the adjustments of policy and measures that such appraisal may show to be necessary; and
- (7) make such interim or ancillary recommendations as appear to it to be appropriate either for facilitating the discharge of the duties assigned to it; or, on a consideration of the prevailing economic conditions, current policies, measures and development programmes; or on an examination of such specific problems as may be referred to it for advice by Central or State Governments".

2. (In July, 1951 the Planning Commission presented a draft outline of a plan of development for the period of five years from April, 1951 to March, 1956.) The plan included a number of development projects which had been already taken in hand as well as others which had not yet been begun.) The draft plan was divided into two parts, the first involving an expenditure of Rs. 1,493 crores and consisting largely of projects in execution which were to be implemented in any case, and the second proposing an outlay of Rs. 300 crores which was to be undertaken if external assistance were available. While the execution of development schemes which had been included in the plan after consultation with the Central Ministries and the State Governments was not to be affected, the Draft Outline was addressed to the country for general discussion and comment in the following words:



"Planning in a democratic State is a social process in which, in some part, every citizen should have the opportunity to participate. To set the patterns of future development is a task of such magnitude and significance that it should embody the impact of public opinion and the needs of the community. We have, therefore, felt it necessary, before presenting our proposals in complete detail, to offer a Draft Outline of the Plan. The Draft is intended to be a document for the widest possible public discussion. We hope to have further consultations with the Central Ministries, State Governments and our own Advisory Board and Panels, and also to obtain the views of Members of Parliament before we finalise the Plan".

3. Since its publication, the Draft Outline has been examined in detail by the Central Government and the State Governments. It has been discussed in Parliament and most of the Legislatures in the States. A large number of organisations representing industry, commerce, labour, farmers and other interests have expressed their views. At the request of the Planning Commission, many educational institutions set up seminars of teachers and students to study the plan and send their comments to the Commission. Many district boards and municipal committees also commented on the plan. In every district groups of officials and non-officials met together to study the plan in relation to their local problems. Ever since its publication the Draft Outline has been a subject of extensive comment in the daily press and in periodicals. A considerable volume of literature in the form of books and pamphlets prepared by independent writers has also become available. Thus, as a result of the discussion which has taken place, every aspect of the proposals in the Draft Outline has been subjected to the fullest possible examination.

4. The Planning Commission has endeavoured to make a careful study of the material which has been received during the past eighteen months. It has had the opportunity also of working out details of many projects and pursuing its own studies in different fields. In each sphere of national development the Commission has conferred with the Central and State Governments and their experts as well as with men and women of knowledge and experience outside the Government. The Commission also

consulted its Advisory Board and some of its Panels. Recently, the Commission has held consultations with representatives of the principal political parties, leading women workers and some members of Parliament.

5. In its final form, the Five Year Plan no longer consists of two parts and the various programmes have been brought together into a single plan. The Five Year Plan, which relates to the same period as in the Draft Outline, is now estimated to involve a total outlay of Rs. 2069 crores. The broad allocation of resources between the main heads of development in the Plan as compared to that indicated in the Draft Outline is as follows:-

	(Rs. crores)			
	Outlay during 1951 - 1956		Percentage of total outlay	
	Five Year Plan	Draft Outline	Five Year Plan	Draft Outline
Agriculture & Community Development	360.43	191.69	17.4	12.8
Irrigation & Power	561.41	450.36	27.2	30.2
Transport and Communications	497.10	388.12	24.0	26.1
Industry	173.04	100.99	8.4	6.7
Social Services	339.81	254.22	16.4	17.0
Rehabilitation	85.00	79.00	4.1	5.3
Miscellaneous	<u>51.99</u>	<u>28.54</u>	<u>2.5</u>	<u>1.9</u>
	<u>2068.78</u>	<u>1492.92</u>	<u>100.0</u>	<u>100.0</u>

6. All the development projects included in the Draft Outline are of course included in the Plan as it has been now prepared and, as mentioned earlier, many of them are in progress. A number of additions and changes in presentation have been made. The principal changes made in the Plan as compared to the Draft Outline are explained, however, by the attempt to strengthen the Plan, with due regard to the resources which could be foreseen, at those points at which it was felt that the earlier proposals fell short of the needs of the country.

In the field of agriculture and community development, for instance, additional programmes have been introduced with a view to ensuring that the targets of agricultural production will be reached. Those include a provision of Rs. 90 crores for community development projects, Rs. 30 crores for additional minor irrigation programmes and provision for the establishment of a national extension organisation. Among other urgent problems for which provision has not been made may be mentioned soil conservation, resettlement schemes for landless agricultural workers, and training and experiments in co-operative organisation. In the field of irrigation and power development, in addition to providing for projects already in hand, funds have been allocated for undertaking certain new river valley schemes which are considered vital for the development of large regions served by them. To keep pace with progress in other sectors of the economy, especially industry and irrigation and power, increased provision has been made for railways, roads, civil aviation, posts and telegraphs and ports. Programmes for major ports which did not find a place in the Draft Outline have now been included in the Plan.

7. In the Draft Outline, owing to the greater urgency of the programmes for agriculture and irrigation, the provision made for the development of industry in the public sector was insufficient. In the Plan as now presented in addition to providing for an integrated steel plant, Rs. 50 crores have been allocated for further expansion of basic industries, including manufacture of heavy electrical equipment and fertilisers, and for revising increased transport facilities required for industry and mineral development. Village industries, small-scale industries and handicraft, whose importance for the economy as a whole can scarcely be exaggerated, have been given greater emphasis in the Plan. In addition to the setting up of new boards for khadi and village industries and for handicrafts, the imposition of a cess on millmade cloth to assist the development of khadi and handloom, and measures taken for the reservation of certain lines of production in favour of the handloom industry, the Central Government's plan provides Rs. 15 crores for cottage and small-scale industries.

8. In the field of social services also, the Plan has several important programmes. These include a national malaria control scheme estimated to cost Rs. 10 crores, increased provision for scheduled tribes and scheduled areas and for scheduled castes and other backward classes, including criminal tribes, a programme for industrial housing costing about Rs. 49 crores, increased allocation for technical education and provision for youth camps and labour service for students. Provision is also made for carrying forward the rehabilitation of displaced persons from West Pakistan and it has been made clear that if circumstances so warrant it will be necessary to provide larger funds for the rehabilitation of displaced persons from East Pakistan.

9. In three other directions important additions have been made. In order to avoid adverse effects on the implementation of the Plan in the States on account of seasonal failures which occur from time to time in different parts of the country, a provision of Rs. 15 crores for assistance to scarcity-affected areas has been made in the Central Government's plan. Secondly, each State plan is being broken up into plans for districts and sub-divisions of districts so that these may be further supplemented through the effort and co-operation of the local people. In the nature of things, State plans cannot provide for all the possible needs of the people and it is necessary both to integrate them with the programmes of district boards and municipalities and to add to them other local programmes designed to meet the felt needs of the people. In addition, to assist local works to which the people themselves contribute in labour and otherwise, the Plan allocates a sum of Rs. 15 crores over the next three years. Finally, a national plan which embraces both the public and the private sector may yet be incomplete unless the enthusiasm and support of large numbers of voluntary organisations and voluntary workers engaged in constructive work can be harnessed for national development. To provide an increasing field of work for the 'people's sector', as it were, the Plan provides a sum of Rs. 4 crores to be utilised for assistance to voluntary social welfare organisations at the instance of a social welfare board to which a great deal of administrative authority may be devolved. A word may also be added about the provision of Rs. 50 lakhs made in the Plan for research and investigation into social, economic and administrative problems relating to national development. In many fields sufficient data are wanting to enable policies to be formulated. It is proposed, therefore, to organise, in co-operation with universities and other institutions, special investigations into

selected problems of development.

10. Besides the plan for the public sector the Planning Commission has formulated development programmes for about forty industries in the private sector. These programmes have been prepared in co-operation with the Ministry of Commerce and Industry and after full discussion with representatives of individual industries. The programmes for industrial development have been indicated briefly in this report and are to be presented in a separate volume which will be published shortly.

11. This report on the Five Year Plan sets out the programmes of development and also outlines general proposals and policies in each field of development. The report is divided into three parts. The first part contains an analysis of the process of development in an under-developed economy and indicates the long-term goals towards which national effort is to be directed. The objectives, priorities and techniques of planning are set out at some length and an assessment is made about the resources which have to be mobilised in order to carry out the Plan. The first part of the Report concludes with a summary statement of the Five Year Plan and of what is sought to be achieved through it. The second part of the report is concerned with administration and public co-operation. Several suggestions are offered for the reform of public administration. On the question of administration of development programmes at the district level, where vital nation-building work is undertaken and the co-operation with the people is all-important, a number of proposals are offered for consideration and action on the part of State Governments and other authorities. This portion of the report closes with the consideration of the problems of public co-operation in national development, a theme which, because of its high importance and urgency, recurs throughout the report. In the third part of the report, we outline the various programmes of development. These are grouped under three broad heads, namely, agriculture, irrigation and community development; industry and communications; and social services and employment. Each aspect of development is taken up in turn, needs and resources assessed and the Commission's own proposals for policy and action presented. In a separate volume details are given concerning the principal development schemes included in the Five Year Plan.

12. Important questions of policy relating, for instance, to the land problem, the food problem, provision of finance for agriculture, common production programmes for small-scale and large-scale industries, selection of irrigation and power schemes and conservation of mineral resources have been under close examination in the Planning Commission. In making its recommendations, the Commission is conscious that the framing of social and economic policies in different fields is a continuous process and that, within the framework of priorities and objectives now formulated, such changes as may be necessary in the interest of national development will be made as further experience is gained and ideas are tested in practice. In the field of policy the Central and State Governments have to act in close co-operation with one another. Such co-operation will be greatly facilitated as a result of the setting up in August, 1952, of the National Development Council which includes the Prime Minister of India and the Chief Ministers of all States.

13. The fulfilment of the Five Year Plan calls for nation wide co-operation in the tasks of development between the Central Government and the States, the States and the local authorities, with voluntary social service agencies engaged in constructive work, between the administration and the people as well as among the people themselves. Although several programmes included in the Plan are already under way, it is important that through sacrifice borne equally by all citizens the effort and resources of the entire nation should be mobilised in support of the Plan, so that, during the coming years, the tempo of development can be greatly increased and the Plan becomes a focus of intense activity and a field of common endeavour throughout the country.

PART ONE

THE PLAN

## CHAPTER I

### THE PROBLEM OF DEVELOPMENT

#### 1. Planning: Economic and Social Aspects

The central objective of planning in India at the present stage is to initiate a process of development which will raise living standards and open out to the people new opportunities for a richer and more varied life. The problem of development of an underdeveloped economy is one of utilising more effectively the potential resources available to the community, and this involves economic planning. But the economy at any given time is a product of the broader social environment, and economic planning has to be viewed as an integral part of a wider process aiming not merely at the development of resources in a narrow, technical sense, but at the development of human faculties and the building up of an institutional framework adequate to the needs and aspirations of the people.

2. An underdeveloped economy is characterised by the co-existence, in greater or less degree, of unutilised or underutilised manpower on the one hand and of unexploited natural resources on the other. This state of affairs may be due to stagnancy of techniques or to certain inhibiting socio-economic factors which prevent the more dynamic forces in the economy from asserting themselves. Corresponding to each stage of development, there tends to grow a certain economic and social stratification which is conducive to the conservation of the gains from the use of known techniques. Such stratification has a part to play in social progress. But, beyond a point it hampers innovation and changes and its very strength becomes a source of weakness. For development to proceed further, a re-adaptation of social institutions and social relationships thus becomes necessary. In planning for a better economic order, the close interrelation between the technical and social aspects of the process of development has to be continually kept in view. While there is need for concentrating effort on the more immediate problems, planning implies the readiness on the part of the community to view the social process as one whole and to take action designed to shape this process along desired lines over a defined period.

3. In spite of considerable advance in public thinking on the subject, the acceptance of such



an approach to the problems of economic development and social change represents a relatively new phase in policy-making and in administration. Planning involves the acceptance of a clearly defined system of objectives in terms of which to frame over-all policies. It also involves the formulation of a strategy for promoting the realisation of the ends defined. Planning is essentially an attempt at working out a rational solution of problems, an attempt to co-ordinate means and ends; it is thus different from the traditional hit-and-miss methods by which 'reforms' and 'reconstruction' are often undertaken. A planned economy has inevitably in view a somewhat wider time-horizon, to which the day-to-day decisions have to be related. And, yet, practical policy cannot operate in terms of mere set doctrines; it must satisfy certain pragmatic tests. In spite of the considerable developments in economic and social sciences in the last few decades, our knowledge of human motivation and of social processes is but limited. We cannot always say for certain that a given set of causes will produce a particular, clearly definable, set of results and none other; we do not always know at what rate the effects of a particular change in a part of the system will be transmitted to the other parts of the system. Responses of individuals or of groups of individuals and of classes cannot always be predicted in advance. Even if the conceptual relationships between different aspects of the phenomena under study are clearly understood, there is often the lack of precise statistical data on which to base an assessment of the requirements of a given situation. It follows that a considerable part of the planning authority's task is to assess the significance of some of these indeterminate or partially known factors at work in the life of the community and to recommend policies on the best judgment available. This is particularly so in India today.

4. The urge to economic and social change under present conditions comes from the fact of poverty and of inequalities in income, wealth and opportunity. The elimination of poverty cannot, obviously, be achieved merely by redistributing existing wealth. Nor can a programme aiming only at raising production remove existing inequalities. The two have to be considered together; only a simultaneous advance along both these lines can create the conditions in which the community can put forth its best efforts for promoting development. The problem, therefore, is not one of merely re-channelling economic

6. The rapid advances in science and technology over the last few decades have opened out new possibilities in the direction of abolition of want and the restoration of man to a new sense of dignity, but they also carry potentialities of harm and danger. Our knowledge of the socio-economic changes which utilisation of these techniques call for is neither complete nor certain. In the nature of the case, the problem does not admit of a generalised solution. Conditions vary as between countries, and each country has to evolve a solution in the light not only of contemporary conditions but also of its traditions and culture. In planning for a transformation along the right lines, there are many pitfalls to be avoided, and it is of the utmost importance to strike the appropriate balance between various considerations so as to secure the optimum pattern and rate of progress. Parallels from past history or from contemporary conditions in other countries are useful up to a point, but they cannot provide a complete answer. A nation, like an individual, has to work out its inner potentialities by a process of experimentation. All that can be said is that there is need, on the one hand, for clarity, in regard to basic values and, on the other, for readiness to adapt practical solutions to the concrete problems arising in the process of transition to a different economic and social order.

7. We should like in this context to stress the essential political and administrative conditions essential to successful planning. Briefly these are:

- (a) a large measure of agreement in the community as to the ends of policy;
- (b) effective power, based on the active co-operation of citizens, in the hands of the State; and, earnest and determined exercise of that power in furtherance of these ends; and
- (c) an efficient administrative set-up, with personnel of requisite capacity and quality.

A national plan has to be an expression of a basic unity of purpose in the community. It is this unity which would constitute the ultimate sanction behind the plan, give it driving-force and evoke the necessary sacrifice and effort on the part of members. Joined to this unity of purpose must be

activity within the existing socio-economic framework; that framework has itself to be remoulded so as to enable it to accommodate progressively these fundamental urges which express themselves in the demands for the right to work, the right to adequate income, the right to education and to a measure of insurance against old age, sickness and other disabilities. The Directive Principles of State Policy enunciated in Articles 36 to 51 of the Constitution make it clear that for the attainment of these ends, ownership and control of the material resources of the country should be so distributed as best to subserve the common good, and that the operation of the economic system should not result in the concentration of wealth and economic power in the hands of a few. It is in this larger perspective that the task of planning has to be envisaged.

5. A process of all-round and orderly development, such as is indicated above, must inevitably take time to come into full fruition. Large scale changes in modes of production, in commercial and industrial organisation and in the institutional framework of corporate life cannot be seen through within a brief period of four or five years. In the initial stages of development, divergence in the economic and social interests of different sections of the community may create special problems. While this fact has to be recognised, persistent effort must be made to give a new sense of direction and purpose to the community. It is important also to ensure that in the process of development, the forces of growth from within are not stifled by attempts abruptly to superimpose preconceived patterns of life and activity. The strengthening of these inner forces and the creation of new institutions must proceed side by side so as to facilitate rapid advance through a process of interaction. The modern world is changing so rapidly that it is not enough to think in terms of slow changes and marginal adjustments, a minor shake-up here and a little cementing elsewhere. An underdeveloped country which has suffered long from the effects of cramped development desires inevitably to progress rapidly and in many directions; the aim of planning must be to make this possible. Political independence provides the needed opportunity. It is therefore natural that improvement in economic and social conditions through the acceptance of more progressive ideas and through suitable institutional changes is regarded as the practical test for judging the adequacy of the new political system.

effective power in the hands of the State to be exercised with the necessary persistence and determination in order to ensure the furtherance of accepted ends. Constructive use of this power calls for integrity, efficiency and responsiveness in administration. The creation and maintenance of these basic pre-requisites of economic and social growth have to be considered as matters deserving continuous and careful attention; and if we revert to this theme several times in this report, it is because we feel that the need for creating in the country an environment favourable to progress can hardly be overemphasised. The changes in administration appropriate in the context of the new role of the State are dealt with in detail in subsequent chapters.

8. The task of organising a democracy for rapid and co-ordinated advance along several lines is one of special difficulty. The party in power has not only to carry public opinion with it; it has to get the active co-operation of all sections. In a democratic country, every citizen is free to think and vote as he likes, and political parties have the right freely to canvass public support for their programmes and in the event of securing a majority in the legislature to form the government. Under these conditions, the greater the responsiveness of the party in power to trends of opinion outside, the greater will be its effectiveness for action. The smooth functioning of the party system rests on an underlying agreement as to objectives, though there may be differences as to approach or to the pace of change with reference to certain problems. These differences are a necessary concomitant of democracy; they ensure a continuous re-examination and re-adaptation of governmental policies. The rights of free expression of opinion and of freedom of organisation inhere in the very concept of government by consent. Through these alone is a vigorous, creative political life possible. At the same time, it is evident that the problems of the modern world are too complex to be dealt with in terms of rival or opposing programmes of action. On various matters, different parties tend inevitably to come together and co-operate. For planning to proceed with the necessary momentum and continuity, it is essential that the country adopts a programme of action which reflects the unity of outlook and approach among the members of the party in power and draws forth at the same time the support and co-operation from shades of opinion outside the party. It is through

enlargement of the area of agreement that conditions can be created for the most effective mobilisation of the community's resources towards the common objective of all-round economic development.

9. Democratic processes are complex, and they make large demands on the government as well as the governed. It cannot be assumed that the apparatus of democratic forms or procedures necessarily ensures the preservation of the basic values which a democratic way of life connotes. Real democracy means much more than adult suffrage and parliamentary government; it means a reordering of social relationships in terms of new values. It is not without significance that in several parts of the world the emergence of a new leadership determined to carry through far-reaching economic and social changes in keeping with the needs and urges of the people has been accompanied by a great upsurge of public enthusiasm and a release of the pent-up energies of the community. The relationship between political forms and the spirit underlying them is a vast and intricate subject in which no easy judgments are possible. But, it must be emphasized that for democratic planning to succeed, it will have to energise the entire community and to place before it a goal of endeavour which will call forth all its latent creative urges. Under pressure of crisis such as war, democracies have proved capable of effective action on a mass scale, and there is no doubt that once the community has come to appreciate the vital significance of the tasks in hand, it will rise to similar heights for constructive purposes also. The crucial factor in organising the community for action is leadership, and, in a democracy, not merely leadership at the top but at all levels.

10. Under the Constitution, India is organised as a federation, in which the Central Government and the Governments of States have their assigned spheres of action. There are certain concurrent subjects in which the Centre as well as the States can undertake legislation. Economic and social planning is in the concurrent list, as this is a subject in which the Centre as well as the States are interested and have to work in unison. The Centre has certain emergency powers, but, normally, coordination of policies has to be effected through mutual consultation. This system of consultation and of formulation of policies on the basis of over-all national requirements will have to be strengthened in the interests of planning.

Care will have to be taken to see that the plan is implemented throughout the country as a single coordinated whole. The National Development Council which has been set up recently and which comprises the Cabinet, Ministers of States and the members of the Planning Commission, with the Prime Minister as Chairman, is intended to secure this result. It is obvious that without complete coordination of policies and timely, concerted action, there is danger of waste and misdirection of effort, which may have consequences extending far beyond the area of responsibility of any single authority, and this, it must be recognised, places special responsibilities on the Centre.

11. A planned economy aiming at the realisation of larger social objectives entails a vast increase in governmental functions. For these to be discharged efficiently, appropriate local, regional and functional organisations have to be built up and strengthened. Each of these must have a defined sphere of action and responsibility, and must be able to function with a measure of autonomy. Arrangements for the necessary coordination between them must be made at various levels from the village upwards. The activities of all developmental institutions in the country, official and non-official, will have to be reorientated in terms of the requirements of the Plan, and in this process, due stress must be laid on the appropriate role of various local and functional organisations. The function of the Central Government is to evolve a national plan, to work out a coordinated policy for implementation of the same, to watch and assess the progress of major development schemes in the different parts of the country, and constantly to initiate and promote action in furtherance of the objectives and targets defined.

## II. The determinants of Economic development.

12. While developmental planning, as stated above,

is an all embracing process, which cannot be compartmentalised, the accent of endeavour under present conditions in India has to be on economic development. The latter may in a sense be regarded as a consequence of intellectual, social and cultural advance. It is true, nevertheless, that economic development of an underdeveloped country cannot proceed far unless the community learns how to get from its resources of men and materials a larger output of commodities and services.

13. In the last four or five decades, there has been considerable industrial development in India, accompanied by urbanisation and expansion of commerce. Large towns and cities have grown and transport and communications have developed extensively. The isolation of the village has been broken and the average citizen lives in an environment significantly different from the one in which he lived and worked fifty or sixty years ago. Indian enterprise has made considerable headway, and the country has now considerable experience in the fields of modern business, industry and finance. New economic and social relations have emerged, giving rise in turn to a general desire for more rapid change. But the development that has taken place is partial and limited when judged in terms of the country's needs and potentialities. Industrialism and the use of modern techniques have affected only limited segments of the economy. Agriculture is still the mainstay of life for about 70 per cent of the population, and productivity in this sector is exceedingly low. The size of agricultural holdings has progressively diminished; the old cottage and small scale industries have been decaying, and the rural population which constitutes about 83 per cent of the total suffers from

chronic underemployment and low incomes. Population has increased by more than fifty per cent in the last fifty years, but the growth of alternative occupations either in the rural areas or in the towns has not been on a scale which could absorb this growing population. In the limited spheres which have registered expansion, the level of productivity and the level of incomes have naturally been higher. But, for the community as a whole, the economic development of the last few decades has brought no significant improvement in standards of living and opportunities for employment, and has perhaps accentuated to some extent inequalities of income and wealth.

14. The pace of economic development depends on a variety of factors which constitute the psychological setting within which the economy operates. A major element in this setting is the community's will to progress and its readiness to develop and adopt new and more efficient methods and processes of production. Basically, development involves securing higher productivity all round and this is a function of the degree of technological advance the community is able to make. The problem is not one merely of adopting and applying the processes and techniques developed elsewhere, but of developing new techniques specially suited to local conditions. Modern technology is changing rapidly and no country can hope to maintain a steady pace of advance unless it keeps abreast of current developments. Techniques in turn affect and are affected by economic and social organisation. Certain forms of economic and social organisation are unsuited to or incapable of absorbing new techniques and utilising them to the best advantage. To some extent techniques must of course be adapted to economic and social organisation, but the latter has also to change



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in order to accommodate new techniques which need to be applied not merely in one or two isolated lines but in several lines of economic activity so that advance in one line could react on and stimulate advance in others.

15. These are aspects of the problem of economic development which have to be constantly kept in view. Given these basic conditions of rapid and sustained progress, institutional as well as others, the key to higher productivity and expanding levels of income and employment lies really in stepping up the rate of capital formation. The level of production and the material well-being a community can attain depends in the main on the stock of capital at its disposal i.e., on the amount of land per capita and of productive equipment in the shape of machinery, buildings, tools and implements, factories, locomotives, engines, irrigation facilities, power installations and communications. The larger the stock of capital, the greater tends to be the productivity of labour and therefore the volume of commodities and services that can be turned out with the same effort. The productivity of the economy depends on other things also, as for instance the technical efficiency and attitude to work of the labour that handles the available capital equipment. But the stock of capital reflects in a concrete form the technological knowledge that underlies the organised processes of production, and while other factors are important and essential a rapid increase in productivity is conditional upon additions to and improvements in the technological framework implicit in a high rate of capital formation.

16. The conditions in which economic development was achieved in the course of the last century have naturally differed from country to country, but a common feature of all development is high rate of capital formation which characterised periods of expansion. In

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times when the whole capital structure of a country is being transformed, the normal replacement of existing equipment becomes itself to some extent a means for introducing improvements in the technological framework of production, so that, in assessing rates of capital formation achieved, the resources set apart for this purpose must be also regarded as a material factor in determining the tempo of development. For Britain statistics on national income and investment are not available for the first half of the nineteenth century, which was perhaps the most significant period in its economic development, but the available data for 1870-1913 show that net investment in this period was on an average more than 10 per cent of the national income and in prosperous years as much as 15 per cent. In the United States, the rate of capital formation was higher over the years 1869-1913, net investment represented 13 to 16 per cent of the national product while gross investment ranged between 21 and 24 per cent. In Japan, new capital formation in the decade 1900-1909 is estimated to have averaged about 12 per cent of the national income; this rate appears to have risen to 17 per cent in the following decade, though it declined again to 12 per cent in the period 1920-1929. More recently, the U.S.S.R. furnishes an instance of a high rate of investment being achieved as a matter of deliberate State policy and action. The first Five Year Plan of the Soviet Union had a target of net investment amounting to "between a quarter and a third of the national income"; the actual achievement was perhaps slightly lower. At any rate, though the Second Five Year Plan envisaged a somewhat lower ratio of capital formation to national income, it would appear on a fairly conservative estimate that the rate of net investment in the U.S.S.R. in the

decade 1928-1938 was of the order of 20 per cent of the national income.

17. The data given above are not of a nature which would warrant any firm relationships being deduced between rates of investment and rates of development, nor can they be used for making comparisons as between countries or as between widely separated periods within the same country. Even conceptually, these relationships are very complex. It is virtually impossible to evaluate in quantitative terms the psychological and social forces which have played a part in shaping the pace and pattern of development under different circumstances. Nevertheless, the available evidence, however scanty, may be used for judging broadly the scale of effort involved in relation to the results obtained. In the United Kingdom, a rate of net investment which fluctuated between 10 and 15 per cent of the national income went hand in hand with an increase of over 150 per cent in the national income between 1870 and 1913. In the United States, with a somewhat higher rate of investment, which was accompanied also by large scale immigration and settlement in virgin territory, the national income increased nearly five-fold between 1869 and 1913; the increase in per capita income in this period is estimated at over 130 per cent. In Japan, with the population growing at an average annual rate of about  $1\frac{1}{4}$  per cent, per capita income is estimated to have been doubled between 1878 and 1912; it doubled again between 1913 and 1938. Varying estimates have been made of the achievements of the Soviet Union in terms of national income, but, taking again a conservative estimate, it would appear that with a rate of net investment of about one-fifth (or probably a little more) of the national income the

increase in the national product in the period from 1928 to about 1940 was around 130 per cent.

18. These relationships are more suggestive than conclusive, but it is fairly obvious that a doubling of per capita incomes within a generation or so (that is in 25 to 30 years) required, in most of these countries, a rate of net investment of the order of 12-15 per cent of the national income. More rapid rates of development have required, apart from other things, still higher rates of investment as in the U.S.S.R. It would appear on the whole that, in under-developed countries with low standards of living and rapidly increasing populations, a rate of growth commensurate with needs cannot be achieved until the rate of capital formation comes up to around 20 per cent of the national income.

19. Very little information is available on the rate of investment and on the trends in national income in India in the last few decades. Rough estimates based on scattered data suggest that, as in other underdeveloped countries, the resources devoted to net capital formation today probably amount to about 5 per cent of the national income. It is true that, where manpower is plentiful relatively to the land and other capital equipment available, development has to be based to a great extent, at least in the initial stages, on labour-intensive processes. Even so, without a big increase in the rate of investment and through it in productive capital, substantial and progressive improvement in the level of incomes and of living standards cannot be secured. India has considerable resources of water, minerals and power still to be harnessed or exploited. Large areas of the country remain undeveloped for lack of basic services like transport,

communications, irrigation and power. The use of machinery is limited to narrow spheres of industry, and the bulk of the country's labour force works with tools and implements which add little to the productivity of labour and thus keep real incomes low. There is also shortage of buildings for residential purposes as well as for schools, hospitals, welfare centres, factories and the like. All these have therefore to be built up, side by side of course with the knowledge of how to use the capital equipment thus built up to the best advantage. It has been estimated that for a population growing at the rate of  $1\frac{1}{4}$  per cent per annum, the rate of investment needed for maintaining per capita incomes constant is generally between 4 and 5 per cent of the national income. Such a generalisation cannot obviously be interpreted literally, but the nature of the relationship suggested may explain broadly the failure of the Indian economy in the last few decades) to respond adequately to the needs of a growing population and of higher standards of living and employment.

20. A somewhat low rate of capital formation might have been adequate for countries like the U.K. and the U.S.A., in which modern industrialism took root early. The underdeveloped countries which make a late start have to aim at comparable development within a briefer period. Japan and the U.S.S.R. are instances in point. Some of the countries in South Eastern Europe which are now planning for rapid development have also envisaged high rates of investment. In Hungary, 10 per cent in 1947, the first year of her planning, but this appears to have been stepped up to 18 per cent in 1949. In

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Poland, gross investment in the post-war period has ranged between 20 and 25 per cent. Outside this region and under more normal conditions, Norway is known to have attained a rate of net investment of 15 per cent and Finland a rate of 18 per cent even before the Second World War. The question therefore is not whether a high rate of investment could be aimed at or achieved by relatively underdeveloped countries, but rather under what conditions and in what stages it could be attained.

21. Investment implies applying productive resources to the building up of capital equipment. These resources could come either from utilisation of resources hitherto unutilised or by way of diversion from the production/. An underdeveloped country has a certain advantage in that it has large resources of unutilised or underutilised manpower. By utilising these, capital formation can be stepped up without drawing away to any larger extent resources employed in the production of consumer goods. Idle manpower thus constitutes a large investment potential. But it must be recognised that, in the initial stages of development, the scope for directly utilising such manpower tends to be somewhat limited. For one thing, the unutilised labour available for productive work is often also unskilled labour, which would have to be trained before it could be recruited for the new works to be undertaken. Some of the problems involved in direct investment of underemployed manpower could be overcome by efficient organisation. Still, in practice, mobilisation of idle manpower on a

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large scale cannot but result in the generation of considerable money incomes in advance of a corresponding increase in output. This is likely to create inflationary pressures which might be felt strongly at particular points in the system, impinging more heavily on the real income of some sections of the population than on others. A measure of privation to start with and austerity for a fairly long period are thus unavoidable under conditions of rapid development even in countries with vast unutilised resources. The strain of development on the economy might be felt in a variety of ways: scarcities, high prices, disparate movements of incomes of different classes, bottlenecks in production, strain on transport, etc. To some extent, this strain can be moderated through appropriate measures of policy, but the fact of strain on the economy will remain. In determining the tempo of development, which, as has been indicated above, would mean raising the rate of investment from about 5 per cent of the national income to a level of something like 20 per cent, a view has therefore to be taken as to the pace at which the required organisational and institutional changes can be made without engendering too much economic and social instability.

22. The level of saving is to a great extent dependant on the level of national income; the higher the national income the higher normally should be the proportion saved. However, this is not always true. In the United States, considering the rate of increase in income per capita and the high level of this income even to begin with, the rate of net saving achieved in the period 1870 to 1913 viz., 12 to 15 per cent, was relatively low. On the other hand, Japan with a lower level of incomes was able to attain a remarkably high rate of investment out of its own

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savings. The proportion of national income that is saved and made available for investment depends upon psychological and institutional factors. Social customs and habits, the distribution of incomes, the rates at which incomes of different classes go up and the efficacy of banking and other institutions for mobilising savings - all these - play a part in determining the rates of saving attained. The high rate reached in Japan has been explained by the fact that "the Japanese capitalists spend very little on personal consumption, that the rural population and urban working proprietors are exceptionally thrifty and, indeed, the wage-earners themselves save a substantial proportion of their incomes." There is also a further factor which may be noticed here. Between 1878 and 1940 the price level in Japan rose by about 400 per cent while, in the United States in the corresponding period, the increase was less than 100 per cent. Rising prices tend to enforce rates of savings which would not otherwise be possible. This factor has probably played a not insignificant part in the U.S.S.R. also where it is clear that prices of consumer goods went up sharply in the decade 1928-1938.

23. The programme of investment that can be undertaken at any particular time depends primarily on two factors: the rate of saving in the community, and the volume of unutilised human and material resources which can be used for direct investment. In the earlier stages of development, as already mentioned, though the unutilised resources would be considerable the scope for using them for stepping up the rate of capital formation might be restricted by either lack of technical skill or shortages of specific commodities and services. In this period, therefore, the



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reliance on savings has to be correspondingly greater. As capital formation gets under way and the basic framework of services like transport, communications, irrigation and power is built up, the scope for utilising underemployed resources will expand rapidly. The problem is to get the right start. Once this is secured and fresh capital formation started on a significant scale, it increases the ability to undertake further complementary investments, thus creating also new opportunities for employment. Further investments then get the benefit of 'external economies' which lower costs and increase the profitability of still further expansion. It is thus that the vicious circle of low output, low savings and low investment is broken and the economy started on an upward course.

24. In the initial stage ~~which is~~ the critical period in development - there are clearly two alternatives open. One is to impose on the community a high rate of saving through taxation, loans, price inflation, or by any other means and to utilise the resources thus made available for a sharp increase in the rate of capital formation. This has certainly its merits as, in this way, not only would development be rapid but there would be immediately a large increase in employment. But, this increase in employment will not lead to a corresponding increase in spendable incomes; the community as a whole will have very little more to consume than before and there would be set up severe inflationary pressures. This is the price for more rapid development later. The other alternative is to step up the rate of capital formation more gradually, but this would mean that progress would be correspondingly less rapid. Since the objective of planning is, in fact, to promote rapid development, the problem is

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one of stepping up the rate of investment by defined stages, so as to minimise the hardships in the initial period, but taking care at the same time that the community does put forth within a relatively brief period the big effort needed.

25. On this analysis, the question is in what manner and how quickly the rate of capital formation in India can be stepped up, consistently with other objectives, from about 5 per cent of the national income to, say, about 20 per cent. The answer depends upon the rate at which the national income increases as development proceeds and the proportions of this increase which can, so to say, be ploughed back into investment. The larger the proportion of the increments to national income that can thus be ploughed back into investment, the greater is pace at which development can be accelerated. The principle is, in essence, simple. If, for instance, a community starting with a 5 per cent rate of saving increases its total output by, say 10 per cent, and if in the following period capital formation is stepped up by an amount equal to half the additional output, the rate of saving would almost get doubled in the process. If it is not desired to secure a high rate of capital formation right at the start at a cost of excessive privation which a reduction in the initial levels of consumption would entail, the goal of policy must be to ensure that a high proportion of the additional incomes that accrue as a result of development is saved and invested. This will, no doubt, mean that the rate at which the initial levels of consumption can be allowed to go up will rise only slowly, but the pressure on consumption standards will at least be no worse than before and it might well become possible to permit moderate improvements. In other words, such

a programme for stepping up capital formation calls for sustained austerity rather than any excessive degree of privation and suffering.

26. It is necessary to visualise the problem of development over a period of twenty-five or thirty years and to view the immediate five year period in this context. In formulating a plan of development for a particular period, an estimate of what is feasible must, no doubt, carry more weight than abstract reasoning as to a desirable rate of growth. But, there is clearly need for looking beyond immediate possibilities and for taking a view of the problem even from the beginning in terms of continuing and over-all requirements, and for preparing the ground in advance. Precisely for the reason that the development of a country is a somewhat long-term process, the institutional and other factors which affect it can be changed to the desired extent and in the desired direction through conscious effort. Moreover, a programme of development even for the short period would fail to have direction and perspective unless it is in some way linked to certain long-term targets and objectives relating to the kind of economy and social framework which it is proposed to evolve. In other words, while it is important to preserve throughout a pragmatic and non-doctrinaire approach, and also to bear in mind the limitations involved in any calculation of long-term development possibilities, it is of the essence of planning that it must have a wider time horizon than immediate requirements and circumstances might seem to indicate.

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27. In estimating possible rates of development in India, - what they would involve in terms of effort required and what they would achieve- there are two or three major factors to be taken into account.

We have already referred to the central role of capital accumulation in economic development, and how it can be stepped up by, so to say, ploughing back additions to national income. The proportion of the addition to the national income in each period which it is decided to plough back is thus one of the major determinants of the rate of development. But this proportion cannot itself be fixed in a given situation without reference to two other factors. These are (a) the rate of growth of population, and (b) the increase in national output and income likely to follow a given increase in the capital stock.

28. If population is growing at a certain rate, the total national output has to be raised at the same rate merely to maintain existing standards of income and consumption; this means that not only will so much less of further additions to national income be available for ploughing back into investment but a part of what is ploughed back will be taken up by capital equipment required for maintaining per capita incomes constant in the following period. It is true that a growing population increases the manpower potential of the country and also has the effect, in some ways, of stimulating investment. It is also true that the effect of an increase in population cannot be judged solely in terms of the effect on per capita incomes; it affects the whole pattern of production and consumption. It is not possible to judge whether, on net, an increasing population is favourable or unfavourable to development. In the past, periods of rapid economic development have also been periods of rapidly increasing population, but whether there is any causal

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relationship between the two or how it works one cannot say with any certainty. In Britain, between the commencement of industrialisation and now - a period of about 180 years - population has increased roughly five-fold. Japan had, by 1939 a population about twice as high as when it embarked on industrialisation. In periods of rapid development and changing techniques it is questionable whether the concept of an 'optimum' population can have any precise meaning. But in the short run - and we are concerned here primarily with the earlier critical stages of development - there is no doubt that, given a situation in which shortage of capital equipment rather than of labour is the main limiting factor in development, a rapidly growing population is apt to become more a source of embarrassment than of help to a programme for raising standards of living. In other words, the higher the rate of increase of population, the larger is likely to be the effort needed to raise per capita living standards.

29. The relationship between additions to capital stock and increases in national income is also one which, by its nature, would vary with circumstances. There is no unique capital-output ratio applicable to all countries at all times. Much depends not only on the stage of economic development reached but also on the precise forms of further expansion. Japan provides the instance of a country where, in about a generation (i.e., roughly between 1885 and 1915), labour productivity in agriculture was doubled with very little additions to capital equipment and mainly through the use of fertilisers, better seeds,

improvements in water/and pest control, etc. Though climatic and other differences might require larger investments to produce the same result under other conditions, the capital-output ratio is likely to prove favourable in most countries where agricultural yields are low and where they can be stepped up by relatively small improvements in technique and organization. Industrial development naturally requires more capital, but here too there are differences from country to country depending on the capital intensity of the industries concerned. Before the War, for instance, capital per occupied person in manufacturing industry was about three times as high in Canada as in Australia, while in the relatively more undeveloped countries of South Eastern Europe it was a quarter to a third less than even in Australia. As a rule, basic industries like iron and steel, heavy chemicals, and power and services like railways are more capital-intensive than others, and therefore, in the stages of industrial development where these are being built up, the capital-output ratio is likely to be less favourable than when more attention is being given to light consumer-goods industries. As development proceeds, external economies/become more evident, /also and this has the effect of reducing the amount of capital required per unit of output. The capital-output ratio also depends in a given period on the extent to which installed equipment in industry and transport is utilized; if it is used more intensively, say by multiple shift working, the output as a proportion of the capital invested would naturally tend to be greater than otherwise. An outstanding case of a given capital stock yielding larger output was furnished by the United States when the exigencies of war required fuller employment and longer hours of work. Then, again, the likely increase in national income consequent on

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capital accumulation depends to a great extent on the share of residential buildings in the additions made to the capital stock. In the pre-war Five Year Plans of the Soviet Union, it would appear that the share of the new residential constructions in capital formation was relatively small; this entailed austere standards in regard to housing, particularly in the urban areas, but it made possible a greater concentration of resources on industrial and agricultural development and, therefore, a more favourable capital-output ratio for the country as a whole. It must also be noted that the efficiency of investment depends upon a great many other factors besides the size of the investment.

30. It will be seen from the above that one can assume a capital-output ratio only in relation to the pattern of development visualized for a particular country, the capital stock already at its command, and the extent to which the available capital resources are being utilized. In some of the relatively more developed countries of the world, a unit increase in national income has apparently required, in the last few decades, something between 3 and  $3\frac{1}{2}$  times as much in terms of additions to capital stock; in limited periods and in particular instances the ratio has of course varied. These relationships are subject to the various qualifications mentioned, but they indicate the range within which the capital-output ratio may fluctuate. In making any assumption about India for the future, we have to take into account a number of factors, e.g. the possibility of raising yields in agriculture with relatively small additions to capital equipment, the need for expanding basic industries and services like irrigation and power which are highly capital intensive, the lack of technical skill which is likely to be reflected in lower productivity of labour in the initial stages, the scope for intensive use of equipment in at least some

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industries through full utilization of capacity, shortage of housing in urban areas needing early attention, the 'external' economies likely to follow development of transport, power, marketing and credit, etc.

III. Investment, Income and Economic Development in India: a broad outline.

31. For the purposes of our calculations regarding possible rates of development in India in the next few decades, we have made by way of first approximation the following assumptions in regard to the three relationships mentioned:

- (i) population will continue to grow at the rate of about  $1\frac{1}{4}$  per cent per annum (which is the rate recorded in the last decennial period);
- (ii) a unit increase in national output and income will require about three times as much by way of additions to the capital stock, and the increased output will materialize in the third year from the date of investment; and
- (iii) in regard to additional income in each period ploughed back into investment, there is scope for choosing the proportions according to the rate of development desired, the measure of austerity involved, and the organisational and institutional changes necessary.

On these assumptions, the alternatives in regard to investment targets can be set out in terms of the increases in national income that can be achieved and the repercussions that particular investment targets would have on consumption standards at each stage in the process of development.

32. The national income of India might be estimated as approximately Rs 9000 crores in 1950-51. Starting from this level, the calculations we have made indicate that national income can be raised by over 160 per cent in about twenty-two years, and per capita incomes doubled, if capital formation is stepped up from the beginning by as much



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as two-thirds of the additional income each year. Apart however from the organisational difficulties in stepping up investment at such a rapid rate, this rate of development would involve - particularly in the initial stages - considerable pressure on the resources available to the community for consumption and in fact necessitate a reduction in per capita consumption standards for a period of 10 to 15 years. If, on the other hand, capital formation is raised more gradually, say by 25 per cent of the additional income in each period, no significant fall in present consumption standards would be necessary, but the rate of growth of national output will be very much slower - in twenty-two years it will have gone up by hardly 80 per cent and per capita incomes even less; the rate of improvement in consumption standards will be correspondingly low. We have therefore to think in terms of stepping up capital formation by somewhat less than two-thirds but by more than a quarter of the additions to national output in each successive period.

38. In the present Five Year Plan, capital formation is estimated to rise by about 20 per cent of the additional income each year. The internal resources thus generated by the process of development would be supplemented to some extent by external resources. By 1955-56, national income, it is estimated, will have gone up to about Rs 10,000 crores, that is, by about 11 to 12 per cent above the estimated level for 1950-51. Proceeding from the level of Rs 10,000 crores reached at the end of this five-year period, the Graph attached shows the rate of progress in regard to national income and consumption standards

that could be attained if, from 1956-57 onwards, investment is stepped up each year by an amount equal to 50 per cent of the additional output. This means that the rate of saving as a proportion of total national income will have to go up from 5 per cent in the base year 1950-51 and 6½ per cent in 1955-56 to about 11 per cent by 1960-61, and 20 per cent by 1967-68. After 1968-69, though the resources devoted to investment will continue to go up in absolute terms, capital formation as a proportion of national income, it is assumed, will not be raised beyond 20 per cent of the national income. On these assumptions, it will be seen, per capita incomes can be doubled by about 1977 i.e., in about twenty-seven years, and consumption standards raised by a little over 70 per cent over the 1950-51 level.

34. These calculations, it must be emphasised, are illustrative and are intended to indicate only broadly the implications, in terms of effort and return, of alternative courses of action. The projections of national income, investment and consumption are to be interpreted with due caution. For instance, a fair proportion of the investment required could be drawn from the beginning from unutilised manpower and other resources, and to this extent the attainment of the investment targets would not require a corresponding decrease in the resources available to the community for current consumption. There are a variety of ways in which idle manpower and the spare hours of those partially employed can be canalised into a nation-wide programme of developmental activity. In the digging of canals, repair and renovation of tanks, construction of roads, bridges, and bunds, in rural housing, in improvement of sanitation, in the imparting of elementary education

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and technical training, and in several other activities, there is scope for participation by all sections of the population. The problem is essentially one of organisation. We have stressed throughout this Report the need to mobilise resources for local works and have also made provision in the present Five Year Plan for assisting and initiating the process. As organisational deficiencies are made good, and supply of construction materials like cement, bricks and timber improve, the scope for direct utilisation of idle manpower for building up capital will undoubtedly widen. Thus, the targets of investment suggested might, in fact, prove less difficult to attain than would appear when stated in financial terms. Correspondingly, the pressure on consumption standards of a development effort of the order indicated might also turn out to be less than the estimates given above suggest.

35. Development effort, it must be emphasised here, is something more than investment defined in the technical sense of additions to capital equipment. When the levels of education and health are as low as they are in India today, measures designed to raise them - which might require only moderate amounts of capital equipment - would yield larger returns than many forms of investment in the narrower sense of the term. The potentialities in this direction are immense. The scope for raising agricultural productivity in the country by relatively small outlays of money on agricultural extension services is an instance in point. Technical education and training, together with slight improvements in methods of production may have similarly the effect of increasing productivity substantially in small scale industries. The doubling of national income in Japan between 1878 and 1912,

referred to earlier, is perhaps explained more by factors of this nature than by high rates of investment as such. In other words, while it is important not to base our assessment of future possibilities on unduly optimistic assumptions, we should not ignore the scope for increasing productivity substantially in lines where they are now exceptionally low and thus achieve a more favourable capital-output ratio than 3 : 1 assumed in the calculations above.

36. It will be seen from the Graph that the rate of increase of national income will tend to gather speed after the first 10 years or so by when capital formation per annum will have reached a level three to four times as high as in the base year 1950-51. If this order of increase in capital formation could be brought about earlier, either through direct utilisation of idle manpower or by larger savings, the target of doubling per capita national income can be achieved earlier. In judging the feasibility of attaining high rates of investment and saving in India, it is also essential to bear in mind that only a little over 2 per cent of the national income is absorbed by defence expenditure. Considering the resources that some of the other countries had to divert to defence in periods of development - perhaps 10 per cent of the national income and often more - this must be regarded as a factor conducive to rapid development, provided conditions are favourable in the future for maintaining this relatively low proportion.

37. What has been said in qualification of investment estimates is also true by implication of the estimates regarding resources becoming available for consumption. As incomes

increase, the whole pattern of consumption would change and so would individual and social valuations. In periods when the constituents of the national output are changing rapidly, the notion of a doubling of standards of living does not by itself convey any precise picture. Doubling per capita consumption does not, for instance, mean doubling of cereal consumption. A rising standard of life is likely, in fact, to result in reduced per capita consumption of cereals, and a substitution of other foods, such as fruits and vegetables, eggs, etc. Raising of nutritional standards has to be an important aspect of development in India, but improvement in these standards cannot be gauged solely with reference to any particular item or items within the food group. With extension of irrigation over large parts of the country, increasing use of fertilisers and better seeds, and the use of power for certain agricultural operations, a new pattern of intensive agriculture which provides a more complete and balanced diet may be expected to evolve. Rising standards of living will also be characterised by greater demand for the secondary essentials of life like education and health facilities, travel, entertainment, etc. A doubling of consumption standards is, therefore, more a question of planning for and meeting changes in the pattern of consumption and in social valuations than of doubling the production of its existing components.

38. In the calculations of investment and income given in the earlier paragraphs, it has been assumed, as a first approximation, that population will continue to grow over the next generation at the rate of  $1\frac{1}{4}$  per cent per annum. This would mean that the population of the Indian Union at the end of 25 years from now would be of the order of 500 million. This assumption might or might not be legitimate. Trends in population growth cannot be altered quickly, and any reduction in birth rates may well be neutralised by a corresponding reduction in death rates. On the other hand, with family planning on a nation-wide scale, there is no reason why the rate of growth cannot be brought down to, say, about 1 per cent per annum or even lower. The pressure of population in India is already so high that a reduction in the rate of growth must be regarded as a major desideratum. To some extent, improvement in living standards and more wide-spread education, especially among women, will themselves tend to lower the rate. But positive measures are also necessary for inculcation of the need and techniques of family planning. Elsewhere in this Report we make recommendations in this regard.

39. In view of all these considerations, we regard the rate of development indicated in the Graph as not only the minimum that the community will have to aim at over the next few quinquenniums but as something which must be exceeded. With planned conservation and utilisation of resources, it should be possible to double per capita incomes in 20 years or so. Doubling national income per capita in this period is by no means an over-ambitious target. Yet the scale of effort that it calls for will be obvious from the broad calculations set forth above. This scale of effort can be secured only through organisational and institutional changes affecting several aspects of economic and social life, and beginnings in this

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direction have to be made even during the period of the first Five Year Plan.

## IV. Employment in relation to development.

40. There are one or two problems of particular importance and interest in the earlier stages of development to which we would like to refer briefly at this stage. The first is the problem of employment. In a country with vast reserves of unutilised manpower, the problem of employment has two aspects in relation to development. There is, in the first place, the need to make the maximum use of idle labour for the purpose of development. Here it is not so much a question of providing employment at existing or higher real wages but rather one of effectively mobilising all the available resources at minimum social cost. The second aspect of the problem is that of increasing the productivity of labour so that larger employment can be provided at rising levels of real income. This is obviously linked to the whole question of capital accumulation and technical efficiency to which we have already referred. There may be, in the initial stages, an apparent conflict between the need for making the maximum use of idle manpower and the need for raising productivity, but it is essential to recognise that, over a period, progress in one is apt to be checked by insufficient progress in regard to the other. In the initial stages of development, newly mobilised labour will not be able to contribute significantly to total output and, therefore, larger money incomes will tend to exert pressure on available supplies and cause sectional rises in prices. This process is apt to cause a redistribution of available supplies

leading probably to a rise in the real incomes of those newly employed and a fall in the real incomes of those who were already employed. To some extent such redistribution may be necessary and desirable, but there are obviously limits to this, particularly as the pressure is likely to be felt on commodities like foodgrains. In promoting higher levels of employment, it is necessary, therefore, to see that the newly mobilised labour is able to raise total output. If productivity of labour cannot be increased in the short run, and particularly if the availability of basic essentials like foodgrains cannot be increased, a programme of full employment, designed primarily to put to work all idle labour, runs the risk of breaking down on account of excessive pressure of money incomes on available supplies. It is for this reason that we emphasise throughout this report the need for relying as far as possible on voluntary labour, and using money mainly as a means of attracting and organising such labour. In other words, the accent in these first few years of development has to be on mobilisation of idle manpower, with as little increase in money incomes as possible, rather than on full employment as such which to have any meaning, should be able to provide higher money as well as real incomes all round.

41. A programme of full employment, with assurance of at least the current level of real wages to the newly employed and with no reduction in the real wages of those already employed, can get into swing only as capital formation in the community goes up. During the period of the present Five Year Plan, considerable



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progress will have been made in expanding irrigation, power, basic industries, transport and other services and these will provide, directly as well as indirectly new avenues of employment. After the five year period, the pattern of priorities may to some extent change, but since aggregate investment will be continually stepped up, employment opportunities will expand rapidly. Through progressive increase in irrigation facilities, the scope for double-cropping will be enlarged and seasonal unemployment will diminish. Rural electrification will open up prospects for the establishment not only of large scale but also of cottage and small scale industries. As commodity production goes up, the scope for employment in services will also grow. There is at present a large measure of disguised unemployment in the spheres of services; the tendency at first will be to eliminate this element of unemployment, but gradually the proportion of the total working force engaged in services will also begin to rise. The elimination of unemployment in an underdeveloped economy is by its nature a somewhat long-term problem which calls for steady and persistent effort. In fact, development is, in a sense, but another name for employment opportunities. The larger the increase in national output aimed at, the greater must be the demand for labour, especially if care is taken to adopt labour-intensive processes to the maximum extent possible. This means that expansion of employment opportunities at rising levels of real income will proceed side by side with the development of the economy and, like the process of development itself, will become cumulative as soon as there is a marked improvement in the technical-equipment of the community.

42. In the interim period there are likely to be difficulties of adjustment. In some cases, there might appear a certain conflict between the need to reduce the social cost of maintaining unemployed labour and the need

to raise the productivity of labour. To some extent, mobilisation of idle manpower for the development programme will generate new money incomes, divert larger quantities of essential commodities like foodgrains into the hands of those with the additional purchasing power, and thus create problems for those whose incomes remain more or less fixed. In the nature of things there cannot be clear-cut solutions to these difficulties. Unemployment is not merely an economic problem; it is a social problem involving human values and has to be approached from a broader view-point. In framing employment policy in relation to development, the following criteria need to be kept in mind: (a) unemployed manpower should be drawn upon to the maximum for the development programme; (b) money incomes in the initial stages should be expanded as little as possible; (c) capital formation should be speeded up and technical efficiency improved so as to increase productivity of labour; (d) the rate at which equipment in established indigenous industries, especially those which employ large numbers, is allowed to be competed out and discarded must be adjusted so as to safeguard against excessive unemployment in the process of technological change; and, lastly, (e) the distribution of capital in new lines should be planned keeping in view the need to increase employment opportunities in the short run as well as the larger pattern of development necessary for an expanding economy.

43. A comprehensive development programme over a period of years along the lines outlined above will bring about a significant change in the occupational pattern of the country. At the rates of investment indicated it will become possible to divert, in stages, an increasing proportion of the annual increase in population to non-agricultural occupations. In a country in which even a moderate percentage increase in population means a large total to be found employment, the change in the overall occupational pattern is likely to be slow at

first. At the present rate of growth of population, the working force in the country goes up every year by about 1.8 million per annum. On an average, factory industries like cotton textiles, sugar and cement would seem to require per worker capital equipment costing (at current prices) anything between Rs 3,000 and Rs 8,000. Heavy industries like iron and steel, fertilisers and petroleum would probably involve capital investment of the order of Rs 100,000 or more per employed person. Industries like ship-building, locomotive manufacturing, etc. are also highly capital intensive. It will be seen from this that the possibilities of increasing employment in large-scale manufacturing industries directly are limited, especially when the emphasis has to be on expanding producer-goods industries. For absorbing all, or a large proportion, of the increase in working population each year in non-agricultural occupations, reliance will have to be placed mainly on small scale and cottage industries involving comparatively small capital investment. If these industries are to afford employment at reasonable rates of wages, their technical efficiency will have to be increased and every effort will have to be made to see that the producer's reward is not intercepted by middlemen. The scope for developing and expanding these industries will increase further with the development of power, communications and other ancillary facilities. Once the disguised unemployment in the tertiary sector (i.e., in services) is eliminated, every increase in commodity production - particularly in manufacturing industries - will lead to the absorption of a considerable part of the additional working force in transport, trade and other services. But, again, the stage when expansion of services requiring less capital would absorb a growing population of the working force is likely to come fairly late in the country's development.

In the immediate ...

future, therefore, attention has to be concentrated primarily on diverting the increases in working population to large and small-scale industries and the supporting services rather than on changing in any drastic way the over-all occupational pattern. The change in occupational pattern will no doubt follow - perhaps faster than can be foreseen now - but this is not an end in itself and should be regarded more as a corollary of development rather than as a direct objective.

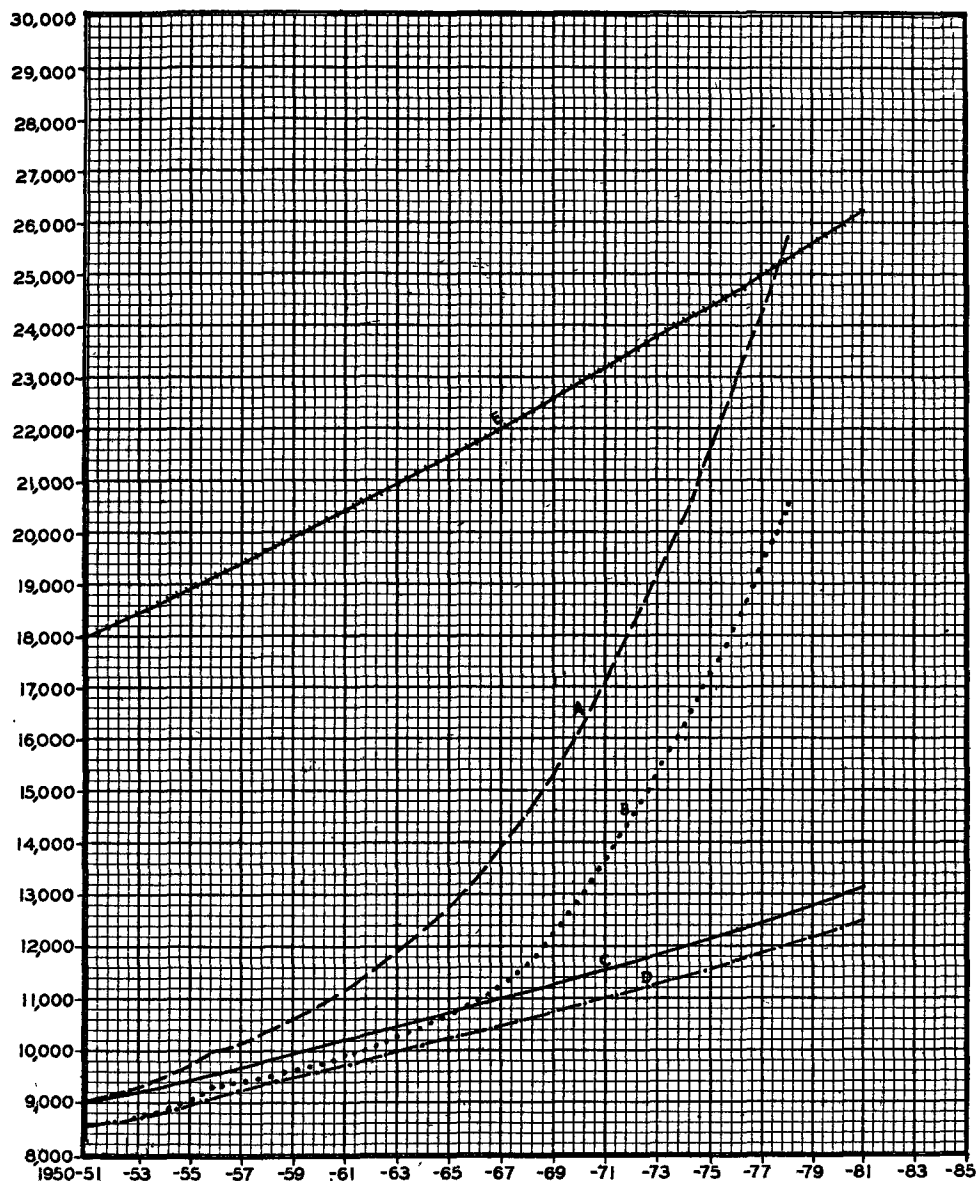
#### V External resources for development:

44. Another problem to which we would refer is the role of foreign investment in relation to development. How much of the resources needed to raise national output and income should come from domestic effort and how much should come from external sources cannot, of course, be determined in advance or on any a priori basis. Very much depends upon the circumstances in which a country is placed and upon the general conditions affecting the flow of capital from surplus countries. The United States, for instance, relied a great deal in the initial stages of its development on foreign capital. This is probably explained by the shortage of manpower and the consequent heavy capital investment required for opening up the continent; partly also it was conditioned by the policy of protection followed in the United States and the free movement of capital between countries which characterised the nineteenth century. On the other hand, Japan depended very little on external resources; the State played an active part in financing industrial development and introducing new forms of organisation needed for industrialisation. The Soviet Union provides another instance of a country which developed rapidly with its own resources; in this case it meant even greater hardship and suffering than in Japan. That a plan of development today must, in the main, rely on domestic resources can hardly be over-emphasised. In the first place, the conditions governing international investment are no longer what they were when some of the highly industrialised countries of today like the United States, Australia and Canada began their career of development. Secondly, external assistance is acceptable only if it carries with it no conditions explicit or implicit, which might affect even remotely the country's ability to take an independent line in international affairs. There are also obvious risks in excessive reliance on foreign aid which

depends on the domestic political situation in lending countries and which might be interrupted by any untoward international developments. And yet, external resources at strategic points and stages can be of so much assistance in a period of rapid development that it is desirable, consistently with other objectives, to create conditions favourable to their inflow.

5. Priority will no doubt go to such external investment as is available from institutions organised on an international basis. The resources of such institutions are however limited, and it would be short-sighted to exclude without good reason investment of funds from advanced countries, either on an inter-governmental basis or on the basis of negotiations between individuals or corporations in the countries concerned. The terms and conditions on which foreign investment may be received will of course have to be judged in the light of the basic objectives of national policy and also in the light of the contribution which the proposed investment will make to development along lines accorded a high priority in the country's development programme.

6. As will be seen from subsequent chapters, India as a programme of development larger than can be financed from the resources internally available. To a certain extent, the volume of domestic resources available for investment can be augmented through appropriate fiscal and economic policy, through compulsory savings, and through drawing on unutilised manpower. There will, however, still remain certain shortages which would tend to restrain the whole pace of development, and it is in meeting these that external resources can be of help. The precise role of external resources in relation to the first Five Year Plan is discussed in a later chapter.



**ASSUMPTIONS.**

1. NATIONAL INCOME IN 1950-51: RS.9,000 CRORES.
2. AGGREGATE CONSUMPTION EXPENDITURE IN 1950-51: RS.8,550 CRORES.
3. INCREASE IN NATIONAL INCOME AND AGGREGATE CONSUMPTION EXPENDITURE BY 1955-56: RS.1,000 CRORES AND RS.775 CRORES RESPECTIVELY.
4. PROPORTION OF ADDITIONAL INCOME REINVESTED EACH YEAR AFTER 1955-56: 50 PERCENT; CEILING ON INVESTMENT WHEN SAVINGS AS A PROPORTION OF AGGREGATE INCOME REACH 20% (i.e. IN 1968-69)

**NOTATIONS.**

1. NATIONAL INCOME ON THE ABOVE ASSUMPTIONS. ———— A
2. AGGREGATE CONSUMPTION EXPENDITURE ON THE ABOVE ASSUMPTIONS. . . . . B
3. NATIONAL INCOME REQUIRED TO MAINTAIN PER CAPITA INCOME CONSTANT AT 1950-51 LEVEL. ———— C
4. AGGREGATE CONSUMPTION EXPENDITURE REQUIRED TO MAINTAIN PER CAPITA CONSUMPTION CONSTANT AT 1950-51 LEVEL. ———— D
5. NATIONAL INCOME REQUIRED TO DOUBLE 1950-51 PER CAPITA INCOME. ++++++ E

## CHAPTER II

### OBJECTIVES, TECHNIQUES AND PRIORITIES IN PLANNING

In defining the objectives, priorities and techniques of planning in India, it is necessary to bear in mind the scale and dimensions of the problem as outlined in the preceding chapter as well as the basic values which must find expression in the economic and social pattern to be evolved. It is no longer possible to think of development as a process merely of increasing the available supplies of material goods; it is necessary to ensure that simultaneously a steady advance is made towards the realisation of wider objectives such as full employment and the removal of economic inequalities. Maximum production, full employment, the attainment of economic equality and social justice which constitute the accepted objectives of planning under present-day conditions are not really so many different ideas but a series of related aims which the country must work for. None of these objectives can be pursued to the exclusion of others; a plan of development must place balanced emphasis on all of these. For instance, even the limited objective of increased production cannot be attained unless the wider objectives of social policy are constantly kept in mind and steadily pursued. On the other hand, equality and social justice will have little content unless the production potential of the community is substantially raised. Development, thus conceived, is a process which calls for effort and sacrifice on the part of the entire body of citizens. For such effort and sacrifice to come forth psychological conditions have to be created which provide an incentive for all to give of their best.

#### **Instructional and Structural Factors in Development**

2. Reference has been made in the previous chapter to the limited and partial development which the Indian economy has registered during the last few decades. Judged in terms of per capita incomes and standards of well-being, the economy has, on the whole, remained more or less stagnant. This is primarily because the basic conditions under which an economy can continuously expand have been lacking. The impact of modern industrialism in the latter half of the 19th century was felt in this country initially through imports of machine-made goods from abroad which reacted adversely on the traditional patterns of economic life, but did not create the impulse for development along new lines. The transition that followed was characterised not by expansion of industry and a

diversification of the economic structure but by a decay of India's traditional arts, crafts and industries, and by an increasing pressure of population on the land. This retrogression led to a decline in productivity per person engaged in agriculture, the adverse effects of which were perhaps softened to some extent by the shock-absorbing capacity of the old institution of the joint family. The result was a continuous increase in under-employment and the growth of an attitude of "pathetic contentment" on the part of the people. In such an environment there could be little economic or social progress. Whatever surpluses might have been available in the system under these conditions were directed to the purchase of imports, partly of better finished products from abroad and partly of equipment for the new transportation system designed primarily in the interests of foreign commerce. The responsibility for promoting modern commerce and industry came to be concentrated in the hands of certain classes in the urban areas, and up to the end of the 19<sup>th</sup> century the only major large-scale industries which had taken root in the country were cotton and jute textiles. Little attention was paid to improvement of agriculture or to the needs of the rural areas. After the turn of the century and especially after World War I, it came to be recognised that without rapid industrialisation significant economic advance was not possible. The inter-war period witnessed the establishment and growth of several industries in the country. A more positive policy on the part of the Government and a change in the terms of trade in favour of the producers of manufactured goods and against the primary producer in the period of the depression materially assisted capital formation in the industrial sector. There was, however, little overall economic improvement as conditions in the agricultural sector deteriorated sharply.

3. The backwardness of the Indian economy is reflected in its unbalanced occupational structure. About 68 per cent of the working population is engaged in agriculture, about 14 per cent in industry, (large and small scale), some 8 per cent in trade and transport and the remaining 10 per cent in professions and services including domestic service. Even with this large proportion of the population engaged in agriculture, the country is not self-sufficient in food and raw materials for industry. Productivity per worker in organised industry, commerce and transport is about three times that in agriculture, but this sector of the economy has not been expanding rapidly

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enough to absorb the surplus population on the land. The large-scale underemployment in the rural areas which these conditions have given rise to constitutes a big economic and social problem. A change in the occupational pattern in the direction of greater employment in the industrial sector and in services is clearly necessary if the associated phenomena of mass poverty and unemployment are to be tackled effectively.

4. It follows from all this that the problem is not merely one of making the existing economic institutions work more efficiently, or making small adjustments in them. What is needed is a transformation of the system so as to secure greater efficiency as well as equality and justice. The central objective of planning is to create conditions in which living standards are reasonably high and all citizens, men and women have full and equal opportunity for growth and service. We have not only to build up a big productive machine - though this is no doubt a necessary condition of development - we have at the same time to improve health, sanitation and education and create social conditions for vigorous cultural advance. Planning must mean coordinated development in all these fields.

5. In this task of securing simultaneous advance along several fronts, it would be unrealistic to hold out the hope that rapid and spectacular progress can be made in the initial period of planning. Within a limited period, there is always a measure of conflict between one objective and another and in the formation of a Plan for a given period, it is necessary to proceed in terms of priorities as between these objectives themselves laying more stress on some and less on others. This problem of balancing competing objectives is implicit in all planning and the quality of a plan depends upon the soundness of its judgments regarding the relative emphasis on the various objectives. Only to the extent that the Plan succeeds in striking a right balance can consistent policies be formulated and pursued. There is, to begin with, the problem of choosing, on the one hand, between a moderate increase in the standard of life in the near future with relatively small additions to capital equipment and, on the other, a substantially higher standard of life perhaps for the next generation at the cost of continued austerity and privation to the present generation in the interests of rapid capital formation. The implications of this choice have already been discussed in the previous chapter.

6. Secondly, while a fuller utilisation of the idle manpower in the country must be a major objective, and every effort must be made to create opportunities for work in the rural areas through improvements in agriculture, development of cottage and small-scale industries and extensive programmes of public works, especially in the slack season, the lack of the necessary equipment and other materials needed for improving labour productivity limits the fate at which idle manpower can be absorbed. There is, under these conditions, the risk of creating or perpetuating pseudo-employment, which might result in a rise in money incomes without a corresponding increase in the supply of the goods needed for sustaining the newly employed. The problem, as has been shown earlier, cannot be solved satisfactorily without a substantial increase in the productive equipment of the community, which, in turn, means more investment. While planning for fuller employment, it is also necessary to keep in mind the distinction between a pattern of employment which can be sustained after the development process has gone some way and a pattern that has to serve for the transitional stage. Rigidity of the occupational pattern is incompatible with rapid economic development. Steps must, undoubtedly, be taken to ensure the fullest possible utilisation, in furtherance of development programmes, of labour-power now running to waste, but the long-run objective must be to encourage rather than discourage the mobility of labour, geographical and occupational. //

7. The problem of unemployment among the educated middle classes in the urban areas is an instance of a failure of coordination between the system of education and the needs of the economic system. As a proportion of the total population, the number of educated men and women in the country is very small, and there is dearth of trained personnel of the requisite quality in business and industry as well as in public administration. Unemployment among the educated classes is to some extent a consequence of the excessive bias in the present educational system towards general literary education to the neglect of specialised, technical and vocational training. To some extent, the difficulties experienced by educated young men in finding employment are traceable to a certain reluctance on their part to take on occupations which involve hard manual work or work in somewhat uncongenial surroundings either in cities or in rural areas. The problem has many facets. Unemployment amongst highly qualified and trained personnel may, to some extent, be frictional or transitional in

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character, but it may also be due to lack of adjustment between demand and supply of such specialised personnel. Employment exchanges, closer contacts between educational institutions & employers, private or government, and other devices to encourage a better adjustment between demand and supply can alleviate the problem of middle class unemployment upto a point. But a large and continued increase in the demand for educated men and women can come only from a quickened tempo of development in the economy. As planning proceeds, there will be demands for personnel with various types of qualifications and training and meanwhile it is necessary to take steps to diversify and reorientate the educational system in keeping with the needs of a developing economy.

8. The decisions that have to be taken in regard to the reduction of economic inequalities within a given period also involve a weighing of diverse considerations. While it would be wrong in this sphere to think in static terms and to condone the existence or accentuation of sectional privileges, it is no less important to ensure a continuity of development without which, in fact, whatever measures, fiscal or other, might only end up in dislocating production and even jeopardizing the prospects of ordered growth.

9. There are risks in going too far or too fast in these matters, but the risks of not moving fast enough are no less serious. The decision as to the measure of risk to be undertaken must turn primarily on an appraisal of the capacity of the community to hold together under the stress of major structural changes and of its various sections to maintain a high standard of discipline and restraint while the necessary adjustments are taking place.

### ~~Democratic planning and the role of The State~~

10. The question of the techniques to be adopted for planning is linked up with the basic approach that a community decides to adopt for the realisation of its objectives. It is possible to have a plan based on regimentation and on immediate measures for levelling down in the hope ultimately of being able to level up. It is possible to take the view that mass enthusiasm cannot be created except on the basis of reprisals against those classes which have come to be associated in the public mind with the inequities and deficiencies of the old order. But the basic premise of democratic planning is that society can develop as an integral whole and that the position which particular

classes occupy at any given time. — a product of various historical forces for which no individual or class as such can be held responsible — can be altered without reliance on class hatreds or the use of violence. The need is to secure that the change is effected quickly and it is the positive duty of the State to promote this through all the measures at its command. The success of such planning no doubt depends on the classes in positions of power and privilege respecting the democratic system and appreciating the rapid changes it calls for.

11. It is clear that in the transformation of the economy that is called for the State will have to play the crucial role. Whether one thinks of the problem of capital formation or of the introduction of new techniques or of the extension of social services or of the over-all re-alignment of the productive forces and class relationships within society, one comes inevitably to the conclusion that a rapid expansion of the economic and social responsibilities of the State will alone be capable of satisfying the legitimate expectations of the people. This need not involve complete nationalisation of the means of production or elimination of private agencies in agriculture or business and industry. It does mean, however, a progressive widening of the public sector and a re-orientation of the private sector to the needs of a planned economy..

Relative shares of the public and private sectors in ownership of productive capital.

12. We should like to emphasise here that, as far as the ownership of productive capital assets (other than in agriculture, small-scale industry and transport, and in residential housing) is concerned, the share of the public sector is already large. The book value of gross fixed assets owned by the Central and State Governments, together with the working capital in the enterprises concerned, amounted to over Rs.1200 crores, at the end of 1950-51 (as compared to about Rs.875 crores at the end of 1947-48). The distribution of these was roughly as follows:

	(Rs. crores) <sup>II</sup>
Railways	837
Irrigation works (including multi-purpose river valley projects)	230
Communications and broadcasting	83
Electricity under- takings	49
Industries	44
Civil Aviation	10
Ports	8
Central Tractor Organisation	5
Total:	----- 1236 -----

The above estimate excludes the investment in motor transport. Strictly speaking, account should also be taken of the productive capital assets owned by port trusts, municipalities and other semi-public agencies which probably amounted to well over Rs.1000 crores.

13. The value of productive capital assets in the private sector (again excluding agriculture, small-scale industry and transport, and residential housing) in 1950 was not perhaps more than about Rs.1500 crores. According to the Census of Manufactures for 1949 the net productive capital employed in twenty-nine groups of factory industries amounted to only about Rs.510 crores; for the factory industries not covered by the Census, as well as to allow for depreciation (so as to make the estimates comparable with those for the public sector which give the gross value), an additional provision of Rs.600 crores might be made. The breakdown of the estimate of the value of total productive capital in the private sector, referred to above, would thus roughly be as

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follows:-

	(Rs. crores)
Factory establishments.	1110
Plantations	100
Electricity undertakings	70
Mines	30
Shipping and Aviation	32
Motor transport	130
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	1472
	-----

14. These estimates are necessarily rough, and relate to historical and not replacement value, which will be considerably higher in both cases, but they show that in the building up and maintenance of basic services essential for organised industry, and to some extent in industrial development itself, the State has already been playing a not insignificant part. It also suggests that the productive capital in industry and in services essential to it is so small compared to the needs of the country that, in the further accumulation of it, the two sectors can well supplement each other and need not necessarily expand at the expense of the one or the other.

### Relations between the public and the private sector

15. In the industrial sphere, the respective roles of the State and of private enterprise have been enunciated in the Industrial Policy Statement of 1948. In terms of this Resolution, the principle of Government ownership and control has been accepted in regard to a segment of the economy comprising

arms and ammunition, atomic energy and railways. It has also been stated that in regard to certain key industries like coal, iron and steel, aircraft manufacture, ship-building, manufacture of telephone, telegraph and wireless apparatus, etc., the State is to be responsible for further expansion except to the extent that it considers the co-operation of private enterprise necessary for the purpose. In the rest of the industrial field the initiative for development and the responsibility for management will rest on private enterprise. Government have, however, the right to acquire any undertaking in the public interest and to intervene in cases where the conduct of industry under private enterprise is not satisfactory.

16. The distinction between the public and the private sector is, it will be observed, one of relative emphasis; private enterprise should have a public purpose and there is no such thing under present conditions as completely unregulated and free private enterprise. Private enterprise functions within the conditions created largely by the State. Apart from the general protection that the State gives by way of the maintenance of law and order and the preservation of the sanctity of contracts, there are various devices by which private enterprise derives support from the Government through general or special assistance by way of tariffs, fiscal concessions, and other direct assistance, the incidence of which is on the community at large. In fact, as the experience of recent years has shown, major extensions of private enterprise can rarely be undertaken except through the assistance of the state in one form or another. The concept of private enterprise, as, indeed, of private property, is undergoing rapid change, and the view that private enterprise can function only on the basis of ~~unregulated~~ profits is already an anachronism. The process of reorientation should and is certain to continue and gather speed, and the problem is to see that the transition is smooth and orderly. Already in certain spheres of industry, units owned publicly and units under private enterprise are functioning side by side. The points of interaction between private and public enterprise are multiplying rapidly. In the maintenance of industrial peace and the promotion of a cooperative outlook between capital and labour, the State has necessarily to play a vital role. All these are indications that the private and the public sectors cannot be looked upon as anything like two separate entities; they are and must function as parts of a single organism.

17. Agriculture is traditionally a sphere in which the organisation of economic activity centres around the individual, backed by the cooperation of the members of the family. In a static subsistence economy this form of organisation was probably adequate to the limited purposes then in view. Under modern conditions, it is proving more and more inadequate. Here, again, whether we regard agriculture - and associated industries - as falling within the private sector or the public sector is more a matter of nomenclature than of substance; for it is almost impossible to secure the desired development in these fields without a great deal of initiative and active assistance on the part of the State. Not only must the State assume the responsibility for providing the basic services such as irrigation, power, roads and communications; it must also undertake direct promotional work by providing finance, marketing, technical advice and other assistance to agriculture through appropriate agencies. If the State undertakes these responsibilities, this will mean certain obligations which the agriculturist will have to undertake.

18. For the State to be in a position to discharge efficiently the varied responsibilities that it undertakes, it is necessary that all producers, agricultural as well as non-agricultural, accept certain obligations. For instance, since the State has to guarantee a fair distribution of the limited supplies of food, the farming community has to make available to it on reasonable terms the necessary supplies for distribution to non-producers. For similar reasons controls might be necessary on essential consumer goods like cloth and basic producer goods like steel. In a planned economy, thus, the private producer has to work, in essence, as an agent for utilising economically and to the best advantage of the community the productive resources at his disposal.

#### Organisational aspects of economic change.

19. Our conception of the public and the private sectors and the direction in which they ought to move is closely related to the problem of competing objectives we referred to earlier. This problem arises in an acute form in the early stages of planning mainly on account of deficiencies in organisation. The necessity for making a choice between reducing inequalities of income and raising the level of capital formation would not, for instance, be so serious if there were available at hand alternative channels for efficient mobilisation of resources. The limitations to a policy of full employment are similarly to a great extent on account of deficiencies in organisation in regard, on the one hand, to the supply and distribution of essential commodities, and, on the other, to the possibilities of directly mobilising manpower. The institutional changes that are now initiated have to be framed with two aims in view: first, to progress as far as possible even within the period of the



Plan towards the social objectives in view, and, second, to remove deficiencies in organisation which will make possible faster progress in the future.

20. In a country which is primarily agricultural and in which the pace of development in other sectors depends to a great extent on progress in agriculture, the system of ownership and management of land within which agricultural producers have to function is obviously of the highest significance. Large areas of the country have emerged only recently from forms of feudal organisation. Though a fair measure of progress has been made in protecting the cultivator against intermediaries in land, money-lenders and traders, a great deal has still to be done in order to enable the cultivators to function as an efficient agent of production in command of a reasonable size of holding and with access to productive credit and other facilities such as supply of seeds and manures. The question of ownership of land has also a wider social aspect which makes the reorganisation of the agrarian system a matter of prime national importance. Our detailed recommendations in respect of land policy to be followed in the period of the Plan have been set forth later in this Report. The organisational changes necessary in this sector do not relate merely to land ownership but cover a wider field including agricultural marketing and rural credit. The problem here is one of making a simultaneous advance along several lines and this, as we have emphasised elsewhere, involves a strengthening of the cooperative form of organisation for purposes of marketing, credit and production.

21. In the development of countries like the United Kingdom, trade and banking played a great part in mobilising resources for development. Mercantile profits, in fact, were the main source of funds for industrial expansion, while the growth of commercial banks provided the necessary working capital. Apart from the fact that there were special historical circumstances which favoured the accumulation of large profits from commerce in the initial stages of economic development in many of these countries, these means of promoting capital formation are not consistent with our other objectives. The expansion of trade has under our conditions, to be regarded as ancillary to agricultural and industrial development rather than as an initiating impulse in itself. In fact, in view of the urgent needs for investment in basic development, diversion of investment on any large scale to trade must be viewed as a misdirection of resources. Similarly, banking development and provision of credit facilities in an underdeveloped country raise special problems. To these we shall return presently.

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22. The distributive system needs special attention under planning. In a country subsisting on small commodity surpluses scattered widely, there is a tendency for capital to flow into trade in preference to production. Apart from the opportunities which a loosely-knit economic organisation gives for small trading establishments to spread themselves over extended lines of distribution, investment of capital in speculative trade gives better returns than in almost any other sector. The former may be regarded as another manifestation of under-employment but the latter is apt to become an obstacle to development. From the larger point of view of controlling relative prices and profitability as also for gaining control over the economy at strategic points, state trading at the wholesale level in respect of selected commodities could be used as a potent instrument of planning. In an economy in which profits from production are directly linked to marketability of the product, government operation of the distributive system at selected points is, prima facie, capable of producing even better results than direct control over production. The cost of living of the large majority of the people depends, for instance, on a relatively few commodities like foodgrains, cloth, sugar, kerosene and salt. Through state trading in these commodities, it would be possible to operate directly on the cost of living, and to aim at a rate of development which would otherwise be difficult. Public enterprise in the field of distributive trades, is however, likely to raise complex organisational problems. Our knowledge of the present distributive mechanism, its composition and structure and the way the various links in the system are related is at present inadequate, and it is therefore difficult to visualise fully the administrative problems involved. But the direction in which we have to move is clear, and a beginning has to be made during the period of the Plan. Before decisions can be taken, there is need for clearing up the factual position regarding the amount of capital involved, the profit margins, costs of operation, the number of people employed, and related aspects of the question. A Census of Distribution designed to throw light on these crucial aspects and covering a few selected commodities in the first instance would be of value in this context.

23. The limitations and deficiencies of organisational structure from the point of view of economic change can be made good, not necessarily by displacing private agencies but through supplementing them. Our

conception of the private sector comprises not only individual and corporate but also cooperative forms of organisation with special emphasis on the last. It includes the vast fields of primary production, of cottage and small scale industries, of marketing of agricultural produce, of residential housing and of wholesale and retail trade in which there is scope for rapid expansion of cooperative enterprise. The extension of the cooperative form of organisation to these varied activities has hardly been initiated in this country, but it appears certain that such extension holds out promise of securing the best results by way of increased production, the reduction of rent and profit margins and the building up of investible surpluses in the economy. If planning is to avoid excessive centralisation and bureaucratic control and is, at the same time, to hold in check the self-centred, acquisitive instincts of the individual producer or trader working for himself, the encouragement of cooperative enterprise must be given the highest priority. We should like to stress in particular the importance we attach to the progressive socialisation of agricultural marketing and of processing industries in the rural areas through the agency of cooperatives. The problems arising in this connection and the ways and means by which the State is to foster such development are referred to in appropriate contexts in the later chapters of this report.

#### Allocation of Resources and Price Policy.

24. The *raison d'être* of a planned economy is the fullest mobilisation of available resources and their allocation so as to secure optimum results. The problem of how this has to be brought about when the economy functions partly through private enterprise motivated by profit expectations and partly through Government ownership and direction deserves careful consideration. For the private sector, the prevailing price relationships are the prime factor in determining resource allocations. In the public sector, the direction of investment need not always and necessarily be guided by the profit-and-loss calculus. Nevertheless, the relation between costs and returns even in the public sector has to be judged, at least as a first approximation, in terms of market prices. It follows that the maintenance of a structure of prices which brings

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about an allocation of resources in conformity with the targets defined in the Plan must be the consistent aim of economic policy.

25. Over a longer period, and particularly in a period of rapid development, the structure of prices is bound to change. Even the level of prices is likely to go up. But such changes must as far as possible keep in step with improvement in the level of incomes as well as with shifts in their distribution; if they move in advance, they are likely to cause considerable hardships and lead to results which are the negation of our objectives.

26. Price policy, being partly a problem of allocation of resources and partly a question of ensuring reasonable equality of sacrifice among the different sections of the people, requires financial as well as physical controls. In the early stages, a development plan necessarily increases money incomes more rapidly than production. If these incomes are allowed to raise current consumption expenditures, they act immediately on prices, especially of articles like food which are in short supply. Such price inflation distorts the relationship between sectional price levels and encourages a diversion of productive resources to purposes which militate against the requirements of development. If continued for a long time, it generates economic instability and social unrest. To the extent that idle manpower and other resources can be used productively without any significant generation of additional money incomes, the inflation potential of a development programme can be minimised at the very start. But, to the extent that money incomes rise, the problem of holding inflationary pressures in check has to be faced.

27. Monetary and credit policy is a powerful instrument for securing the desired result. During the war and in the years immediately following, credit policy as an instrument of overall economic control had fallen into the background, but in recent years there has been a general tendency to revive its use. That credit control can exercise a healthy restraining influence on speculation and can assist in bringing about a better balance between aggregate demand and aggregate supply has been demonstrated by the distinct improvement in the price situation in the country since the raising of the bank rate and the adoption of a tighter credit policy by the Reserve Bank in November, 1951. The downward trend in prices in India had started before the announcement

of this new policy, and it is evident that international factors have also greatly influenced the course of domestic prices. Nevertheless the credit and financial policy of the Government have been a significant factor in the situation. About the middle of 1951, the index of wholesale prices was around 450; it went down to 367 in May, 1952, and has, of late, been around 390. The cost-of-living indices have not shown a comparable fall, and it cannot be said that the fall in wholesale prices warrants any relaxation of vigilance and caution in the matter of overall price policy. Effective credit control must therefore remain essential instrument for regulation of investment and business activity.

. Working capital requirements and organisation of the credit system.

28. Having emphasized the role of credit policy in keeping the economy on an even level we should like to refer also to another, somewhat different and more long-range, aspect of the matter in relation to developmental planning. A persistent upward trend in production and trade cannot be sustained without an expansion in the supply of money and credit. Over a period, therefore, it will be found necessary to expand money supply in the country in response to the increased volume of transactions in the economy. This must come about through extension of credit institutions which will impart the necessary elasticity to money supply without generating inflationary pressures. The large credit needs of agriculture and of industry, especially of cottage and small scale industries, cannot be met except through a network of credit institutions which will mobilise savings in the rural areas and disburse credit on a large scale to productive enterprises, individual, cooperative or joint-stock. In this process of development, the encouragement of larger savings from current income and of a productive use of them in place of mere hoarding will have to play the major part. But, at the same time, judicious credit creation somewhat in anticipation of the increase in production and the availability of genuine savings has also a part to play, for it is conceivable that without this kind of an initial push, the upward process may not start at all or may fail to gather momentum. The overall credit policy to be followed by the Central Bank in an underdeveloped country launching upon

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a process of development has, therefore, to be adapted to these requirements.

29. There is no doubt that the Reserve Bank of India, which is a nationalised institution, will play its appropriate part in furthering economic development along agreed lines. The Bank has succeeded in bringing the organised sector of the money market well under its control. It has recently initiated measures for the development of a bill market in India which will impart greater elasticity to the credit system. The Bank is also playing a more active role in the provision of rural finance and is devoting special attention to the problem of promoting banking development in parts of the country in which it has hitherto been lacking. These developments will strengthen the credit system materially. Under the Banking Companies Act, the Reserve Bank has wide powers for regulation and supervision of the credit policy of banks. More than these legal powers, it is, we feel, the moral prestige of the Reserve Bank and the close understanding between its management and the management of private banks that is of special importance in the alignment of the banking system to the needs of a planned economy.

30. The process of economic development, once started, will make new demands on the banking system, and this may necessitate changes in organisation and structure. Central banking in a planned economy can hardly be confined to the regulation of the overall supply of credit or to a somewhat negative regulation of the flow of bank credit. It would have to take on a direct and active role, firstly, in creating or helping to create the machinery needed for financing developmental activities all over the country and, secondly, in ensuring that the finance available flows in the directions intended. For the successful fulfilment of the Plan it may become necessary to direct special credit facilities to certain lines of high priority. Banking development, through the normal incentives of private banking, is apt to be a slow process, particularly in a country in which deposit banking and the use of cheques is likely to take root only slowly.

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among the masses of the people.\* In this field, the profit-motive may stand in the way of the extension of credit facilities to sections of the population which need them for rapid development. The proper discharge of its functions by the banking system will necessitate its operation more and more in the light of the priorities for development indicated in the Plan and less and less in terms of returns on capital. The banking system - and in fact the whole mechanism of finance including insurance, the stock exchanges and other institutions concerned with investment - will thus have to be fitted increasingly into the scheme of development visualised for the economy as a whole; for, it is only thus that the process of mobilising savings and of utilising them to the best advantage becomes socially purposive.

#### ~~Fiscal policy as an instrument of planning~~

31. Allied to the problem of credit policy is the question of fiscal policy in relation to planning. With the continuous expansion of Government functions and the increase in public expenditure this necessitates, fiscal policy may be said to be of even greater significance for influencing the volume and direction of economic activity. In the U.K., for instance, Government's total expenditure amounts to about 40 per cent, and, in Australia, it is about 30 per cent. These high proportions are, of course, a reflection of the large transfers from the public to the private sector through social insurance schemes and servicing of public debt. In India, the corresponding figure is at present of the order of 7 or 8 per cent, and this will inevitably rise rapidly as development proceeds. The process of development has always

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\* Since the profit earnings of banks are related to the ratio between their cash holdings and their loans and advances, there is an inherent bias in favour of sections of the population who are familiar with the use of cheques and will enable a reasonably high proportion of loans and advances to be maintained on the same cash base. On account of this, the motive-force behind extension of banking to less developed areas also tends to be in the first instance collection of deposits rather than distribution of credit for productive purposes. Where there is a fairly significant supply of pre-existing savings to be tapped, this process will soon lead to the normal cumulative growth of bank deposits and bank credit; in backward areas, however, the initial start may have to be given through a more active loans policy in respect of productive credit.

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inflationary possibilities, and it is necessary, if development is to be orderly and its incidence not unfair to those classes whose incomes are relatively fixed, that the accent of fiscal policy must throughout be on minimising inflationary pressures.

32. This vital consideration has been given due weight in determining the over-all target of development expenditure in the first Five Year Plan. At this level of expenditure, it has not been possible to provide finance for several projects which, on a longer view, must be taken up for execution. There is, of course, no way of expanding the size of the Plan except by increasing the resources available to the public sector. It is necessary also at the same time to see that the level of expenditure in the public sector and the devices used for finding the needed resources are not such as to react too adversely on the private sector, the development plans of which are of equal significance from the point of view of the community's interests. To mention this limitation on our present effort is, however, only to underline the need for a bolder policy in the future. The investment expenditure which, in the last analysis, a community can undertake depends, apart from whatever external resources may become available, upon the rate at which it can step up its savings; for, the problem is not just one of diverting investment from the private to the public sector, but of increasing the total.

33. An increase in aggregate investment implies, as stated earlier, a postponement in increases in the standard of living to the maximum extent possible, and fiscal policy is a major device for bringing about this result. Fiscal policy has at the same time to aim at a reduction in inequalities of income and wealth. There is clearly far more scope for cutting down consumption expenditure in the higher income groups than for tightening of the belt in the lower income ranges. The common man has, undoubtedly, to



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play his part in financing development, but, on grounds of economic as well as social policy, the more well-to-do classes have to contribute in proportion to their capacity to pay. The question is how this result is to be secured. Direct taxation of the rich is likely to impinge more on their savings than on their consumption. There is need for balancing the advantages of a greater equality of incomes and wealth against the disadvantage of a possible fall-in private savings and capital formation. This consideration has special reference to the problem of the immediate future, but, granted the basic assumptions of a planned economy, it cannot, over a period, be allowed to come in the way either of a progressive reduction of inequalities of income and wealth or of rapid capital formation.

34. The reasoning that direct taxes are apt to reduce savings rather than consumption expenditure and hence detrimental to capital formation is also valid only upto a point. In a system in which public investment has to play an active role, it is of secondary importance whether resources are transferred to the State in the form of taxes (in which case it would add to the savings of the State available for investment) or in the form of loans out of private savings, provided there is agreement on the priorities attached to the investment on public account. The real issue which affects both direct and indirect taxes equally is whether taxation is so high as to affect adversely the incentive to produce. Indirect taxation which increases costs of living could also be a disincentive. In this respect, an economy geared to rapid development calls for changes in the traditional attitude to reward for work. It is not without significance that forms of direct taxation which are today considered as the minimum essential in a modern society were in the initial stage regarded as inimical to progress. Similarly, though indirect taxation is generally regarded as regressive and somewhat unfair, the trend in countries which have moved rapidly towards greater equality of incomes has been for the share of indirect taxation to grow. In part, therefore, the problem is one of psychological adaptation to the changing needs of the times, and in part a question of whether alternative institutional arrangements can be made quickly enough to compensate for loss of incentives in certain strata of society.

35. The link up between inequalities of income and capital formation in the early stages of modern economic development in countries like Britain was due to a combination of circumstances in which the promotional and managerial abilities of a particular class had a direct part to play in initiating innovations, evolving new techniques of production and applying them on a commercial scale. The pioneers in the field of development had relatively few avenues open to them for luxurious living. A large proportion of the high incomes they received was thus ploughed back into industry thereby providing the basis for further expansion of the economy. Conspicuous consumption is a later phenomenon, and while it may have a place in rich countries where rapid expansion of consumption in all directions is in a way essential to the maintenance of a high level of economic activity, it is seriously detrimental in the conditions of an underdeveloped country. Though the resources which such consumption directly diverts away from capital formation may be small, it not only creates discontent in the community but also indirectly discourages saving in the economy as a whole by initiating a process of wasteful emulation. It is evident that in a planned economy in which the public sector takes over progressively the promotional and managerial functions necessary for development, neither large inequalities of income nor higher consumption standards for particular classes can be justified.

36. Death duties are an important equaliser of incomes and wealth. They are a levy on capital which does not have the same adverse psychological effects as other capital levies. They are capable, over a period, of reducing inequalities to an extent that only a violent upset of the system can achieve if the elimination of inequalities of income and wealth is made an immediate objective.

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Death duties are now an integral part of the system of taxation in advanced countries and they are levied in several underdeveloped countries as well. The rates of death duty in the U.K. are as high as 50 per cent and over on estates above £ 100,000 and they go up to 80 per cent on estates valued at over £ 1,000,000. The efficacy of death duties for correcting inequalities will depend, apart from the rates charged, the limit of exemption, the extent of evasion, etc., and on the extent to which checks are placed on individuals earning large incomes and accumulating wealth between successive capital transfers. With a high rate of progression in income tax rates and a structure of controls to regulate relative prices and profits, death duties can make a significant contribution towards reduction of inequalities.

### Sources of savings in the Economy.

37. There are at present three main sources of savings: savings by private individuals, that is, personal savings, savings by corporations, and public savings or surpluses in the public sector. In countries like the U.K. and U.S.A., the role of personal savings as a source of finance for development is no longer as important as it was in the early stages of development. Corporate savings provide in these countries a considerable part of finance needed; in the U.K., public savings, i.e., surpluses from taxation and from the receipts of commercial enterprises owned by Government are an important source for financing investment. Corporate savings come ultimately from profits; they represent a ploughing back of the funds that would otherwise have gone into the hands of the shareholders. To a certain extent, this is a desirable line of development, and it is proper to encourage capital formation in the private sector through differential taxation of distributed and undistributed profits. The limitation of this approach, however, is that it leads in the long run to a concentration of economic power in the hands of these corporations, and, through them, in the hands of a few people who happen to have a controlling interest in them. In a country like the United States, a country of corporations par excellence, it has been found difficult in practice to curb the monopoly power of these corporations in spite of anti-trust laws. In the pattern of development we envisage for India, it will, therefore, be necessary to lay more stress on cooperative rather than corporate savings. The cooperative form of organisation is capable of yielding the advantages of corporate

enterprise without some of its disadvantages. It is a form of organisation capable of attracting the small man, and members of cooperatives are likely to see easily the benefits that would accrue to them by devoting a substantial part of their current surplus to investment. The encouragement of the cooperative form of enterprise in all fields of activity, in agriculture, in trade, in finance, in marketing and in industry must, therefore, become a prime objective of Government policy.

38. And, finally, the State must itself raise, to the extent possible, through taxation, through loans and through surpluses earned on State enterprises a considerable proportion of the savings needed. In other words, public savings, as distinguished from private savings, personal or corporate, must be developed steadily. The financing of investment through public savings would help to ensure a pattern of development in consonance with accepted social criteria.

#### Prices, Production and Controls.

39. Prices are a resultant of all the varied forces acting on the economy from within as well as from without, and there is almost not aspect of governmental policy which does not, in one way or another, react on prices. Export-and-import policy, for instance, has a direct bearing on relative prices and profitability. Control and regulation of exports and imports, and in the case of certain select commodities State trading are necessary not only from the point of view of utilising to the best advantage the limited foreign exchange resources available but also for securing an allocation of the productive resources of the country in line with the targets defined in the Plan.

40. Increase in output, through fuller utilisation of capacity, through improvements in technical and managerial efficiency or through harder and more sustained work all round is basically the answer to inflationary pressures, and this would be a far better way of bringing supply and demand into equilibrium than some of the other devices which, while doing good, have also a somewhat depressing effect on the economy. But since, in the short period, there are limits to the increase in output that can be secured, there is need for making appropriate use of the other devices also.

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41. A major problem in this connection is the role of controls in a planned economy. This is a subject which has many aspects and it is possible in this field to fall into a doctrinaire approach which, however sound on abstract theoretical considerations, may prove unworkable in practice. On the other hand, an excessive elasticity of approach to this question may lead to a negation of planning itself. To some extent, over-all controls through fiscal, monetary and commercial policy can influence the allocation of resources, but physical controls are also necessary. Given the fact that, in the initial stages of development it is the excessive pressure on a few commodities which tends to limit the rate of progress, the extent to which physical controls are needed to supplement financial controls may even be regarded as a measure of the utilisation that is being made of surplus resources in the system like manpower. The targets of production defined in a plan cannot also be achieved unless a structure of relative prices favouring the desired allocation of resources is maintained. The working of controls during and the since the war has demonstrated clearly that if production in a particular line, say, foodgrains, has to be increased, the necessary incentive for the producer cannot be created unless the prices of alternative crops are controlled. In an economy which starts from a low level of output, increases in several lines of production will be found necessary. A simultaneous increase in production in all lines is not possible by merely raising the money reward for work. In the case of certain key commodities, it may be necessary to keep down their prices in order to obviate the need for price rises in several industries which use these commodities. To make this policy effective, controls on production and on movement and physical allocations to consumers become inescapable.

42. Controls in a word are the means by which Government maintains a balance between various sectional interests. Under certain circumstances the accent may be on the maintenance of certain price ceilings, and through these of the real purchasing power of the incomes accruing to certain classes. Under other conditions, the enforcement of certain minimum prices might be a necessary corollary to a policy of ensuring a reasonable rate of return on effort in certain lines of economic activity. Viewed in the proper perspective, controls are but an aspect of the problem of incentives, for to the extent ~~another~~ that controls limit the

freedom of action on the part of certain classes, they provide correspondingly an incentive to certain others, and the practical problem is always to balance the loss of satisfaction in one case against the gain in the other. For one to ask for fuller employment and more rapid development and at the same time to object to controls is obviously to support two contradictory objectives.

43. Most of the opposition to controls comes, however, from dissatisfaction with the working of particular controls. It must be recognised that controls ineffectively or inefficiently administered may do harm rather than good. It is also true that so long as the public regards controls as so many hindrances to be circumvented if possible, to be put up with otherwise, there will be resentment against controls. To a great extent this is a question of creating the right atmosphere by explaining to the public the relationship between controls and the rate of economic progress that the country can achieve. From this point of view it is an essential condition that the rationale of each control is made clear to the public and the rights and obligations of the parties affected defined in a manner which leaves little scope for doubt as to what is expected of the public and where redress can be had in case of any grievance. It is also vital to the success of controls to make the necessary adjustments in their working from time to time as the conditions governing the supply and demand of the commodities in question change. But, here again, whatever changes are made must accord with the objectives in view and should not throw in doubt the basis of the entire policy.

44. The difficulties of administering an extensive system of control in an economy organised by and large small units cannot be under-rated. Methods adopted successfully in other countries are not directly applicable to India. Effectiveness of controls under these conditions can be ensured only through control at strategic points and through encouraging producers' and consumers' organisations which will help to make the actual operation of controls smoother, less irksome and more efficient.

#### The pattern of priorities

45. It will be seen from the above that the priorities in planning and the relative emphasis as between objectives are conditioned to a great

extent by the techniques that can be used within a given period for attaining the objectives, and the techniques to be chosen are, in turn, influenced by the objectives in view. Once the decisions in regard to these are taken, the question arises as to priorities as between the different lines of expenditure to be undertaken. Given, in other words, the investment outlay to be undertaken on a consideration of the relative weights to be attached to the various competing objectives and of the techniques to be employed, the task before the planning authority is to determine the pattern of investment for the period in view. The demands of the economy for development are so large and so pressing that great care has to be taken in allocating the limited resources available. When one views development as a process over a period of years, there is no sector of the economy in which a large increase in investment would not be justified; in fact, it would be inescapable. Within a limited time horizon, however, the problem assumes a different aspect; first things have to come first. It follows that the conception of priorities over a period has to be a dynamic one, the emphasis as between different sectors shifting as development in those taken up initially prepares the ground for development in others.

16. For the immediate five year period, agriculture, including irrigation and power, must in our view have the topmost priority. For one thing, this emphasis is indicated by the need to complete projects in hand, but, further, we are convinced that without a substantial increase in the production of food and of raw materials needed for industry, it would be impossible to sustain a higher tempo of development in industry. In an under-developed economy with low yields in agriculture, there is of course no conflict between agricultural and industrial development. One cannot go far without the other; the two are complementary. It is necessary, however, on economic as well as on other grounds, first of all to strengthen the economy at the base and to create conditions of sufficiency and even plenitude in respect of food and raw materials, these are the wherewithals for further development. Japan, for instance, increased its agricultural production by 80 per cent in a generation and still required large scale imports of food and raw materials, Britain, which in the earlier stages of development, was in a strong position because of the earlier revolution that had taken place in farming practices and

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techniques, also emerged at the end of the process an importer of food and raw materials. Countries which start the process of development at this stage must as far as possible look for sources of supply of the necessary food and raw materials within their own borders. For India, with its varied resources, conditions are also favourable for securing a balanced pattern of development. The creation of a sizeable surplus in the agricultural sector and mobilisation of the same for sustaining increased employment in other sectors is fundamental to development as the experience of the U.S.S.R in the twenties and thirties shows.

47. The high priority given in the investment programme of the public sector to the improvement of agriculture limits inevitably the investment which the State can itself undertake in industries, especially large scale industries. Progress in this field would, therefore, at this stage depend to a great extent on effort in the private sector. The State in this initial period has to concentrate on the provision of basic services like power and transportation. The State has also special responsibility for developing key industries like iron and steel, heavy chemicals, manufacture of electrical equipment and the like, without which in the modern world continued development is impossible. In these fields it is necessary to anticipate to some extent the nature of the demands that will be made on them over a fairly long period; in fact, in these cases supply must come first for demand itself to develop at the required rate. The initial investment necessary for the development of such enterprises is large and the period of construction fairly long. A beginning in these directions has therefore to be made from the very start.

48. To the extent that the accent of the plan is on increasing production, the limitation of resources available would restrict the scope for expanding social services. And yet, it is obvious that no plan can succeed unless it "invests" in the improvement of the human material. Even from the point of view of increasing production, social services like education, technical training and



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and health bring in significant returns. Considerable advance in these directions can be made if the necessary urge to improvement is created among the people. The problem is partly psychological. There is also large scope in this field for direct community effort. The spread of literacy among the rural people, for example, can be secured by the literates in the community volunteering their services for carrying through a mass campaign for liquidation of illiteracy. The improvement of public health is often a matter of imparting elementary knowledge regarding sanitation and hygiene. Technical training is vital not only for the process of development itself but also for correcting the present bias in education which is responsible for unemployment in certain sections. In this respect, adequate provision for the finance needed must be made in the plan. At the same time, means must be found for stimulating among the people widespread interest in the application of modern technology to the many small problems familiar to them in ordinary life.

49. In view of the large unutilised and underutilised resources in the system, schemes for mobilising local effort for local development have to receive high priority. It is schemes of this type spread all over the country, more than major development projects, which are likely to activate these resources. Their contribution to the improvement of living conditions, small though it might appear at first, would in the aggregate and in terms of their cumulative psychological effects be more than proportionate to the initial investment involved. Programmes of community development based on this principle and aiming at an intensive all-round development of selected areas are of special value from this point of view.

## CHAPTER III

### ASSESSMENT OF RESOURCES

The Five-Year Plan outlined in the next Chapter relates directly to the public sector but has in view a programme of development for the entire economy. In the public sector are included the development programmes of the Central and State Governments and also of the commercial enterprises owned by them. The private sector covers the rest of the economy including corporate and cooperative institutions as well as small enterprises throughout the country in agriculture, industry, transport and finance. While the initiative for development in defined fields as well as the responsibility for coordinating the development programmes in the entire economy will lie with the State, private initiative and effort have also a significant part to play in the process of development. The development expenditure in the Plan referred to as such in this Report has to be related to the resources available to the public sector, but these have also to be linked up with the needs and resources of the private sector. There is, in other words, a single pool of investible resources on which the private and the public sectors have to draw. The problem is not merely to find resources for the public sector but to enlarge progressively the size of the common pool and to see that the total thus available is allocated between the two sectors in terms of agreed priorities.

2: The Five Year Plan as it is now being presented, involves an outlay of about Rs. 2069 crores by the Central and State Governments over the period 1951-53. On present calculations, the normal revenue and capital receipts of public authorities, including loans and grants received upto now from abroad, are expected to finance about Rs. 1404 crores of this expenditure. Deficit financing in the public sector - of which more will be said later - cannot at this stage be visualised in excess of about Rs. 290 crores. There is thus still left a gap of Rs. 365 crores which can be met only from external sources or, in the absence of it, by additional measures of internal taxation and borrowing.

3. It is clear that external resources are necessary in the early stages of development and that

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they could be a significant factor in eliminating bottlenecks and in helping to avoid dislocations which may have far-reaching consequences. In the conditions in which the country is placed today, however, a programme with relatively modest targets cannot be made inflexibly conditional on the availability of external resources. Development is a process in which once certain main lines of work have been commenced, supplementary investments have also to be undertaken. Thus there develops in stages a rate of expansion which cannot be slowed down without serious repercussions.

4. The outlay on development by the Central and State Governments in 1950-51, the base year for our calculations, was about Rs.232 crores. The development expenditure in 1951-52 has been tentatively estimated at Rs.285 crores. The budgeted outlay for the second year of the Plan is Rs.346 crores. In 1953-54, by when the expenditure on many of the projects in hand will have reached their peak levels, the total will exceed Rs.400 crores. If external assistance is not forthcoming to the extent necessary there will undoubtedly be scope for marginal adjustments, but a planned outlay of the order of Rs.2069 crores over the five-year period is necessary for maintaining the rate of growth of development expenditure visualised by us. The need for attaining a rate of investment in this period which could form the basis of more rapid advances in the following years and lay the foundation for balanced regional development in the next planning period has been an important consideration in determining the development programme in this Plan.

5. The problem of resources is basic to the whole question of planning. It is, therefore, necessary to be clear not only as to the basis on which the Plan is built, but also about the implications of the different methods and techniques which are visualised for meeting the requirements of development in this period. The various aspects of this problem are discussed in some detail under the following heads:-

- I. Taxation and public savings as a source of development finance;
- II. Budgetary resources of the Central and State Governments;
- III. Deficit financing;

IV. External resources and the problem of foreign exchange; and

V. The problem of mobilising financial and physical resources.

I. Taxation and public savings as a source of development finance.

#### Magnitude of savings in the economy

6. Though the outlay in the Plan itself relates directly to developmental expenditure by public authorities, the problem of resources for meeting this outlay has to be viewed, as already mentioned, in a wider setting. For the country as a whole, the resources that can be applied to development depend on the level of aggregate output that can be attained and on the consumption requirements of the community. The larger the output and the lower the consumption requirements, the greater would be the productive resources available for building up the human and material resources of the country for the future. The precise division of responsibility for development between the public and the private sectors is mainly a question of internal arrangements depending on the objectives in view and what seems to the community the most effective and acceptable means of achieving them; once this is agreed upon for the period of the Plan, appropriate measures could and have to be devised for the necessary division of resources. But an assessment of the total resources available to the country as a whole for development is necessary for analysing the full implications of the arrangements proposed for financing the Plan in the public sector.

7. The data available in India for an analysis of output and consumption requirements by different sectors are altogether inadequate. There is only scattered information which might be pieced together for forming an idea of the nature of the problem and of the orders of magnitude involved. Some rough estimates have been attempted for this purpose in the Appendix on 'National Budgeting and the Plan'. These estimates place India's national income in 1950-51 at around Rs. 9000 crores. Of this, the savings available for net investment were probably not much more than Rs. 450 crores. The Five Year Plan

is roughly estimated to raise the national product by about Rs.1000 crores by the end of the five years. Over one half of this increase will be absorbed by the needs of the increase in the population in the meanwhile. It is clear, therefore, that if capital formation from out of domestic resources is raised by 50 per cent in the course of this period i.e., from about Rs.450 crores in 1950-51 to Rs.675 crore by 1955-56, it would in effect be taking away about half of what is left over from the increase in the national product for raising standards of living. But raising capital formation from domestic resources by 50 per cent is not an excessively high target in view of the considerations we have set out in Chapter I. As a proportion of the total increase in national output by 1955-56 the increase in resources devoted to investment would be only about 20 per cent. It should be emphasised that this proportion of reinvestment from the additional output, which is involved in reaching the target, will be necessary to sustain the rate of development we visualise in this five year period.

8. In comparing the total domestic resources that might thus be available - say about Rs.2700 to 2800 crores over the five year period - with the development expenditure in the public sector proposed in the Plan, it must be borne in mind that net investment is a restricted concept which covers, in the main, only net additions to capital equipment and building construction. The outlay of Rs.2009 crores by public authorities in the five year period will include not only such additions but also expenditures of a recurring nature on agricultural extension services, health, education, community projects, etc., which may amount to about Rs.400 crore over the period of the Plan. The net investment in the programme, comparable to the estimate of savings referred to above, will therefore be of the order of Rs.1600-1700 crores, which means that the Plan would require channelling through the public sector about 60 per cent of the savings of the community in this period.

9. The releases from India's sterling balances will reduce the share of savings to be channelled through the public sector to about 50 per cent. Normally, even half of the investible resources of a country being diverted in this way would be considered a high proportion. But this we regard as inevitable in India at this stage considering the urgent need for investment in spheres like irrigation, power and transport which do not normally attract private agencies but which

are pre-requisites to the further expansion of the economy. Moreover the State is not as it were drawing from a given capital fund; it is in a position, through fiscal and other measures, to regulate consumption standards within limits and thus release for investment resources which might not otherwise have been forthcoming. As mentioned in an earlier chapter, enlargement of public savings through taxation and through the earnings of public enterprises is one of the major means open in the present state of our organisation to raise significantly the level of net savings in the country.

#### Narrow Coverage of tax revenues.

10. India's total tax revenue in 1950-51 (including the tax revenues of both the Central and the State Governments) amounted to a little over Rs.625 crores, nearly Rs.50 crores of which was on account of export duties. As a proportion of national income i.e., about 7 percent, this level of revenue represents one of the lowest in the world. Taking the revenues of the central governments alone (that is, excluding revenues of local authorities in all cases and of State governments in the case of federations), the proportion of tax revenue to national income is as high as 35 per cent in the United Kingdom, 22 per cent in Australia, 23 per cent in the United States and in Japan, 27 per cent in New Zealand, 19 per cent in Canada, and 20 per cent even in Ceylon. Too much should not be read into this comparison as yields from taxation depend not only on the facilities for collection afforded by particular structural factors (as when corporate incomes are a large proportion of the national income or foreign trade accounts for a considerable part of the transactions) but also on the absolute levels of per capita income. Much also depends on the importance of monetary transactions in the economy; when a large part of the production is raised by the labour of peasant families and directly consumed by them, the scope for organising taxation would be obviously smaller than if the operations were being conducted through markets and result in monetary transactions. Yet the comparison has its significance, for if the proportion of the national income covered by taxation is as small as it is in India today the public sector cannot, in the immediate future,

increase its savings to any significant extent and thus either raise the level of investment in the economy as a whole or provide social services on an adequate scale.

11. A striking feature of the present structure of taxation in India is the relatively narrow range of population affected by it to any appreciable extent. About 28 per cent of the total tax revenue comes from direct taxation\* which directly affects only about half of 1 per cent of the working force in the country estimated at 133 million in 1948-49. Another 17 per cent is accounted for by import duties, a considerable part of which is derived from taxation of commodities like motor vehicles, motor spirit and oils, high-quality tobacco, silk and silk manufactures, liquors and wines, etc., which affect but a relatively small section of the population. A large proportion of the excise duties on tobacco and cloth, which yield about 8 per cent of the total tax revenue, is also probably paid by the limited number of consumers whose use the better varieties. Given the structure of incomes in the country it is of course inevitable that the coverage of direct taxation should be narrow; it is also right that an element of progression should be introduced through higher taxes on commodities which, relatively to the general pattern of consumption of the community, may be regarded as luxuries. In fact, ways and means for raising the revenue from these sources must be constantly explored. But if as much as one-third or more of total tax revenue is derived from certain limited strata of society it implies that the burden of taxation spread over the rest of the community is correspondingly lighter and that relatively small increases in the rates of taxation on the latter will help to add significantly to total tax revenue.

12. In this connection it may be recalled that, in countries which are largely agricultural, and in which transactions involving money are a smaller proportion than in more industrialised systems, land has been traditionally an important basis for taxation. In Japan, when its programme of industrialisation was being initiated in the 1870's, taxation of land yielded as much as 13 per cent of the value of gross agricultural produce; even thirty years later, when other forms of taxation had developed, land tax accounted for nearly half of the total tax revenue of the government. Thus, in a sense, it was taxation of land which in Japan provided the initial resources required for development.

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\*Whether land revenue is a direct or an indirect tax is a somewhat controversial point. For the purpose of the calculations here it has been treated as an indirect tax.

In India also land taxation was high before the last War and, in the depression years, it weighed heavily on the farmer. In the last decade prices have moved in favour of primary commodities and, since in most parts of the country land revenue has not been raised upwards, the burden of this tax has been considerably lightened. It is reflected partly in the fact that land revenue contributes at present only about 8 per cent of the total tax revenue as compared to about 25 per cent in 1939. The rise in agricultural prices has however benefited significantly only producers with sufficiently large marketable surpluses; it is also true that costs of production have gone up in many cases. The improvement in prices cannot therefore of itself be made the basis for a substantial upward revision of the tax on land. But within the context of a development programme designed as much to raise agricultural prosperity as to promote all-round economic development, a programme towards which all sections of the community have to contribute to the maximum extent possible, there is a case for moderate upward revision of land revenue. At the moment the capacity of the agricultural sector to bear further additions is limited, but this will no doubt improve as the programme of development gets into swing and, with additional irrigation and other facilities, agricultural productivity is stepped up. Betterment levies designed to draw into the public exchequer a proportion of the capital gains that accrue to private parties as a result of development are a recognised device for strengthening public savings. It is of the essence of rapid development that, consistently with the need to raise the standards of living of the poorer sections of the community, as much of the additional incomes generated should be ploughed back into the system by way of investment for still more rapid increases in output.

13. Apart from the question of legal coverage, there is the question of actual coverage which is a function of the administrative arrangements for securing that those liable to tax do in fact pay. In India it would appear that there are considerable leakages on this account. The following table shows estimates of income assessed to income and super taxes as well as the amounts paid by way of these taxes in the various income ranges in 1950-51.



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Income range (rupees)	No. of Assessees (thousands)	Total income assessed to tax* (Rs. crores)	Yield of income & super taxes (Rs crores)
0-5000	236.8	81.0	2.3
5000-10,000	134.4	93.2	5.1
10,000-40,000	86.9	152.9	24.9
40,000-100,000	10.1	59.9	23.3
100,000 & over	4.2	187.7	99.4
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	472.4 @	574.7	155.0
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It will be seen from this that, though there is undoubtedly a strong case on grounds of equity for making the higher income groups bear a larger share of the burden of development, fairly large proportions of the incomes in the higher ranges, in so far as they are covered by the administrative machinery, are absorbed by direct taxation even at existing rates. Over a wide range, there is, however, evasion of taxation. The reports of the Income Tax Investigation Commission show that such evasion takes place in the middle as well as higher income ranges. The fact that the corporate form of organisation is confined to a limited sector of business renders the problem of checking evasion difficult, particularly in regard to trading operations. Even where the corporate form exists, the close inter-locking of managerial and other controlling interest in industry, trade and finance offers to the unscrupulous opportunities for evasion. If such evasions could be stopped, it might make a considerable addition to the receipts under direct taxation.

14. Where the scope of direct taxation is limited, the incomes of the greater part of the population can be reached only through taxation of commodities. As mentioned earlier, an element of progression can be introduced through higher taxes on commodities which relatively to the general pattern of consumption in the community, may be regarded as luxuries. In the United Kingdom direct taxes on incomes cover a large sector and the need to rely on indirect taxation is correspon-

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\*Income assessed to tax is after allowing for depreciation allowances of business enterprises, earned income relief, etc.

@Since 1950-51, the number of assesseees on the register has gone up to about 850,000. Part of this increase is accounted for by the inclusion of assesseees in Part B States, but there has also been considerable improvement in the reporting of assessable incomes in the lower ranges.

dingly less; import and excise duties, however, are still heavy enough to account for a sixth of the total personal consumption expenditure in the country.\* In India, apart from these two sources, it is clear that increasing reliance will have to be placed on sales taxes. Through sales taxes can be reached commodities not covered by either import or excise duties; they have also the advantage that they can be adjusted to particular administration; it has to be ensured that those liable to tax do in fact pay so that progressively the legal coverage of sales taxes could also be extended to cover a larger range of trading activity.

15. The narrow coverage of taxation is responsible to a great extent for the relatively small proportion of the national income absorbed by the government in the form of tax revenues. It also accounts partly for the existing level of taxation appearing to be heavy. Both ways it restricts the extent of public savings. The narrow coverage of existing taxation has the further indirect effect of increasing the dangers of deficit financing. For the smaller the proportion of the additional incomes mopped up by taxation, the greater would tend to be the pressure of demand on output arising from a given measure of deficit financing.

#### Scope for higher taxation

16. These are matters which cannot be overlooked in framing a programme of development, especially when it is clear that with net savings of about 5 per cent of the national income the rate of progress that can be attained will be extremely limited. In the initial stages of planning, however, the size of the programme as well as the sources of finance will have to be fixed keeping in view what can be achieved through existing institutions and the available administrative and fiscal machinery. Taxation has also its limitations within a given political and economic structure. Turnover taxes on the scale in evidence, for instance, in the Soviet Union involve

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\*Much the greater part of this revenue comes from tobacco and alcohol.

a degree of organisational control over production and internal trade which again cannot be realised in India in the near future. While, therefore, taxation policy in India must be designed to raise the level of tax revenues to meet the needs of development, it will have to be adjusted also to the economic and social framework within which development has to start.

17. According to present estimates, by the end of the Five Year Plan, the tax revenues of the Central and State Governments are likely to be about Rs. 70-80 crores higher than in 1950-51; if there are unexpected receipts on account of items like export duties the increase may be of the order of Rs. 100 crores. This estimate covers the normal increases that might be expected at the existing rates of taxation as well as the estimated yields from a variety of measures like increases in the taxes on land, higher irrigation rates, death duties, betterment levies, better Administration with wider coverage of sales tax, higher taxes on luxuries, etc. Some of these, it will be noticed, are taxes on capital transfers and capital gains and not strictly taxes on current income. But assuming normal conditions, the increased rates of taxation, together with these levies on capital transfers and capital gains, will only enable the level of tax revenues to be maintained at about 7 per cent of the national income even at the end of the Plan. If conditions abroad are favourable for raising larger revenue from export duties than has been assumed in our estimates, and if it is also found possible to raise direct taxation, total tax revenues could be raised by about Rs. 30 crores per annum, but the difference it would make to the above percentage would be small. Apart from this, we should emphasize that unless fiscal policy and the machinery of taxation are re-orientated so as to obtain a significantly wider coverage the tendency will be not only for tax revenues to fall as a proportion of further additions to national income but to make the sharing of the burden of development increasingly iniquitous.

## II. Budgetary resources of the central and State Government

### Classification of sources

18. The financial resources available to a government for development can be broadly distinguished as of two kinds: (a) the savings it can make from current revenues and from the earnings of State enterprises after meeting its non-developmental expenditures, and (b) the private savings it can draw upon through loans, small savings, deposits

and funds, and other miscellaneous channels. A grouping of the resources of the Central and State Governments, which follows strictly the distinction between these two categories of savings and also adheres to a definition of 'net savings' corresponding to that of net investment referred to earlier, would require considerable reclassification of budgetary accounts. From the operational point of view also, such a rigid analysis has its limitations. For the purposes of our analysis here, a somewhat looser grouping has therefore to be attempted.

19. The Five Year Plan treats as development expenditure not only additions to fixed capital equipment and building constructions figuring in the revenue and capital accounts of the Central and State Governments but also initial recurring expenditures on social services, agricultural extension services, etc., which are almost invariably financed from current revenues. On the other hand, capital expenditure on items like defence is non-developmental from the point of view of the Plan. The savings of the public sector, corresponding to this definition of development, are therefore the surpluses of revenue over such consumption expenditures of the government as have been treated as non-developmental in the Plan\*.

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\* While expenditure on defence and administration, whether on revenue or capital account, would thus be deducted from current revenues, development expenditures in the Plan met from revenue would be excluded. In other words public savings would be equal to total current revenues minus expenditure of a non-developmental nature on revenue account and also minus any non-developmental expenditures on capital account other than capital transfers which as explained below, are deducted appropriately in calculating the net capital receipts of the government from the private sector.

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As for estimates of private savings which the Government might draw upon, the net receipts from loans, small savings and other unfunded debt, deposits and funds, etc., would obviously come under this category. But there are a number of transfers within the Government budgets, from the revenue to capital accounts as well as between the capital accounts of the various federal units, some of which may represent additions to public saving and should really be included under that head. These items cannot be traced without detailed scrutiny. They are therefore apt to come under our estimate of private savings channelled into the public sector through 'deposits, funds, and other miscellaneous services'@

#### Growth of public savings and capital receipts

20. Classifying in this way the budgetary resources likely to be available to the Central and State Governments over the period 1951-56, public savings, it is estimated, will finance about Rs. 738 crores of the expenditure visualised in the Five Year Plan. Capital receipts are expected to contribute another Rs. 520 crores. The two sources will together meet about Rs. 1258 crores of the planned outlay of Rs. 2069 crores.

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@ Net receipts under these heads are calculated after deducting capital transfers from the Government to the private sector on account of refunds of Excess Profits Tax and Income Tax Deposits, loans by Government of a non-developmental nature, etc. Receipts under these heads by way of withdrawals from reserves are also deducted.

21. ~~What these estimates imply can be seen with~~ advantage in the light of the actuals for a past year. If we take 1950-51 as the base, public savings estimated on a comparable basis work out to about Rs. 145 crores. The estimate for public savings for the five-year period thus only about maintains on an average the level reached in the base year. The fact that no significant increases over this level are visualised in the estimates in spite of the anticipated increase in tax revenues over the period of the Plan is explained mainly by two factors. In the first place, windfall revenues from export duties and from arrears of income tax had helped the Central Government to develop a substantial revenue surplus in 1950-51. In 1951-52 there was an even larger surplus, but the subsequent recession abroad, makes the recurrence of such surpluses problematic. The maintenance of the level of public savings on an average at the level reached in 1950-51 therefore itself presumes additional revenues from other sources. Secondly, the outlay on defence has risen substantially since the base year, the budgeted provision for 1952-53 being about Rs. 215 crores as compared to the expenditure of Rs. 168 crores in 1950-51. The growth in defence expenditure is accounted for by the needs of the infant services (i.e., the Navy and the Air Force) and by the large scale replacement of equipment throughout the defence services which has been found necessary. Under these heads it is at this stage difficult to visualise any substantial economies in the Plan period. There is also urgent need for establishing defence industries of key importance, though the sums that can be provided for these are at present only a small proportion of the investment needed.

22. The main improvement expected in the resources position of the Central and State Governments from the point of view of development is in respect of capital receipts. In 1950-51, the net yield from loans, small savings, deposits and funds, and other miscellaneous sources amounted to about Rs. 77 crores; of this Rs. 16 crores was however in the nature of extraordinary receipts under state trading. Over the period of the plan the same sources are estimated to yield Rs. 520 crores, showing an improvement on an average of the order of Rs. 43 crores per annum. In 1950-51 the Central Government had no net receipts from deposits, funds, and other miscellaneous sources mainly because of large refunds of excess profits tax and income tax deposits and certain extraordinary items of payment which fell due. The revised estimates for 1951-52 and the budget estimates for 1952-53 show that the net receipts of the Centre under the same heads would amount to about Rs. 31 crores in these two years. The estimate for the Plan period also takes credit for receipts of the order of Rs. 11 crores from certain capital accretions on account of the Plan\*. In addition to the above the subscriptions to government loans are expected to register substantial increases. Investment in government securities from out of the proceeds of the newly constituted provident fund for industrial workers is estimated to yield Rs. 36 crores. As will be explained later, the absorption of securities by the market was exceptionally low in 1950-51 for much the same reason that account for high public savings in that year.

23. The financial programme as outlined here does not presume any radical changes in the machinery of taxation or in the techniques of borrowing. There is no doubt that there is considerable scope for improvement in both. Techniques of borrowing, in particular, have to be adapted so as to convey to the people the larger purposes for which the loans are being raised and to facilitate their participation in the development programme on the largest possible scale. Ways and means of checking the growth of non-development expenditures have also to be continuously and unremittingly pursued. To these we shall come back at a later stage.

Responsibility for raising resources:  
Division between Centre and States\*\*

24. The above assessment of resources available

- \* These receipts are from land reclamation and from the development of the Andamans.  
\*\* In this chapter, Part C States have been included under the Centre, and 'States' refer only to Part A and B States and Kashmir.

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for the Plan, in so far as it concerns the Central Government, has been made in the light of the revised estimates for 1951-52 and the budget estimates for 1952-53. In the case of the States we have retained for the present the estimates made over a year ago and have also provisionally assumed that, corresponding to certain increases in net outlay proposed by some of the State Governments, the additional resources necessary would also be found by them from current revenues. The greater part of these increases is of an accounting nature since they arise from inclusion of development schemes which were being implemented out of the resources of the States but had not been previously treated as such. It is clear however that a reappraisal of State finances will be necessary in the near future, particularly in the light of the recommendations of the Finance Commission. The following table, which gives the breakdown of the estimates, for 1950-51 as well as for the Plan period, shows the divisions of responsibility between the Centre and the States for raising resources as it is now visualised. (For table see next page).



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	Base year 1950-51			Plan Period 1951-56		
	Centre (includ- ing Part C States.	Parts 'A' and 'B' States & <u>Kashmir</u>	<u>Total</u>	Centre (includ- ing Part 'C' States)	Part A and B States and <u>Kashmir</u>	<u>Total</u>
Public Savings from						
(a) current revenues	71	51	122	160	408*	568
(b) railways	23	-	23	170	-	170
Private savings absorbed through						
(a) loans from the public	-11	8	-3	36**	79	115
(b) small savings and other unfunded debt	42	-	42	270	-	270
(c) deposits, funds and other miscellaneous sources (net)	-	38	38***	90	45	135
<u>T o t a l :</u>	<u>125</u>	<u>97</u>	<u>222</u>	<u>726</u>	<u>532</u>	<u>1258</u>

\* Includes Rs. 3 crores estimated as available from the current revenues of Kashmir for financing the State Plan.

\*\* Represents estimated investment in government securities from out of the provident funds of industrial workers; taking this into account provision is made in the Plan for loans and grants for industrial housing of the order of Rs. 38.5 crores.

\*\*\* Of this Rs. 16 crores was on account of State Trading through reduction in stocks. Some of the accumulation in the States is also perhaps due to delays in transfer of amounts due to the Centre.

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25. According to the financial programme drawn up last year in support of the State Plans, the State Governments were in all to raise about Rs. 213 crores of additional revenue over the five years. This would now have to go up to Rs. 232 crores on account of the further addition of Rs.19 crores by some of the States to the outlay in their Plans. Measures to be adopted in respect of about three-fourths of this amount were settled in consultation with the State Governments concerned; the nature of the measures contemplated will be evident from the following table:

	(Rs. crores)
Revenue from taxation on land (covering land revenue and agricultural income tax)	34.0
Revenue from irrigation (covering irrigation rates and betterment levies)	29.5
Revenue from other commercial ventures of the State (i.e. forests, electricity and minerals)	4.8
Revenue from capital transfers (i.e. from Estate Duties)	21.3
Revenue from taxation of general commercial activity (i.e. Sales Tax)	25.5
Revenue from other miscellaneous sources (including taxes on luxuries)	37.5
Revenue from economies in non-development expenditure	12.4
	-----
	165.0 @
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 @ The need for raising the remaining Rs. 67 crores has arisen mainly out of the proposals made by some of the State Governments, subsequent to the consultations with the Commission, for raising the size of their State Plan. The upward revision in the targets of expenditure have been accepted provisionally on the condition that the resources corresponding to these would be raised by the governments concerned.

26. The estimate of the total additional resources to be raised by State Governments for the implementation of the development programme was based on preliminary estimates made early in 1951 which indicated an overall deficit in the State budgets of the order of over Rs.3000 crores. The year show that the budgetary deficits of State Governments were in fact much smaller. Compared to the revenues realised in 1950-51, therefore, the States would not have to raise additional resources of the order estimated earlier if expenditure not covered by the Plan under administrative as well as developmental heads like education, health, etc. were not allowed to exceed the original estimates. In practice, as will be mentioned later, the revenues of State Governments have continued to rise even above the 1950-51 level--without the measures contemplated for raising additional resources being taken on any significant scale--but non-Plan expenditures have been rising even faster with the result that the original target in regard to additional resources has to be still more or less maintained.

#### The borrowing programme

27. The borrowing programme of the Centre and the States involves in all raising an amount of Rs. 38500 crores over five years. This includes loans, as well as small savings and other unfunded debt, but excludes possible net receipts from treasury bills and other floating debt. In 1950-51 loans, small savings and other unfunded debt yielded a net sum of only about Rs. 3900 crores; in respect of loans there was in fact a net outflow. Over the period of the Plan, investment in government securities from out of the provident funds of industrial workers is expected to yield about Rs. 3600 crores. The scope for government borrowing has also to be judged in the light of several other factors. During the war, when money was plentiful and the general level of liquidity high, the market was naturally more receptive to long and medium-term loans. But to the extent that the holdings of long- and medium terms securities at the end of the war were higher than what the community would normally have held, they were (along with the large holdings of money) part of the latent inflationary potential in the country left by the war. Since the end of the war there has been a marked shift in favour of more liquid assets. The large scale liquidation of securities in the

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post-war period may therefore be regarded in a sense as part of the adjustments involved in the return to a more normal pattern of asset holdings. It is difficult to say to what extent this process has been completed or in which direction the preferences of the community might move in future, but it would appear that at least the market for short-term and medium-term loans is more favourable than it has been for some time.

28. In 1950-51 there were exceptional factors, following the outbreak of the Korean War, which encouraged sections of the community to move away from holdings of money to holdings of commodities. The large scale liquidation of government securities by the commercial banking system, which was a major factor in depressing the market for these securities, was a feature resulting from this movement. In that year the Central and State Governments also sold fairly large amounts from their own holdings of securities. The net absorptive capacity of the market in regard to Government loans cannot therefore be assessed with reference to 1950-51, though it is noteworthy that, even in that year, the non-banking sector of the economy did probably absorb a considerable part of the securities thrown on the market.\*

29. In estimating the resources of the Central and State Governments, it may be emphasised, we have not taken credit for the possible receipts from sale of government securities held in the Cash Balance Investment Accounts. It follows that the entire savings of the community likely to go into Government securities could be taken credit for as available for fresh issues. The new links that are being established between the Reserve Bank and the commercial banking system will also furnish the latter with the means of preserving liquidity in times of heavy demand without having to unload securities on a large scale. Two factors which affected adversely the absorptive capacity of the market in regard to fresh issues in 1950-51 are thus likely to be less prominent in the future.

30. The outlook in regard to small savings is also distinctly better over the Plan period than it was in 1950-51. From Rs. 33.5 crores in that year the budgeted figure for 1952-53 has gone up already to Rs. 44.5 crores. Together with other unfunded debt the average annual rate of Rs. 54 crores visualised as part of the

\* The following statement shows the changes in holdings of Central Government rupee loans (excluding Treasury Bills and Treasury Deposit Receipts as well as Ways and Means Advances) between June 1950 and June 1951:

(foot note continued on next page)

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financial programme should be therefore relatively easy of achievement. The objective must in fact be to surpass this target. It has been agreed recently that proceeds from small savings collected by the States in excess of the present level of Rs. 44.5 crores will be retained by the States responsible for raising them, the amounts thus retained being treated as loans from the Centre. This arrangement is designed to promote the small savings campaign more effectively by helping the State Governments to link up small saving with schemes of local development in which the people are directly interested.

#### Sharing of resources between the Centre and the States

31. Over the period of the Plan, there will be a flow of assistance from the Centre to the States under a variety of heads. Apart from grants-in-aid of a statutory nature, the States will receive assistance in the form of loans for river valley schemes, minor irrigation, rehabilitation of displaced persons, community projects, cottage and small scale industries and other schemes of development included in the Plan as well as grants from the Central Road Fund for construction of roads, grants for relief of displaced persons, grants for raising food production, etc. For operational reasons, many of the schemes of development for which the assistance mentioned above will be given are included in the Plan as part of the development schemes of the Central Government, and so the estimated assistance for the State Plans as such works out to only about Rs. 193 crores.\* But this, we must emphasise, is only a matter

foot note from pre-page

	(Rs. crores)	
	June <u>1950</u>	June <u>1951</u>
Total current rupee loans :	1447	1447
Of which held by:		
(1) Reserve Bank of India:-		
a. on its own account	247	330
b. on account of others	217	203
(2) Commercial & Cooperative Banks	358	299
(3) Insurance Companies	113	113
(4) Part A & B States	209	148
(5) Non-residents	61	60
(6) <u>Others</u>	<u>242</u>	<u>294</u>

\* Of this Rs. 10 crores will be for Kashmir.

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of presentation and the share of the States in the development programme of the public sector, as well as the magnitude of the transfers which will be necessary from the Centre to the States, are both very much larger than would appear at first sight.

32. In the "Central assistance" as estimated for operational purposes, referred to above, has been included assistance only under the following heads: bonuses on food procurement (now discontinued), grants and loans for the Grow More Food campaign, special grants to Part B States for development, and loans for 'miscellaneous development.\* The contribution which these would make to the financing of the State Plans will be evident from the following statement which compares the position in 1950-51 with the estimates in the Plan:

	(Rs. crores)	
	<u>1950-51</u>	<u>1951-56</u>
Resources of Part A and B States and Kashmir	97	532
"Central Assistance"	31	193 plus
Total Resources available for Development Expenditure	128	729
Development Expenditure as in the State Plans	118	796
Surplus (+) or Deficit (-)	+10	-67

33. From a preliminary review of the working of the State Plans in 1951-52 and the budgets of the State Governments for 1952-53, it would appear that the task of organising finances to the pattern outlined in the above paragraphs has by and large yet to begin. In 1951-52 the developmental expenditure of the States was about Rs. 135 crores, which is about Rs. 24 crores lower than the average annual rate contemplated over the period.

\* Loans for "miscellaneous development" is a budgetary head which includes loans for irrigation and power projects, industries, etc.  
 Ø Includes assistance of Rs. 10 crores for the Kashmir State Plan and Rs. 4 crores to be given by way of statutory grants for scheduled tribes which will be available for part of the development expenditure on scheduled tribes in the Assam State Plan

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of the Plan; the "Central assistance" in 1951-52 amounted to a little over Rs 34 crores, and the States were also able to raise nearly Rs 11 crores by way of loans from the public. The short-fall in resources was still as high as Rs 68 crores, and this had to be met by drawing down reserves. The reserves of the State Governments are limited and this process cannot go on for long. There were of course special factors in 1951-52 to account for the pressure on State finances, like famine and floods in several States and a marked accumulation of food stocks. It is also true that larger deficits were anticipated in the State budgets in the initial years of the Plan than in the later years. The magnitude of the short-fall in resources in 1951-52 is however still too large to be explained by these considerations alone.

34. As mentioned earlier, the revenues of State Governments have been rising over the last two years, but expenditures outside the State Plans have been more than absorbing these increases. The increase in expenditures is not only under administrative but also under other heads like agriculture, education, health, etc., where any major expansions should be normally on items included in the State Plans. It would appear that there has been a tendency for schemes outside the Plan to be taken up in addition to those already in them. To the extent that this is done and a close check is not kept on non-developmental expenditures of all kinds, the implementation of the State Plans is bound to suffer. It is probable that, in the case of certain States, the need to bring up the level of administration, as well as the increased demands that are being made on the administrative machinery even for preparing the foundation for development planning, will require some expansion in 'non-developmental' expenditure. These considerations, as well as the relative merits of the schemes which are now being added on as compared to the schemes which were originally in the State Plans, are matters which deserve close examination. But we must emphasise that the capacity of the Centre to give additional assistance is limited. As will have been evident from the earlier paragraphs, there is a shortfall in resources even for the commitments which it would have to undertake under the Plan as now visualised. The whole scheme of Central assistance, as now worked out, may have also to be readjusted in the light of the recommendations of the Finance Commission. All these would have to form part of the re-assessment of State finances referred to already in para 24 of this chapter. It seems inescapable in any case that the measures contemplated for raising additional resources at the initiative of the States must be regarded as an integral part of the programme of development set out by us.

### III. Deficit financing.

35. The above assessment of the resources of the Central and State Governments brings us to the question of the scope for deficit financing for development. The term 'deficit financing' is used to denote the direct addition to gross national expenditure through budget deficits, whether the deficits are on revenue or on capital account. The essence of such a policy lies therefore in Government spending in excess of the revenue it receives in the shape of taxes, earnings of State enterprises, loans from the public, deposits and funds and other miscellaneous sources. The Government may cover the deficit either by running down its accumulated balances or by borrowing from the banking system (mainly from the Central bank of the country and thus "creating" money).\*

36. In 1950-51, the base year, budgetary deficits were of a relatively small order as will be seen from the estimates below:

		(Rs in crores)	
<u>C e n t r e</u>		<u>S t a t e s</u>	
Resources available for development and for assistance to States.	125	Resources available for development.**	97
Development expenditure at the Centre on schemes included in the Plan and on schemes comparable to them completed in the year	114	"Central assistance"	31
"Central assistance" to States.	31	Development expenditure	118
DEFICIT (-)	-20	SURPLUS (+)	+10
		<u>Reflected in</u>	
<u>covered by</u>		(a) increase	
(a) withdrawals from cash and security reserves.	11	in reserves	5
(b) short-term borrowing (i.e. by increase in floating debt)	9	(b) reduction of short-term indebtedness	5

No credit has been taken in our estimate of revenues for possible not increases in the governments' floating debt; the scope for using these as a source of finance by sale of treasury bills to agencies other than the central bank have to be explored from time to time for reducing budgetary deficits.

Include resources which became available from State trading through reduction of food stocks.



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But the country as a whole had a surplus in its external account on account of the extraordinary international conditions which developed during the year. This meant that, instead of having domestic resources supplemented by external resources, India was, in effect, investing part of its current savings abroad. In 1951-52, the first year of the Plan, this trend was reversed and there was a substantial deficit in India's balance of payments financed from the sterling releases carried over from the earlier years as well as from the fresh releases for the year. The development expenditure in the public sector was larger - and so also the budgetary deficits - but the supplementing of domestic by external resources made it possible to meet these increases without excessive strain on the economy. Imports of food in 1951-52 were also the highest for any post-war year, which carried with it the assurance that inflationary pressures could be checked at the most vital points. It is in the light of these special factors in 1951-52 that the disinflationary forces which began to develop in the economy towards the later part of the year have to be assessed.

37. The experience of 1951-52, contrasted with that of 1950-51 indicates the importance of external resources in relation to the financing of development. The greater the availability of external resources the less will be the strain on the internal economy. The precise role which external resources could play in relation to the Plan is dealt with in some detail in subsequent paragraphs.

38. At the present stage, the external resources that can be firmly counted upon for the Plan - apart from loans and grants from abroad already received which we take credit for elsewhere in our estimate of resources - are the releases from India's sterling balances, estimated at Rs.290 crores over the five-year period. This, so far it is possible to visualise now, may be regarded as the safe upper limit to deficit financing. The position will of course have to be reviewed from time to time in the light of prevailing conditions.

39. It is true that stability of prices cannot be an end in itself, particularly if this can be attained only by restricting the incomes of the large mass of the people. It is also true that some increases in purchasing power at chosen points may be necessary and even desirable

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for the smooth functioning of the economy. The point we would however like to emphasise is that deficit financing can be countenanced only if and to the extent that there is assurance of steady supplies of the essential commodities of consumption. Deficit financing should not also be expected to provide the elasticity in money supply which must really come through the credit system. The scope for deficit financing at any particular time must be judged not so much in terms of movements in wholesale prices or in money supply but rather in the light of the trends in the cost of living indices. When costs of living are high, increased purchasing power injected into the system is apt to lead to increased demand for the basic commodities of consumption and push up costs of living still further.

40. From this point of view it is important to stress that the scope for deficit financing is intimately bound up with the policy regarding physical controls. If the supply and distribution of foodgrains, and other essential commodities such as cloth and gur or sugar, could be so organised as to meet the minimum requirements of the population, the dangers of deficit financing would to that extent be minimised. The impact of larger money incomes would then fall on other commodities and services which matter less from the point of view of the cost of living of the large majority of the people. Without a firm and clear policy regarding controls, and without also assurance of continuity in that policy over a period of time, not only does the scope for deficit financing become limited but there is a perpetual danger of even relatively small budgetary deficits generating inflationary pressures. In this sense, therefore, it is not finance as such which limits the scale of investment effort but rather the limitations of policy and administration regarding the supply and distribution of foodgrains and other essential commodities.

#### IV: External resources and the problem of foreign exchange.

##### The gap in internal resources

41. The low levels of consumption prevailing in the country and the shortages of essential commodities even at these low levels - which are ultimately the factors that limit the scope for deficit financing - raise in a concrete form the problem of external

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assistance in relation to development. It was indicated earlier in this chapter that a development programme of the order of Rs. 2069 crores would require in effect the State taking over as much as ~~20-25~~ per cent of the savings of the community at the 1950-51 rate of savings and that, even taking credit for the growth in savings which will come about in the course of the planning period, it would absorb over 60 per cent of the savings of the community in this period. Part of the pressure this throws on the economy will be met by resources which withdrawals from the sterling balances will make available. There would still be need, however, for further external resources.

42. To date, the loans and grants received by India from abroad in the planning period which could be used for its development programme amounts to Rs. 156 crores. The breakdown of this is as follows:

	(Rs. crores)
United States Food Loan	90
Commonwealth Assistance under the Colombo Plan	19
Assistance under the Technical Co-operation Agreement, 1952	25
Assistance under the First Supplement to the Technical Co-operation Agreement, 1952	18
Proceeds of Loans from International Bank (1950)	9
Other aid	2
	<hr/> 156 <hr/>

The budgetary resources of the Central and State Governments, together with external assistance already received, thus add up to Rs. 1414 crores. If deficit financing is to be avoided altogether, and the additional imports which can be financed from the sterling balances are to be allowed to increase the availabilities in the private sector, the further resources necessary may be placed at Rs. 655 crores. If resources

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of this order are forthcoming, this, together with the sterling balances and the current domestic savings which are estimated to go up meanwhile by nearly 50 per cent, will ensure the implementation of a total investment programme of the order of about Rs. 3400-3500-crores (of which about a half will be the net investment visualised in the public sector) without excessive strain on the community. Whatever austerity the country is capable of has to be exercised in any case, but to the extent that the availability of external resources falls short of the target the strain imposed on the community will have to be correspondingly larger.

#### Foreign Exchange Requirements and Foreign Exchange Savings.

43. The internal pressures to which we have been referring are apt to manifest themselves to a great extent in balance of payments difficulties and shortages of foreign exchange. External assistance, if available, would thus serve two functions simultaneously: it would make available adequate supplies of foreign exchange and also supplement the investible resources in the country. In the schemes included in the Five Year Plan itself, the direct foreign exchange expenditure involved is comparatively small, being only about Rs. 400-crores over the five year period. But this does not represent the real foreign exchange requirements of the development programme for the economy taken as a whole. The relatively small proportion of direct foreign exchange expenditure in the Plan is attributable to the pattern of development proposed to be initiated by the public sector in this period. If industrialisation were more prominent in the public development programme the proportion of direct foreign exchange expenditure would have been considerably higher. The emphasis on agriculture, together with the general bias in favour of labour intensive methods in order to utilise the manpower in the country to the maximum, accounts for the greater reliance on domestically available resources as far as the Plan itself is concerned. But the fact that most of the expenditure is internal and would expand domestic incomes which would, in turn, generate additional demand for raw materials and basic commodities of consumption, makes it essential to make available these commodities by importation from abroad to the extent that additional supplies are not forthcoming domestically. To the extent that the

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prices of imported commodities are higher than the prices at which the cost of the Plan is estimated, the external resources necessary for meeting the deficit in the Plan will of course be correspondingly larger.

44. Balance of payments difficulties and shortage of foreign exchange resources are normal features in periods of development. In the Plan, a high priority is accorded to lines of production which will help to reduce import requirements and increase the country's exportable surpluses. There is thus an attempt to anticipate and meet to some extent the kind of problem that is likely to come up in the future. The fact remains, however, that development cannot be completed in a short period, and it will therefore be necessary to visualise a programme of raising capital goods imports for many years to come.

45. For assessing the effect of the Plan on the balance of payments of the country, we have assumed the maintenance of strict import and export controls throughout the period of the Plan, and tried to estimate the export surpluses and import requirements by 1955-56 on the basis of the production and consumption targets in the Plan. An important variable, however, which would affect export surpluses and import requirements is the level of investment itself in the country; for the purpose of making a first assessment we have assumed a rate of outlay corresponding to a development expenditure on public account of the order of Rs.1700 crores (i.e. an expenditure which could be more or less met from the budgetary resources of the Central and State Governments, deficit-financing to the extent of about Rs.290 crores, and the external assistance already received). A higher rate of outlay, corresponding to the target of Rs.2069 crores in the Plan, is not likely to make a proportional contribution to production within this period, as the additional expenditure would be mainly on schemes started in the second half of the Plan period which would not be completed in this period; but it would increase to some extent the direct foreign exchange requirements of the development programme and, even more significantly, the level of consumption demand in the country. With more purchasing power injected into the system the demand for food, for instance, may be higher. It is difficult, however, to forecast with any certainty the likely pressures that may be set up in this manner, and we have therefore left over for the present - but to be taken account of at a later stage - the effect on import requirements and export surpluses of a rate of a development expenditure corresponding to the target of Rs.2069 crores in the Plan. The attached statements show our estimates of the exports and imports, by the end of the Plan, of some of the major commodities entering India's foreign trade. These estimates are based on the production and consumption targets in the Plan, but assume the maintenance of strict export and import controls in order to maintain the foreign exchange deficit within the resources that would be available from the sterling balances. It will be seen that, at the prices prevailing in 1950-51 and in respect of the group of commodities shown, the increase in foreign exchange earnings by the end of the Plan due to higher exports and reduced imports would amount to nearly Rs.133 crores. This would however be offset to the extent of nearly Rs.108 crores through decreases in the volume of exports and increases in the volume of imports required in order to attain the higher targets of internal production and consumption visualised

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in the Plan. The net improvement in foreign exchange earnings thus works out to roughly Rs. 25 crores. This estimate does not cover the foreign exchange savings from the opening of the projected oil refineries and from the expansion of certain newly-developing lines of exports to countries in South East Asia; on the other hand, it does not also include foreign exchange required for additional imports of machinery, equipment and certain metals needed to maintain the high levels of investment visualised towards the closing stages of the Plan. On balance, taking all items into account, there might not be any significant net improvement in the foreign exchange position as compared to 1950-51.

Likely movements in terms of trade and their effects.

46. Considering that there was a surplus in balance of payments in 1950-51, this order of improvement on that base would suggest a fairly comfortable foreign exchange position by the end of the Plan. There are however a number of imponderables here, and the most important of them is the likely movement in the terms of trade. In the last few decades there have been considerable changes in India's terms of trade. Between 1938-39 and 1948-49, there was a movement in India's favour to the extent of about 15 per cent, which appears to have cancelled out roughly the deterioration which took place in the previous decade. Between 1948-49 and 1950-51, on account of external factors, there was a sharp improvement in India's terms of trade to the extent of about 22 per cent. The large surplus in balance of payments in 1950-51 was thus fortuitous. After July 1951 there was an equally sharp deterioration; by April 1952 the terms of trade had returned to the 1948-49 level, and since then they have tended to worsen further. Although one cannot generalise on the basis of short period trends, it would appear that, on a long view, any improvement in terms of trade over the 1948-49 level is likely at best to be of a temporary character, and that in fact the terms of trade might become more unfavourable to India to the extent of about 10 per cent.

47. ~~At the 1948-49 terms of trade, India is likely to have a deficit in its balance of payments at the end of the Plan despite the net improvement referred to earlier. There would however have been meanwhile considerable increase in the availabilities of certain commodities in conformity with the targets in the Plan, and in the event of difficulties in balance of~~

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payments it will be possible, in an emergency, to draw on them for balancing the country's external accounts.

#### Foreign exchange deficits and balance of payments policy during the Plan

48. The calculations made above rest on the assumption of strict import and export controls and a public development programme of the order of Rs 1700 crores. If, as is intended, the target level of Rs 2069 crores is to be reached without pressure on consumption standards and on economic activity in the private sector, imports of some commodities will have to be increased and exports of some reduced. We shall have to provide not only for more food and raw materials to meet the additional demands generated by the expenditure but also for additional machinery, equipment and other producer goods. The precise effect this will have on the foreign exchange position of the country cannot be forecast at this stage, but a deficit of about Rs 180-200 crores per annum in balance of payments seems likely and even necessary in the remaining years of the Plan. About Rs 50 crores of the balance of payments deficits in this period could be financed each year from the sterling releases, but the ability to meet deficits in excess of this will depend to a great extent on the availability of additional external assistance. In the last analysis, the role of external assistance in relation to the Plan will be to supplement the real resources of the country with commodities for which additional demands will be generated in the process of development but the domestic supplies of which are limited. External assistance would help to avoid dislocations and to maintain a certain measure of stability in the economy. It follows that, for a balance of payments policy which is integrated with the overall requirements of planned development, it is necessary that external assistance is received in a form which allows flexibility in the use of the foreign exchange resources provided by it.

49. We should perhaps emphasise here that balance of payment difficulties are an inevitable aspect of development at this stage. Since the development of an economy like that of India requires initially imports on a large scale of machinery, capital equipment and other producer goods as well as of consumer goods like foodgrains, foreign exchange is bound to be a bottleneck for some time to come. In fact the degree of the pressure on foreign exchange under these conditions may be even regarded as an index of the extent to which the internal productive resources are being utilised. What has to be

ensured is, on the one hand that the development programme is so framed as to increase the potential exportable surpluses and decrease the import requirements of the country and, on the other, that the pressure on foreign exchange is kept within manageable limits. Apart from external factors, the actual deficits in balance of payments will depend to a great extent not only on the investment levels which are sought to be reached but also on the rate at which consumption in the country is allowed to rise from year to year.

#### V. The problem of mobilising financial and physical resources.

50. The above assessment of resources, it will be seen, has been done largely in financial terms. This has been to some extent inevitable in that the Plan is a programme of development to be implemented by the Central and State Governments out of the budgetary resources likely to be available to them. But an attempt has also been made to estimate the total investment on private and public accounts that is likely to take place in this period and to assess the capacity of the country to divert resources of this order into capital formation. In view of the limited statistical data available, and also in view of the various complexities involved in forecasting the likely effects of particular rates of investment, the assessment has had to be, by necessity, a rough and ready one. The scope for increasing investment expenditure has been considered broadly with reference to the supply and demand conditions of certain commodities which either figure largely in the pattern of consumption and investment of the community or enter the country's foreign trade and might conceivably lead to bottlenecks. As we have stressed earlier, it is not finance as such which limits the rate of investment. For instance, the scope for deficit financing is intimately bound up with efficient organisation of the supply and distribution of essential commodities; if the supply and distribution of these improve, either through improvements in organisation or for reasons that we are not able to foresee now, to that extent it might become possible to step up the rate of development expenditure in the future. In other words, though the assessment of resources has been presented in financial terms, the approach is basically in terms of physical resources. It is important that a programme which aims at using the resources of the



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country to the maximum extent possible should be conceived of and translated back at every stage in terms of the various types of physical resources needed for its implementation.

51. Among the unutilised resources of the country, manpower is undoubtedly one of the most important. In chapter I we have referred at some length to the problem of utilising under-employed manpower for the development programme. It was pointed out there that unless productivity of labour could be raised quickly and the availability of basic essentials like food-grains increased, a programme of full employment designed to put to work all idle labour, would run the risk of breaking down on account of excessive pressure of money incomes on available supplies. Two conclusions were drawn from this: first, that in promoting higher levels of employment it was important to ensure that the newly-mobilised labour would be able to raise total output with the shortest possible time lag; and second, that in the initial stages of development reliance will have to be placed as far as possible on voluntary labour, money being used mainly as a means of attracting and organising such labour. Both these have been kept in view in framing the programme of development for this five year period. In the programme for agriculture, there is considerable emphasis on quickly maturing forms of investment; the consequent increase in food supplies is designed to remove one of the major bottlenecks to embarking on a programme of fuller mobilisation of manpower resources. The Plan also visualises using finance, wherever possible, as a means of attracting and organising under-utilised manpower and other resources. The community development programme is an instance in point. There is also provision in the Plan for assistance to local authorities in respect of schemes for which local effort is forthcoming. Famine relief works, it is visualised, will be so arranged in future as to fit in with the larger needs of development. Minor irrigation projects are another field in which mobilisation of local manpower could contribute considerably to the lowering of costs. For reducing the monetary outlay on development, the possibilities of paying part of the wages and salaries in the form of Savings Certificates could be explored with advantage.

52. While it is necessary to progress in these ways towards fuller utilisation of the large unutilised manpower resources in the country, it is also necessary to strengthen the financial mechanism behind planning. Finance is not only a means of accounting; it is

also a potent instrument for directing resources along desired lines. A necessary condition of the public sector playing an increasingly important part in development is that there should be such organisational changes in the financial system as will enable the public authorities to have command over the necessary resources. In the earlier sections of this chapter, we have referred at various points to the potentialities of increasing the budgetary resources of the Central and State Governments. These potentialities have to be explored to the full. The increase in budgetary resources would have to come to a considerable degree from additional tax revenues; to emphasise that these should as far as possible be through widening the coverage of taxation is not to deny that, in the mass effort which is needed for development, considerations of equality in sacrifice would require to some extent further additions to the direct taxation of higher incomes. In regard to borrowing, there is particularly scope for improvement in techniques. As we have mentioned earlier, it is important that, with the country embarking on a long-term programme of development, techniques of borrowing are so adopted as to bring home to the people the larger purposes for which the loans are required and also to give the greatest possible scope for their direct participation in the financing and implementation of the various development programmes.

53. The progress of the small savings movement in recent years suggests that, with suitable adaptation to the preferences of different sections of the community and with a system of collection which will reach the farthest parts of the country, the savings of the lower-income groups could become a growing source of finance for development. On an experimental basis, certain improvements in the facilities provided by the Post Office Savings Bank are to be shortly introduced in the Bombay State. These include:-

- (a) introducing the cheque system both for withdrawals and deposits;
- (b) affording greater facilities to the depositors by organising the working of the Bank on the lines of commercial banks; and
- (c) opening branches in a larger number of rural post offices.

The extension of these facilities to other States on the basis of the results of this experiment is likely to attract substantially more savings to the

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public sector in the next few years. Meanwhile, other methods of increasing small savings will also have to be explored.

54. Insurance has been in all countries a stimulus to, as well as an important channel for, private savings; it has therefore to be organised in India to fulfil its legitimate function in development. The precise steps to be taken in enlarging State participation in this sphere is a matter for closer examination. Apart from other measures which might be considered, the Government has in the Post Office Insurance Fund a medium even now for entering the field in a more active way than hitherto. Institution of provident fund is another method open for encouraging and mobilising savings on a large scale. The extension of this system recently to cover workers in six major industries indicates a direction in which more progress must be made.

55. Organisational changes along these lines will not only act as a powerful lever in the initial stages of development but will contribute to greater self-reliance in the further stages of this process. Parallel changes will be necessary also in other spheres to increase the supply of technical, managerial, and administrative resources in the country. The problems arising in this connection have been referred to elsewhere in this Report.

PRODUCTION IMPORTS AND EXPORTS OF CERTAIN  
MAJOR COMMODITIES ENTERING INDIA'S FOREIGN  
TRADE

Name of Commodity	PRODUCTION		I M P O R T S			
	1950-51	1955-56	QUANTITY		VALUE (Rs. crores)	
	1950-51	1955-56	1950-51	1955-56	1950-51	1955-56
1.	2.	3.	4.	5.	6.	7.
Raw Cotton (Lakh bales)	29.7	42.2	12.3	12.0	100.8	98.3
Raw Jute (Lakh bales)	33.0	53.9@	18.8	8.1	27.6	11.9
Oil Seeds (Lakh tons)	51.0	55.0	0.4	-	2.1	-
Sugar (Lakh tons)	11.6	15.0	0.6	-	5.3	-
Food grains (Million tons)	54.0*	61.6	2.1	3.0**	80.6	115.0
Cotton Msmufactures:						
Yarn (Million lbs.)	1179.0	1640.0	0.5	-	0.3	-
Mill Cloth (Million yards)	3718.0	4700.0	5.7	1.0	1.3	0.2
Hand loom (Million yards)	810.0	1700.0				
Jute Manufactures (Lakh tons)	8.9	12.0	-	-	-	-
Coal (Million tons)	32.0	36.0	-	-	-	-
Pig iron (Lakh tons)∅	3.5	7.0	-	-	-	-
Steel (Lakh tons)	10.0	13.7	2.8	5.0	21.7	38.4
Fertilisers:						
Ammonium Sulphate (Lakh tons)	0.5	4.5	3.7	1.5	11.4	4.6
Others (Lakh tons)	0.6	1.8	0.7	0.2	0.9	0.3
Oils (Lakh tons)	11.2 <sup>a</sup>	13.0	0.2	0.4	3.3	6.6
Cement (Lakh tons)	26.9	48.0	0.06	-	0.2	-

N.B. (i) Value of imports and exports in 1955-56 is estimated at 1950-51 prices.

@ Exclusive of the production of mesta.

\* Production in 1950-51 was 52.7 million tons; the targeted increase in the period of the Plan is over the 1949-50 level when the production was 54.0 million tons.

\*\* It is difficult to forecast the precise requirements by way of food imports by the end of the Plan as they will have to be adjusted from time to time to the level of investment outlay in the country and the pressures it tends to generate. Provisionally it has been assumed that about 3 million tons of food grains would have to be imported every year in the period of the Plan.

∅ Refers to the quantity of pig iron available for the foundries i.e., the quantity available over and above what has been consumed in the manufacture of steel.

a Production in 1950-51 has been assumed to be the same as in 1949-50.

PRODUCTION IMPORTS AND EXPORTS OF CERTAIN MAJOR  
COMMODITIES ENTERING INDIA'S FOREIGN TRADE.

Name of Commodity	E X P O R T S			
	QUANTITY		VALUE (Rs. crores)	
	1950-51	1955-56	1950-51	1955-56
	8.	9.	10.	11.
Raw Cotton (Lakh bales)	0.8	1.3	7.1	11.5
Raw Jute (Lakh bales)	-	-	-	-
Oil Seeds (Lakh tons)	2.0	0.5 /	17.0	4.2
Sugar (Lakh tons)	.03	0.1	0.1	0.5
Food grains (Million tons)	-	-	-	-
Cotton Manufactures:				
Yarn (Million lbs.)	74.5	10.0	17.1	2.3
Mill Cloth (Million yards)	1283.0	1000.0	117.9	92.9
Hand loom (Million yards)				
Jute Manufactures (Lakh tons)	6.5	10.0	137.8	212.0
Coal (Million tons)	1.0	3.0	3.4	10.2
Pig iron (Lakh tons) Ø	-	-	-	-
Steel (Lakh tons)	-	-	-	-
Fertilisers:				
Ammonium Sulphate (Lakh tons)	-	-	-	-
Others (Lakh tons)	-	-	-	-
Oils (Lakh tons)	1.2	1.7	23.0	32.5
Cement (Lakh tons)	0.3	3.0	0.3	3.6

N.B. (i) Value of imports and exports in 1955-56 is estimated at 1950-51 prices.

(ii) Value of exports includes export duty.

The fall in the exports of oilseeds will be to a large extent compensated by the increase in the exports of oil.

Refers to the quantity of pig iron available for the foundries i.e., the quantity available over and above what has been consumed in the manufacture of steel.

## CHAPTER IV.

### THE FIVE YEAR PLAN IN OUTLINE.

The Five Year Plan involves an outlay on development by public authorities of Rs. 2069 crores over the period 1951-56. In determining this target of expenditure, the main considerations that have been taken into account are: (1) the need for initiating a process of development that will form the basis of the much larger effort needed in the future; (2) the total resources likely to be available to the country for the purpose of development; (3) the close relationship between the rates of development and the requirements of resources in the public and in the private sectors; (4) the necessity of completing the schemes of development initiated by the Central and State Governments prior to the commencement of the Plan; and, (5) the need to correct the maladjustments in the economy caused by the war and the partition.

2. Our approach to planning and the long-term targets of investment and income to be aimed at have been set forth in the earlier chapters. The vast and complex problems of structural and institutional re-organisation that an effort of the required magnitude will raise have also been touched upon. Viewed against this background, the Five Year Plan is essentially a plan of preparation for laying the foundation for more rapid development in the future. The targets of investment which the Plan sets, as well as the increases in production which are expected to be achieved thereby, are modest when compared to what has to be achieved within the next twenty years or so but, it must be emphasised, both are high compared to past trends.

#### Priorities and the pattern of outlay.

3. The distribution of expenditures in the development programme of the public sector is summarised in the following table:

	(Rs crores)	(Percent of Total)
Agriculture and Community Development	361	17.5
Irrigation	168	8.1
Multi-purpose irrigation and power projects	266	12.9
Power	127	6.1

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Transport and Communications	497	24.0
Industry	173	8.4
Social Services	340	16.4
Rehabilitation	85	4.1
Others	52	2.5
	<hr/>	<hr/>
	2069	100.0

This distribution reflects the priorities discussed in Chapter II. In the present Plan period, agricultural development receives the highest precedence, which necessitates an extensive programme of irrigation covering minor as well as major projects. Generation of electric power, which is linked in most cases with the major irrigation projects, has also a high priority in its own right. Production and extensive distribution of electrical energy on a large scale is essential not only for the growth of small scale enterprises and for rural development in the larger sense of the term but for industrial expansion. In regard to transport, public authorities have a special responsibility. The railways are a nationalised enterprise which has to respond to the needs of development in both agriculture and industry. The State has further to take the initiative in linking up the whole country through a system of roads reaching down to the village, and in promoting development in new lines like shipping and aviation.

4. The high priority given to agriculture (which, as mentioned above, involves large scale investment in irrigation) as well as to basic services like power and transportation limits inevitably the investment which the public sector can itself undertake in industries. Industrial expansion in this five year period will rest largely on private initiative and resources, but they will be supplemented at certain points by the resources of the public sector as well as by foreign investment; programmes of the public and the private sectors together will not therefore be inconsiderable. In the sphere of social services, the needs are so large that what can be achieved through financial investment by public authorities is limited. In the present Plan, the rehabilitation of displaced persons absorbs a considerable proportion of the additional resources that could be allocated for expansion. The financial investment in social services has to be supplemented by direct community effort on a large scale for the liquidation of illiteracy, improvement of sanitation and hygiene, development of civic services, imparting of elementary technical training etc. The lump-sum provisions in the Plan for the community development programme and for local works are designed, among other things, to evoke such community effort.

5. The significance of the outlay of Rs.2069 crore from the point of view of the additions it will make to productive equipment in the public and private sectors, and to the production potential of the community in the larger sense of the term, will perhaps be clearer from the following rough classification:

(Rs crores)	
(1) Outlay which will add to the stock of productive capital owned by Central and State Governments	1,199
(2) Outlay which will contribute to building up productive capital in the private sector	
(i) Expenditure on agriculture and rural development (excluding community projects and provision for scarcity affected areas)	244
(ii) Loans for transport and industry	47
(iii) Provision for stimulating local development (community projects and local works)	105
(3) Outlay on social capital	425
(4) Outlay unclassified above (including provision for scarcity affected areas)	49
	2,069

It will be seen that nearly 60 per cent of the planned outlay will result directly in the creation of productive capital in the ownership of the Central and State Governments; this will be mainly under irrigation and power, transport and communications, and industry. The remaining 40 per cent will partly add to productive equipment in the private sector, partly provide assistance in the form of working capital or of advisory and administrative services, partly help to maintain and expand social services, and partly act as an incentive for community effort in development.



IV

Distribution and phasing of expenditure.

6. A break-up of the development expenditure of the Central and State Governments by major categories is given in the statements attached at the end of this chapter. The distribution of the total outlay as between the Central and the State Governments is summarised below:-

	(Rs crores)
Central Government (including railways)	1,241
States: Part A	610
Part B	173
Part C	32
Jammu and Kashmir	13
	-----
	2,069
	-----

7. According to the above classification, the outlay of the Central Government (including the railways) works out to almost 60 per cent of the total. It must be emphasised that this distribution of outlay is not an indication of the schemes which fall within the respective spheres of the Centre and the States. The 'central' multi-purpose river valley schemes, (i.e., the Damodar Valley, Bhakra-Nangal, Hirakud, and Harike projects) are really the schemes of the State Governments, but in view of the fact that the territorial coverage of these projects extend in some cases over two or three States, the exact distribution of the financial liability as between them cannot be foreseen at this stage. The responsibility of finding the necessary finance for these schemes in the form of loans to State Governments also rests initially on the Centre. In regard to certain other schemes, the sharing of the financial responsibility has yet to be finally determined. For these and similar reasons, the provisions in the Plan for community projects, minor irrigation and other local works, the five new major irrigation and power projects, scarcity affected areas, rehabilitation of displaced persons, basic and social education, industrial housing, etc., are shown as part of the Central Government's development programme, though they belong primarily to the States.

8. It is in the light of these observations that the distribution of the total planned outlay as

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between the Centre and the States, and the allocation of this outlay as between the major developmental heads, has to be seen. The following table summarises the outlay of the Centre and of the States (excluding Jammu and Kashmir) under various heads:

(Rs crores)

	Centre	Part A	Part B	Part C
Agriculture and Community Development	186.3	127.3	37.6	8.7
Irrigation & Power	265.9	206.1	81.5	3.5
Transport and Communications	409.5	56.5	17.4	8.8
Industry	146.7	17.9	7.1	0.5
Social Services including rehabilitation	191.4	192.3	28.9	10.4
Miscellaneous	40.7	10.0	0.7	-
	1240.5	610.1	173.2	31.9

9. The outlay proposed in the development programmes of States other than Jammu and Kashmir is shown below:

State Plans (Rs crores)

Part A States		Part B States		Part C States	
Assam	17.49	Hyderabad	41.55	Ajmer	1.57
Bihar	57.29	Madhya		Bhopal	3.90
Bombay	146.44	Bharat	22.42	Bilaspur	0.57
Madhya		Mysore	36.60	Coorg	0.73
Pradesh	43.08	Pepsu	8.14	Delhi	7.48
Madras	140.84	Rajasthan	16.82	Himachal	
Orissa	17.84	Saurashtra	20.41	Pradesh	4.55
Punjab	20.21	Travan-	27.32	Kutch	3.05
Uttar		core-Cochin		Manipur	1.55
Pradesh	97.83			Tripura	2.07
W.Bengal	69.10			Vindhya	
				Pradesh	6.39
Total	610.12	Total	173.26	Total	31.86

IV

These State Plans were drawn up initially over a year ago in consultation with the State Governments concerned and on the basis of forecasts supplied by them regarding their likely revenues and expenditures in the period of the Plan. In cases where the State Governments made proposals subsequently to raise the size of their State Plans, the upward revisions have been accepted provisionally subject to the resources corresponding to them being raised by the governments concerned.

10. The financial basis of the Plan has been discussed in detail in Chapter III. A rough picture of the estimates in relation to the development programmes can be had from the following summary table:

	(Rs crores)		
	CENTRAL GOVT	STATES (including Jammu & Kashmir)	TOTAL
Planned outlay on development	1241	828	2069
Budgetary Resources			
i. Savings from current revenues	330	408	738
ii. Capital receipts (excluding withdrawals from reserves)	396	124	520
iii. Internal inter-governmental transfers in connection with the Plan (i.e. "Central assistance")	(-) 229*	229*	-
	.....497.....	.....761.....	.....1258.....
External Resources already received	156	-	156
Total:	653	761	1414

\* includes Rs 4 crores by way of statutory grants for scheduled tribes which will be available for part of the development expenditure on scheduled tribes in the Assam State Plan.

As brought out in the assessment of financial resources for the Plan, the balance of Rs 655 crores necessary for the public development programme will have to be found from further external resources that may be forthcoming or from internal taxation and borrowing as far as possible and by deficit-financing.

11. In the phasing of development expenditures originally proposed by many of the States there was on the whole a somewhat excessive concentration of outlay in the first two years of the Plan. This was in some cases inevitable in that it only reflected the rising tempo of expenditures towards the culminating stages of certain schemes already under implementation. The actual progress of expenditure (as indicated by the revised budgets for 1951-52 and the budget estimates for 1952-53) show that the concentration of expenditures in the first two years originally proposed has already been corrected to a great extent. It is, however, clear that, in 1953-54, expenditures on a number of schemes under implementation will reach their peak levels and that there would be in consequence a heavy pressure on resources both at the Centre and at the States. New schemes which can be postponed without detriment should not therefore be taken up in this year. In so far as can be foreseen at this stage, there will be scope for starting work on new schemes, which involve large expenditures once they are undertaken, only towards 1954-55 and in 1955-56.

#### Appraisal of the programmes in the plan

12. In appraising the results of the Plan, the development programme in the public sector

cannot be taken by itself. This programme, as mentioned earlier, is based on an appraisal of the needs of the economy as a whole and is related to an assessment of the effort that is likely to be forthcoming from the private sector. In the case of agriculture, where the problem is primarily one of providing irrigation, fertilisers and manures, better seeds, as well as extension services which will carry to the farmer the know-how of technical improvements, the supplemental investment required would to a great extent be in the form of direct contributions of labour by the farmers themselves. In the sphere of industrial development, we have taken into account the working plans of 40 large and medium scale industries which cover about two-thirds of the total output of factory enterprises in the country. Approximate estimates regarding the likely requirements of manufacturing industries and of the likely sources of finance are shown elsewhere in this Report. The results of the Plan can thus be viewed within a wider setting as far as agriculture and manufacturing industry are concerned. In other spheres of development, particularly in respect of professions and services and small-scale enterprises in transport and industry, only broad judgments can be made at this stage. The contribution that community effort may make to extension of education, sanitation, communications, etc. cannot also be assessed in advance in precise terms. In the paragraphs that follow are outlined the salient features of the development programmes in the public and private sectors; their results in terms of certain select targets and indices are shown in the statement below:-

	1950-51	1955-56
<u>I. Agriculture</u>		
Foodgrains* (million tons)	52.7	61.6
Cotton (lakh bales)	29.7	42.2
Jute (lakh bales)	33.0	53.9
Sugarcane (million tons)	5.6	6.3
Oilseeds (million tons)	5.1	5.5

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Including gram and pulses. Output in 1949-50 (used as the base for fixing the target for 1955-56) was 54.0 million tons.

	1950-51	1955-56.
<u>II. Irrigation and Power</u>		
Major irrigation (million acres)	50.0	8.5
Minor irrigation (million acres)		11.2
Electrical energy (installed capacity in million Kws)	2.3	3.5
<u>III. Industry</u>		
Iron and Steel (lakh tons)		
Pig iron available for foundries	3.5	6.6
Finished Steel	9.8	13.7
Cement (lakh tons)	26.9	48.0
Aluminium (thousand tons)	3.7	12.0
Fertilisers (thousand tons)		
Ammonium sulphate	46.3	450.0
Superphosphate	55.1	180.0
Locomotives (Nos)	-	170.0
Machine tools (Nos in thousands)	1.1	4.6
Petroleum refining Liquid petroleum (million gallons)	N.A.	403.0
Bitumen (thousand tons)	N.A.	37.5
Cotton manufacture:		
Yarn (million lbs)	1179	1640
Mill cloth (million yards)	3718	4700
Handloom (million yards)	810	1700

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	1950-51	1955-56
Jute manufactures (thousand tons)	892	1200
Agricultural machinery		
(a) Pumps, powerdriven (thousands)	34.3	85.0
(b) Diesel engines (thousands)	5.5	50.0
Bicycles (thousands)	101.0	530.0
Power alcohol (million gallons)	4.7	18.0

IV. Transport

Shipping (tonnage)		
Coastal (GRT thousands)	211.0	315.0
Overseas (GRT thousands)	173.5	283.0
Roads		
National Highways (thousand miles)	11.9	12.5
State Roads (thousand miles)	17.6	20.6

V. Education\*\*

Pupils in:		
Primary schools (lakhs)	151.1	187.9
Junior Basic schools (lakhs)	29.0	52.8
Secondary schools (lakhs)	43.9	57.8
Industrial schools (thousands)	14.8	21.8
Other technical and vocational training schools (thousands)	26.7	43.6

VI. Health

Hospitals (beds in thousands)	106.5	117.2
Dispensaries (number)		
Urban	1358	1615
Rural	5229	5840

VII. Developmental institutions

Panchayats (thousands)	55.1	69.1
Co-operative societies*		
Credit (thousands)	87.8	112.5
Sale and marketing (thousands)	14.7	20.7
Multipurpose (thousands)	31.5	40.5
Lift irrigation (Nos)	192.0	514.0
Co-operative farming (Nos)	352.0	975.0
Others (thousands)	27.3	35.8
Total (thousands)	161.9	211.1

\*\* These estimates do not cover (except in respect of industrial schools) Hyderabad, Rajasthan, Ajmer and Vindhya Pradesh. In some cases, data for a few States (e.g., Uttar Pradesh in respect of primary schools and Madhya Pradesh in the case of junior basic and secondary schools) are also not covered in these estimates.

\* The estimates here exclude data for Punjab, Orissa, Hyderabad, Pepsu and most of the Part C States.

## Agriculture and Community Development

13. Agriculture and community development is a comprehensive description for several items of reconstruction which include, besides agricultural production livestock improvement and dairying, forests and soil conservation, cooperation and village panchayats. The Plan makes a total provision of about Rs 361 crores of which Rs 184 crores is for agriculture, a little over Rs 100 crores for community projects and rural development, Rs 22 crores for animal husbandry and dairying, Rs 15 crores for stimulating local development through the agency of local authorities, another Rs 15 crores for development programmes in scarcity-affected areas, and Rs 12 crores for forests and soil conservation. The role of the Central Government is to coordinate the programmes of the States and also to assist them in certain important respects. The Central Government's plan provides for the establishment of a national extension organisation, completion of the present programmes of the Central Tractor Organisation, schemes for the improvement of livestock, measures for soil conservation as well as for cooperative farming and other aspects of cooperative organisation. The Technical Cooperation Programme initiated this year has strengthened considerably the programmes for tube well development, marine fisheries, locust control and the training of extension workers.

14. The programme for increasing agricultural production covers foodgrains as well as cotton, jute, sugar-cane, and oilseeds. In foodgrains, the target for 1955-56 represents an increase of about 14 per cent over the level in 1949-50.\* In the case of cotton and jute, production is expected to go up by over 44 per cent and 63 per cent respectively above the level in 1950-51, while the increases in sugar-cane and oilseeds are estimated at about 13 per cent and 8 per cent respectively. It might be mentioned here that, in 1951-52, the production of cotton was 33 lakh bales as compared to 29.7 lakh bales in 1950-51 and the target of 42.3 lakh bales by 1955-56. Jute production in 1951-52 was 47 lakh bales - an increase of 14 lakh bales over 1950-51; the additional production now to be secured in terms of the target works out therefore at only 7 lakh bales. Foodgrains production for 1951-52, as shown by official figures, was about the same as in the previous year and it is here that special effort is now called for. The detailed programmes for achieving the food targets, formulated initially in 1950-51 in consultation with the State Governments, were reappraised in early 1952. Following this reappraisal the original target of 7.2 million tons in the State Plans had to be lowered to 5.6 million tons. The programmes have therefore been strengthened by an additional lump-sum provision of Rs 30 crores for minor irrigation.

15. The community development projects, which are conceived primarily as a programme of intensive development of selected areas, would also contribute to raising the level of agricultural production.

( see next page )

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\* Compared to 1950-51, when production was 1.3 tons lower, the percentage increase would be somewhat larger.



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A beginning has been made this year with 50 projects. The central object of the community development programme is to mobilise local manpower for a concerted and co-ordinated effort at raising the whole level of rural life. The emphasis is inevitably on improving the level of agricultural productivity. This is reflected in the fact that the bulk of the projected expenditure is devoted to the provision of irrigation, land development and extension services. The community development projects represent in content a synthesis of ideas gathered from rural development work in various parts of the country. As further experience is gathered, changes in structure and emphasis may be necessary, but the intention is to cover the entire country with schemes designed to promote intensive development through increased agricultural productivity. The Five-Year Plan makes a lumpsum provision of Rs 90 crores for such development. There is, in addition about Rs 10 crores in the State Plans for other programmes of rural development, including schemes designed to promote and strengthen village panchayats.

16. Elsewhere in this Report is also a scheme for a national extension service for agricultural development; there is provision of Rs 3 crores for this in the Plan. This organisation, together with community development projects and the additional minor irrigation visualised, will help to step up the production of foodgrains in the country by 7.6 million tons compared to the level in 1949-50.

17. In the period of this Plan, some parts of the country may not stand to benefit directly from the various development schemes taken up. In order that the Plan creates interest on the part of as wide a section of the community as possible, and in order to draw forth local initiative and resources, a lumpsum provision of Rs 15 crores is being made in the Plan for local development works. It is hoped that schemes will be forthcoming from municipalities, district and taluka boards and other local bodies for which financial assistance can be given out of this lumpsum provision to attract and organise local resources on a multiplied scale. There is also a special provision of Rs 15 crores in the Plan for organising relief activities in scarcity-affected areas on developmental lines.

#### Irrigation and Power Programmes

18. The programme for irrigation and power is based primarily on projects initiated in the period prior to the Plan. The total cost on the projects thus taken over into the Plan has been estimated at Rs 765 crores, of which an expenditure of Rs 153 crores had already been incurred up to the end of 1950-51. The provision for these projects in the period of the Plan is Rs 518 crores, leaving only a little under Rs 100 crores to be spent in the subsequent years. The progress made on these projects will help, within the period of the Plan, to bring an additional area of 8.5 million acres under irrigation and to generate 1.1 million kws of additional power. On the completion and full development of these projects, the total addition to the area irrigated will be 16.9 million acres and to power 1.4 million kws.

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19. In view of the high priority given to agriculture, the construction of the projects in hand has been so adjusted as to facilitate the maximum extension of irrigation in this period. The generation of power has been related to the demand that already exists or is likely to grow in the near future. Provision is however being made in the design of dams and other works for installing additional units as and when additional demands rise.

20. Of the provision of Rs 518 crores in the Plan on projects in progress, well over half will fall in the first three years of the Plan. During this period the pressure on financial as well as technical resources will prevent work being started on new projects. There will be scope for such additions only as from 1954-55. The five new irrigation and power projects which are proposed to be taken up towards the later stages of the Plan are the following : Kosi (Stage I), Koyna (Stage I), Krishna (the scope of which is not yet defined), Chambal (Stage I) and Rihand. The total cost of these projects will be well over Rs. 200 crores, out of which it is expected that it might be possible to spend Rs 40 crores during the period of the Plan.

21. The programme for irrigation and power in the Plan,\* taking projects in progress as well as the new projects proposed, has to be viewed as part of a mere long-term programme intended to add, within the next two decades, 40-45 million acres to the area now under irrigation and 7 million kw. to the existing power generating capacity.

22. The irrigation and power benefits from the major projects in the period of the Plan will be supplemented by the results of the minor irrigation programme and by the extension schemes of private electricity undertakings. The minor irrigation programme in the Plan, involving an expenditure of Rs.77 crores, is as follows :-

	Area benefited (million acres)
Dams and Channels	4.4
New Wells	1.1
Repairs and derelict wells Tubewells	0.5
Tubewells (other than those included in the major irrigation programme)	0.7
Tanks	0.8
Pumping installations	0.7
Schemes in respect of the additional provision for minor irrigation	3.0
	11.2

\* The Plan includes, in addition to the items mentioned, a provision of Rs 2 crores for carrying out investigations into development possibilities in irrigation and power.

As regards power, the extension projects of private electricity undertakings will add 166,000 kw. of installed capacity in the period of the Plan.

23. There are parts of the country in which scope exists for large irrigation projects and there are others in which only smaller projects are possible. Each area has to be served by the kind of schemes for which it offers the best facilities. Large and small projects are thus complementary and not competitive. The Plan includes eight irrigation projects (including multi-purpose projects) costing above Rs. 5 crores each, fifteen costing between Rs. 1 crore and Rs. 5 crores, twenty-one costing between Rs. 50 lakhs and Rs. 1 crore, and seventeen schemes costing between Rs. 10 lakhs and 50 lakhs.

24. Rural electrification has so far made little progress in the country, only 1 in about 200 villages being served with electricity. The Plan makes a provision of Rs. 27 crores for extending rural electrification. This programme is mainly confined to the Southern States of Madras, Mysore, and Travancore-Cochin, but the scope for rural electrification will undoubtedly grow as more power becomes available in other areas of the country. Electricity will be useful not only for agricultural operations like pumping, but also for the processing of agricultural produce and for other cottage and small-scale industries in the villages. There is also a special advantage in the encouragement of agricultural load since utilization of power in agriculture is estimated to require only about one-third the investment required in industry. Moreover, most of the equipment required for utilization of power in agriculture can be produced in the country and its operation does not require technical skill of a high order.

Industrial Development

25. The expenditure on Industry, as shown in the development programmes of the public sector, is Rs.173 crores; this covers Rs.140 crores to be spent on large-scale industries, and ancillary transport expansion, Rs.27 crores on cottage and small-scale industries, and about Rs.6 crores on mineral development and scientific and industrial research. Some of the industrial schemes in the public sector are, however, shown under other heads. For instance, the Chittaranjan locomotive factory and the all-steel coach factory are part of the development plan for railways. The net investment in manufacturing industries figuring in the public development programme taken as a whole, but excluding a lump-sum provision of Rs.50 crores for basic industries and transport (about which more will be said below), is Rs.94 crores over the five years. Investment in the private sector on expansion of industries and on modernisation and replacement is likely to be of the order of Rs.383 crores. The total investment on industrial development in this period can thus be placed at Rs.477 crores.

26. The development programme in the public sector provides for a new iron and steel project estimated to cost Rs.80 crores over a period of six years from the date of commencement; the expenditure in the period of the Plan, estimated at Rs.30 crores, is to be financed partly by Government and partly by private enterprise. Most of the industrial projects in hand in the public sector will be completed by 1953-54. The Sindri fertiliser factory has commenced production and it is expected that it will shortly reach a monthly rate of output of 1,000 tons of ammonium sulphate. With the production of 120 locomotives a year in the Chittaranjan locomotive factory by 1955 and the estimated output of 50 locomotives at the Tata Locomotive and Engineering Company, the railways will be able to secure their normal annual replacement requirements of locomotives almost entirely from domestic production. The production of high precision machine-tools, telephone equipment, dry core cables, and newsprint envisaged in the Plan will also strengthen the industrial structure.

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27. The rate of investment and therefore of development in this sector as a whole will depend however primarily on the implementation of the working plans of private industries outlined in this Report. These plans, drawn up in consultation with the representatives of the industries concerned, aim at expanding the installed capacity of several capital and producer goods industries and, in the case of consumer goods industries, primarily at fuller utilisation of existing capacity. Over the five-year period, the production of heavy chemicals is expected to go up by 156,000 tons, of fertilisers by 528,600 tons, of pig iron by 310,000 tons, of steel by 394,000 tons, and of cement by 2.1 million tons. The output of consumer goods industries is also estimated to increase considerably; the production of cloth is scheduled to go up by 1,872 million yards, of sugar by 340,000 tons, of salt by 429,000 tons and of vegetable oils by 182,000 tons. The output of a number of light engineering industries is also expected to register substantial improvement. It will be the objective of Government policy to assist the private sector to the extent possible in the creation and maintenance of conditions favourable to the attainment of the targets proposed.

28. As the development programme gets into swing and the emphasis is shifted increasingly towards industrialisation, it will become necessary to expand basic industries like iron and steel, heavy chemicals, manufacture of electrical equipment and the like. In these fields, as emphasised in Chapter II, it is necessary to anticipate to some extent the nature of the demands that will develop and a beginning made from the very start. The Plan therefore makes a lump-sum provision of Rs.50 crores for the development of basic industries and ancillary transport. This includes a provision for organising mineral exports. Part of the lump-sum provision of Rs.50 crores, it is expected, will be available for initiating the construction of a unit for the manufacture of electrical equipment to meet the needs of power development in the country.

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These working plans are being published in a separate volume.

29. An extensive programme for village industries prepared primarily with the object of increasing rural employment has been included in the Plan. The programme includes, amongst others, the following industries: khadi, coir, village oil, matches, leather, hand-made paper, gur and khandsari, palm gur, woollen blankets and bee-keeping. The khadi programme is to be financed by means of a small cess on mill-made cloth. A small cess has also been proposed on mill oil for the benefit of the village oil industry. Common production programmes have been proposed for a number of cottage and small scale industries along with the related large scale industries. For instance, as part of the programme for the textile industry the output of the handloom industry is expected to be doubled. The establishment of a Khadi and Village Industries Development Board by the Central Government is being recommended. The Board, which will have large village industry programmes in cooperation with State Governments and other organisations engaged in the field of village industries. The total provision in the Plan for cottage and small scale industries is Rs.27 crores.

#### Transport and Communications.

30. In the programme for Transport and Communications, a little more than half of the total outlay is on railways. This outlay is designed to meet the arrears in replacement accumulated over a long period (particularly during the War) and to equip the railways with the minimum equipment and installations necessary to carry the additional load which will be placed on it as a result of development in other sectors of the economy. At the beginning of 1951-52, about 12 per cent of the locomotives, 28 per cent of the coaches and over 10 per cent of the wagons in use were due for renewal. Considerable lengths of the track were also in need of repair and rehabilitation. The plan provides for an

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expenditure of Rs.50 crores per annum on railways in addition to Rs.30 crores per annum estimated as required for meeting the current depreciation of railway installations and equipment. This will enable a few of the more urgent extensions to be undertaken, but the total provision for new lines over the five years is only about Rs.20 crores and so the programme for railways must be regarded primarily as one of rehabilitation.

31. The total provision for road development in the Centre and the States together amounts to over Rs.100 crores. Of this, about a quarter will be on the development of national highways, and the rest mainly on State roads. The provision for road development includes also a sum of Rs.2 crores for the construction of the Ganga Bridge which will provide a needed link between North and South Bihar. Road development is a sphere which offers considerable scope for mobilisation of local manpower and local materials. In certain States, village roads are already being developed with the active cooperation of villagers who contribute a portion of the cost of construction by way of free labour, free gift of land or money, with the balance being contributed by the State Government or District Boards. With the projects for local and intensive development visualised in the Plan, it is estimated that approximately 16,000 to 17,000 miles of village roads could be constructed through community effort within this period. This mode of development has to be extended as rapidly as possible to cover the entire country.

32. As in the case of railways, ports are in need of attention to meet the immediate needs of expansion in other sectors of the economy. Apart from the fact that there is at present no reserve capacity in the five major ports of the country for handling normal increases in sea-borne trade, port development is necessary to meet the following needs : (a) for rectifying the consequences of Partition and for providing a natural outlet for the traffic previously catered for by Karachi; (b) for the renovation and modernisation of equipment in the existing ports; and (c) for providing facilities for the petroleum refineries which are proposed to set up. The Plan provides for Rs.12 crores for the construction of a new port at Kandla, Rs.8 crores for the creation of port facilities for oil refineries, and another Rs.12 crores as loans to port authorities for carrying out a programme of rehabilitation and modernisation.

33. The Plan also visualises development in certain relatively new lines of transport, of which shipping is the most important. The programme for the development of shipping

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is designed primarily to enable the coastal trade of the country to be reserved for Indian vessels and to ensure their fuller participation in overseas trade. With these in view, the Plan makes provision for construction of additional berths in the Visakhapatnam shipyard, which will not only make available about 100,000 G.R.T. for coastal shipping during this period, but also help to reduce the costs of construction. In addition, there is provision in the Plan for loans to shipping companies for acquiring additional tonnage for overseas trade.

34. Civil aviation is another new line of development. It has been found that under the present conditions of traffic loads and intensity of operations, the existing air transport companies cannot work on an economic basis, and that to ensure such working they should merge into a single unit owned and operated by the Central Government. Integration of existing airlines along these lines has been decided upon and a State Corporation is to be set up for the purpose. It is proposed to give the shareholders of existing companies stock with guaranteed interest in return for their present holdings. The necessary legislation will be undertaken shortly. The Plan provides for a sum of Rs.9.5 crores for purchase of new aircraft and for payment of compensation to existing air companies.

#### •Social Services and Rehabilitation

35. The Plan provides for a total expenditure of Rs.340 crores on social services of which Rs.156 crores are for education, about Rs.100 crores for medical and public health services, Rs.49 crores for housing, Rs.29 crores for backward classes (including scheduled castes and tribes), and nearly Rs.7 crores for labour and labour welfare. The allotment for education includes a sum of Rs.4 crores for assistance to voluntary social welfare organisations so that their work can be expanded and dovetailed into the national development programme. ~~In the States, the Plan~~



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contemplates only a limited measure of expansion in social services. At the Centre there is a provision of Rs.20 crores for further development in the field of primary and secondary education. The average annual expenditure proposed under education represents an increase of nearly 40 per cent over the development expenditure in 1949-50. This would lead to a certain amount of expansion of educational facilities in the States' sector. The number of pupils attending primary, junior basic, secondary and technical and vocational (other than industrial) schools is expected to increase by 26, 31, 31, and 41 per cent respectively as compared to 1950-51. In the sphere of health, the Centre has a programme for malaria control which will be coordinated with the programmes of the States; the programme is intended to protect about 200 million people in rural areas through insecticidal spraying measures. The Plan provides also for the construction of two D.D.T. plants in order to ensure sufficient supply of D.D.T. at reduced costs to meet the needs of the country. The State Plans provide for an expenditure on public health of Rs.39 crores; this expenditure, which will be mainly on provision of water supply and drainage, will involve a doubling of the existing rate of expenditure under this head. With the introduction of the scheme of provident fund for industrial workers in six industries, it has been possible to frame a programme for the construction of about 150,000 houses for industrial workers at a cost of about Rs.38.5 crores. In addition, some States have their own housing schemes for low income groups; the total cost of the housing programme is about Rs.49 crores. The Plan has also a programme of amelioration for backward classes. In addition to the provision of Rs.29 crores shown in the Plan, the Central Government is estimated to provide in the form of statutory grants a further sum of about Rs.9 crores for the development of scheduled tribes. The programme for the rehabilitation of displaced persons, for which a provision of Rs.85 crores has been made in the Plan, covers a period of three years ending 1953-54. The problem of migrants across the eastern border is still in somewhat fluid state. For some time to come the problem of relief of those who have newly arrived may continue to be a major concern of the Government.

Assessment of the Plan in terms of Income and Employment.

36. A programme of development will, in the last analysis, be judged in terms of the improvement it is able to make to the welfare of the community. The usual indices of welfare are the levels of income, consumption and employment. With the available data only a broad assessment of the Plan in these terms is possible. There are large gaps in the information available even on the existing position. National income statistics are still in their infancy. Little is known about the distribution of income and wealth in the country. ~~That from~~ a general picture derived from the Census returns, the data available on the occupational pattern are meagre. We do not also have sufficient knowledge of the relationships between the different sectors of the economy and how they interact on each other. In a period of development, the changes in all these are likely to be of great significance.

37. The national income of India in 1950-51 has been roughly estimated at Rs.9,000 crores. As a result of the increases in production expected to materialise by the end of the Plan, the national income (at constant prices) is expected to go up to Rs.10,000 crores, that is, by 11 per cent. The benefits of the investment outlays undertaken during the period of the Plan will not be fully realised in this period. For instance, a considerable part of the additional irrigation and power facilities on account of schemes included in the Plan will come only in the following quinquennium, though the greater part of the investment necessary will have taken place in the present Plan period.

38. To the extent that the community development projects, and the other schemes in the Plan designed to stimulate local initiative and resources, succeed in evoking community effort on a large scale, the increase in national income can be expected to be larger. In specific areas, direct application of manpower and other resources and concentrated efforts for increasing productivity could raise incomes by 25 per cent or more. The scale on which such effort can be organised will determine to a considerable degree, particularly in the countryside, the rate of development that will be achieved and the contribution it makes to the welfare of the community at large.

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39. Out of the annual rate of increase of about 2 per cent in national income, about one-fifth will have to be, so to say, ploughed back into investment year after year in order to sustain the development programme at the rate visualised in the Plan. The aggregate consumption expenditure will therefore rise at a somewhat lower rate than the national income. Although the Plan will meet in this period only the most urgent needs of the people, for instance, in the matter of food and clothing, it will have made a substantial addition to the production potential of the country.

40. In judging the likely effects of the Plan on employment, it is necessary to bear in mind that the problem in India is more one of underemployment rather than of unemployment as such. Underemployment is another facet of low productivity, which in turn is due to shortage of capital equipment and technical skill. The problem of removing underemployment and of opening up employment opportunities for all at rising levels of real income is, therefore, in a sense, synonymous with the problem of development itself. The contribution that the Plan will make to the solution of the problem will be two-fold: firstly, in the process of stepping up the rate of investment it will create more employment for those engaged on construction activity, and, secondly, by building up capital at key points in the system, it will, at the next stage, enable a growing number of people to be absorbed into the productive system.

41. The Plan involves doubling the development expenditure of public authorities, from Rs.232 crores in 1950-51 to nearly Rs.500 crores by 1955-56; on a broad estimate about a half of this increase might be expected to be paid as so much additional wages and salaries. In the private sector, the largest investment activity is in building construction. There are no data available on the volume of building activity in the country, but certain rough estimates, based on the allocations of materials like cement and steel and the cost of building covered by them, suggest that net private investment on constructions using these materials was probably of the order of Rs.100 crores in 1950-51. Over the period of the Plan, the output of cement and steel is expected to go up by about 80 per cent and 40 per cent respectively. No doubt, some of these increases will be absorbed by the developmental outlay of public authorities, but the additions to construction activity in the private sector which the larger output of cement and steel can sustain may still be considerable.

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42. The secondary effects of investment on employment would take more time to show, but they are likely to be more impressive. This is particularly true in the earlier stages of industrialisation. In large scale industry, the emphasis in the Plan is on producer goods industries as far as expansion of installed capacity is concerned. Producer goods industries are highly capital-intensive, and the additional direct employment which the programme of industrialisation offers in this period would be correspondingly small. In agriculture, according to the Plan, benefits of irrigation will accrue to about 19 million acres of cultivable land in this period. Where perennial irrigation is provided, opportunities will develop for double cropping and this will help to reduce seasonal unemployment. In the rest of the agricultural sector, the provision of irrigation facilities, manures and seeds will raise productivity and increase incomes. The immediate employment effect of the higher incomes is not likely to be very pronounced, but as the trend of rising incomes establishes itself, effective demand will grow in the rural sector and widen employment opportunities in small scale industries as well as in services ancillary to commodity production. As mentioned in an earlier paragraph, the Plan incorporates several measures for the protection and expansion of small scale industries. These industries at present suffer from a variety of handicaps: inefficient techniques, lack of finance, difficulties in getting the necessary raw materials, inadequate marketing organisation, insufficient co-ordination with expansion in other sectors of industry, etc. Recommendations for improving these have been made in the relevant chapters in this Report. The principle of giving direct assistance to cottage and small-scale industries and, in suitable cases, of assuring them a field of operation sheltered from excessive competition in the period of transition has also been accepted.

43. The problem of increasing income and employment in an underdeveloped country is, in the last analysis, tied up with the larger problem of capital accumulation. The present Plan aims at raising domestic investible surpluses from the estimated level of Rs 450 crores in 1950-51 to about Rs 675 crores by

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1955-56. It is the same factors which prevent the rate of capital accumulation from being stepped up further that also stand in the way of more rapid increases in income and employment. Basically, the solution lies in tapping the large investment potential which lies in the unutilised manpower and other resources in the country; this is a question of organisation. Changes in the institutional framework and the organisation measures recommended in this Report have from this point of view a vital significance.

Statement - I : Development Expenditure under the Plan : Centre and States.

(Rs. lakhs)

Head	Total	Central Government	Part 'A' States	Part 'B' States	Jammu & Kashmir	Part 'C' States
<b>I. Agriculture and community development-</b>						
Agriculture	18422.2	5922.2	9108.2	2771.0	22.1	598.7
Veterinary and animal husbandry including dairying	2228.5	412.0	1524.6	197.9	15.0	79.0
Forests	1169.5	200.0	599.8	224.7	10.0	135.0
Cooperation	711.2	50.0	491.7	125.2	-	44.3
Fisheries	464.1	50.5	332.5	72.9	-	8.2
Rural Development	1047.1	-	674.4	372.2	-	0.5
Community Projects	9000.0	9000.0	-	-	-	-
Local works	1500.0	1500.0	-	-	-	-
Programme for scarcity affected areas	1500.0	1500.0	-	-	-	-
<b>Total</b>	<b>36042.6</b>	<b>18634.7</b>	<b>12731.2</b>	<b>3763.9</b>	<b>47.1</b>	<b>865.7</b>
<b>II. Irrigation and power-</b>						
multi-purpose projects	26590.0	26590.0	-	-	-	-
Irrigation projects	16796.5	-	11234.3	5013.2	366.7	182.3
Power projects	12754.0	-	9374.7	3135.5	74.9	168.9
<b>Total</b>	<b>56140.5</b>	<b>26590.0</b>	<b>20609.0</b>	<b>8148.7</b>	<b>441.6</b>	<b>351.2</b>
<b>III. Transport and communications-</b>						
Railways	25000.0	25000.0	-	-	-	-
Roads	10887.8	3124.0	5059.2	1582.8	494.4	627.4
Road Transport	896.9	-	562.4	96.0	-	238.5
Shipping	1805.8	1805.8	-	-	-	-
Civil Aviation	2287.0	2287.0	-	-	-	-
Ports and Harbours	3308.8	3206.4	26.0	63.0	-	13.4
Inland water transport	10.0	10.0	-	-	-	-
Posts and telegraphs	5000.0	5000.0	-	-	-	-
Broadcasting	352.0	352.0	-	-	-	-
Overseas communications	100.0	100.0	-	-	-	-
Metereological department	62.0	62.0	-	-	-	-
<b>Total</b>	<b>49710.3</b>	<b>40947.2</b>	<b>5647.6</b>	<b>1741.8</b>	<b>494.4</b>	<b>879.3</b>

(contd.)

The outlay of Rs. 250 crores is additional to the estimated expenditure of Rs. 150 crores to cover the depreciation of assets in the period of the Plan.

Statement - I : Development Expenditure under the Plan : Centre and States  
(contd.)

Head	Total	Central Government	Part 'A' States	Part 'B' States	Jammu & Kashmir	Part 'C' States
<b>IV. Industry</b>						
Large-scale industries	14033.2	12604.3*	1025.8	352.5	50.6	-
Cottage and small-scale industries	2704.1	1500.0	764.9	356.9	31.2	51.1
Scientific and industrial research	461.0	461.0	-	-	-	-
Mineral development	106.1	106.1	-	-	-	-
Total	<u>17304.4</u>	<u>14671.4</u>	<u>1790.7</u>	<u>709.4</u>	<u>81.8</u>	<u>51.1</u>
<b>V. Social Services</b>						
Education	15566.1	3901.6	9831.0	1227.4	46.0	510.1
Health	9954.6	1787.4	6350.3	1238.1	128.2	450.6
Housing	4881.6	3850.0	877.1	87.5	12.0	55.0
Labour and labour welfare	691.7	397.3	273.1	20.3	-	1.0
Amelioration of backward classes and scheduled castes and tribes	2887.2@	700.0	1848.1	316.6	-	22.5
Total	<u>33981.2</u>	<u>10636.3</u>	<u>19229.6</u>	<u>2889.9</u>	<u>186.2</u>	<u>1039.2</u>
VI. Rehabilitation	8500.0	8500.0	-	-	-	-
VII. Works and buildings	1102.3	1102.3	-	-	-	-
VIII. Finance Ministry schemes	439.6	439.6	-	-	-	-
IX. North-east Frontier agency	300.0	300.0	-	-	-	-
X. Andamans	382.8	382.8	-	-	-	-
XI. Loans to Corporations	1200.0	1200.0	-	-	-	-
XII. Miscellaneous	1774.4	650.0	1003.5	72.0	48.9	-
Grand Total	<u>206878.1</u>	<u>124054.3</u>	<u>61011.6</u>	<u>17325.7</u>	<u>1300.0</u>	<u>3136.2</u>

\* Includes lumpsum provision of Rs. 50 crores for basic industries and ancillary transport expansion; a programme for organising mineral exports is also to be financed out of this provision.

@ This includes Central Grants amounting to Rs. 3 crores; in addition, about Rs.9 crores are likely to be available by way of grants by the Central Government under Article 275(1) of the Constitution.

IV. Statement II-Development expenditure under the Plan:

Part 'A' States

(Rs. lakhs)

H e a d	Assam Assam	Bihar	Bombay	Madhya Pradesh	Madras
Agriculture	276.1	1284.3	1748.4	1065.5	1593.7
Veterinary and Animal Husbandry	12.5	92.5	166.9	98.8	100.0
Dairying and Milk Supply	-	1.5	602.1	36.9	50.0
Forests	33.3	125.0	83.8	40.8	38.8
Co-operation	29.3	39.0	123.2	28.8	100.0
Fisheries	6.0	10.6	16.0	5.8	100.0
Rural Development	39.3	124.7	131.5	165.9	200.0
<b>I. AGRICULTURAL AND RURAL DEVELOPMENT</b>	<b>499.5</b>	<b>1677.6</b>	<b>2871.9</b>	<b>1382.5</b>	<b>2182.5</b>
Multipurpose Pro- jects	-	-	-	-	-
Irrigation Projects	200.0	923.3	2302.0	308.0	3408.0
Power Projects	83.0	708.7	1043.0	690.0	5024.0
<b>II. MAJOR IRRIGATION AND POWER PRO- JECTS</b>	<b>283.0</b>	<b>1682.0</b>	<b>3312.0</b>	<b>908.0</b>	<b>8432.0</b>
Cottage Industries	25.0	59.2	103.1	9.2	116.9
Other Industries	-	60.0	250.6	226.2	85.1
<b>III. INDUSTRY</b>	<b>25.0</b>	<b>119.2</b>	<b>353.7</b>	<b>235.4</b>	<b>202.0</b>
Roads	213.0	800.0	1163.6	200.0	500.0
Road Transport	31.9	-	200.0	-	-
Ports & Harbours	-	-	25.0	-	-
<b>IV. TRANSPORT</b>	<b>244.9</b>	<b>800.0</b>	<b>1388.6</b>	<b>200.0</b>	<b>500.0</b>
Education	89.9	570.4	4611.1	1079.3	800.0
Medical	173.5	500.09	536.4	267.9	300.0
Public Health	17.8	196.0	1116.7	78.2	900.0
Housing	-	100.0	77.2	20.0	300.0
Labour and Labour Welfare	6.0	20.0	162.33	0.5	-
Amelioration of Backward Classes	509.6	1500.0	213.6	136.4	487.6
<b>V. SOCIAL SERVICES</b>	<b>796.8</b>	<b>1450.3</b>	<b>6717.3</b>	<b>1582.3</b>	<b>2767.6</b>
<b>VI. MISCELLANEOUS</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>GRAND TOTAL</b>	<b>1749.2</b>	<b>5729.1</b>	<b>14643.5</b>	<b>4308.2</b>	<b>14084.1</b>



## IV.

Statement II Development expenditure under  
the Plan

H e a d	Part 'A' States (Contd.)				(Rs.lakhs)
	Orissa	Punjab	Uttar Pradesh	West Bengal	Total
Agriculture	205.5	210.7	2095.9	688.1	9108.2
Veterinary and Animal Husbandry	52.8	22.0	134.1	74.7	754.3
Dairying and Milk Supply	9.2	-	20.6	50.0	770.3
Forests	13.1	18.0	165.2	78.8	599.8
Co-operation	28.9	11.8	130.7	-	491.7
Fisheries	33.4	-	6.2	154.5	332.5
Rural Development	10.0	-	-	3.0	674.4
<b>I. AGRICULTURE AND RURAL DEVELOPMENT</b>	<u>352.9</u>	<u>262.5</u>	<u>2852.27</u>	<u>1049.1</u>	<u>12731.2</u>
Multipurpose Projects	-	-	-	-	-
Irrigation and Projects	300.0	326.2	1912.0	1537.8	11234.3
Power Projects	391.0	38.2	1411.0	75.8	9374.7
<b>II. MAJOR IRRIGATION AND POWER PROJECTS</b>	<u>691.0</u>	<u>364.4</u>	<u>3323.0</u>	<u>1613.6</u>	<u>20609.0</u>
Cottage Industries	27.6	48.1	301.5	74.3	764.9
Other Industries	65.3	15.5	280.7	42.4	1025.8
<b>III. INDUSTRY</b>	<u>92.9</u>	<u>63.6</u>	<u>582.2</u>	<u>116.7</u>	<u>1790.7</u>
Roads	200.0	75.1	522.4	1385.1	5069.2
Road Transport	20.0	-	120.0	190.5	562.4
Port and Harbours	1.0	-	-	-	26.0
<b>IV. TRANSPORT</b>	<u>221.0</u>	<u>75.1</u>	<u>642.4</u>	<u>1575.6</u>	<u>5647.6</u>
Education	179.5	118.0	1603.8	808.1	9660.1
Medical	78.7	73.9	349.8	1210.2	3394.3
Public Health	46.4	50.1	246.1	304.7	2956.0
Housing	-	11.3	145.2	223.4	877.1
Labour and Labour Welfare	1.9	1.8	101.5	-	294.1
Amelioration of Backward Classes	116.4	-	236.2	8.3	1848.1
<b>V. SOCIAL SERVICES</b>	<u>422.9</u>	<u>255.1</u>	<u>2682.6</u>	<u>2554.7</u>	<u>19229.6</u>
<b>VI. MISCELLANEOUS</b>	3.5	100.0	-	-	1003.5
<b>GRAND TOTAL</b>	<u>1784.2</u>	<u>2020.7</u>	<u>9782.9</u>	<u>6909.7</u>	<u>61011.6</u>

Statement III, Development expenditure under the Plan:  
Part 'B' States & Jammu and Kashmir.

(Rs. lakhs)

H E A D	HYDERABAD	MADHYA BHARAT	MYSORE	P E P S U
1. Agriculture	346.4	750.0	443.0	364.9
2. Veterinary and Animal Husbandry	49.6	50.0	53.8	10.0
3. Dairying and Milk Supply	1.7	-	-	-
4. Forests	21.4	50.0	8.3	43.6
5. Co-operation	35.3	25.0	7.1	15.0
6. Fisheries	8.6	10.0	2.2	2.4
7. Rural Development	-	60.0	81.1	-
I. AGRICULTURE AND RURAL DEVELOPMENT	<u>463.0</u>	<u>945.0</u>	<u>595.5</u>	<u>435.9</u>
1. Multipurpose Projects -	-	-	-	-
2. Irrigation Projects	2479.0	328.0	716.0	34.0
3. Power Projects	320.6	228.0	1268.0	30.6
II. MAJOR IRRIGATION AND POWER PROJECTS	<u>2799.6</u>	<u>556.0</u>	<u>1984.0</u>	<u>64.6</u>
1. Cottage Industries	25.7	50.0	135.4	4.4
2. Other Industries	268.7	5.0	34.8	27.3
III. INDUSTRY	<u>294.4</u>	<u>55.0</u>	<u>170.2</u>	<u>31.7</u>
1. Roads	128.6	189.0	320.1	95.1
2. Road Transport	-	-	-	-
3. Ports and Harbours	-	-	-	-
IV. TRANSPORT	<u>128.6</u>	<u>189.0</u>	<u>320.1</u>	<u>95.1</u>
1. Education.	263.5	200.0	225.6	89.9
2. Medical	117.7	77.0	56.5	56.0
3. Public Health	88.2	121.2	158.3	29.0
4. Housing	-	14.4	50.0	2.0
5. Labour and Labour Welfare	-	4.4	-	-
6. Amelioration of Backward Classes	-	80.0	100.0	10.0
V. SOCIAL SERVICES	<u>469.4</u>	<u>497.0</u>	<u>590.4</u>	<u>186.9</u>
VI. MISCELLANEOUS	-	-	-	-
GRAND TOTAL	<u>4155.0</u>	<u>2242.0</u>	<u>3660.2</u>	<u>814.2</u>

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## IV

Statement III: Development expenditure under  
the Plan: Part 'B' States & Jammu and Kashmir  
(Contd).

H e a d	(Rs. lakhs)				
	RAJASTHAN	SAURASHTRA	TRAVANCORE COCHIN	TOTAL	JAMMU AND KASHMIR
Agriculture	109.2	212.4	545.1	2771.0	22.1
Veterinary and Animal Husbandry	18.3	10.4	2.5	194.6	15.0
Dairying and Milk Supply	-	1.6	-	3.3	-
Forests	21.8	19.6	60.0	224.7	10.0
Cooperation	3.0	31.8	8.0	125.2	-
Fisheries	-	34.7	15.0	72.9	-
Rural Development	15.0	216.1	-	372.2	-
<b>I. AGRICULTURE AND RURAL DEVELOP- MENT</b>	<b>167.3</b>	<b>526.6</b>	<b>630.6</b>	<b>3763.9</b>	<b>47.1</b>
Multipurpose Projects	-	-	-	-	-
Irrigation Projects	503.6	474.6	478.0	5013.2	366.7
Power Projects	40.8	212.5	1035.0	3135.5	7.0
<b>II. MAJOR IRRIGATION AND POWER PROJECTS</b>	<b>544.4</b>	<b>687.1</b>	<b>1513.0</b>	<b>8148.7</b>	<b>441.6</b>
Cottage Industries	38.5	13.9	89.0	356.9	31.2
Other Industries	-	0.9	15.8	352.5	50.6
<b>III. INDUSTRY</b>	<b>38.5</b>	<b>14.8</b>	<b>104.8</b>	<b>709.4</b>	<b>81.8</b>
Roads	400.0	300.0	150.0	1582.8	494.4
Road Transport	1.0	53.0	42.0	96.0	-
Ports and Harbours	-	33.0	30.0	63.0	-
<b>IV. TRANSPORT</b>	<b>401.0</b>	<b>386.0</b>	<b>222.0</b>	<b>1741.8</b>	<b>494.4</b>
Education	263.5	164.9	20.0	1227.4	46.0
Medical	82.0	71.5	120.0	500.7	46.0
Public Health	135.5	73.7	51.5	657.4	82.2
Housing	2.0	9.1	10.0	87.5	12.0
Labour and Labour welfare	5.0	10.9	-	20.3	-
Amelioration of Backward Classes	42.2	24.4	60.0	316.6	-
<b>V. SOCIAL SERVICES</b>	<b>530.2</b>	<b>354.5</b>	<b>261.5</b>	<b>2339.9</b>	<b>186.2</b>
<b>VI. MISCELLANEOUS</b>	<b>-</b>	<b>72.0</b>	<b>-</b>	<b>72.0</b>	<b>40.0</b>
<b>GRAND TOTAL:</b>	<b>1681.4</b>	<b>2041.0</b>	<b>2731.9</b>	<b>17325.7</b>	<b>130.0</b>

## IV

Statement IV: Development expenditure  
under the Plan: Part 'C' States.

(Rs. lakhs)

H e a d	AJMER	BHOPAL	BILASPUR	COORG	DELHI	HIMACHAL PRADESH
Agriculture	48.4	173.0	7.0	-	63.6	28.0
Veterinary and Animal Husbandry	9.6	7.0	1.1	-	9.4	22.4
Dairying and Milk Supply	-	-	-	1.0	4.9	-
Forests	10.6	20.0	5.0	-	2.2	59.0
Cooperation	8.4	5.0	-	2.0	6.3	15.0
Fisheries	-	2.0	-	-	2.6	1.0
Rural Development	-	-	0.5	-	-	-
<b>I. AGRICULTURAL &amp; RURAL DEVELOP- MENT</b>	<b><u>77.0</u></b>	<b><u>207.0</u></b>	<b><u>13.6</u></b>	<b><u>3.0</u></b>	<b><u>89.0</u></b>	<b><u>125.4</u></b>
Irrigation Projects	11.3	-	-	-	-	80.0
Power Projects	-	27.9	-	35.0	-	13.5
<b>II. MAJOR IRRIGA- TION &amp; POWER PROJECTS</b>	<b><u>11.3</u></b>	<b><u>27.9</u></b>	<b>-</b>	<b><u>35.0</u></b>	<b>-</b>	<b><u>93.5</u></b>
Cottage Industries	-	5.0	0.5	-	7.3	23.0
Other Industries	-	-	-	-	-	-
<b>III. INDUSTRY</b>	<b>-</b>	<b><u>5.0</u></b>	<b><u>0.5</u></b>	<b>-</b>	<b><u>7.3</u></b>	<b><u>23.0</u></b>
Roads	15.9	40.0	23.0	20.0	25.0	110.0
Road Transport	-	-	2.0	-	216.0	10.0
Ports & Harbours	-	-	-	-	-	-
<b>IV. TRANSPORT</b>	<b><u>15.9</u></b>	<b><u>40.0</u></b>	<b><u>25.0</u></b>	<b><u>20.0</u></b>	<b><u>241.0</u></b>	<b><u>120.0</u></b>
Education	15.0	30.0	10.0	10.0	259.8	36.8
Medical	31.9	25.0	4.0	5.0	58.9	18.1
Public Health	6.1	50.0	4.0	-	36.0	37.9
Housing	-	-	-	-	55.0	-
Labour & Labour Welfare	-	-	-	-	1.0	-
Amelioration of Backward Classes	-	5.0	-	-	-	-
<b>V. SOCIAL SERVICES</b>	<b><u>53.0</u></b>	<b><u>110.0</u></b>	<b><u>18.0</u></b>	<b><u>15.0</u></b>	<b><u>410.7</u></b>	<b><u>92.8</u></b>
Grant Total:	157.2	389.9	57.1	73.0	748.0	454.7

IV

Statement IV: Development expenditure  
under the Plan: Part 'C' States  
(Contd).

(Rs. lakhs)					
H e a d	KUTCH	MANIPUR	TRIPURA	VINGHYA PRADESH	TOT.L
Agriculture	60.6	0.8	12.6	204.7	598.7
Veterinary and Animal Husbandary	3.9	2.5	2.8	12.9	71.6
Dairying and Milk Supply	-	-	-	1.5	7.4
Forests	1.4	3.0	11.3	22.5	135.0
Cooperation	3.5	-	1.1	3.0	44.3
Fisheries	1.4	-	-	1.2	8.2
Rural Development	-	-	-	-	0.5
<b>I. AGRICULTURAL &amp; RURAL DEVELOP- MENT.</b>	<b><u>70.8</u></b>	<b><u>6.3</u></b>	<b><u>27.3</u></b>	<b><u>245.8</u></b>	<b><u>865.7</u></b>
Irrigation Projects	91.0	-	-	-	182.3
Power Projects	23.0	12.0	7.0	50.5	168.9
<b>II. MAJOR IRRIGA- TION &amp; POWER PROJECTS</b>	<b><u>114.0</u></b>	<b><u>12.0</u></b>	<b><u>7.0</u></b>	<b><u>50.5</u></b>	<b><u>351.2</u></b>
Cottage Industries	3.5	-	5.8	6.0	51.1
Other Industries	-	-	-	-	-
<b>III. INDUSTRY</b>	<b><u>3.5</u></b>	<b>-</b>	<b><u>5.8</u></b>	<b><u>6.0</u></b>	<b><u>51.1</u></b>
Roads	58.3	81.3	128.0	125.9	627.4
Road Transport	-	10.5	-	-	238.5
Ports & Harbours	13.4	-	-	-	13.4
<b>IV. TRANSPORT</b>	<b><u>71.7</u></b>	<b><u>91.8</u></b>	<b><u>128.0</u></b>	<b><u>125.9</u></b>	<b><u>879.3</u></b>
Education	6.8	17.7	24.0	100.0	510.1
Medical	26.0	6.0	11.7	36.0	222.6
Public Health	10.0	21.0	3.0	60.0	228.0
Housing	-	-	-	-	55.0
Labour & Labour Welfare	-	-	-	-	1.0
Amelioration of Backward Classes	2.5	-	-	15.0	22.5
<b>V. SOCIAL SERVICES</b>	<b><u>45.3</u></b>	<b><u>44.7</u></b>	<b><u>38.7</u></b>	<b><u>211.0</u></b>	<b><u>1039.2</u></b>
<b>GRAND TOTAL:</b>	<b>305.3</b>	<b>154.8</b>	<b>207.3</b>	<b>639.2</b>	<b>3116.5</b>

IV

Statement V: Progress of development expenditure: Central Government

(Rs. lakhs)

Head	Expenditure in 1950-51	Progress of expenditure		Five Years' Total 1951-56
		1951-52 Revised	1952-53 Budget	
1	2	3	4	5
<b>I. AGRICULTURE AND COMMUNITY DEVELOPMENT:</b>				
Agriculture	244.3	256.2	303.2	5922.2*
Veterinary and Animal Husbandry (including Dairying)	-	-	30.3	412.0
Forests	-	-	-	200.0
Cooperation	-	-	-	50.0
Fisheries	-	-	-	50.5
Community Projects	-	-	-	9000.0
Local Works	-	-	-	1500.0
Programmes for scar- city-affected areas	-	-	-	1500.0
<b>Total</b>	<b>244.3</b>	<b>256.2</b>	<b>333.5</b>	<b>18634.7</b>
<b>II. MAJOR IRRIGATION AND POWER PROJECTS</b>				
	2210.0	3666.0	4033.0	26590.0**
<b>III. INDUSTRY</b>				
Large-scale industries	635.3	991.9	1272.9	12604.3@
Small-scale and Cottage industries	14.5	17.0	20.0	1500.0
Scientific and In- dustrial Research	96.0	75.2	107.5	461.0
Mineral Development	-	4.2	18.8	106.1
<b>Total</b>	<b>745.8</b>	<b>1088.3</b>	<b>1419.2</b>	<b>14671.4</b>

\* Includes lump-sum provision for (a) Minor irrigation - Rs. 30 crores  
(b) Medium and long term loans to agriculturists - Rs. 10 crores  
(c) Resettlement of landless agricultural workers - Rs. 2 crores.

\*\* Includes Rs. 40 crores for new irrigation and power projects.

@ Includes lump-sum provision of Rs. 50 crores for basic industries and auxiliary transport expansion.

9.

(Contd).

IV

H e a d	Expendi- ture in '1950-51	Progress of expendi- ture		'Five Years' Total '1951-56
		'1951-52 Revised	'1952-53 Budget	
<b>IV. TRANSPORT</b>				
Roads	296.1	365.0	600.0	3124.0
Inland Water Transport	-	2.0	2.0	10.0
Ports and Harbours	78.8	85.7	240.0	3206.4
Shipping	155.1	158.7	418.6	1805.8
Railways	3331.0	4689.0	4810.0	25000.0
Civil Aviation	178.2	183.0	217.0	2287.0
Posts and Telegraphs	753.9	487.0	579.0	5000.0
Overseas Communications	8.0	20.0	20.0	100.0
Meteorological Department	-	15.0	15.0	62.0
Broadcasting	16.4	35.0	43.3	352.0
<b>Total</b>	<b>4817.5</b>	<b>6042.4</b>	<b>7044.9</b>	<b>40927.2</b>
<b>V. SOCIAL SERVICES</b>				
Education	124.6	149.4	423.0	3901.6"
Health	7.5	10.3	45.5	1787.4
Housing	100.0	168.0	900.0	3850.0
Labour and Labour Welfare	55.9	48.5	55.3	397.3
Amelioration of Backward ) Classes, Scheduled Castes ) and Tribes )	-	174.7	180.0	700.0 /
<b>Total</b>	<b>288.0</b>	<b>550.9</b>	<b>1603.8</b>	<b>10636.3</b>
VI. REHABILITATION	2032.7	2854.4	2657.5	8500.0
VII. WORKS AND BUILDINGS	23.4	257.4	207.8	1102.3
VII. FINANCE MINISTRY SCHEMES	92.0	100.5	108.9	439.6
IX. NORTH EAST FRONTIER AGENCY	10.6	30.0	20.9	300.0
X. ANDAMANS	-	-	-	382.8
XI. LOANS TO CORPORATIONS	-	-	-	1200.0
XII. MISCELLANEOUS	-	-	-	650.0
<b>GRAND TOTAL</b>	<b>10464.3</b>	<b>14646.1</b>	<b>17429.5</b>	<b>124054.3</b>

"Includes Rs.4 crores for voluntary social welfare organisations.

/ In addition, about Rs.9 crores are likely to be available by way of Central Grants under Article 275(1) of the Constitution.

**Statement VI Progress of Development Expenditure  
in States.**

(a) By heads of development (Rs. Lakhs)

H e a d	Develop- ment Exp- enditure in 1950-51	Progress of expend- iture		Five years' Total 1951-56
		1951-52	1952-53	
Agriculture	2709.2	2274.6	2525.8	12500.0
Veterinary and Animal Husbandry	96.9	123.9	174.8	1035.5
Dairying and Milk Supply	122.7	138.9	95.7	781.0
Forests	75.1	87.0	166.7	969.5
Cooperation	82.6	99.9	116.7	661.2
Fisheries	53.3	57.1	65.8	413.6
Rural Development	85.2	136.8	195.2	1047.1
<b>Total</b>	<b>3225.0</b>	<b>2918.2</b>	<b>3240.7</b>	<b>17407.9</b>
Irrigation Projects	2035.5	2274.6	3506.2	16796.5
Power Projects	1777.3	2224.3	2844.1	12754.0
<b>Total</b>	<b>3812.8</b>	<b>5118.9</b>	<b>6350.3</b>	<b>29550.5</b>
Cottage Industries	102.3	126.2	185.9	1204.1
Other Industries	445.5	344.3	460.6	1428.9
<b>Total</b>	<b>547.8</b>	<b>470.5</b>	<b>646.5</b>	<b>2633.0</b>
Roads	954.5	1226.3	1795.6	7763.8
Road Transport	144.4	137.0	200.4	896.9
Ports and Harbours	0.1	7.0	12.8	102.4
<b>Total</b>	<b>1099.0</b>	<b>1370.3</b>	<b>2008.8</b>	<b>8763.1</b>
Education	1833.3	2005.6	2253.6	11664.5
Medical	552.6	763.0	873.1	4243.6
Public Health	366.0	516.5	611.5	3923.6
Housing	142.5	215.8	299.7	1031.6
Labour and Labour Welfare	32.3	32.8	38.8	294.4
Amelioration of Backward Classes	259.6	338.6	409.7	2187.2
<b>Total</b>	<b>3186.6</b>	<b>3872.3</b>	<b>4486.4</b>	<b>23344.9</b>
Miscellaneous	72.6	108.9	303.4	1124.4
<b>Grand Total</b>	<b>11943.5</b>	<b>13859.1</b>	<b>17136.1</b>	<b>82823.8</b>



IV Statement VII Progress of Development Expenditure  
in States  
(b) by states

( Rs. lakhs )

S t a t e s	Expenditure	Progress of		Five years
	in 1950-51	expenditure 1951-52 (Revised)	1952-53 (Budget)	Total (Plan) 1951-56
Assam	103.0	141.8	247.7	1749.2
Bihar	793.9	1348.6	1531.8	5729.1
Bombay	2011.0	2312.2	2922.7	14643.5
Madhya Pradesh	797.5	782.4	954.3	4308.2
Madras	3064.2	2770.5	3008.2	14084.1
Orissa	320.3	278.9	366.6	1784.2
Punjab	281.2	377.3	591.0	2020.7
Uttar Pradesh	1378.3	1722.6	2294.1	9782.9
West Bengal	1012.2	1308.1	1376.1	6909.7
<b>Total A States</b>	<b>9761.6</b>	<b>11042.4</b>	<b>13292.5</b>	<b>61011.6</b>
Hyderabad	602.9	714.8	792.6	4155.0
Madhya Bharat	213.1	251.0	438.8	2242.0
Mysore	524.3	542.8	627.9	3660.2
PEPSU	47.5	52.5	119.2	814.2
Rajasthan	189.8	217.7	216.1	1681.4
Saurashtra	158.0	212.8	357.6	2041.0
Travancore- Cochin	270.5	504.4	598.1	2731.9
<b>Total B States</b>	<b>2006.1</b>	<b>2496.0</b>	<b>3150.3</b>	<b>17325.7</b>
<b>JAMMU &amp; KASHMIR</b>	<b>27.3</b>	<b>134.1</b>	<b>136.9</b>	<b>1300.0</b>
Ajmer	12.6	14.5	20.3	157.2
Bhopal	41.2	40.5	83.4	389.9
Bilaspur	1.3	3.0	11.4	57.1
Coorg	2.4	6.4	7.5	73.0
Delhi	51.4	59.5	120.6	748.0
Himachal Pradesh	6.4	17.7	94.7	454.7
Kutch	4.1	18.2	74.7	305.3
Manipur	0.4	-	21.5	154.8
Tripura	2.3	4.8	25.9	207.3
Vindhya Pradesh	26.4	222.0	96.4	639.2
<b>Total C States</b>	<b>148.5</b>	<b>186.6</b>	<b>556.4</b>	<b>3186.5</b>
<b>Grand Total</b>	<b>11943.5</b>	<b>13859.1</b>	<b>17136.1</b>	<b>82823.8</b>

## Appendix to Part I : National Budgeting and the Plan

National budgeting is a technique of economic planning which has been used in recent years in countries like the United Kingdom, Netherlands, Norway and Sweden to ensure a certain balance between the demand for resources and the supply of resources from year to year. A national budget is different from other familiar forms of budgets (as those of governments and local authorities) in that it attempts to cover the economy as a whole and not just a part of the transactions within it. It takes into account not only the fiscal budget but also aggregate consumer income and expenditure, accounts of corporate and un-incorporated enterprises, budgets of local authorities, etc. For ensuring a balance between the demand for particular goods and services and their supply (in addition to a balance between aggregate demand and aggregate supply), investment budgets as well as commodity, foreign exchange and manpower budgets are also constructed for the purpose of national budgeting.

2. The usefulness of an approach which encompasses the whole system and, in consequence, helps to formulate economic policies based on an analysis of their likely repercussions on all important aspects of its operation and growth cannot be over-estimated. It might be even regarded as a pre-requisite of systematic planning. There are, however, several difficulties in practice. The most striking of these is often the dearth of statistical material in the required detail. Before a national budget can be constructed there should be, at the very minimum, a set of national accounts for a series of years which could be used as the basis of forecasting. Though progress in regard to national income statistics has been considerable in the last decade, the lacunae from the point of view of national budgeting are still many. Data in regard to savings are very imperfect in most countries, since they are often derived as a residual and are not always directly computed.

Even where a fairly reliable series of data exists, savings cannot always be related to the forms in which they are held or the financial intermediaries through which they flow, so that it is not possible to infer from them the asset-preferences of the community. On the side of investment, information on changes in the holdings of stocks is in almost all cases of a scattered nature and includes the effects of price changes. The relationships between these magnitudes are vital factors in economic forecasting, particularly when there is a large sector in the economy which is only partially planned and controlled.

3. Apart from the statistical limitations, there are the usual problems involved in forecasting when a number of variables are involved and when the precise nature of the relationships between them is not clear. These relationships are often complicated by behavioristic, institutional and technical factors like changes in tastes, shifts in the distribution pattern of incomes, possibilities of substitution between one factor and another, innovations, rate of growth of education and technical skills, etc. In a growing, dynamic system these factors could make a considerable difference to the demand and supply of resources even in the short period.

4. The above considerations apply with special force at the present time in India. National income statistics are still in their infancy. There are large gaps in the information available about certain sectors of the economy, which probably introduce a high margin of error even into the estimates of aggregate national income. No estimates of aggregate consumption expenditure have been made on a basis comparable to the estimates of aggregate national income. Little is known of the processes of capital formation in the rural sector or of its magnitude. Estimates of the contribution of services (including trade) to the national product are by and large notional. At the same time there are evidently significant changes taking place in the distribution of incomes, not only as between the urban and rural sectors but as between various classes within these sectors. These are proceeding side by side with changes in the community's pattern of consumption and they have the effect, to some extent, of diversifying employment opportunities and absorbing part of the unutilised and under-utilised resources. The rapid and growing rate of migration from rural to urban areas is another factor which affects consumption and employment patterns. Of all these only

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the barest details are known, insufficient even to reconstruct a picture of what precisely have been their effects on the demand and supply of resources in the last few years, not to mention their complete inadequacy for purposes of forecasting future trends.

5. Any attempt to bring out statistically the implications of planning in India in terms of concepts and relationships used in national budgeting elsewhere can, at this stage, serve only an illustrative purpose. The statistical basis of the estimates would be admittedly weak. In the country in which additions to investment are likely to take place to a great extent through the direct application of hitherto unutilised manpower, leading in turn in a variety of ways to improvements in income and consumption standards, the estimates may not even adequately reflect the nature of the changes that will come about as a result of development. They could, however, serve one purpose. Provided it is understood that the estimates represent only certain notional magnitudes which have themselves to be tested as more reliable statistics become available they could provide a basis for making a provisional appraisal of the Plan and for checking in a general way its internal consistency.

6. An estimate of national income by industrial origin is available for 1948-49 in the First Report of the National Income Estimates of Committee. In the Five Year Plan net output there are targets of production by industrial for the more important industries origin and commodity groups. On the basis of these two sets of data an attempt can be made to estimate the likely dimensions of the national income by the end of the plan period. It is inevitable that the forecasts would be firmer for some sectors than for others. In agriculture, for instance, the commodities for which there are specific targets in the Plan cover about 60 per cent of the total output. The coverage of the Plan in respect of industries organized on a factory basis is also fairly large. But in other spheres, particularly

in regard to small enterprises in industry and trade and the tertiary sector in general, the basis for forecasting is less firm.

7. The estimates of net output in 1955-56, prepared on the basis indicated above, are shown in the following table according to industrial origin and in a form comparable to those published for 1948-49 by the National Income Committee:

	(Value expressed at 1948-49 prices in rupees hundred crores)	
	1948-49*	1955-56
<u>Agriculture</u>		
1. Agriculture, animal husbandry and ancillary activities.	40.7	47.9
2. Forestry	0.6	0.6
3. Fishery	0.2	0.3
	<u>41.5</u>	<u>48.8</u>
<u>Mining, Manufacturing and Hand-trades</u>		
4. Mining	0.6	0.8
5. Factory establishments	5.0	6.8
6. Small enterprises	9.4	10.6
	<u>15.0</u>	<u>18.2</u>
<u>Commerce, Transport and Communication</u>		
7. Communications (Posts, telegraph & telephone)	0.3	0.4
8. Railways	1.8	2.3
9. Organised Banking and Insurance	0.5	0.6
10. Other Commerce and Transport	14.4	15.4
	<u>17.0</u>	<u>18.7</u>

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<u>Other Services</u>	1948-49*	1955-56
11. Professions and liberal arts	3.2	3.4
12. Government services (administration)	4.6	5.1
13. Domestic service	1.5	1.5
14. House Property	<u>4.5</u> <u>13.8</u>	<u>4.8</u> <u>14.7</u>
NET DOMESTIC PRODUCT AT FACTOR COST	87.3	100.4
Net earned income from abroad	-0.2	-0.4
NATIONAL INCOME	87.1	100.0

8. It will be seen that the largest addition to national output is expected to come from the agricultural sector though, in terms of percentage increases, the greatest improvement is likely to be shown in industries organised on a factory basis. A more detailed breakdown of the estimates in respect of agriculture (excluding forestry and fishery) is given below:-

	(Value expressed at 1948-49 prices in Rs hundred crores)	
	1948-49	1955-56
Foodgrains (including pulses and gram but excl. fodder crops)	23.4	27.4
Commercial crops	7.5	11.0

\* The estimates for 1948-49 are from the First Report of the National Income Committee. An amount of Rs 0.8 hundred crores has however been transferred from 'Factory Establishments' to 'Small Enterprises' and Rs 0.2 hundred crores from 'Railways' to 'Other Commerce and Transport'.

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	1948-49	1955-56
Vegetables, fruits, condiments and spices	5.8	6.3
Miscellaneous Crops and Livestock	12.0	12.8
Adjustments required in respect of above items	<u>-8.2</u> <u>40.7</u>	<u>-9.6</u> <u>47.9</u>

As for factory establishments, the estimates are based mainly on net values added by manufacture in 1949 (for which data are available from the Census of Manufactures) and on the production targets for 1955-56 in the working plans for industries prepared by the Commission. In the case of a few industries not covered by the Census of Manufactures, rough estimates have been attempted on the basis of available data on the gross value of output and the raw materials consumed. The industries which are covered individually in these ways account for about 2/3rds of the net value added by factory establishments in 1948-49; in respect of these industries it is estimated that there would be an increase in net output of the order of 40 per cent by 1955-56. In the remaining industries (i.e., those accounting for 1/3rd of the net value added by factory establishments in 1948-49) it is assumed that there would be an improvement of about 25 per cent in the same period.

9. The industries for which individual estimates have been attempted could be broadly divided into consumer goods and producer goods industries. The net output of the former, which covers industries like cotton and woollen textiles, sugar, soap, paper, electric fans, vegetable oils etc., is expected to go up by about 24 per cent as compared to 1948-49. The increases are likely to be more striking in producer goods industries where the improvement is expected to be of the order of 70 per cent. A breakdown of the estimates of the net output of factory establishments, reclassified roughly according to the nature of the product, is

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given below:

	(Rs crores)	
	1948-49	1955-56
I. Industries covered individually in the estimates consumer goods industries		
1) Primary essentials (including cotton and woollen textiles, vegetable oils, soap, paper, glass and glass-ware, etc.)	202	241
ii) Secondary essentials (including bicycles, sewing machines, electric lamps and fans, silk and artificial silk etc.)	4	12
Producer goods industries		
1) Chemicals and metals	32	57
ii) Fuel Oil and Power (i.e. petroleum and electricity)	17	38
iii) Engineering (including machine tools, diesel engines, batteries and dry cells, electric motors, power transformers, locomotives and wagons, textile machinery, etc.)	31	64
iv) Other intermediate products (including jute textiles, cement, paints and varnishes, etc.)	47	56
II. Other industries not covered by individual estimates.	167	209
	<u>530</u>	<u>677</u>

10. Small enterprises cover village industries and crafts as well as urban industries not covered by the Indian Factories Act. The inadequacy of



data in regard to these and the tentative nature of the estimate for even 1948-49 (the base year used in our calculations) has been emphasized in the First Report of the National Income Committee. The Five Year Plan sets down certain targets for village industries like handloom, oil ghanis, khadi, gur and khandsari, leather etc., the net value added by these industries, after allowing for subsidies that might be required by way of cesses on the factory industries, is likely to be about Rs 40 to 50 crores higher by the end of the Plan than in 1948-49. For the rest, an increase in output of 1 per cent per annum over the period covered has been assumed.

11. The net value added by railways covers mainly the gross earnings adjusted for cost of raw materials; since the wages and salaries paid out in the capital expenditure of the railways do not come into the estimates elsewhere, some allowance has also to be made for these. The estimates for 1955-56 are based on an assumed increase of 15 per cent in the volume of passenger traffic and of 40 per cent in the volume of goods traffic as compared to 1948-49; about 50 per cent of the expenditure on the capital programme in 1955-56 is also assumed to be on wages and salaries and taken credit for.

12. The estimate in regard to 'Other Commerce and Transport' assumes that the contribution of these to the national product will go up by roughly 10 per cent of the increase in commodity production which is taken roughly as the output under agriculture, mining, manufacturing and hand trades. The estimates for 'Other Services' are notional.

13. The use of 1948-49 as the base year in the above calculations prevents a direct estimate being derived of the increase in national income in the period of the Plan. It may, however, be safe to assume that the level of per capita income was perhaps only maintained constant between 1948-49 and 1950-51. If this assumption is made, the national income in 1950-51 would work out to about Rs 8900-9000 crores, and the increase in the national income by the end of the Plan at 11 to 12 per cent of the 1950-51 level. It must be emphasized however that this estimate of the increase in national income in the Plan period does not take fully into account the possible increases in income.

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from some of the schemes like the community development programme which figure in the Plan. Direct application of unutilised resources and concentrated efforts for increasing productivity

may in specific areas raise incomes by 25 per cent or more, but in what manner this will come about or how widespread such increases will be cannot be precisely foreseen at this stage.

14. The information available on saving and investment in the economy is naturally even more fragmentary than the data for estimating national income. We should therefore stress once again that the estimates presented here are only intended to be illustrative and to serve as a basis for fixing certain magnitudes which, however notional, are useful for planning.

15. On the side of investment, the most reliable estimate that can be made is for investment in the public sector. An analysis of government expenditures shows that the net investment on public account in 1950-51 was of the order of Rs.185 crores.\*

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\* In conformity with the definition of net investment used here, which relates mainly to investment in fixed capital (i.e. machinery and capital equipment, tools and implements, communications, buildings, etc.) net of depreciation, an amount of about Rs.47/ crores has been deducted from 'development expenditure in the public sector' to allow for recurring expenditures in the development programme.

This was roughly distributed as follows:-

	(Rs. crores)
Irrigation, navigation, drainage, etc. (including multi-purpose river valley schemes) ...	47
Agriculture ...	7
Electricity ...	23
Industries ...	12
Railways and Communications ...	38
Roads and buildings ...	42
Other miscellaneous heads (including expenditure not fully covered by above) ...	<u>16</u>
	<u>185</u>

In regard to investment in the private sector, the data available are more suggestive than conclusive. For instance, in 1950-51, imports of 'Machinery and Mill Work' amounted to about Rs. 80 crores; together with 'Instruments, Apparatus and Appliances' and 'Vehicles' (excluding motor cars and cycles but including locomotives, wagons and spare parts), the total imports of capital goods in this year amounted to about Rs. 121 crores. Approximately Rs. 40 crores of the imports were probably for investment in the public sector, and another Rs. 10 crores or so were likely to have been in the nature of durable goods used directly by consumers. The remaining Rs. 70 crores could be considered as having been imported for private investment in industry and transport. For a more accurate measure of the net investment in the private sector on capital equipment, it would appear that the following adjustments would also have to be made:

- (i) addition of 25 per cent of imported value of equipment to cover customs duty, distribution charges and installation costs;

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- (ii) addition of about Rs. 60 crores for the output of equipment by the domestic engineering industry organised on a factory basis; and
- (iii) a deduction of about Rs. 30 crores to allow for equipment required to meet depreciation.

Thus we arrive at a figure of about Rs. 105-110 crores as the likely order of net investment in capital equipment in industries and transport, large as well as small-scale, in 1950-51. There is apt to be some double-counting here since imported material may to some extent be figuring also in the output of the domestic engineering industry. But, on the other hand, this estimate does not cover the output of durable capital goods by small enterprises in the country (e.g. bullock carts and hackney carriages, tools and implements, iron castings, etc.)

16. The other important item of capital formation on private account is construction of buildings. In regard to this again, the information available is inconclusive. The allocations for construction of buildings of certain materials like cement and steel provide the only basis on which estimates can be attempted at this stage. The available data on these allocations, applied to certain rough estimates as to the cost of building covered by materials like cement and steel, suggest that net private investment in constructions using these materials was probably of the order of Rs. 100 crores in 1950-51. The differences in construction materials used in different areas and in different types of buildings are however so great that this estimate can be regarded as only a first approximation. It will be noticed also that it does not cover constructions which do not use cement and steel (mainly in the rural areas).

17. The gap in our information is greatest in respect of investment in agriculture, small-scale and cottage industries and residential construction in rural areas. Such investment draws mainly upon local materials and direct contributions of labour. Transfers of savings for the purpose are probably small relative to the magnitude of investment, and they are in any case difficult to trace. We might surmise that the greater part of the direct investment in rural areas is for covering depreciation of existing capital stock, but it cannot be assumed that the volume of net investment is insignificant. It is also important to bear in mind that, in a programme of development, the largest potentialities lie in the direct application of manpower and local materials to investment.

18. On the side of savings, the savings of the public sector corresponding to the definition of net investment used here can be computed roughly from the accounts of the Central and State Governments. Income tax statistics show the incomes of corporate enterprises (exclusive of depreciation provisions) as well as taxes and dividends paid by them, from which a rough estimate can be made of corporate savings. As for personal savings and savings of unincorporated enterprises, they are of two kinds: (a) those directly invested in agriculture, small scale and cottage industries, and residential housing; and (b) those invested in financial assets and which, therefore, lead to corresponding increase in financial liabilities in the system. Any estimate of savings directly invested in agriculture, small scale and cottage industries, and residential housing would naturally have to correspond to the estimate of such investment; as already mentioned, there is little information available on these, and so the margins of error are likely to be substantial. As for savings invested in financial assets, which find their way into real investment through the government and other institutional agencies, fairly reliable data are available on some of the assets into which private savings flow. But there is again some chance of double-counting here, and moreover, with the available information the net cannot be cast wide enough to cover the entire range of private savings invested in financial assets.

19. Subject to all the limitations and deficiencies detailed above, an attempt can be made to construct an illustrative model of the pattern of saving and investment in the economy. The following statement shows rough estimates for the major categories of saving and investment in 1950-51:

Investment .....

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<u>INVESTMENT*</u>	(Rs. crores)
Domestic investment on public account	185
Domestic investment on private account	
i) Large and small scale industries	80
ii) Transport other than railways	25
iii) Construction of buildings (including residential housing and business construction)	100
iv) Agriculture and cottage and small scale industries in rural areas	20
Investment abroad (net) Ø	60
	-----
	475
	-----
Saving .....	Contd.

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\* Excludes investment in inventories.

Ø Represents the increase in net external assets on account of the surplus in balance of payments in this year.

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SAVING

Savings of the public sector  
(including railways) 98

Savings of the private sector

(a) corporate enterprises 40

(b) unincorporated enterprises  
and personal savings (residual) 337

of which

Private savings as reflected in

i) Insurance policies 40 ∅

ii) Co-operative banks  
(deposits and share  
capital) 25 ∅

Private savings directly  
invested in agriculture,  
cottage and small-scale  
industries, transport and  
construction of buildings 150

iii) .....

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/ Since about Rs. 47 crores have been deducted from  
the development programme in the 'public sector' to allow  
for recurring expenditures not coming within the definition  
of 'net investment' used here, a similar amount is  
deducted from 'public savings' as shown in chapter III  
of this Report.

∅ Estimates are based on data for 1949-50.

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iii) Small savings ..	30 **
iv) Provident funds ..	15
v) Currency and scheduled bank deposits ..	100 @
Net adjustment for omissions and double - counting in above ..	<u>17</u> <u>377</u>

475

The estimate of Rs.475 crores for net investment excludes changes in inventories; there is evidence that the stocks of raw materials held by manufacturers went down substantially in 1950-51, but it is probable that this was more than counterbalanced by increased stocks held by traders and primary producers on account of the prevailing inflationary conditions. Allowing, however, for the fact that the above estimates are in terms of 1950-51 prices, and the estimates of national income for 1950-51 estimated earlier is expressed at 1948-49 prices, the proportion of savings may be placed roughly at 5 per cent of the national income.

20. The assumption in the Plan is that, through appropriate measures, domestic savings will be raised to about 150 per cent of the level in 1950-51; that is, if savings in 1950-51 are estimated at about Rs.450 crores in terms of 1948-49 prices, they will go up to about

Rs ...

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\*\* The net change in the holdings of government securities has not been listed here, as it is difficult to estimate the net change in the holdings of the public excluding those of official and banking institutions here and abroad; part of the investment in government securities would also be covered by premia paid to insurance companies.

@ Represents largely money savings as a result of rise in prices in this year.



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Rs.675 cores by 1955-56. The sectors in which the additional saving will be done and the manner in which they will be channelled into investment cannot be forecast in precise terms, but the broad features of the process can be foreseen. Savings in the public sector are likely to be larger, and so also, with higher production, will be the undistributed profits of corporate and unincorporated enterprises. Agricultural extension services, together with other schemes in the Plan for mobilising under-utilised local resources, will also in effect raise the level of savings in the community. The unsatisfied and growing demand for cement, steel and other materials for residential constructions also indicates that when the supplies of these are increased the resources necessary for undertaking such investment will also be forthcoming.

21. If domestic savings go up as assumed, gradually in the first two years and more rapidly in the later years, the resources available internally for investment over the five-year period would probably amount to about Rs.2700-2800 crores. These are expected to be supplemented by (a) withdrawal from sterling balances, and (b) other external resources, the two together estimated at about Rs.800 crores. Internal and external resources would thus make possible an investment programme in the public and private sectors of the order of Rs. 3400-3500 crores.

Manpower, commodity and foreign exchange budgets. 22. Within the framework of an economy in which there are vast resources of manpower, and in which the problem is one of under-employment and low productivities, manpower budgets of the kind drawn up in advanced industrial systems can have but little significance. In the latter, forecasts of manpower movements follow from the investment budgets whose shape and pattern are themselves determined mainly with reference to factors other than manpower. This way of planning manpower movements so as to follow and support investment programmes is appropriate in countries in which the problem is shortage of manpower. But the approach will have to be different in a country which has large surpluses of manpower and where the limiting factor is the capital necessary to employ them.\* The surpluses themselves cannot be determined

statistically...

\* The special problem arising on account of shortages of technical and administrative personnel is dealt with elsewhere in the Report.

statistically except in a general way with reference to techniques of production and movements in productivity. Given these, the investment programme will have to be so framed as to (a) make the maximum utilisation of under-employed manpower, and (b) improve techniques of production and thus raise productivity per head. As explained in the earlier chapters of the Report, the importance attached to each of these will have to depend on a variety of considerations. Measures to utilise under-employed manpower should not, except in special cases and in the transitional stage, be such as to reduce productivity in any line. On the other hand, the techniques of production envisaged should not, except in the case of basic industries and services necessary for the rapid expansion of the whole economy, be such as would absorb about large amounts of capital leaving little for the employment of surplus manpower.

23. With the data available at the present time on production and disposal of manpower in different lines of activity, only broad judgments can be made on these aspects of the problem; and the investment programme cannot be related in precise statistical terms to productivity in each line and to "surpluses" of manpower calculated on the basis of the changes planned in techniques of production. Broadly we might say that the number dependent on agriculture and ancillary activities will be about 5 per cent higher in 1955-56 than in 1950-51 and, since meanwhile agricultural output is estimated to increase by over 15 per cent, productivity in agriculture is likely to go up by about 10 per cent in this period. In industries organised on a factory basis, production is expected to go up by 40 per cent; probably as much as two-thirds of this increase will come about through higher productivity and the rest from higher employment. In small-scale enterprises no increase in productivity has been assumed, but the information available on output and manpower employed in the different industries in this sector is so meagre that any generalisation is apt to be misleading. In the government sector, the National Income Committee has estimated wages and salaries paid in the capital programme in 1948-49 at about roughly 60 per cent of the expenditure. Since the development outlay on public account is to be more than doubled by 1955-56, a corresponding increase in payments of wages and salaries and in employment may be assumed.

24. With the available information on pattern of income and consumption in the country, estimates of demand for the purpose of constructing commodity budgets can also be only in the nature of very broad approximations. In the case of the basic commodities of consumption like food-grains and cloth, supplies are the limiting factor today and one might assume that if prices are maintained at a fairly stable level increased output will be readily absorbed by domestic demand. In regard to the less essential commodities, the level of prices will be a more important determining factor, and demand may not increase unless the general level of incomes in the community rises or the prices of the commodities concerned are lowered; lack of effective demand would in turn affect production unless the cost structure of the industries is sufficiently elastic to enable them to lower prices. All these depend on a variety of elasticities concerning consumption and production. Even in countries with more advanced statistical information, estimates in regard to demand and supply are therefore difficult to make. In India the problem is still more complex. In the various chapters of this Report estimates have been put forward for the likely production and consumption levels of specific commodities by the end of the Plan. These, it must be emphasised, are based on a variety of assumptions. Estimates of export and import volumes are also based on such rough assessments of factors affecting demand and supply. These estimates are shown in chapters III and XXX of the Report. The commodity budgets which figure in this Report must therefore be regarded as operational balance sheets rather than as forecasts.

PART TWO

ADMINISTRATION AND PUBLIC COOPERATION

## CHAPTER IV

### INTRODUCTION

The goals of social and economic policy are prescribed in the Directive Principles of the Constitution. The Five Year Plan represents the first attempt on the part of the Central Government and all the States to translate those principles into a national programme based upon the assessment of needs and resources. It is now the task of public administration to carry out this programme in cooperation with the people.

2. In some fields of development, the existing agencies will need to be supplemented and strengthened; in others, new agencies will be required to carry through the Plan. In all directions, the pace of development will depend largely upon the quality of public administration, the efficiency with which it works, and the cooperation which it evokes. The tasks facing the administration are larger in the magnitude and more complex, but also richer in meaning than in earlier days. From the maintenance of law and order and the collection of revenue, the major emphasis now shifts to the development of human and material resources and the elimination of poverty and want. The coming years must be a period of intensive endeavour if the goal of the Welfare State is to be realised. The patterns of organisation and the claims upon both government and administration will now be determined by the needs of development and the effort entailed by the process of development which has been described in the first part of this report. Democratic institutions are in their nature difficult to work; for they call for a consciousness of social purpose, courage to stand by principles, and restraint in the exercise of authority. In addition to these, leadership is needed in every field of activity if rapid economic development, which must involve effort, privation and social adjustment, is also to be secured through democratic means.

## Political executive and public services

The objectives of development are to be fulfilled through national planning within a democratic framework which encompasses the Central Government and the States as well as, in increasing degree, local self-governing bodies and voluntary social welfare organisations. A great deal of leadership, organisation and cooperation are, therefore, called for. One important aspect of the problem relates to the relationship between the political leadership which forms the government and the public services which carry out the administration. They have a common aim, the raising of standards of living through rapid economic and social development and better distribution of wealth and income, their functions are complementary, and neither can fulfil its part without the active help and trust of the other.

4. The processes through which political leadership emerges in a democratic system determine also the character of its responsibilities. Adult suffrage, party organisations, legislatures empowered to make laws and vote taxes and appropriations and the responsibility of government to the legislature, are all different facets of a single purpose, namely, so to organise political life that those who attain power shall reflect the will of the people. When a party forms the Government, it has to strive to carry as large a proportion of the people with it as possible. At all times the Government has to try and maintain close contact with the needs of the people and to secure their support and cooperation for programmes designed to meet those needs. The political executive in charge of the Government has thus a twofold responsibility to fulfil. Its principal task becomes one of assessing what the public desires, what its essential needs are, and how they may be met. In other words, its sphere is, in the main, one of policy and the principles that lie behind policy. The political executive has, therefore, to give special attention to the formulation of principles and policies in each field of activity. Secondly, it has to ensure that the principles and policies which are laid down are followed faithfully and, where discretion is vested, it is exercised in the public interest.

5. In the implementation of these responsibilities, there has to be devolution of power to large numbers of public servants who, as a body, constitute the administration. The public services stand outside the arena of political life. Their security of tenure, expertise and knowledge and appreciation of the

implications of different problems and programmes derived from experience of dealing with them over many years tends to give to the higher grades of public servants a considerable share in the shaping of policy. Their advice is always available to the government and they should be encouraged, as indeed it is their paramount duty, to tender advice without fear or favour. Even though their views generally influence decisions, their main rôle is to implement and to administer policies approved by the Government.

### Policy and administration

6. The influence of policy on the character of the administration is well understood. Errors of policy may be far-reaching in their effects and the most careful administration will not wholly compensate for them. In the management of public affairs failures in policy and failures in administration can be equally unfortunate. In some situations policy may be the more fundamental aspect, in others the administration. In recent years, the Central Government as well as State Governments have had to assume new responsibilities without always having the personnel and the experience for undertaking them. Sometimes they had no other choice and, indeed, it is inevitable that the responsibilities of the government should grow rapidly. Since trained manpower is limited, it is necessary that the relative importance of different objectives and the ability of the government to achieve them, should be carefully considered in determining the priorities. In the fields which are selected by the Government, it is important to remember that unless a policy which has been decided upon is pursued in a sustained manner, the administration can seldom be satisfactory. In relation to national planning the formulation of correct policy has an altogether crucial significance. In particular, it is important to ensure both at the Centre and in the States that individual economic programmes and proposals are carefully related to the requirements of national planning and the common national interest should always prevail over sectional and local claims.

7. The decline in the standards of administration which has taken place during the past few years points to the urgent need for carrying out administrative reforms. Important achievements stand,

to the credit of the Central and State Governments and the administration has undertaken large responsibilities. Nevertheless, it is true that numerous functions are now performed less efficiently than before. To some extent this is due to the fact that while the work falling to the administration has considerably increased, the strength of experienced personnel in the public services everywhere has been depleted and key personnel work under considerable strain and pressure. Growth in the responsibilities of government and in the expectations held by the people now call for a drive for improvement in the quality of the administration and in the service which it renders to the community. Each administrative authority under the government should hold itself responsible and work to a programme for bringing about such improvements as are needed in its organisation and in its performance. The significance of the present period in the economic and social development of the country should be fully recognised by those now engaged in administration, in particular, by the higher ranks of the public service. They have the opportunity, and upon them rests the obligation, which is both collective and individual, of helping to establish a structure of administration and a tradition of service which will be capable of fulfilling the national programme and will provide a sound basis for future advance. Ministers have of course a most important part to play in improving the administration. The higher ranks of the administration are entitled to receive from them confidence and understanding and, in particular, steady support in reforming the system of administration and in re-organising it for the implementation of development programmes. It should be the combined and earnest effort of both, throughout the country, to effect those adjustments in outlook and in the methods of government as will enable each to give its best.

### Three groups of problems

8. In the two chapters that follow we consider at some length the principal problems which arise in connection with the improvement and strengthening of the administration. These may broadly be divided into two groups. First, there are the problems bearing on the entire field of public administration, such as, for instance, the achievement of high levels of integrity, efficiency and economy. To these may be added the need for structural changes to raise the



level of administration in the less-advanced States and to equip the government with machinery to carry out its economic functions in a manner more adequate to its present responsibilities. In a second group, we may include problems which bear upon the administration of development programmes in the district. It is in the district that the administration comes into the most intimate touch with the citizen and development programmes become vital to the people. It is, therefore, necessary to consider questions such as the improvement of the machinery of general administration, on which so much else depends, the establishment of an appropriate agency of development at the village level, the coordination of development activities undertaken on behalf of government, the linking up of local self governing institutions with State agencies and, finally, questions such as regional coordination and supervision of district development programmes and the place of social service agencies in the reconstruction of rural life.

9. Even if the government does all that lies in its power to improve the administration, the success of planning under democratic conditions will still depend upon the measure in which the association and cooperation of the people is enlisted in formulating and implementing various programmes. The experience of the past few years brings out clearly the need for a reorientation in outlook on the part of officials as well as of non-official representatives. In each field of activity there is a great deal of assistance which the people can render to the administration and, in a later chapter, we consider the directions in which such cooperation may be developed as part of the Five Year Plan. As the administration responds to the needs and the wishes of the public, the latter may be expected to react with a positive desire to assist the administration. In the context of the Five Year Plan, it is especially pertinent to remember that the distinction between official and non-official workers is related to the content of their respective responsibility; no longer to the objectives they subserve.

## CHAPTER VI

### REFORM OF PUBLIC ADMINISTRATION

#### . Administrative leadership

The principal objectives to be achieved in public administration are integrity, efficiency, economy and public cooperation. These aims are closely inter-related and, to some extent, inter-dependent. Measures designed to secure any one of the objectives help to achieve others as well. The problem, however, has to be approached simultaneously from several directions. The end we seek is service of the community through good administration. That service, more especially in a State, which aims to become a welfare state, depends on the goodwill, appreciation and cooperation of the public. Cooperation and goodwill are obtained when there is a belief in the integrity and efficiency of the administration.

2. The responsibility of the higher ranks of the public services for improving administration in this respect from within has already been emphasized. Cabinets have to provide the machinery and the administrative leadership which can exert itself in favour of reform and improvement. In the Central Government, the object could perhaps be promoted best by placing the Secretary to the Cabinet in a position analogous to that of the Permanent Secretary to the Treasury in the United Kingdom. To some extent this has already been achieved. The Cabinet Secretary should thus become the principal official adviser to the Cabinet and to the Prime Minister and other Ministers on important problems of administration. In the States, the Chief Secretary should fill an analogous role. He might be relieved of some of his routine duties so that he could give greater attention to the problems of coordination and administration.

#### . Integrity

3. Integrity in public affairs and administration is essential and there must therefore be an insistence on it, in every branch of public activity. The influence of corruption is

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insidious. It not only inflicts wrongs, which are difficult to redress, but it undermines the structure of administration and the confidence of the public in the administration. There must, therefore, be a continuous war against every species of corruption within the administration as well as in public life generally and the methods to root out this evil should be constantly reviewed.

4. The opportunity for corruption in various forms might arise almost anywhere in the administration, but it exists in a larger measure in some fields of public activity than in others. It is more difficult to detect where it is collusive. As a rule, where policy is clearly prescribed and the principles on which claims may be determined admit of no doubt, the scope for corruption is small. Vagueness of policy or frequent changes in it have the effect of increasing the scope for corruption. In recent years, the shortage of essential supplies, which occurred from time to time, led to an increase of corrupt practices. The cooperation of the public is very necessary in order to eradicate this evil.

5. Stable Governments are in a better position to deal with such corrupt practices than unstable governments, where there is a tendency to remain in power by adopting devious methods. In such circumstances, some officials may be willing to compromise themselves to gain their own ends. Ordinarily public servants are sufficiently protected to be able to resist unfair political influence. Frequently, however, the remedy comes long after the event. Some measures to ensure standards in public life when these are grossly abused are necessary in the interest of democratic government itself. Some machinery for this purpose should be devised in order to enquire into cases of alleged misconduct on the part of persons who hold any office, political or other. Where there is prima facie case for an enquiry, such an enquiry should be held in order to find out and establish facts. If the facts thus ascertained point to a case of serious misconduct, other steps will follow. It may be necessary to have legislation for this purpose. Action under such legislation should only be taken at the instance of a responsible authority, that is, the Central Government or a State Government. In practice, the occasions requiring such a reference would be rare, but the possibility of such a reference might prove a wholesome influence.

6. The law relating to offences involving corruption has been recently strengthened. The Prevention of Corruption Act, 1947, provides for the offence of criminal misconduct on the part of public servants in the discharge of official duty and, besides prescribing enhanced punishment, makes offences under sections 161 and 165 of the Indian Penal Code cognisable. The legislation has now been extended to cover cases of those who offer gratification to public servants. It also provides for cases in which a public servant may be found to have come into possession of pecuniary resources of income which he cannot account for satisfactorily. It does not, however, provide for those cases in which a public servant's near relations may have been found to have become suddenly rich. We suggest that the possibility of removing this lacuna should be studied and the necessary legislation undertaken. Similarly, it would be useful to consider whether public servants should be required to furnish a return each year concerning movable assets acquired by them or their near relations during the preceding year. The present practice in this respect is confined to returns of immovable property.

7. Certain other suggestions have been made ~~recently~~ recently for dealing with the problem of corruption in government offices. It has been proposed, for instance, the since corruption is often difficult to prove and firm action is essential, the reputation of a public servant may be regarded as almost conclusive evidence of his integrity. It is true enough that the integrity of an honest public servant is seldom called into question, but instances to the contrary are known to have occurred. It cannot always be presupposed that persons making allegations would do so with a sense of responsibility. In relying on reputation, there certainly is risk of demoralising the public service. On the other hand, as a matter of ordinary administrative practice, an official who does not have a reputation for honesty should not be placed in a position in which there is considerable scope for discretion. The suggestion has also been made that intelligence organisations for tracing and investigating offences involving corruption should be strengthened. We agree that the special police establishment of the Government of India should be equipped not only to investigate offences in which the Central Government is directly interested but also to deal with important cases in the States, when local agencies need assistance or have to be supplemented.

The proposal has also been made that where specific allegations of corruption are made in the press against an individual public servant by name, he should be expected to clear his name by taking the matter to the courts. His legal expenses could be sanctioned on the understanding that if he lost his case, he would have to reimburse the government and if damages were awarded to him the cost would be the first charge on them. We consider that in such cases the first step should be a preliminary and confidential enquiry by a senior officer. On his report it could be determined whether the circumstances justified prosecution by the government or merely permission or even a direction to an officer to clear his name in a court of law. If the second course is decided upon the suggestion mentioned above about legal expenses could be adopted. What is important, however, is that in each case it is the government which should determine the nature of the action which any allegations call for.

9. Apart from prosecutions in courts, it is often felt that the government's own machinery for departmental enquiries needs to be improved. The principal complaint is that departmental enquiries drag on for long periods. To the extent this complaint is justified, it is to be ascribed largely to the fact that senior officers who conduct departmental enquiries are frequently so preoccupied with other duties that they cannot give sufficient attention to the enquiries. Sometimes enquiring officers are not familiar enough with the procedure and may not appreciate fully the difference between a departmental enquiry and a trial in a criminal court. Other factors which may cause delay may be the need for consulting the Public Service Commission and the time required for the administrative authorities to make up their minds whether the findings of an enquiry officer are to be accepted and, if so, what the punishment should be. The Government of India have recently framed detailed instructions for editing departmental enquiries.

10. In recent years, perhaps the most conspicuous areas of corruption have been those in which businessmen had to apply for permits and licences. Supervision and vigilance within the administration were inadequate and illegitimate gains were undoubtedly made. Though less is at present heard on the subject, the need for vigilance and drastic measures continues. It is always implicit in the unwritten code of conduct for those who hold responsible positions, whether political or official, that the public should always have absolute confidence in their disinterestedness and impartiality. In their social relations and all their dealings, they must, therefore, be especially careful to see that there is no ground or occasion to suggest that some individuals have greater access to or influence with them than others. In this connection, the recent growth of the practice among business firms of employing relations or friends of friends of influential persons as "contact men" needs to be discouraged.

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11. The measures which have been listed so far will help to maintain the conditions under which it should be possible for the government to enforce a high level of integrity. While these measures are necessary, the main attack on corruption must be by ensuring efficiency in every branch of the administration. We may refer here, in particular, to the following suggestions:

(1) Heads of departments should keep under constant review possibilities for corruption which current policies and procedures may provide and should maintain a watchful eye on the extent and forms of corruption which may, at any time, prevail within their organisations. If, through the procedures they lay down, they provide that individual claims or requests are dealt with to the maximum extent possible through clearly stated and well-understood rules or principles, they will be able to do much to check the growth of conditions within their organisations in which corruption becomes either an easy risk or a risk worth taking;

(2) One of the most important sources of corruption is delay in the disposal of cases or applications. The delay may occur on account of excessive concentration of functions or authority, insufficient staff, poor quality of personnel, lack of clear policy or directions or other similar reasons. In each organisation the sources of delay should be carefully examined and the necessary action taken;

(3) In positions in which there is greater scope for corruption, the choice of officials should be made with special care; and

(4) Laxity on the part of employees of government is often due to the fact that honest and good work are not sufficiently rewarded and inefficiency and dishonesty are not sufficiently penalised. Devising means to encourage the honest should, therefore, be a matter of special concern in every administrative organisation which is exposed to any considerable risk of corruption.

We may also refer to the need for rousing public opinion to the importance of eliminating corruption and of public cooperation in maintaining high levels of integrity in the administration of all government activities.

## Efficiency

12. The problems of efficient administration converge primarily on men and on methods. The present state of administrative efficiency has been recently described in the following words by an experienced observer:

"The impressions of a recent tour through the larger portion of the country, combined with many years of official and non-official experience, lead to the conclusion that the machine, though sound in essentials and capable after improvement of undertaking arduous tasks, is at the present moment run-down. The work allotted to it has increased, the quality of its output has deteriorated. The parts removed from it have, in many instances, been replaced by those of inferior workmanship. The edge has been taken off through strain and, occasionally rough treatment, of many of those that remain. The tender too is new, often impatient and inefficient. Coordination is frequently wanting. For reasons, some within and many beyond the machine's control, efficiency is undoubtedly impaired. All in all, there is considerable room for improvement".

Both in the Central Government and in the States, a small number of public servants carry a heavy burden of responsibility without adequate assistance. Much of their time has to be given to work which was formerly done at lower levels. Increasingly, while each agency of government is accepting new responsibilities, the stage at which effective decisions are taken within any department is being pushed upwards. This has cumulative effects in as much as the process affects the entire business of government and results in loss of efficiency both in the making of policy and in its execution. For the administrative machine to be equal to the problems which beset it, many changes in methods of work and organisation and an outlook of innovation are called for.

13. During recent years, mainly because new responsibilities have had to be assumed or new policies evolved, secretariat departments have had to take up an increasing amount of original work. The line between the work of a secretariat department and an authority subordinate to it is not always easy to draw. It would be useful if the Central Government could undertake a systematic review of the new functions which secretariat offices have accepted during the past few years and consider whether some of them, at any rate, could not now be made over to subordinate authorities. A similar review might be useful in the States. Where separate departments or other executive organisations exist, it is essential that heads of departments or

attached and subordinate offices should be able to function with reasonable freedom and initiative and, at the same time, with the knowledge that he has the Ministry's confidence. The problem generally resolves itself into one of establishing a clear line of responsibility between a secretariat and a department and, secondly, to one of enabling departments to function with the maximum effectiveness.

### Personnel

14. The requirements of personnel may be broadly divided into three categories: (a) administrative (including economic), (b) scientific and technical, and (c) subordinate and clerical. The administrative personnel consists, in the main, of the members of the Indian Civil Service and of its successor, the Indian Administrative Service, and in the States includes also members of the State administrative services. In the States, besides the ordinary work of the administration, the administrative services provide personnel for executive duties in the field of development. Their numbers are, however, small, and complementary personnel for technical jobs is inadequate. At the Centre, there are not enough men with the necessary experience and qualifications (a) to undertake work in connection with the framing of economic policy and the study of economic problems and (b) to manage public enterprises in the field of industry or handle executive duties relating to the regulation and control of trade and industry. In the ranks of the subordinate and clerical personnel also there are gaps, but these are associated not so much with numbers, as with lack of experience, lack of training and supervision and, to some extent, with faulty methods of work and organisation.

15. The steps which have been already taken for the organisation of the Indian Administrative Service provide for trained administrative personnel for manning responsible posts at the Centre and in the States. As the functions of government expand, there are three directions in which it will be necessary to supplement the existing arrangement:

- (i) for doing work which may broadly be described as economic policy and administration;
- (ii) for managing industrial enterprises belonging to the Central or State Governments; and



- (iii) for work connected with the development, land reform and food administration.

In the first two fields of activity the need will be primarily that of the Central Government; the third lies mainly in the States. Proposals for constituting an economic civil service have been made from time to time. Sometimes the expression is employed to describe personnel for work connected with economic policy and administration, sometimes for personnel required for the management of commercial and industrial enterprises undertaken by the government and sometimes also for staff required for economic and statistical intelligence. It is important to distinguish these three categories. So far as the first category is concerned, the principal problem is to secure that the administrative services should have a sufficient number of officers with the necessary economic experience and background.

16. To achieve this object, we have three proposals to make. In the first place, individuals with high academic qualifications or special experience in the economic field should be drawn into the administrative service. There should be scope for drawing persons so equipped into the Administrative Service at age limits somewhat above those at which initial recruitment is made through competitive examination. In this connection, a higher age limit, upto 30 years, for instance, could be considered. Officers selected in this manner should first be put through the necessary administrative training. Secondly, a proportion of the junior officers of the Administrative Service should be selected at an early stage in their careers and given intensive training in the economic field within the Government, with suitable business houses and, if necessary, abroad. Thirdly, the practice already exists and could be further developed for obtaining for responsible senior positions individuals with special experience and knowledge from other fields such as universities, banking and finance and industry. For securing personnel in the second category, proposals for constituting an industrial management cadre are at present under consideration. Similarly, the question of finding personnel for economic and statistical intelligence is under consideration and proposals are expected to be formulated in the near future. The problem of obtaining personnel in adequate numbers for responsibilities connected with development programmes, land reform and food administration in the State may also call for supplementary recruitment, depending upon the situation in individual States. In the main, however, these responsibilities have to be undertaken by officers with experience of revenue and development work in the district

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17. Recruitment to posts which are either permanent or have to be filled for more than relatively short periods is ordinarily made by a public service Commission. There has, however, been no objective assessment yet for the country as a whole of the way in which these arrangements have worked. The need for action in some directions is, however, already apparent. In the first place, the experience and observations of the Union and State Public Service Commission about the quality of candidates interviewed by them or applying to them should be analysed and communicated to universities and other educational authorities. These reports should form the basis of an annual review which should, in turn be linked with programmes of improvement in the field of education. Secondly, both at the Centre and in the States there should be greater contact and exchange of opinion between the Public Service Commission and the department on whose behalf recruitment is undertaken. The advice of the Public Service Commission could be of considerable assistance to administrators in framing specifications, for various posts. Similarly, appreciation of their needs and difficulties could be of help to the Public Service Commission. Thirdly, a coordinated approach between the Public Service Commission and the administrative authorities could, on the one hand, lead to a marked reduction in temporary and ad hoc recruitment, which is still common, and, on the other, could expedite the processes of recruitment which tend to take perhaps longer than might be absolutely necessary. In the fourth place, from amongst candidates who appear before Public Service Commissions but are not selected for particular posts, it should be possible to prepare lists of suitably qualified persons whom administrative authorities could consider for temporary appointment to meet their urgent requirements. Temporary appointments are frequently necessary, but reduction in their number would be desirable. We would also suggest that methods and procedures adopted for selection to different kinds of posts - administrative, technical, scientific etc. - should be continually reassessed and adapted to meet new requirements.

18. Next to recruitment, the training of personnel has considerable bearing on administrative efficiency. Each type of work in the government requires a programme of training suited to it. In general in all branches of administration it is necessary to provide for the training of personnel at the commencement of service as well as at appropriate intervals, in later years. In this connection, we would emphasise

the importance of careful grounding in revenue and development administration for recruits to the Indian Administrative Service and the State Administrative services. The training of these officers should be entrusted to experienced Collectors. During recent years, this subject has not received as much attention as it deserves. This circumstance makes it all the more necessary to ensure that the training, during probation of new recruits to the Indian Administrative Service should be as well-organised as possible.

19. Probationers selected for the Indian Administrative Service are given their initial training in the Indian Administrative Service Training School at Delhi. The Establishment Officer of the Government of India has hitherto served as the head of this institution in addition to his own duties. In the early years this combination of duties had some advantage, but in the future it is necessary, that the Director or Principal of this institution should be a whole-time officer. As the probationers are drawn from all over the country, training in the school offers a valuable opportunity of impressing on them a broad national outlook. The school should be developed, not merely as a centre for training officers of the administrative service, but also as a centre of studies in public administration generally. The post of Director should be filled by carefully selected officers who are appointed to it in the course of their service careers and, after they have served for a period, move on to other posts. Since traditions have to be established for the future, it would be desirable for the first whole-time incumbent to the post of Director to serve for a period of at least five years. It might be possible for the Central Government to assign to him an official responsibility for seeing that all States have proper training programmes for their administrative services. This would require the Director to tour different States from time to time. The school could also be organised as a centre for refresher courses for senior administrative officers from the States and from the Central Government at stated intervals in their service. In other words, it should be developed as a kind of Staff College for the higher grades of administrative persons serving both at the Centre and in the States.

20. In connection with its secretariat reorganisation scheme, certain arrangements for the training of secretariat staff have already been introduced in the Central Government. The stage has, however, reached when the problems of training need the attention of a specially designated Director of Training, whose responsibility it should be to organise systematic training programmes and refresher courses for different grades of employees.

There are certain directions in which the scope for training should be widened. For instance, for officers concerned with the administration of economic activities, there should be a regular scheme for training in well-established business organisations. Finally, it is necessary to recognise that in the future, only a small number of recruits to the higher services will have had the opportunity of training abroad before they join service. Full advantage should, therefore, be taken of the various technical assistance schemes which are now available for providing opportunities for specialised training to selected officials. In connection with the administration of these schemes, there is need for greater coordination between the Central Ministries as well as between the Central Government and the States, so that the training programmes are adjusted to the needs of development in different fields and the selection of officials for training is made with the necessary care. In addition to these schemes, we recommend that public servants should be encouraged to take advantage of study leave concessions at appropriate stages in their careers.

#### Methods

21. However carefully personnel may be selected and trained when they enter upon their duties, unless the methods of work employed are sound and well-conceived, there is much less of efficiency. So long as the magnitude of government's business was small and personnel for exercising supervision was available in adequate measure, it was possible to continue the traditional methods of transacting business. This situation no longer exists. Careful study and review of organisation and methods can lead to greater economy and efficiency. We recommend that the Central Government should have an organisation and methods division which should work in close cooperation with the personnel sections in the different Ministries. In the States also, units for the study of organisation and methods are needed and the Central Government should provide the necessary facilities for training. Among the problems (which need early attention in the field of methods) are the problems of simplifying office procedures, elimination of delays, the system of records maintained in the Central Ministries, the movement of files, and procedures for efficiency audits in organisations of different kinds. Other fields of study might be, for instance, techniques connected with inter-departmental conferences, delagation of responsibilities to different grades of officials, relations between the planning units and the executive and administrative

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sections of different organisations, the use of space, working conditions of the lower grade employees of government, and the organisation of messenger services in place of the present archaic methods for the employment and use of peons in government offices.

22. Closely associated with the question of training and methods are the arrangements in government offices for supervision and inspection. Senior officers can do much to improve efficiency by spending a portion of their time in inspecting their offices from time to time. The inspections need not always be formal; indeed surprise checks have a special value. The causes of delay would frequently come to light and be remedied if senior officers and even ministers occasionally examined files from the point of view of the time taken before conclusions are reached or the necessary action taken. In many departments there is not-enough contact between officers and the lower grade personnel, nor are there any intermediate officials who take new recruits in hand, introduce them to their work, and help them to understand the functions of the organisation in the wider setting of the government. This is an aspect to which each organisation in the government should pay careful attention. Lack of the necessary human relations between different grades of public employees leads, in turn, to a certain neglect of the welfare needs of lower grade staff. Apart from what the government may be able to do for them by way of housing or medical facilities, there is much that individual Ministries or departments can do for their employees through mutual self-help schemes.

### Financial control and economy

23. We have considered a number of factors bearing on the efficiency of administration. Many of these relate to matters of detail and application rather than of principle. There are three other aspects which involve questions of general approach and to which it may be useful to refer. These are : (a) the present system of financial control, (b) the present arrangements within the administration for promoting good work and discouraging bad work and (c) the need for careful assessment of results.

24. A plan of economic development necessarily postulates substantial increase in public expenditure. The importance of securing economy and sound financial control which is already generally recognised is, therefore, further emphasised by the needs of national planning. The objects of financial control are to ensure (1) that no wastage of resources occurs, (2) that public money

is not mis-applied and (3) that for the money spent adequate results are obtained. Within the administration the responsibility for ensuring that these conditions are observed rests equally upon the administrative authorities and upon finance departments although, necessarily, the latter have special duties to discharge. There is need always for close cooperation at each level between the financial and the administrative authorities, so that, if any difficulties are encountered, they can be removed through personal consultation at an early stage in the formulation of a proposal and before commitments are entered into. Financial procedures which, on the one hand, secure adequate control and, on the other, avoid too great an interference in carrying out their own programmes, are essential to the efficient execution of the Five Year Plan. The subject, however, requires careful consideration and specific remedies can only be proposed after a detailed study with reference to local procedures and problems. We, therefore, suggest that both in the Central Government and in the States the existing arrangements should be reviewed by the finance departments in cooperation with the planning authorities.

#### Economy

25. It is axiomatic that in every government department or organisation there is always some room for economy. Economy is a continuous process and, in addition to inculcating it as a habit of mind among all public servants, from time to time systematic reviews of expenditure incurred in any office should be undertaken. Within any organisation, perhaps the principal source of wasteful expenditure lies in the failure to plan carefully and in detail in advance of execution. For too many projects tend to receive acceptance in principle or in respect of their preliminary stages before they are in fact ripe for implementation. Financial control should concern itself not only with the minutiae of expenditure; but even more with the scheme of priorities on which a project is based and with the appraisal of the stage at which a project may be regarded as having been adequately investigated to justify commencement of execution. In relation to large projects, in particular, the more glaring mistakes are frequently made in the beginning rather than in the course of execution when, despite attempts to control and regulate, it may become too late to withdraw.

## Incentives

26. It has been observed that during the past few years, the proportion of those who do their work in a routine way, without desire to do better, has probably increased. To some extent this may have been due to the uncertainty of employment which was felt by numerous temporary employees. The effect of recent decisions, has, however, been to reduce the number of temporary posts and to facilitate the selection of temporary employees with good records for permanent and quasi-permanent positions. Expansion in administrative organisations accompanied by diminution of supervision and guidance have also affected staff efficiency. The economic conditions of fixed income receivers of the middle and lower middle classes in particular during recent years have undoubtedly been trying. While all these factors are relevant to an understanding of the present state of the administrative machine, they do not fully explain why incentives for good work have become so much weaker than before. In this connection there are two factors which seem to stand out.

27. The arrangements for assessing the work of an individual official, and for encouraging him if his work is good and warning or punishing him if his work is bad, are unsatisfactory and have to be placed on a sound basis. Reports on the work of individual officials have tended to become less specific and less objective than before and the easy course of neither blaming nor praising tends frequently to be adopted. Accurate reporting on individuals is possible when there is systematic supervision and attention to the work expected of an official. It also appears that sufficient notices has not always been taken of defaults of duty and there has been too much toleration with poor performance. This has tended to blur the distinction in terms of reward and punishment between those who are eager and painstaking and those who are indolent and careless.

28. While considerations of seniority are important, given a satisfactory system of appraisal, in certain cadres there should be scope for promotion more rapid and more conspicuous than the normal rules provide for. This is a principle of wide application and is already being applied in some cases. The possibility of extending the practice should be explored, so that in each field, a person who has the requisite ability can feel assured that if he does outstanding work, the system itself provides adequately for promotion to higher levels of responsibility. There could also be tests for promotions to particular grades in certain related cadres or services, so that men who start low in the public service can jump grades according to their ability.

## Evaluation

29. With increased investment on development, much more attention to the systematic assessment and evaluation of results from public expenditure is now called for than was probably necessary in the past. The problem arises in almost every project included in the Five Year Plan in the Central Government as well as in the States. In each case, the machinery for review of results has to be related to its nature and organisation. With every important programme provision should always be made for assessment of results. For instance, there should be an annual report and also intermediate periodical reports. In this connection, it may be suggested that reports should confine themselves to items of information which are intrinsically important and should not become too elaborate. Frequently reports which are received do not receive the necessary study and analysis, and no attempt is made to draw practical conclusions from them. Reports which are called for by the Central Ministries from the States or by departments in the States from the districts should invariably be the basis of documents which are submitted to the higher authorities and are also made available to the project authorities from whose material they are compiled and later to the public. For important projects or on aspects which need close scrutiny, wherever possible, there should be arrangements for independent inspection followed by detailed reviews in consultation with the project authorities. Systematic evaluation should become a normal administrative practice in all branches of public activity. With the object of developing the techniques of evaluation a beginning has now been made with the establishment of an independent evaluation organisation under the Planning Commission for community projects and other intensive area development programmes.

## Strengthening administration in the States

30. The implementation of the Five Year Plan calls for well-organised development services in the States. Some States are not at all well placed in this respect, in particular, those which have been recently constituted or are small in size and resources. Viewing the country as a whole, there is scarcely any field of development in the States or any level of responsibility for which a sufficient number of qualified persons are available. As programmes develop, the



shortage will become even more acute. To a limited extent, the problem may be met by means of joint cadres with neighbouring States or by transfers on deputation from other States, by other steps are also necessary. For instance, in consultation with the States which may desire to participate, the Central Government should investigate the possibility of establishing Central development cadres in fields of technical development, such as agriculture, engineering, forests and public health. We are not considering here the question of All-India services in these fields, but merely how cooperative arrangements could be made by the Central Government in consultation with the States concerned for the establishment of joint cadres for maintaining the supply of qualified personnel for development in the States.

31. Since the Central Government obtains its own higher personnel mainly from the States, the manner in which it selects officers required at the Centre has considerable bearing on morale and efficiency among officers in the States. In this connection, we would make three suggestions:

- (1) The accepted principle that service at the Centre should ordinarily be in the nature of a tenure assignment should be adhered to in practice for different grades of officers, both administrative and technical;
- (2) Reports on the work of all officers in the Indian Civil Service and the Indian Administrative Service should be periodically reviewed by the Central Government's establishment board;
- (3) In respect of technical personnel in different fields, for instance, engineering, medical and public health, agriculture, forests, etc., the Central Government has to obtain officers mainly on deputation from State Governments. The normal course should be for the Central Government to ascertain from different States particulars of officers whom they can make available for any post. Selection should then be made, not by any single authority, but by appropriately constituted selection boards. For posts of certain grades, it may be useful also to associate with these boards one or two experienced officers from the States.

Administration of public enterprises

32. Industrial undertakings owned and managed on behalf of the State are a comparatively new development, the only exceptions being the Ordnance factories, the railways and the Hindustan Aircraft. Factories for the manufacture of telephones, telephone cables and machine tools are in different stages of completion. The most important undertaking which has been recently completed is the fertiliser factory at Sindri. The Hindustan Shipyard at Visakhapatnam and the Government Housing Factory are examples of mixed enterprises in which the State has a predominant share. Work on projects for the manufacture of penicillin and D.D.T., which were recently sanctioned, is still in its early stages. The National Instruments Factory is a continuation of the Mathematical Instruments Office. Plans for the establishment of a steel plant are in an advanced stage. The Five Year Plan contains financial provision for establishing certain new basic industries. The setting up of a Ministry of Production a few months ago to take charge of most of the industrial undertakings of the Central Government is proof of recognition of the growing importance of State industrial undertakings in the economic development of the country, especially in the field of basic industries.

33. Industrial undertakings of the Central Government have been organised as joint stock companies, each with its own board of directors. The boards include representatives of the Government as well as some representatives drawn from business and industry. Sufficient experience has not yet been gained to permit any conclusions regarding the working of different undertakings or the results of the present pattern of organisation and management.

As experience develops and new problems arise, further changes are to be expected. Since each industrial enterprise presents problems peculiar to itself, it is necessary to have separate boards of directors for different undertakings. There is need also for a central board which could give detailed attention and advise the Government in respect of questions of general importance for the public sector as a whole, such as personnel for industrial management, financial and accounting problems, price policies, investment programmes etc. The success of public enterprisers in the field of industry has great significance for industrial development in the future, since the steady expansion of the basic sector is inherent in the development which is now being planned. We, therefore, recommend the early establishment of a single central board for the consideration of common matters of policy, management and organisation for the industrial undertakings of the Central Government.

## CHAPTER VII.

### ADMINISTRATION OF DISTRICT DEVELOPMENT PROGRAMMES S<sub>3</sub>

#### Effect of recent changes

The structure of administration developed during the past century was based upon the district as the principal unit with the district officer as the Government's principal representative in touch with the people. Besides being in control of the administration of law and order and revenue in the district, the district officer held a coordinating responsibility for the activities of all departmental agencies within the district. In the hierarchy of administration, he enjoyed status and powers which gave him considerable influence over the local population. In the Indian States also, the administration was organised through district but, in the majority of States, there were no stable public services and personal rule prevailed, so that the position of the district officer was generally much less important than in the provinces.

2. The district is still the most important single unit of administration. As before, the maintenance of law and order and the collection of land revenue remain the district officer's primary duties. Recent developments have, however, altered his position and emphasised the need for giving an altogether fresh orientation to district administration. The maintenance of law and order must always be an important obligation, but increasingly district administration derives its significance from its role in developing the resources and raising the standard of living of the people of the district. The district officer's position is intermediate between the State Government, whose policy is determined mainly by a political executive responsible to a legislature elected by the people, and local self-governing bodies which are also elected by the people. For many years district boards, municipalities and town committees have existed as institutions of local self government in most of the States, but their development programmes have now to be linked up with those of the district and the States. In the past, for the limited functions with which the district officer was especially concerned, a democratic village agency was scarcely necessary

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In different ways the administration was supported in rural areas by influential persons such as zamindars, zaildars, village headmen and the like. These non-officials helped police and revenue administration in the district, but there was not much call on them for creating enthusiasm for development programmes, which were then extremely restricted in scope. Though they had some local influence of their own, they were largely dependent on the authority which the administration conferred on them and invariably they had to reckon with local rivals for power and official favour. In the closing years of British rule this system no longer served the purpose for which it was created and was seen to be breaking down almost everywhere.

3. Certain other tendencies were also in evidence in the field of district administration. Over many years, for fields of activity such as agriculture, cooperation, animal husbandry, forests, industries, etc., separate departments had grown up and established their own separate agencies for work in the districts. To the extent to which these departments had functions of a technical character, they were certainly necessary. In rural areas, however, a situation developed in which each department attempted to reach the cultivator through its own personnel. As a rule, the staff was thinly spread and, at the lowest levels, it was poorly paid and equipped. On account of the limited character of the development which was aimed at, there was not much in the work of these officials to inspire them with enthusiasm. The development departments did not maintain sufficient liaison between their various activities, and their officials frequently confessed failure either by pleading for more punitive powers or for greater assistance from the revenue administration. Although some useful results were secured here and there, and those who were progressive or influential took advantage of the services provided by the government, development activities in the district lacked unity of approach and were always hampered for want of sufficient field staff for carrying out their extension work.

4. During the past decade the machinery of administration in the district has been severely tested in another direction also, namely, the procurement and distribution of foodgrains and the distribution of civil supplies. When the war ended, the district administration over the larger part of the country, was well attuned to the discharge of these responsibilities. With the decontrol of food in 1948, the grip of the administration over the problems of supply weakened and, although controls were reimposed subsequently, their administration has been distinctly less satisfactory than before. Frequent changes in the administration of food control have been a disorganising factor in district administration. Operations which should become matters of routine, in whose performance there should be a steady increase in efficiency, have suffered from the ad hoc character of changes which have sometimes been instituted without sufficient regard to administrative implications. In such circumstances, a difficult food situation may divert the attention of the entire district administration and affect both public relations and the execution of development programmes.

5. Another set of problems which the district administration faces fall within the field of land reform, a subject which is discussed at some length in a later chapter. Wherever zanindari has been abolished, it is necessary to create a new system of village administration and, frequently also, to prepare a new system of village records. This presents an immense administrative task. Elsewhere, when new restrictions and limitations are imposed upon the larger holders of land and new rights conferred upon tenants and workers, their implementation calls for sustained attention down to the village and, what is not less important they call for close control and supervision. When administrative arrangements are not adequate, measures of land reform do not fulfil their real purpose.

6. To the factors which have been described, on more may be added. The quality of personnel charged with administrative duties in the districts varies greatly. While examples of initiative and independence of judgment are by no means wanting, it will be correct to say that, in common with

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other spheres of administration, the majority of districts are now administered less adequately than before. Many experienced persons - their number was always limited and was further reduced on account of the partition of the country - have moved to secretariats and to the headquarters of departments. The burden of duties falling upon State Governments has increased to such an extent and so many new functions have had to be assumed that the districts seldom secure at the higher levels the quality of personnel which their problems call for. Yet, it is on the record of service which the administration can render to the people in villages and towns that governments have to justify themselves. The institution of the Indian Administrative Service in succession to the Indian Civil Service in the districts a sufficient number of well-trained and well-equipped officers who can offer requisite leadership in district administration.

7. In brief, from now on, the primary emphasis in district administration has to be on the implementation of development programmes in close cooperation and with the active support of the people. Apart from the problem of finding personnel for the higher positions in the district and the problem of adapting the administrative system to the temper of democratic government, the reorganisation of district administration has to provide for -

- (1) strengthening and improvement of the machinery of general administration;
- (2) establishment of an appropriate agency for development at the village level which derives its authority from the village community;
- (3) integration of activities of various development departments in the district and the provision of a common extension organisation;
- (4) linking up, in relation to all development work, of local self-governing institutions with the administrative agencies of the State Government; and

## (5) regional coordination and supervision of district development programmes.

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If it were a matter only of machinery and structure, the reorganisation of the district administration would remain incomplete and the results would fall short of expectations. In the implementation of development programmes, as indeed in other spheres, public cooperation has a vital part to play. The subject is considered more fully in the following chapter. We may mention here one aspect of it, namely, the need to ensure that in the scheme of reorganisation of administration in the district, there is a field for recognised social service agencies for participating in development programmes.

## Strengthening the general administration

8. The general administrative machinery of government constitutes, as before, the backbone of the entire structure of administration. The quality of the general administration has a bearing on the lives of large numbers of persons. In the measure in which the elementary obligations of government are discharged efficiently and justly, the government becomes more capable of undertaking economic and social development and of securing the willing cooperation and support of the people. The need for an adequate administrative service to provide personnel for positions carrying higher responsibilities is now being met through the Indian Administrative Service and the State administrative services. In the course of a few years, it may be expected that the existing deficiencies of personnel for these positions will be removed. There are, however, three directions in which the general administrative organisation of the district needs to be strengthened urgently. A word may be added here about the position of the district officer in the scheme of administration. In the past few years the work of the district has expanded considerably and has also become more complex than before. The first effect of proposals to strengthen and reorganise the administration of the district, especially from the aspect of development, will be to increase the district officer's work and responsibility still further. It is, therefore, important

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to give him the assistance of a senior officer to enable him to devote attention to development. Second care should be taken to see that too much of the district officer's time is not taken up in matters such as formal attendance on higher authorities and submission of reports. In the third place, if additional work has to be undertaken in a district over a period, for instance, in connection with a famine, or a land reform measure, instead of relying too much on the normal machinery of the administration, adequate assistance should be afforded.

9. In several States, there is an administrative cadre, commonly described as the State civil service or the Provincial civil service, which provides personnel for senior district posts involving revenue executive or magisterial duties. It would assist the growth of efficient administration if there were ~~liberal~~ opportunities for the best among the personnel of the State ~~to enter all-India service~~. It should receive no less emphasis and attention than the training of those who enter the all-India services. A major share of the responsible but detailed administrative work in the district is done by members of the State administrative service and it falls mainly to them to coordinate the activities of different branches of the administration and to win the cooperation of the people in carrying out development programmes.

10. In ryotwari and temporarily settled areas, the district administration has been held generally to be stronger, better organised and more capable of undertaking new responsibilities than for instance, in the permanently settled areas. The difference is due, mainly, to the existence of village revenue officials described variously as patwari, talati or karnal. In the permanently settled and jagirdari areas, the implementation of development programmes as well as of measures of land reform is frequently impeded for want of village revenue officials. It is, therefore, a task of the first importance to recruit and train personnel in these areas for village revenue establishments. Many States are already taking steps in this direction, but these need greater emphasis and the process has to be hastened.

11. The third direction in which the general administration of the district has to be strengthened relates to the territorial units through which district work is now organised. In ryotwari areas, between the village patwari and the district officer, it is common to have a revenue inspector in charge of a circle, a tahsildar or manlatdar in charge of the tahsil or the taluk, and a sub-divisional officer (or other revenue officer) in charge of more than one tahsil or taluk. In some permanently settled areas, there is no revenue machinery below the sub-division and the line of communication from the government to the people beyond the sub-divisional officer passes through the local police station. In certain other permanently resettled areas, below the sub-division, there is a union representing a group of villages. With the abolition of zamindari the entire structure below the level of sub-divisional officer has to be completed. Some districts are so large that in the interest of efficient organisation they need to be further divided. As the Bengal Administration Enquiry Committee pointed out, there is no fixed formula for the ideal size of a district and much depends on the density of the population, the topography of the area and the nature and state of its communications. It might be useful for State Governments now to review the size of their existing districts from the point of view of efficient implementation of development programmes. Where no change in the size of the district is considered necessary, they might examine the possibility of establishing more sub-divisions. As a unit in district administration the sub-division is valuable from several points of view. The district officer is relieved of much routine work. For a great many transactions, the people are spared the trouble of travelling to district head-quarters. Junior officers holding charge of sub-divisions secure training in the exercise of responsibility and initiative. During their touring and field work they are also able to acquire intimate knowledge of the people. The creation of a more adequate number of sub-divisions is also justified by the need to link up local self-governing institutions with the administrative and development machinery of the State Government, on which subject some suggestions are offered in this chapter.

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12. Training programmes for executive officials are organised with reference to the duties which they are expected to perform. Such training is, of course, always essential. In the reorientation of the administration which is now called for, it is also necessary that, at an early stage in their careers, all revenue officials should receive special training in rural development work. In other words, just as members of the Indian administrative Service or the State administrative services have to learn the work of the patwari, the circle revenue officer and the tahsildar in the course of their training, they should also learn the work of the village-level worker and of officers in charge of larger development units. Such training will enable the general administrative machinery of government in the district to assume the role in development work which we envisage for them under the Five Year Plan. In this connection, it may be suggested that since many district officers are new to their responsibilities in the field of development, it may be useful to give them a measure of guidance and orientation through occasional conferences, seminars and demonstrations.

### • Village agency for development.

13. For many decades the village has been the primary unit for revenue and police administration; but, as a social and economic organisation, it became weaker under British rule. As settled conditions developed, the village community became increasingly dependent on the administration and less able to manage its own affairs. Even in work undertaken by development departments the approach was nearly always to the individual, not to the village community, so that thirty years of development activity have influenced only a fraction of the population.

14. Legislation for setting up village panchayats exists in most of the States. Since independence, several States have revised their earlier enactments with the object of promoting the quicker development of Panchayats and of giving to them a larger role than before. In some of the newly merged territories similar action needs to be taken. Taking a general view, it may be said that panchayat legislation in India is marked by considerable boldness

of thought and an earnest desire to make the village panchayat a vital base in the national structure. The legislation seeks to translate into action the directive principle in the Constitution that the States should take steps to organise village panchayats and endow them with such powers and authority as might be necessary to enable them to function as units of self-government. In the practical implementation of this principle some States have made considerable progress, but in the country as a whole much remains to be done. We suggest that each State should have a programme for establishing over a period of years panchayats for villages or groups of villages.

15. The functions of panchayats are conceived widely enough to permit them comprehend most of the civic and economic activities of a village community. In addition, panchayats also have judicial functions. In practice, few panchayats discharge all the functions entrusted to them, and the activities of many of them suffer from local faction, lack of resources and want of guidance. Panchayats have helped social awakening, but they have not had the same success in raising the level of village life or in fostering self-help in the improvement of village conditions. In other words, although there are exceptions, the panchayat as an institution has not yet become the instrument of village reconstruction and development which it was intended to be. We believe that the panchayat will be able to perform its civic functions satisfactorily only if these are associated with an active process of development in which the village panchayat is itself given an effective part. Unless a village agency can assume responsibility and initiative in developing the resources of the village, it will be difficult to make a marked impression on rural life, for, only a village organisation representing the community as a whole can provide the necessary leadership. As the agencies of the State Government cannot easily approach each individual villager separately, progress depends largely on the existence of an active organisation in the village which can bring the people into common programmes to be carried out with the assistance of the government.

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16. Where both panchayats and co-operative societies exist, it is necessary to distinguish their respective functions in village life. Many co-operative credit societies are now being converted into multi-purpose societies, but multi-purpose operations are not yet widely spread. The functions of a co-operative society are governed by the objects for which it is constituted and are limited to the interest of its members. As cooperation develops, the movement will become increasingly representative of the village community. On the other hand, the panchayat is already intended to represent the entire village community, including those who are landless or are not engaged in cultivation, and has to meet pressures from all sections of the population. Secondly, a panchayat has a larger authority, both in tradition and in law, over the affairs of a village than any other organisation could have. If, by linking up the village panchayat closely with development programmes, village leadership can be successfully developed, co-operative activity will also be strengthened.

17. Under the existing legislation panchayats are already vested with many of the functions and powers which they need in order to play their part in organising village development programmes. State Governments may consider any amendments that may be required in panchayat legislation to enable panchayats to assume responsibility for such functions as:-

- (1) framing programmes of production for the village;
- (2) framing budgets of requirements for supplies and finance needed for carrying out the programmes;
- (3) acting as the channel through which, increasingly, governments assistance other than assistance which is given through agencies like cooperatives reaches the village;
- (4) securing minimum standards of cultivation to be observed in the village with a view to increasing production;
- (5) bringing waste land under cultivation;

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- (6) arranging for the cultivation of land not cultivated or managed by the owners;
- (7) organising voluntary labour for community works;
- (8) making arrangements for cooperative management of land and other resources in the village according to the terms of the prevailing land management legislation; and
- (9) assisting in the implementation of land reform measures in the village.

These and other similar tasks can be carried out with enthusiasm in the measure in which a village community becomes aware of its problems and of the power of its members, through mutual aid and cooperation, to solve them. The first aim of village leaders and of extension workers is, therefore, to stimulate an understanding of what needs to be done and of the means that lie at hand as well as a growing sense of common interest and responsibility for the welfare of every section of the village community.

18. The process of election by which panchayats are constituted may not always throw up a sufficient number of persons with qualities most needed in village reconstruction, such as good farmers engaged in improving agricultural practice, enthusiastic workers of the cooperative movement and persons whose main interest lies in constructive social work. We, therefore, suggest that for village development programmes there should be provision for a small number of additional members to be appointed by the State Government or on its behalf, so that the panchayats enlarged in this manner function as village development agencies largely on the basis of consent and constructive leadership within the village. We expect that this village agency will gradually be able to draw up production plans for the village as a whole on the basis of programmes accepted by individual farmers and local cooperatives, and will thus become the effective base for planning on a national scale in the field of agriculture and rural development. These suggestions have been made in general terms because the organisation which will serve best at the village level is necessarily a matter of local adaptation. Conditions vary in different parts of the country and the term 'village' has different connotations in various parts of the country. The points which may be

emphasised are (1) the need for an appropriate agency in the village or as near the village as may be possible, (2) the desirability of having as members of the village body concerned with various aspects of village development a few persons in addition to those who may be elected by vote and (3) the need to use the village body as an effective agency for development in the village and in relation to programmes sponsored by the government.

19. The resources of village panchayats have been recently reviewed by the Local Finance Inquiry Committee. Legislation in different States provides for various forms of taxation by village panchayats, such as taxation/land and house property, profession tax, vehicle tax, fee on transfer of land and other moveable property, reimbursement of recoveries on account of judicial fines, fees, etc., and licence fees of different kinds. There is provision also for grants and contributions by the District Board and the State Government. In some States, village panchayats are entitled to call for contribution in labour which, according to the legislation, could amount in the course of a year, in the Punjab, for instance, to about 48 man-hours, in Orissa to 4 days' work, in Madhya Pradesh to 15 days' work, and in Assam to 36 days' work. Frequently, there is a provision that those who are unable to contribute labour may make an equivalent contribution in money. These legislative provisions are not yet effective on any significant scale. Whether legislation formally provides for contributions in labour or not, it is of the utmost importance that village panchayats should find ways of utilising the available manpower for works in the village or even outside, for instance, by forming labour co-operatives. Legislative provision may undoubtedly be helpful, but it is by arousing local enthusiasm for improving village conditions and promoting common effort that village panchayats can secure the largest measure of participation by the people in various programmes of development. The Five Year Plan includes proposals for financial and technical assistance to rural areas designed specially to draw out substantial contributions in labour and money and to stimulate local effort in the villages.

20. In some States the practice of making over a share of the land revenue to the village panchayat has been recently adopted. The Local Finance Inquiry Committee recommends that 15 per cent of the land revenue should be given to the village panchayat. We recognise the advantage of giving to each village panchayat a nucleus fund around which it

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can organise further effort in the village and attempt to provide the minimum services needed to raise the level of village life. It is necessary, however, to point out that in the estimates of resources on which State Plans are based, State Governments have, as a rule, taken credit for the full proceeds of land revenue. If a portion of the existing income from this source is diverted to village panchayats, to that extent the State Plans will be affected. The more appropriate course might, therefore, be for the State Governments to impose a suitable surcharge with reference to the land revenue and to make over the proceeds of this surcharge to the village panchayat. In addition to the provision of resources, we suggest that State Governments should take special steps to train members and officials of village panchayats and to use village panchayats as focal points in schemes of social education. The results of experiments in the development of panchayats which have been undertaken in different States needs to be studied carefully, so that States can benefit from one another's experience.

- Rural extension and the integration of development activities.

21. Within the district, development programmes of different departments have to be co-ordinated into area programmes at the following levels:

- (i) for a village or a group of villages which have a common panchayat;
- (ii) for a group of villages intermediate between the panchayat area and the development block, such as, the area entrusted to a village level worker or, as in West Bengal the area served by a union board
- (iii) for a development block which, according to the practice now adopted for community projects and intensive area development schemes, might represent an area of about 100 villages with a population of about 50,000 to 60,000 and should correspond, as far as possible, to a recognised administrative area in the district such as one or two revenue circles, a taluk or a sub-tashil;
- (iv) a sub-division or an area within the district (which may comprise more than one tashil) for which a revenue officer is placed in specific charge of development and other executive work;



- (v) towns and cities which have their own municipal bodies; and
- (vi) the district as a whole, the district programme being the sum of programmes drawn up, both on the urban and the rural side, for the different units mentioned above.

In virtue of his position as the head of the district, the Collector is the natural leader in development programmes undertaken or aided on behalf of the government. This has led the recent Grow More Food Enquiry Committee to describe the Collector as the Extension Officer of the district under whom all development activities are unified, with specialist officers working as members of a single team. In the area comprised in a sub-division, the Sub-Divisional Officer (or elsewhere, the senior revenue officer assisting the Collector) plays a similar role.

22. We have referred already to the growth of separate departments for different activities in the field of development. These departments have their own personnel for research and other technical work. They also endeavour to reach rural areas through their field staffs, but these are usually small in number and are not too well equipped in practical knowledge. The villager finds himself approached through a number of channels on behalf of the government and receives advice which may be contradictory or ill-coordinated or even lacking in value for his day-to-day problems. Some States have been quick to recognise that the development effort which the government makes is weak, and frequently fails at the very point at which it touches the life of the people. Although large sums are spent and much useful research done, the impact on the village home and on the farm is not commensurate. Intensive work in projects in Uttar Pradesh, Madras, Bombay and elsewhere has confirmed the view that village-level workers and a common extension machinery on behalf of the principal development departments of government are vital to the success of rural development programmes. These conclusions have been followed in the community projects and other intensive area schemes which have been recently introduced. The Grow More Food Enquiry Committee has recommended that within a period of ten years a rural extension organisation should be built up throughout the country. The Committee has proposed that at the village level there should be one worker for five to ten villages who will be "the joint agent for all development activities and who will convey to the farmer the lessons of research and to the

experts, the difficulties of the farmer, and arrange the supplies of service needed by the farmer, including rendering of the first aid for animal and plant diseases". We are in agreement with these proposals and recommend their early acceptance by the Central and State Governments, so that the necessary administrative programmes can be drawn up and executed with speed.

23. While the village is the basic unit of community organisation over the greater part of the country, for particular purposes it may be found that a larger unit is needed. For instance, in employing paid staff for panchayats and cooperative societies, in arranging for supplies and credit or for providing amenities for larger area and population will frequently make for greater economy and efficiency. How large the area should be and ~~what arrangements should be made for effecting the~~ what arrangements should be made for effecting the necessary coordination and economy in the provision of services and amenities must depend upon local conditions and requirements. The need for such arrangements, however, exists everywhere and has to be taken into consideration in planning the execution of rural schemes under the Five Year Plan.

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24. For the area represented by a development block, a common agency for the agriculture, co-operative, panchayat and animal husbandry departments has to be created. In the organisation of community projects and in intensive area schemes as well as in the report of the Grow More Food Enquiry Committee, the view has been taken that for the development block what is required is an extension team rather than an extension officer. In this arrangement, officials representing the agriculture, animal husbandry, co-operative and panchayat departments as well as those concerned with cottage industries, health and education departments are expected to integrate their programmes as closely as possible in terms of the requirements of the local population and to work/ revenue department has also to be closely associated with the work of this team. In some States, panchayat staffs have been placed recently under the Registrar of co-operative societies. There is considerable advantage in having common staff for co-operative and panchayat work, wherever this practice is considered feasible. This would be in line with the recommendations made earlier regarding the role of the panchayat in village development.

25. Each State has to work out a pattern for its extension organisation which is suited to its own needs and conditions. The essential points which need to be kept in view in making the detailed administrative arrangements are:

- (1) a multi-purpose village worker who will be the agent of all the development departments and represent them to the villager for all their activities;
- (2) at the level of the development block, development officers working as a team with the extension officer, who may be the Sub-collector or, where the sub-divisional system is not developed, other officer closely associated with the district administration; and
- (3) the position of the Collector as the head of the extension movement in the district, with the district officers of the development departments working with him as a team.

So long as these essential principles are observed, there must be considerable flexibility and freedom in working out extension organisations adapted to local conditions and open to modification in the light of their practical working. The proposals which we have made will place heavy responsibilities on the Collector. It is, therefore, important, as has been already suggested, that he should have adequate assistance to enable him to devote the closest attention to his duties as the head of the development activities in the districts.

26. In the field of development and indeed of government as a whole, at every level, officials have to work in close co-operation with representative non-officials. This is an aspect of such importance that we refer to it later at some length in connection with our proposals for integrating local self-governing institutions like district boards and municipal bodies with the development machinery and programmes of the State Government. We may add a word here about working relations between the various officials who are engaged in the development work in the districts. Administrative changes in the field of development will succeed best if different grades of public servants engaged in formulating and executing programmes are guided by a sense of comradeship in a common

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enterprise undertaken in a spirit of cooperation and understanding towards the people. It is of the utmost importance in development work in the district that all workers, from top to bottom, should have the opportunity of speaking their minds, of making their views and experiences heard when the targets are established, methods determined and priorities set. The feeling that they have shared in the decision which they are called upon to implement is itself a source of energy and initiative and an assurance that the programmes will be implemented. In this connection we may also refer to the need in development work for keeping the door open to men and women of different age-groups to come into the field of public service from other walks of life. This may be secured by throwing open appointments such as those of extension workers to persons who bring the requisite experience and enthusiasm to the task of development.

### Role of local bodies in development programmes.

27. With the exception of corporations and a few large municipal bodies, local self-governing institutions have remained subordinate, though distinct, units of administration. Until recently there were few basic changes in their legal and financial structure. Their activities have not been integrated sufficiently with those of State Governments. At one stage, Collectors and other officials who presided over local bodies provided a way of coordinating their schemes with the schemes of the State Government. With the appointment of non-official chairman, however, the gulf has widened.

28. During the past decade, the problems of local bodies have received even less attention than before and indeed, on the whole, the period has been one of retarded development in the field of local self-government. Generally speaking, during these years, local bodies have not expanded their resources to any great extent, and have found it difficult even to maintain the existing level of services. Although official chairman and nominated members have largely disappeared, and the municipal franchise has been widened, in many local bodies the standards of

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efficiency have gone down and new tax obligations continue to be avoided. In recent years, several State Governments have followed a policy of 'provincialisation' of schools, hospitals or veterinary centres, which were run by local bodies and, had their own financial resources permitted, many of the States would have carried this policy further than they have in fact done. Owing to unsatisfactory employment conditions in local bodies such action is often welcomed by their own employees. With the abolition of posts such as those of Commissioners, supervision over local bodies, which seldom went beyond the routine, has further diminished. In post-war development programmes no place was found for local bodies. In the Five Year Plan some of the more important programmes of local bodies are expected to receive assistance, but in the main the omission will have to be made good in practice by treating the programmes of local bodies as an essential part of district and State programmes.

29. The Constitution has provided for democratic institutions at the Centre and in the States, but so long as local self-governing institutions are not conceived as parts of the same organic constitutional and administrative framework, the structure of democratic government will remain incomplete. The view is sometimes expressed that the creation of decentralized agencies for functions now performed by State Governments may lead to the weakening of the administration and to lowering of the standards of performance. On the other hand, many in the administration realise that official machinery by itself cannot carry out those development programmes which call for a great deal of initiative and participation on the part of the people themselves. Representatives elected to panchayats, local boards and municipal committees are certainly in a position to express local needs and to suggest programmes of work for their respective areas. The problems and needs of economic and social development in any area are, however, wider than the functions and the outlook of civic bodies like the panchayat, the local board and the municipal committee. At the stage of development which local self-governing institutions have reached, programmes for local development may be best conceived of as joint enterprises to be carried out in close cooperation by the agencies of the State Government and the representatives of the people elected to local self-governing institutions. The execution of these programmes, however, it is not enough to not

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rely only upon those who are chosen by popular vote. It is necessary to supplement their experience and interests by bringing in a few persons representing, for instance, the cooperative movement, the field of constructive, social work, technical knowledge and understanding of the relation between local programmes and the national plan of economic and social development.

30. Local self-governing bodies have thus a vital part to play in the field of development. We consider that the general direction of policy should be to encourage them and assist them in assuming responsibility for as large a portion of the administrative and social services within their areas as may be possible. It may also be necessary to work out suitable arrangements for linking local self-governing bodies at different levels with one another, for instance, village panchayats with district or sub-divisional local boards. The experience gained in some States in the field of local self-government could be of value to other States as well and needs to be studied. While the process that we envisage develops, close co-operation in the field of development between State Governments and local self-governing institutions could be established in directions such as the following:

- (1) Programmes undertaken by local bodies, which are at present restricted by the resources available to them, should be carefully integrated with State programmes. Within the district and the State, they should be shown as part of the district and State plans respectively;
- (2) As far as may be practicable, State Governments should use the agency of local bodies for carrying out their social service programmes. That is to say, if the choice lies between a State Government establishing a primary school or a veterinary hospital with its own resources and of assisting of a local body in initiating such a development, in principle, the latter course should be preferred, steps necessary for ensuring standards of efficiency being taken simultaneously. It is a good general rule for any authority to try and pass the responsibility for a project to the authority immediately below it, if, with a measure of help and guidance, the latter can do the job equally or nearly as well;

- (3) Institutions run by local bodies and the services provided by them should be inspected, supervised and guided by the technical and administrative personnel of the State Government on exactly the same lines and with the same rigour as may be adopted for the State Governments' own institutions and services. Since the majority of institutions run by local bodies receive grants or other assistance from the State Government, it is the responsibility of the State Government to ensure their efficient working by enforcing the necessary standards;
- (4) For carrying out development programmes in any area, it is essential to associate a number of non-officials. The nucleus of non-official representation should be provided by persons elected to local bodies. Members nominated by the district or taluka board may provide the nucleus for development committees set up for framing and watching the execution of district and taluka development programmes. In addition, as explained earlier, there will be other non-officials. The arrangements have to be flexible because conditions vary and new needs and situations have constantly to be met. The precise manner in which the cooperation and association of local bodies in development work are to be secured must, therefore, be left to the judgment and discretion of the authorities concerned; and
- (5) Wherever sub-divisional officers exist or are created in the future, the establishment of sub-divisional local boards may be considered.

31. It is of some importance that members of State Legislatures and of Parliament should be closely associated in framing and working out local development programmes. They are in a position, on the one hand, to bring their knowledge of local needs and problems to bear on the formulation and examination of State and national policy and, on the other, to carry into local programmes the larger perspective and the conception of priorities against which policies have to be worked out both by the Central and State Governments. This object may be achieved by appointing members of State legislatures and of Parliament, irrespective of their party affiliation, to non-official development committees which are set up in their areas.

32. In view of the large and expanding role that has to be envisaged for local bodies in the framing and implementing/development programmes, the question of resources becomes extremely important, for, invariably local bodies are poor. The proposals recently made by the Local Finance Enquiry Committee might be examined by each state in relation to its Five Year Plan and the suggestions which we have made above for coordinating district programmes of the State Government and the programmes of local bodies, both urban and rural. The use which each local body makes of the sources of revenue assigned to it is, in the case of municipalities, for instance, as important consideration as the character of those sources. A better understanding of social needs and their own obligations is no doubt called for on the part of those elected to local bodies. At the same time, there is need for caution on the part of State Governments in accepting proposals for taking over from local bodies control of institutions like hospitals, schools and veterinary centres. Such transfers do not relieve the local bodies of their financial burdens, for, frequently, they are required to continue their normal contributions to the cost of maintaining the institutions. They do, however, impose additional burdens on the State Government's budget and, to that extent, some in the way of expansion in other fields. At the same time, they deprive the local bodies of the opportunity of gaining experience and restrict the field of local community effort.

#### Regional co-ordination and supervision of district programmes.

33. During the past few years, while the volume of work and responsibility falling upon the district organisation and the district officer has greatly increased, there has been a fairly general decline in standards of training, supervision and performance. If development programmes are to succeed and are to evoke popular support and co-operation, it is essential that the administrative machinery of the district should be made much more efficient than it is at present. In this chapter, a number of proposals have been made with this object. There are, however, two other aspects which need to be considered. Except in the smaller States, it is often desirable to prepare development programmes in terms of regions determined by physical, economic, and administrative considerations. The needs and priorities of different regions as well as their potential for short-term and long-term development should be taken into account in drawing



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up and continually reviewing their development programmes. There is always a possibility that at the State headquarters, regional aspects may receive less consideration than they deserve. District plans are always essential, but they may gain in value if they are also part of well-considered regional plans. In the first stages of planning, embodied in the present plan, the regional aspect with its emphasis on the development of local resources has not been worked out sufficiently. It is, therefore, hoped that in the process of implementation from year to year, the Plan and the programmes of which it is composed will be continually adapted and adjusted to local and regional needs and conditions.

34. In the second place, with increase in district work and a falling off in the quality of the administration a great deal of inspection, supervision, guidance and attention to training has become an essential condition of efficiency. The need has, therefore, been felt for a senior regional officer who is not himself involved in detailed administrative work and can give personal attention to all aspects of administration and development in his area. Whether such an officer is located in the region, as Commissioners formerly were or, at the headquarters of the State Government, as members of a Board of Revenue are, for instance, is an aspect which has to be considered locally, and no set pattern can be proposed. The important point is that both for securing regional coordination and for supervision of district work, in many States an authority between the secretariat departments and the district officer is necessary. We are aware of objections raised in the past to the office of Commissioner. What we have in view is, however, not the revival of the former role of the Commissioner, but adequate arrangements for territorial coordination in the field of development and for inspection and supervision over the entire range of work that now falls to the district. The need for such arrangements is emphasised by the fact that many Collectors are relatively new to their responsibilities and if they have a measure of personal guidance at this stage, they will not only secure better results during the next few years, but will also ensure more adequate training for junior officers who will follow them.

35. While problems relating to law and order have frequently to be dealt with directly between the district and the State Government, from time to time there are special problems which need investigation, and special situations in which timely action on the

basis of assessment and study by experienced officials may be of enormous advantage to their governments. Pressed as he is with much day-to-day work the district officer is frequently unable to do justice to important questions of policy such as land reform or to complex administrative and economic questions such as arise in connection with food and supply problems. The presence of a senior regional Officer can certainly make a difference in the handling of such problems. In this context, we conceive of the regional officer, not so much as one who formulates policy (although doubtless his advice will always be valuable) but as one who explains and interprets the letter and spirit of the government's policies to officials at various levels, watches closely over their implementation, and helps district officials to take whatever steps are necessary for ensuring that the programmes and targets approved by the government are fully achieved.

.Social service agencies and district administration.

36. In the past social service agencies have played scarcely any part in administration. The subject is one of increasing importance and will be discussed more fully in a later chapter. There is no field of activity concerning district administration in which better results cannot be secured by taking the maximum advantage of the cooperation and civic spirit of individual non-officials and of non-official agencies. In particular, social service agencies can provide workers who will help village panchayats and cooperative societies in discharging their manifold functions. Although their numbers are never large, there are always some individuals who desire to serve the community with no more than a bare livelihood for themselves. At present a good deal of potential idealism of this kind runs to waste and many social workers are frustrated for want of opportunity to work in a field in which their cooperation would help the people and be valued by the administration. When there are suitable social service organisations willing to train workers and take up programmes, their help could be availed of in specified areas. Suitable financial assistance could be afforded to such organisations to enable them to meet expenses of training and to pay their workers. There exists already a long tradition\* to be taken in the implementation/development programmes. Such cooperation with social service organisation may prove valuable in developing non-official leadership, especially in the rural areas.

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## CHAPTER VIII

### PUBLIC COOPERATION IN NATIONAL DEVELOPMENT.

#### •Democratic planning

Public cooperation and public opinion constitute the principal force and sanction behind planning. A democracy working for social ends has to base itself on the willing assent of the people and not the coercive power of the State. This leads to the application of the principle of cooperation in all phases of social activity and in all the functions which bring together individuals for the pursuit of common purposes. The people have to cooperate among themselves and with the various agencies responsible for the formulation and execution of the plan. In the way any programme is conceived, offered and carried out, action by the agencies of the government must be inspired by an understanding of the role of the people and supported by practical steps to enlist their enthusiastic participation. Where the administration and the people think, feel and act together, the programme gains in vitality and significance.

2. The concept of planning has been associated largely with conditions in which a group has gathered in its hands all the power to control and regiment the life of the community and to command and direct its material and manpower resources. What is there in democracy to take the place of this unified direction and the force which will remove obstructions from the path of economic development along a set line? Considering the way democracy works on the basis of fragmented authority and of parties with uncertain tenures, attempting to reconcile all kinds of contrary interests and purposes, no plan, it might appear, can proceed very far. Conditions have, however, developed in the world which make planning not only compatible with democracy, but essential for its very survival. A common social outlook which interprets progress in terms of social justice and the economic and social well-being of the people is

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crystallizing among all who believe in democracy. In fact a major assumption which makes democratic planning real is confidence in the community, that the national plan aims at achieving a social order in which economic disparities will be greatly reduced and an equal opportunity afforded to all; that no privilege, no interest it sought to be sustained, even for a period, except in the degree in which it fulfils a larger social purpose. This can furnish the ingredients afforded to all; that no privilege, no interest programmes and, indeed, can greatly enhance social cohesion within the community. We have thus before us here, a much wider view of public cooperation in which the interests of parties are relegated to the background and the common objectives of the nation regarded as a unity are the sole consideration. Certain elements may not agree with the Plan and the aspirations of a section may far exceed the level of achievement set as the target of the Plan for the first few years. But, if the direction of advance is in line with the expectations of the bulk of the people and the rate of progress is not too slow, the essential pre-requisite for winning public cooperation will have been secured.

### Reaching the people

3. A widespread understanding of the Plan is an essential stage in its fulfilment. It will help large numbers of persons to appreciate the main lines on which development is expected to proceed over the next few years. They will be able to see how progress in different directions is inter-related and effort in one field strengthens as well as demands effort in other fields. An understanding of the priorities which govern the Plan will enable each person to relate his or her role to the larger purposes of the nation as a whole. The Plan has, therefore, to be carried into every home in the language and symbols of the people and expressed in terms of their common needs and problems. The part which the press can play in cooperation between the planning and executive authorities should be a matter of constant attention. Similarly, with the assistance of creative writers and artists, which has to be specially enlisted, public apathy and ignorance could be overcome and the Plan could be brought nearer to the average citizen. For this purpose it is essential to organise a programme of cooperative action in which the press, writers and artists, universities and educational institutions down to the village school and associations representing professional and other interests

hand in hand with elected representatives of the people and with public servants throughout the country. All available methods of communication have to be developed and the people approached through the written and the spoken word no less than through radio, film, song and drama. Above all, steps have to be taken to provide literature and information for the people in simple language on a scale equal to the needs of the country.

While a general appreciation of national aims and programmes is essential, the average citizen is able to see more vividly and to contribute far more to work that lies near him or touches his life and well-being more closely. It is, therefore, of the highest importance that the process of breaking up the National and State Plans into local units based on district, town and village, which has already been begun, should be completed speedily. It is only in terms of local programmes that local leadership and enthusiasm can play their part. The Plan can then become a medium and a focus of constructive activity in every part of the country and can be further strengthened and developed by the effort of the people themselves. Thus, the people become partners in the Plan, and are associated closely with its formulation as well as its implementation from stage to stage. If obstacles are encountered and things go wrong anywhere, it would be helpful in every sense if information is imparted candidly and the people are acquainted with the steps being taken to set things right. It is an error to belittle the capacity of the common man to find out and accept what is good for him.

#### Role of the Administration Role of the administration

5. As has been stressed earlier, the quality of the administration is of the utmost consequence in relation to the possibilities of enlisting public cooperation. Lack of confidence in the integrity or capacity of the administrative machinery will undermine the foundations for the constructive use of the energy of the people. If at the level at which the citizen meets the administration, he encounters corruption, delay and inefficiency and if he finds no sign of effective steps against the anti-social elements who exploit the community and benefit themselves at its expense, it will become difficult to evoke enthusiasm and active support from the people. At the same time, organised public opinion, acting through appropriate channels, can itself become a healthy check and deterrent to evil doers in society as well as in administration and strengthen the hands of those who are working for higher standards and reform. It is

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the initiative and responsibility for enlisting the association and cooperation of the people should rest with the government and, in particular, with the public services. On account of circumstances which go back to the past, there is yet insufficient realization of the identity of aims between the people and the administration. This fact needs to be plainly recognised as an obstacle to be overcome. By approaching in people as comrades in the same cause disclaiming privilege and status and eager to learn and to help, those engaged in administration can make an immense contribution towards creating the conditions in which public cooperation can grow.

6. The object of the proposals made in the earlier chapters in this part of the report has been to suggest a series of measures which, if implemented, could raise the quality of the administration to a level at which it would be legitimate to expect the public to be ready to offer cooperation in carrying out the various tasks and to bear the obligations which are inherent in planned economic development. On the part of the administration, efficiency and integrity are of course of the highest importance; equally, the relations between officials at different levels of the general public have considerable bearing on the response of the public. It is an essential rule in the code of a public servant, whatever his rank, to extend to every citizen courtesy and consideration and to inspire in him the confidence that so far as the law and the administration are concerned, all citizens have equal rights and equal claims. It becomes a matter of prestige and honour for the public services, especially for those holding responsible positions, to ensure that this code of conduct is observed to the maximum extent. Every unit in the administration has to discharge its duties in the understanding that the major justification of its duties in the service it renders to the community and the confidence which it evokes, and that the public has a contribution to make in the fulfilment of any programme which is no less vital than that of the administration. The approach towards the public must, therefore, always be based on an attitude of close cooperation and a desire to take the utmost advantage of the assistance of the people and provide for voluntary community action as large a field as may be possible.



Public participation in programmes

7. The aims of the Five Year Plan are wider than the targets of achievements proposed in it. It is, therefore, essential that conditions should be created to enable individuals and groups to make their maximum contribution as citizens and in fulfilling the targets of the Plan and advancing its objectives. Cooperation and participation are perhaps most fruitful when each citizen does his part after answering for himself three questions: (1) What promise does the Plan hold for him? (2) What action does the Plan call for from him? (3) What means does the Plan provide to assist him in doing what is asked of him? Frequently, a national plan can only indicate a direction, a sign post and, whether as groups or as individuals, citizens have to discover their own practical answers and the contribution they are best able to make. This is indeed the essence of democratic action. For the projects which are already in progress, depending upon their aims and importance, arrangements for public cooperation and participation which now exist should be reviewed by each administrative authority in the light of suggestions made later in this report and the people brought closer to each project. For other projects in the Plan, adequate arrangements for enlisting public cooperation and association have to be made from the very beginning. Careful consideration of these arrangements has to be regarded as much a part of a scheme as the estimate of expenditure or the schedule of work or the statement of benefits which are anticipated.

8. In outlining the various programmes of development later in this report, the nature of cooperation from the public which each programme calls for will be broadly indicated. The Plan cannot achieve substantial results without a great deal of understanding and support from the people. But this will not be enough. Participation of the people in framing and fulfilling programmes and targets constitutes the crux of development in the field of agriculture, and for the promotion of social welfare. From every aspect agricultural development turns upon the extent to which the people take up programmes with enthusiasm and are willing to work for them. The most important means for enlarging public cooperation in the rural sector is village community development achieved through panchayats and cooperatives. Proposals for assisting farmers with finance and supplies, promoting social welfare, and for removing social and economic disparities also depend upon the progress achieved, in building up these institutions, a task which itself calls for large numbers of extension

workers as well as non-official social workers. In irrigation projects, on the execution of which the successful fulfilment of the Five Year Plan depends to no small extent, the most promising development would be for villages to form labour cooperatives and undertake the construction of new and other irrigation works in their neighbourhood.

9. The growth of village industries, which is essential for relief of unemployment and under-employment, also hinges on the progress of cooperative organisations. In industry, measures which the management may take to enlist the cooperation of the worker and to create the feeling in him that he has a real stake in the enterprise will eventually go a long way to determine the organisation and structure of industry as a whole. In the field of social services, it is certain that without a great deal of active support from the community, the State can fulfil only a small part of its responsibility; and if the development of social welfare is left to the resources of the State alone large gaps must remain. Much human suffering has, therefore, to be alleviated through voluntary action on the part of the people. Indeed, it may even be said that unless urban and rural communities accept increasing obligations to provide themselves with the essential amenities and services, with perhaps some assistance from the State, progress in social welfare will be slow and inadequate. Thus, whether through positive assistance, or through participation or through cooperation in refraining from doing what may injure the public interest, the field of public cooperation becomes continuous with that of national development.

#### Manpower resources

10. In a democracy the State cannot make use of all the real resources of the community directly or through private enterprise acting under the impulse of profit. A large field remains for planned effort to canalise on a voluntary basis the unused time and skill and other spare resources of the people and to secure for the community and its weaker sections a volume of economic and social benefit which would otherwise have not accrued. Voluntary service can be marshalled in rural areas for the construction and repair of sources of water supply, roads school buildings and works for better sanitation, and for satisfying a variety of needs which would otherwise remain neglected for years because the State has no financial resources to spare for the purpose. Voluntary activity on these lines, mostly of a sporadic character, is being carried out in different places in the country. The State itself has lent support to such activity in several

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cases. It is necessary to evaluate and pool the experience gained in recent years, and to work effective methods for making use of the available voluntary effort.

11. The assistance which the government can give for programmes such as road building, minor irrigation, soil conservation, etc. should be designed primarily to supplement and make possible village development through the use of village labour. The time has long passed when the labour of a few could be commanded under duress for village schemes. Village labour for local development is now synonymous with participation by the entire village community. Various Panchayat Acts give powers to the village panchayat to levy a labour tax or obtain contribution in cash. In many States, the responsibility for repairing minor works is placed under the law on local communities. The law also permits local officials to obtain such labour as they may require for dealing with emergencies in connection with irrigation works, etc. For special situations such as invasion by locusts also local labour has been successfully utilised in some States. There is enough evidence from different parts of the country of the potential value of manpower resources for local development to justify emphasis on the role of voluntary labour in all rural work. The more local communities can undertake through their own effort, the greater will be the extent to which the government will find it possible to aid them. The principal object of community projects is to rebuild village life through work done by the people to meet their common needs. In addition to funds provided for the development of agriculture and irrigation, the Plan provides a further sum of Rs. 15 crores for assisting the rural population in undertaking, mainly with their own labour, works which are required for meeting their urgent needs. Schemes that can be taken up by organised groups of people would fall into three groups:

- i) where no official assistance is required;
- ii) where only technical guidance or administrative assistance are required, and
- iii) where technical aid, equipment and supplies etc. may also be needed.

In this connection, machinery will have to be set up (a) for assisting in getting the felt needs of the population converted into schemes and budgets, in terms of labour, finance, technical aid, equipment and supplies; and (b) for supplying the counterpart aid on behalf of the Government.

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### Agencies of public cooperation: local authorities

12. We have referred already to the basis on which political parties and groups with divergent emphasis in matters of policy may yet come together for common tasks in national development. There is scope for such cooperation everywhere and legislatures offer a ready meeting ground. To an even greater extent, it is in local self-governing bodies such as district boards and municipal committees, which work through committees, that cooperation in meeting local needs yields rich rewards. It is, however, not enough that those elected to local authorities should cooperate with one another. An education committee or a health committee of a municipal body could have sub-committees for different sectors or wards in a town which can, in turn, draw upon the help and cooperation of other citizens. There could then be carefully drawn-up programmes in each field in which the active support and interest of an increasing number of persons could become part of the programme. In local self-governing bodies, as indeed elsewhere, it is by transforming authority into a mutual sharing of obligations and responsibilities that public cooperation can best thrive.

### Professional associations

13. Associations representing professional groups such as doctors, lawyers, teachers, social workers, technicians and administrators have as great an opportunity as organised interests and possibly even greater, to determine their part in national development. These associations contain a significant proportion of the nation's talent and knowledge and their role should be in complete accord with the interests of the community. They have the duty to lay down standards which members of each profession should observe and also, by stages, to improve these standards. It should also be possible for them to organise welfare programmes especially designed to enable their members to give to the community something beyond professional service. The Community has much to gain by assisting professional associations to the greatest extent possible in developing their own programmes and supporting those initiated by the government.

### Universities Universities

14. The professions are manned by personnel from the universities which have, in turn, a unique contribution to make towards national development, it is being increasingly

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realised that State policy is adequate in the degree in which it is based upon constructive thought and on ascertained facts. It is precisely in these fields that the universities should be the torch-bearers. The Plan contemplates arrangements for cooperative research between the government and the universities. The sphere of public activity is steadily increasing and, therefore, the influence of thought and study in the universities should greatly increase. For much of its new personnel, the government has to turn to universities. The decline in the standards of education in recent years, which has been marked by many observers, is as much a matter of concern to the community as it is a challenge to the leaders in different fields of university education. The universities could strengthen their position as agencies for public cooperation by establishing extension department and by developing field work programmes as part of their training courses.

### Voluntary organisations

15. Voluntary organisations engaged in social work can greatly enlarge the scope of the national plan by developing their own activities, attracting an increasing number of enlightened men and women with a desire for constructive work, and dealing with social problems for which the State cannot provide in sufficient measure. In the performance of various concrete tasks, small groups everywhere can find scope for cooperative activity and the exercise of initiative, and every individual can have something to which to devote his spare time and energy. These acts of disciplined service on the part of individuals and groups will foster the growth of leadership at all levels and will strengthen the community. In particular, voluntary organisations may attempt to develop fields for constructive work for women, youth and teachers and students. These three groups have a vital part to play and their potential for creative activity still remains far from realised. With these possibilities in view, the Plan provides Rs. 4 crores for assistance by the Central Government for voluntary organisations and Rs. 1 crore for youth camps and labour service for students.

16. As voluntary social welfare organisations develop and can assume greater responsibilities, it should be possible to entrust to them an increasing

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number of functions which have at present to be undertaken by government agencies. In securing public cooperation, the association of non-official representatives in bodies such as development committees, projects advisory committees, etc. in district administration and in community projects, is of a great value. This association should, however, be extended by affording greater opportunity for practical work and practical participation to voluntary organisations. According to the measure of what they are in a position to undertake, with such assistance as the government can provide, extension of the field of voluntary work would not only make for economy but would also leave the personnel of government more free to take up tasks which have necessarily to be undertaken by the administration. Such devolution of functions can only take place progressively and on a selective basis, but it is necessary to emphasise that without such devolution occurring, the responsibilities of the administration tend to increase to an extent with which it may be difficult to cope.

### National Advisory Committee for Public Cooperation.

17. The constitution of the Bharat Sevak Samaj and the National Advisory Committee for Public Cooperation in August 1952, are important preliminary steps recently taken for securing public cooperation on a nationwide basis. The National Advisory Committee, which is representative of different sections of opinion in the country, is expected to :

- (1) review and assess the programmes of public cooperation in relation to national development;
- (2) advise the Planning Commission from time to time regarding the progress of public cooperation in relation to the fulfilment of the National Plan;
- (3) receive reports from the Central Board of the Bharat Sevak Samaj and consider such specific matters as may be referred to it for advice by the Central Board; and
- (4) make suggestions and recommendations to the Central Board of the Bharat Sevak Samaj on matters of policy and on programme relating to the public cooperation.

.Bhar t Sevak Samaj  
Bharat Sevak Samaj

18. The Bharat Sevak Samaj has been conceived of as a non-political and non-official national platform for constructive work. The primary objects of the Samaj are -

- (1) to find and develop avenues of voluntary service for the citizens of India to -
  - (a) promote national sufficiency and build up the economic strength of the country,
  - (b) to promote the social well-being of the community and to mitigate the privations and hardships of its less favoured sections; and
- (2) to draw out the available unused time, energy and other resources of the people and direct them into various fields of social and economic activity.

The work of the Samaj, which is being undertaken on a nationwide scale, is at present in the initial stages of its organisation. The Bharat Sevak Samaj provides a common platform for all who wish to give their share of time and energy to developing the people's own effort in relation to the National Plan and, at the same time, it is intended to assist in the development of existing voluntary organisations.

PART THREE

PROGRAMME OF DEVELOPMENT



Agriculture, Irrigation and Community  
Development

(Chapter IX to XXVI)

## CHAPTER IX

### THE STATE OF THE AGRICULTURAL ECONOMY

The largest portion of the natural resources of India, consists of land and by far the larger proportion of its inhabitants are engaged in the exploitation of land. In any scheme of planned economic development of the country, therefore, agricultural reorganisation and reform hold a position of basic importance. Recently on account of the growing need for food and raw materials this importance has been brought home to all sections of the community. While the several parts of the nation's economy are mutually inter-dependent and they must all receive their proper share of attention from the economic planner, the success of the whole Plan will vitally depend on the results achieved in making the most advantageous use of land <sup>the</sup> and labour resources engaged in agriculture. In this sense the importance of agriculture is both basic and vital.

#### Land utilisation and crop pattern.

2. The total geographical area of the country is 811 million acres, but land use statistics are available for only about 615 million acres which are as follows:-

	Million acres	Percentage to total
1. Forests*	93	15
2. Net area sown	266	43
3. Current fallows	58	9
4. Cultivable waste	98	16
5. Not available for cultivation	96	16
Total	615**	100

The bulk of the 196 million acres, for which land utilisation statistics are not available, consists of mountains, deserts and inaccessible forests. The cultivated area (items 2\*3) comes to 324 million acres. About 35.5 million acres grow more than one crop.

\*The area under forests, for the Indian Union as a whole, including the non reporting portion is estimated at 147 million acres.

\*\* Includes 3.5 million acres for which details are not available.

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3. Including the conventional estimates which have been framed for non-reporting areas in respect of foodgrains, the gross cropped area is about 317 million acres. Its break up by crops is given in the appendix to this chapter. The appendix shows that food crops cover about 78 per cent of the cropped area, and commercial crops, which provide raw material for industries, account for 17 per cent. Plantation crops and spices cover no more than 1.1 per cent of the area, though they not only occupy a position of great importance in the economy of the valleys in the North-East and the strip of territory along the South-West Coast of India but also play a vital role in India's foreign trade.

### Trends in land use pattern.

4. Due to changes in coverage and methods of reporting it is difficult to obtain comparable data for the Indian Union as a whole over a sufficiently long period to indicate trends. A study of the data for some of the principal States where only slight changes in coverage have occurred, was, therefore, undertaken over a period of about 40 years (ending 1946-47) which brings out the following trends:-

(i) The net area sown has not increased appreciably except in Uttar Pradesh. The area growing more than one crop has increased by about 20 per cent and the total cropped area, therefore, shows some increase, which, however, lags far behind the rapidly increasing population.

(ii) Irrigated area has increased by about 10% mainly through the extension of canals. It has been noticed that the area irrigated from minor irrigation works has remained almost static over this long period. It seems to indicate that the new constructions have at best kept pace with works going out of use for want of repairs or otherwise e.g., through extension of canal irrigation.

(iii) The area under current fallows remained at the level of 1919-20 till the early forties and thereafter showed some increase, particularly in the cotton growing tracts, possibly because of a sudden decrease in cotton area which was left partly fallow. Hyderabad is the only State which shows a continuous increase in

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\* The apparent increase of about 3 million acres in the case of Bombay is due to reclassification of area from fallows to fodder crops.

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fallows. In the opinion of a special committee set up by the Hyderabad Government the apparent increase in the area under fallows is somewhat of an exaggeration.

5. Another study of trends in crop pattern was based on the data relating to the main growing areas of different crops. This indicates the following trends:-

(i) The area under food grains shows a small increase during the forties when the area under cotton declined.

(ii) During the periods of the two world wars the acreage under cotton decreased. This trend was reversed in the post-war periods.

(iii) Area under oil seeds, mostly groundnuts, has steadily increased by about 4 million acres.

(iv) A considerable increase of about a million acres has occurred in jute area since partition because of the intensive efforts made to fill the large gap created in the supply position after Partition.

(v) The area under sugarcane has increased by about a million acres. A steady increase, though small in extent, is noticed in the area under cane in Madras and Bombay.

6. The above trends bring out two main facts of the agricultural situation, namely that (i) although gross cropped area has increased as a result of double cropping, little new area has come under cultivation during the last 4 decades and (ii) changes in price structure do affect the pattern of crops even though a large part of the area is cultivated in tiny holdings. A part of the area of cultivable waste can be utilised for extension/cultivation and afforestation. Though much of it may be fragmented, there is a considerable area in sizeable blocks. On the abolition of zamindari most of it has been nationalised. In spite of the increasing pressure of population, very little extension of cultivation to waste lands has taken place during the last 40 years. This seems to indicate that the available cultivable waste does not generally lend itself to reclamation within the present resources of the

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cultivators. Small areas may be added here and there, but for any schemes of materially increasing the area under cultivation, reclamation and rehabilitation work has to be undertaken on an organised scale. Only State efforts or State sponsored efforts can hope to do this. For making the best use of all available land a rapid survey to locate cultivable areas and classify them according to the measures necessary for their reclamation appears to be the first essential step.

7. In areas thus selected for agricultural development a major State effort at reclamation will be necessary. A primary necessity is of course to examine the schemes from all relevant technical and economic angles. Time, talent and money spent in this preliminary effort is an indispensable precaution and a profitable investment. Once the scheme is prepared, it may be put into effect through a public corporation or through a development board; but when colonization or rehabilitation has commenced the maximum possible scope should be given to co-operative action. While prospects of a significant increase in the area under cultivation are mostly connected with major schemes of development, no measure which is calculated to bring suitable land under profitable cultivation, even within the existing village settlements, should be neglected.

### Yield trends.

8. Extension of cultivation can be an important factor in stepping up agricultural production over a period of time. For meeting the immediate needs of the nation, however, reliance has to be placed mainly on increasing production from the existing area by improving the yields. The official estimates framed on a comparable basis indicate that while the area under cereals during the three years ending 1949-50 compared to

the period immediately preceding the war has not changed appreciably, there has been a decline in the yield per acre from 619 lbs. to 565 lbs. The yield estimates which are based on normal yield and condition factor suffer from the defect of being subjective and the reported fall may be ascribable in part to caution on the part of State Governments in reporting their surpluses and deficits from year to year for the purposes of the Basic Plan for food. Since 1944, a scientifically designed procedure for estimating production, based on the technique of random sampling and crop cutting experiments, has been introduced for some crops by the Indian Council of Agricultural Research. The estimates of production based on this technique are now available for 1949-50, 1950-51, 1951-52, which indicate that while the official estimate for 1949-50 based on the standard yield and condition factor was rather optimistic compared with the estimate based on the technique of random sampling, the official estimates for 1950-51 and 1951-52 were under-estimates by 6 to 7 per cent as detailed below:-

	Official estimates.	Estimates based on random sample survey	Percentage variation
1949-50	46018	45465	+ 1.2
1950-51	41786	44242	- 5.5
1951-52	41264	44407	- 7.1

These figures suggest that while during favourable seasons the official estimates may be somewhat over-estimates, in bad seasons there is a distinct tendency to under-estimate production.

9. A study undertaken by the Ministry of Food and Agriculture to determine yield trends over the last 40 years indicates that in no State do all the crops show a consistent decline in yield. For commercial crops the data revealed clear evidence of generally increasing yields, and in respect of sugarcane an expansion of area as well. In respect of food crops

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also an expansion in area is perceptible in several cases as also an increase in the proportion of irrigated areas, but yield trends are not uniform; yields show an increase for certain crops in certain States, a decline in certain others and absence of any perceptible change in the rest. Generally speaking, an expansion of area under a crop has been seen to be a factor associated with the lowering of yield rates, while an increase in the proportion of irrigated area has the opposite effect. In a few cases yield trends are difficult to explain on these grounds and these cases merit further examination. The study concludes that there is little ground for the belief that there has been a deterioration in soil fertility or in the standard of husbandry in recent years.

10. The study referred to above was also based on the official estimates, though for the States selected for the study the estimates of production were comparatively more reliable. The official estimates of average and total yields for individual years, were useful as guides for administrative action, particularly for food crops. It would not, however, be justifiable to place too great a reliance on them for purposes of comparison of yields as between different years as a measure of land fertility. The estimates based on sample surveys are available only for a few years and they do not cover all crops. On the basis of the data available to us, we would hesitate to arrive at any conclusion regarding yield trends. With a more extensive coverage and with an accumulation of data for several years these surveys will produce significant data on long term trends. In the interest of a planned agricultural policy, therefore, the adoption of the technique of random sample surveys for the preparation of official estimates of production in all States should get a high priority.

### Availability and requirements

11. ~~Genais~~: While the population has increased by about 60 per cent during the last four decades, the production

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of foodgrains has not kept pace with it. This indicates an appreciable decrease in per capita availability of foodgrains from internal sources. For more than three decades India has been getting a much larger quantity of grains (mainly rice) from Burma than what it was exporting to other countries. The separation of Burma in 1936 has reduced internal supplies by about 1.3 million tons, and the Partition in 1947 by a further 0.77 million tons. Since 1948 we have been importing large quantities of foodgrains, 2.8 million tons in 1948, 3.7 million tons in 1949, 2.1 million tons in 1950, and 4.7 million tons in 1951.

12. Defects in agricultural statistics introduce an element of uncertainty in estimating the overall deficit which has to be met. The existing gap between availability and requirements and that which may come to exist in 1956, if in the meantime, production does not increase may be seen from the following statement:\*

		(millions)
1. Estimated population	1950	353.05
	1956	377.60
2. Estimated adult equivalent population at 86%	1950	303.62
	1956	324.74
3. Production of cereals in 1949-50 (million tons)		45.13**
4. Quantity available for consumption in 1950 from internal supplies allowing for seed etc. at 12½% (million tons)		39.49
5. Quantity available for consumption including imports and off-take from carry over stocks (million tons)		42.40
6. Availability per adult, per day in 1950.		13.71

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\* The figures in the statement are tentative and exclude Jammu & Kashmir & Sikkim.

\*\* As corrected on the basis of random sample surveys.



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7. Requirements for consumption (including seed etc) in 1956 (million tons)
- |   |       |
|---|-------|
| i) On the basis of 13.71 ozs. per adult, per day. | 51.82 |
| ii) On the basis of 14 oz. per adult per day.     | 52.81 |
8. Deficit compared to production at the 1950 level (million tons)
- |   |      |
|---|------|
| i) On the basis of 13.87 oz. per adult per day. | 6.69 |
| ii) On the basis of 14 oz. per adult per day.   | 7.78 |

To maintain consumption at the level of 1950, i.e. 13.71 ounces per adult per day, the additional quantity of foodgrains needed in 1956 will be 6.7 million tons. The requirements of cereals for a balanced diet have been laid down by the Nutrition Advisory Committee at 14 ozs and to raise consumption to this level, the additional quantity required is estimated at 7.8 million tons. These figures indicate the magnitude of the problem that lies ahead.

13. Pulses: The position regarding availability of pulses is no better. The production of gram and other pulses during 1950-51 is estimated at 8.37 million tons. After allowing for stock feeding and seed etc. at about 20% of the production, the net quantity available for human consumption may be estimated at 6.7 million tons. This means an availability of 2.1 ounces per adult per day as against 3 ounces recommended by the Nutrition Advisory Committee for a balanced diet. At the level of 1951 availability the additional requirements of the increased population during 1955-56 will be 0.5 million tons and to obtain the nutritional standards the additional requirements will be 4 million tons.

14. Subsidiary Foods: The principal subsidiary foods in use in India are potatoes, tapioca and sweet potatoes. With their high yields per acre they have a special importance in a country deficit in foodgrains. Potatoes are consumed on a small scale as vegetables rather than as the staple diet because of their high price over a large part of the year. Lowering their cost depends very largely on providing facilities for storage, dehydration and transport more cheaply than at present. Tapioca which is rich in starch forms an important article of diet in parts of Madras, Mysore and Travancore-Cochin. Though, by itself, it has a low nutritive

value, it makes a good supplement to both rice and wheat.

15. Protective foods: The present availability of fruits and vegetables is estimated at 1.5 and 1.3 ounces per adult per day respectively. The requirements of a balanced diet are on the other hand estimated at 3 ounces of fruits and 10 ounces of vegetables. The availability of milk is estimated at 5.5 ozs per adult per day as against the nutritional requirements of 10 ounces. Similar figures for fish are 0.2 and 1.3 ounces. Little information is available regarding the availability of meat and eggs; it is, however, known to be very low. Generally speaking, there is throughout the country too great dependence on foodgrains and insufficient consumption of protective foods.

16. Sugar: Production of sugarcane during 1950-51 stood at 5.62 million (gur) tons and net availability for human consumption at 1.62 ounces per adult per day as against the requirements of 2 ounces for a balanced diet. To raise consumption to this level during 1955-56, the additional quantity required is 2.2 million tons.

17. Oils and fats: Production of the five major oil seeds for 1950-51 has been estimated at 5.1 million tons and the net availability in terms of oils at about 4 million tons (including imports of 23 thousand tons of copra and coconut oil and allowing for exports of 168 thousand tons). Of this 118 thousand tons were utilised for the manufacture of soaps, paints and varnishes and as lubricants and the net quantity available for human consumption was thus 1.57 million tons of oil. This marks an increase of about 35 per cent over the pre-war triennium. Even so the availability per adult per day stands at 0.5 ounces only. The other important source of fat in the Indian diet is ghee and the per capita availability of ghee works out at no more than 0.1 ounce per day. Including all the sources the per capita availability of fats is far below what is considered necessary for nutrition.

18. Cotton: Production of cotton during 1950-51 was officially estimated at 2.97 million bales of 392 lbs. net each and consumption at 4.07 million bales. The gap between production and consumption was met largely by importing 0.83 million bales during the year. The requirements

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for 1956 have been estimated at 5.3 million bales and the gap between production and requirements may thus increase to about 2.4 million bales unless production is stepped up meanwhile. A part of the requirements of long staple cotton, which is not grown in India in sufficient quantities, has, however, to be imported for a long time to come.

19. Jute: In spite of the large expansion of the area under jute which has taken place during the last few years, the gap between availability and requirements is still wide. The official estimate of production during 1950-51 was 3.3 million bales of raw jute and 0.6 million bales of mesta - an inferior type of substitute. The requirements for 1955-56 are estimated at 7.2 million bales. This indicates a gap of about 3.3 million bales between supply and requirements.

### Tea, coffee, rubber.

20. Plantations of tea, coffee and rubber cover less than 0.4 per cent of the cropped area, concentrated mainly in the valleys of the north-east and along the coast on the south-west of India. They provide employment to more than a million families and thus play a vital role in the economy of these regions. In addition, they earn for India about Rs 80 crores of foreign exchange. Tea alone accounts for 78 crores. A remarkable fact about tea plantations is that while the area under tea has remained unchanged for over a decade under international agreements, production has increased by about 43 per cent over this period. This incidentally brings out that where sufficient capital is invested, yields can be increased appreciably. Coffee and rubber, which used to be export commodities are now largely consumed within the country. India actually imported about 12 million pounds of rubber during 1950-51. Rubber occupies a key position in industrial development and for defence. In view of the uncertainties of the international situation dependence on imports may be inadvisable. The bulk of the area under rubber is comprised of small holdings which are on the whole comparatively less efficiently managed than the tea and coffee plantations. The production has declined since 1945 because of a fall in the yields of old plantations and increased suspension of tapping due to unremunerative prices. Their rehabilitation demands immediate attention. The Development Committee for rubber plantations has formulated a fifteen-year

## CHAPTER X

### DEVELOPMENT OF THE CO-OPERATIVE MOVEMENT

In India, as in many other countries, co-operation started as a means of ensuring for the poorly equipped citizen advantages which better-placed persons were able to command by their own individual resources. Co-operation is effective not only against the economic ills of the masses but it also generates among them a sturdy feeling of self-reliance. By pooling their experience and knowledge and by helping one another they can not only find the solutions of individual problems but also become better citizens. In an unregulated economy, the terms of contract are frequently weighted in favour of persons of large means. Those who have the command of scarce resources are left free to drive a hard bargain with those who need such resources but are ill-equipped to compete for their possession. In a relatively stagnant agricultural economy of small holders, undergoing a transition from barter to money economy and from local to national and international exchange, the possession of capital naturally confers a strategic advantage. The evils of usury, indebtedness and widespread indigence which were rampant in the rural areas at the turn of the century were the inevitable outcome of the economic transition that was then taking place.

2. After the sad experience of the limited success of merely regulatory laws like the several anti-usury measures, an effort at building up by mutual association the people's own credit institutions was sponsored by government. In the then prevailing atmosphere of economic passivity on the part of the State this official sponsoring of a special form of organization was considered to be a great event. Since the passing of the first Co-operative Societies Act in 1904, co-operation in India has not only widened in variety and content, but it has gradually assumed quite a different significance in the context of social regulation. When individualism was the order of the day, co-operation represented a defensive act of association on the part of individual citizens. But with the adoption of the principle of social regulation, the co-operative societies, which from their commencement in this country have been socially sponsored and supported, came to occupy a more

positive role. In a regime of planned development, co-operation is an instrument, which while retaining some of the advantages of decentralization and local initiative will yet serve willingly and readily the overall purposes and directives of the plan. This has been amply proved by the recent experience of India, as also of other countries, like the U.K., which have entered upon an era of democratic planning. The co-operative form of organization can no longer be treated as only a species within the private sector. It is an indispensable instrument of planned economic action in a democracy.

3. The broad features of the history and evolution of co-operation in India are unmistakable. With 173,000 Societies a membership of 12 million and a working capital of Rs.233 crores the movement constitutes an important economic and social force in the country. It has shown a steady quantitative expansion, especially during the last five years. Even more striking than the expansion in numbers and size, is the growing diversity of functions assumed by co-operative societies. Besides agricultural societies of all types--credit, marketing, farming, irrigation, consolidation, etc.,--there are consumers' co-operatives in rural as well as in urban areas; housing societies; processing factories; and urban banks. Agricultural societies still constitute more than 80 per cent of the total and of these credit societies are still by far the most numerous. The non-credit and non-agricultural forms are, however, making steady progress. The conditions created by the Second World War, the emphasis on intensive and rapid rural development in the post-war reconstruction programmes of State Governments, and the channelling of state aid activity through co-operative institutions have been responsible for this trend.

4. An increasing measure of responsibility for organising and financing rural economic development is being shouldered by co-operatives. Both the natural evolution of co-operative activity, and the impetus of the special need created in several parts of the country by legislation regulating the business of money-lenders and abolishing landlordism are responsible for the striking increase in the operations of co-operative credit societies. Co-operation is in fact being gradually transferred from a tolerated exception into a general rule. In industry, commerce, transport and retail distribution co-operatives are gaining experience and strength. Different State Governments sometimes emphasize different fields of co-operative activity in keeping with local conditions. There can be no doubt, however, that a new awareness of an opportunity to build up a form of business organisation more suited to the conditions and needs of the times than the traditional joint stock company has come over the people of small means everywhere.

5. We have in several parts of this report expressed our preference for the co-operative organisation of the economic activities of the people, especially of those activities e.g., agriculture, marketing, cottage and processing industries and internal trade, which form the most important part of the developmental schemes included in the Plan. As an instrument of democratic planning, combining initiative, mutual benefit and social purpose, co-operation must be an essential feature of the programmes for the implementation of the Five Year Plan adopted at all levels of administration. As it is the purpose of the Plan to change the economy of the country from an individualistic to co-operative basis, its success should be judged, among other things, by the extent to which it is implemented through co-operative organisations. The Planning Commission in consultation with the State Governments, the Indian Co-operative Congress and the Reserve Bank intends to formulate a more specific programme for the expansion of the movement in all the sectors in respect of which co-operative organisation has been considered suitable. It is also studying the various problems that the movement has to face and will suggest in detail changes—legislative, organisational and others—that are necessary for planning the movement on a sound footing and ensuring its progress.

#### .Development through Co-operatives and Panchayats

6. We are anxious to ensure that in the agricultural part of our Plan the village as a whole should be actively associated in framing targets of achievements, in suggesting suitable methods for achieving these, in evolving and directing a suitable organisation for day to day working and in checking periodically the progress made. A willing and constructive participation of the people can alone ensure the success of the Plan. While a general stirring of the aspirations of the people is to be noticed all over the country, the establishment and successful working of village organisations remain to be achieved in many parts. Latterly there has been a welcome earnestness on the part of State Governments for the establishment of Panchayats as civic and developmental bodies charged with the general responsibility of attending to the collective welfare of the village community. Panchayats have an indispensable role to play in the rural areas. As representing the best interests of all sections of the community their status is unique. Many activities, such as, framing programmes of production for the village obtaining and utilising governmental assistance for the betterment of the village such as the construction of roads, tanks, etc., encouraging villagers to improve the standards of cultivation, organising voluntary labour for community works and generally assisting in the

implementation of economic and social reform legislation passed by the States, will naturally fall within the purview of the panchayat.

7. On the other hand, for the working of individual programmes of economic development, where not only the general interest but also the specific responsibility and liability of a member have to be ensured, a more integrated and binding form of association is needed. Specific and practical tasks of reclaiming land, of providing resources for better cultivation, of marketing the produce of the villagers, both agriculturists and artisans, can be best performed through co-operatives. The co-operative agencies will naturally have to conform to the usual principles of business management, namely, of satisfactory service and economical working. That they are not profiteering associations and that they function for mutual service makes them desirable agents of democratic planning. It is therefore very necessary that co-operative agencies in the village should have the closest possible relationship with the principal democratic body namely, the panchayat. Though in the discharge of their functions the two bodies have specific fields to operate, in a number of common functions by having mutual representation and by having common ad hoc committees, it will be possible to build up a structure of democratic management of developmental plans through both the organisations, the panchayats and the co-operative societies. We therefore suggest that in so far as institutional reform is an essential part of the implementation of the Five Year Plan, emphasis in due proportion and in appropriate fields should be placed both on panchayats and on co-operative societies.

#### \_. Multi-purpose and credit Societies

8. The States as a whole are conscious of the importance of developing co-operative societies as a means of re-organisation of rural life. Among co-operative bodies working in rural areas, the multi-purpose society has quite rightly come to occupy an important place. It has come to be realised that division of the needs, activity and assets of a villager into mutually exclusive parts such as credit, production, sale etc., is somewhat artificial. At any rate, it has been agreed that for the future an attempt should be made to have in each village a co-operative organisation which will cater for the multiple-needs of its members. In some

parts of the country efforts are now being made to transform many of the credit societies, which historically have been the most important co-operative organisations, into multi-purpose societies. The emphasis now being placed on the concentrated and all-sided development of rural areas would suggest the desirability of encouraging such transformation. Pending this development the credit societies will continue to play a vital role in rural economy. In fact it is difficult to over-estimate the importance of the services that rural societies could render in the sphere of credit organisation.

9. Recently there has been a noticeable increase of incomes in the agricultural sector of the economy. Much of the development that will be brought about under the Five Year Plan will strengthen this tendency. While therefore, on the one hand, larger sums will come to be disbursed in rural areas, it is of the utmost importance to see that monies so spent do not go outside the system of organised credit. In other words rural savings and monies generally in the hands of the rural population have to be kept flowing into credit organisations. A co-operative society is calculated to do this much better than almost any other organisation. The establishment of credit societies in villages is thus a sine qua non of the organisation of credit in the context of planned investment in the developmental schemes approved in the Plan.

10. In the past the village credit societies have been accustomed to secure their finance from central financing agencies operating in urban centres and utilising mostly capital resources made available by the urban classes. In keeping with the normal financial structure an apex co-operative bank has also been established almost in almost all States. As some of these banks operate in highly urbanised areas, their working in some instances approximates to that of a commercial bank. In the earlier stages the management of central and apex banks was demonstrably influenced by representatives of non-rural interests, but latterly there has been a welcome tendency towards establishing in both organisations the control of the representatives of society members, especially of those who hail from rural areas. The State Governments have lately taken a more active part in assisting financially the apex banks. The Reserve Bank, which by its constitution is charged with the special responsibility of making credit available for agricultural finance, is also taking a helpful view of its function in this sphere and latterly it has shown itself willing to lend large sums to central financing



agencies through apex co-operative banks. We ourselves have recommended in Chapter XVI that by the end of the period of the Plan the Reserve Bank and the Central Government should be providing short-term credit for agricultural purpose to the extent of Rs. 100 crores per annum. If, however, the credit structure of the country is to be fully geared to an increasing pace of economic activity in the rural areas, an intensive effort at integrating all the channels of credit for the common purpose is needed.

#### Sale and purchase societies.

11. The purchase of the agriculturist's requirements and the sale of his produce are key activities in the business of farming and their importance is likely to be even more crucial in a socially regulated economy. Due to his inability to secure a fair deal at these two stages the average agriculturist is denied the full fruits of his industry. The organisation therefore of co-operative sale and purchase societies and of other marketing organisations is vital both for its direct ~~as also for its~~ <sup>and</sup> ~~alterior usefulness.~~ With credit and marketing co-operatively organised all over the country not only would the success of the present initial Plan be more adequately assured but the stage will be set for a much more ambitious and constructive programme of rural development.

12. The emphasis of the Plan is on augmenting agricultural production. In this sphere co-operation has a very significant contribution to make. Co-operatives can help to increase the effectiveness of extension work. Other services which a cultivator needs for efficient utilization of his land can also be made available through co-operative agencies. Such aids as seeds, fertilizers, and implements on which depends the profitable exploitation of the resources of the soil can be effectively placed at the disposal even of the small farmer by co-operative societies.

## Co-operative farming

13. In most parts of the country for ensuring economic cultivation an increase in the unit of cultivation is necessary. Here again, co-operative farming has direct relevance. Without under-mining the sense of proprietorship and the incentive to industry that it gives, co-operative farms can produce all the advantages that a larger unit possesses. A community which has been accustomed to the advantages of co-operative association in other vital matters of its business will be more successfully approached for establishing a co-operative farm than is possible in a community in which co-operation has been made little headway. While the controversy between voluntary and compulsory formation of co-operative farms may at this stage be avoided, it can be suggested that in any area where a majority of holders representing at least half of the total area under cultivation desire to establish a co-operative farm, legislative means should be at their disposal to proceed with the formation of a co-operative farming society for the whole village. The State on its part should be everything in its power to encourage the establishment of such farms and to promote their satisfactory working afterwards. Farming through a co-operative calls for a number of individual and corporate virtues on the part of members. It will therefore be sometime before co-operative farms reach a developed stage. If during the period of the First Five Year Plan, in representative areas of different States a good number of societies are established as going concerns, we can proceed more confidently to expand that pattern of cultivation in the next Five Year Plan.

## Co-operation and Community projects.

14. For the intensive and all-sided development of the villages the community projects have recently been launched in the various States. The purpose and the organisation of these projects have been touched on elsewhere in this Report. We have recommended that in all the aspects of community development co-operative methods of organisation should be adopted to the maximum possible extent. As is obvious, the ultimate justification of community projects will depend on the extent to which the people are enabled to make self-reliant efforts to carry out all their activities in an improved, business-like and progressive manner. While the leadership and assistance of departmental and external source will to some extent help in initiating the process of community development, for the development to be permanent and expanding the people must be active participants in the whole process. It is not easy to conceive how, in the absence of co-operative organisation of their business and of their social activities, this

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desirable object of community projects can be realised. While the working of these projects is no doubt likely to vary from area to area in keeping with the local environment, a broad cooperative pattern should be considered essential. As in other spheres of cooperative expansion, the programme of reform should take account of the financial and personnel resources that will be made available by departmental as well as institutional agencies.

### Industrial Cooperatives

15. In the rural areas the needs of employment will not all be met by farming. The Plan contemplates several improvements such as irrigation, soil conservation, and reclamation which may succeed in giving fuller employment to agriculturists than what they have at present. But limitations of nature will in many instances require that the agriculturists should turn to some other occupations during the slack seasons. Besides these part-time workers there are in the villages several classes of artisans who under the pressure of competition from organised industry are finding it difficult to maintain their traditional employments. Chapters bearing on village and small scale industries contain recommendations for the solution of problems connected with these classes of the rural population. We have indicated therein the advantage of establishing industrial cooperatives for such workers. While the formation of agricultural cooperatives is by now a familiar experience, industrial cooperatives are still in their infancy. Their activity is so directly in touch with the moving events of a competitive market that the uncertainties of their business often loom larger than their basic importance. Moreover, cooperative financing and marketing agencies have yet very limited experience of doing business with industrial cooperatives. As a result of these factors, the future of industrial cooperatives is yet not so well-established as appears to be the case with agricultural cooperatives. As we have recommended elsewhere, we desire that cottage and small scale industries should have for themselves well-marked fields which are not

encroached upon by large-scale industry. This principle will no doubt have to be translated into more specific and concrete terms as a result of further investigations and experience. When this is done the conditions for the successful operation of industrial cooperatives will be more assured. In the mean while, it is desirable that cooperatives organised for the several trades be established on a sound footing. While it is possible and indeed desirable that the special advantages recommended by us elsewhere should be made available to the members of these cooperative societies, their place in the industrial structure of a planned economy will ultimately depend on their efficiency. Nothing should be done which will undermine the initiative and self-confidence of the members of these societies. Aids in respect of power, implements, raw materials, technical advice and marketing facilities should all be made cooperatively available to these societies. It is not necessary for us in the present context to suggest how the organisation of the industrial cooperatives themselves should develop from the village to the State level. We expect that according to the experience of each State, some form of federal organisation will in due course evolve. But in respect of the capital needs of these cooperatives it must be emphasised that provision for finance will have to be made commensurate with the extent to which the industrial cooperatives are expected to fulfil given targets of production. Whether the existing cooperative financing agencies can continue to offer finance for industrial activities which are somewhat special and, if so, to what extent is a matter in respect of which further enquiry by the States concerned, as also by the Reserve Bank, will have to be undertaken. We note that many of the States are establishing industrial finance corporations, designed for the most part for meeting the financial needs of comparatively small-scale units of industry. The Plan also provides Rs 15 crores for assisting small-scale and cottage industries. We would recommend that financial aid from this provision and from such corporations should by preference be made available to industries cooperatively organised. With artisans' industry cooperatively developed and with a number of processing factories established on a cooperative basis, a major

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position of rural economic activity will come within the cooperatives' sphere. For reasons mentioned earlier in this chapter, such development will conform to the requirements of democratic planning and will make it possible at later stages of planning to formulate more comprehensive schemes of economic progress.

16. While in the immediate future extension of cooperation is most urgently called for in the rural area, where agricultural operations play a dominant part, the urban sector of the cooperative movement has also to develop along systematic lines, if in due course it is to make its contribution to planned development. In urban areas there are a number of artisans of small means who find it difficult to organise themselves in keeping with the requirements of modern times. It is to be desired on social as well as on economic grounds that members of this class should be enabled to reorganise themselves to be able to take full advantage of modern scientific methods. Small industries cooperatively using advantages like power and special techniques will be able to make a significant contribution to the industrialisation of the country. We have elsewhere expressed our preference for a decentralised type of industrialisation and how far we can go in the direction of decentralisation without loss of economic advantage will depend to a very large extent on the capacity of artisans to organise themselves on a cooperative basis.

17. In urban areas special importance must be attached to consumers' cooperatives. Unfortunately, we notice that as yet, except in Madras, genuine development of consumers' cooperative has not made enough progress in the country. Under the influence of rationing and governmental distribution of scarce goods, a number of consumers' societies have no doubt come into being. They have, however, as a class failed to extend their usefulness beyond these limits. Their future, therefore, in the event of removal of controls on distribution of essential articles is somewhat uncertain. The success of consumers' cooperation will primarily depend on the enthusiasm and preference that the cooperators themselves succeed in creating among their fellow citizens. It should, however, be possible for the State to adjust its policies in such a way

that the legitimate interests of consumers' cooperative societies are not ignored by those departments of the Central and Provincial/State Governments which have to attend to their claims. It would in our opinion be in the best interest of the planned development of distributive trades that an attempt be made to build up consumers' cooperatives over as wide a field of distribution as possible. Here again, the questions of finance and credit are likely to be very important. We must, however, remember that to the extent to which cooperatives replace private business, capital engaged in the latter will tend to be released. If a common credit policy is made effective for all credit agencies a transfer of functions will gradually but effectively bring about an appropriate transfer of financial resources.

18. A problem of urban areas in regard to which cooperation has a special significance has been touched upon by us in our chapter on housing. While it is not necessary in this place to cover the same ground again, it must be stated that with the strong urge towards urbanisation that industrialisation is bound to promote, housing assumes crucial importance. While institutional activity such as that undertaken by governmental departments, civic bodies and employers' associations, will meet the situation to a certain extent, a considerable burden of the construction of houses, especially for the middle and lower income groups, will fall on their own cooperative organisations. From the choice of a site to the letting out or use of house-room when it is ready, the work of these housing societies will impinge on a number of departments. It should be the policy of these departments to assist in the formation and progress of these societies.

~~The success of~~ *Improvement of personnel*  
19. The success of cooperatives ultimately depends upon their ability to perform their functions - whether they relate to production, finance, marketing, distribution or construction - efficiently and to the satisfaction of the members and the community. The loyalties of the members can be retained not on the basis of agreements or contracts or under duress but on the strength of the goodwill secured by rendering service. A unit of business, whatever its form cannot survive if it does not fulfil

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properly the tasks which it undertakes. It also ceases to grow if the management is not watchful for new opportunities. In the agricultural sector for instance diesel engines and electric motors are being increasingly used for providing irrigation in some areas while in others tractors are utilised for cultivation and reclamation. A progressive cooperative, besides supplying seeds, fertilisers and other requisites, would provide spare parts, repair and servicing facilities at reasonable cost. These and similar measures in other fields can be adopted only if the staff consists of competent and trained men. Cooperatives are sometimes organised and administered by those who lack both the qualifications and the experience necessary for the job. This factor alone accounts for a large number of cooperatives' failures and the uneven development of the movement in the country. The importance of efficient management cannot, therefore, be too much stressed.

20. Many of the managerial and supervisory functions call for specialised knowledge and technical skill. The cooperatives ought to recruit qualified men and get the existing staff adequately trained. The present facilities for the training of higher personnel are not adequate and we have provided a sum of Rs 10 lakhs for setting up 3 or 4 colleges in various parts of the country to meet the needs. We also trust that the State Governments will arrange for the training of other staff.

21. Even though almost all the States have a cooperative department, many of them have to be helped to equip it to shoulder the new, diversified and complex responsibilities now envisaged. Until recently the main statutory functions of the department were registration, audit and inspection. Consequently the bulk of the staff was well versed in these activities. Now that the cooperatives are being recognised and utilised as an important instrument of economic planning, the staff of cooperative departments, without spoon feeding or interfering too much in the working of the Societies, should be able to provide effective guidance and knowledge and not merely be auditors and inspectors of the Government. In short a constructive attitude and

## CHAPTER XI

### FOOD POLICY FOR THE PLAN

#### Basic Considerations

A well-defined food policy for the period of the Plan is an essential condition for the successful implementation of the Plan. For the large sections of the community which live near the margin of subsistence, a certain minimum supply of foodgrains at reasonable prices constitutes the rock-bottom of the standard of living, a fall in which would be seriously detrimental to health and efficiency. The consequences of any untoward development in the food situation are too obvious to need stressing. The experience of the last few years has brought out clearly the vulnerability of the economy on account of the inadequate production of foodgrains in the country. Foodgrains occupy a pivotal place in the price structure, and if this latter has to be safeguarded, as it must be, the prices of foodgrains must be held stable at levels within the reach of the poorer sections of the community. Even a moderate shortfall in the supply of foodgrains is likely under Indian conditions to raise their prices more than proportionately, and a rise in food prices leads directly to a rise in the cost of living and in production costs all round. This does not, of course, mean that the producer of foodgrains should not get a reasonable return. On economic as well as social grounds, it is vital that he does. But, the real return that he gets does not depend only upon the prices he obtains for his produce; it depends as much upon the prices he in turn has to pay for what he buys. If an increase in food prices raises these latter, he may be no better off in the end, and may even be worse off. In the last analysis what limits the real income of the primary producer is low productivity. To increase this latter, what is needed is a programme of public investment which will give him the water, the power, the seeds and the manures he needs. A policy which might raise prices all round and jeopardise the investment programme itself, is, therefore, of no ultimate benefit to the producer. Food policy for the Plan has, therefore, to keep in mind these wider considerations.

2. The food problem has been the subject of discussion and debate for more than a decade, and several expert committees have reported on the



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various aspects of the problem. The Bengal Famine Commission reviewed in detail the long-term trends in the economy as well as the several short-term factors which culminated in the food crisis of 1943. The report of that Commission enunciated the principle that "food for all" must be accepted as the basis for Government policy in this field. In a planned economy, this objective inevitably acquires added importance and has to be effectively implemented. The system of controls developed since 1943 through a process of experimentation and of adjustment of the needs and claims of the various States, surplus as well as deficit, has had as its objective the mobilisation of available food surpluses in the country and their equitable distribution at reasonable prices. The operation of this system has meant a strain on the administration; it has often involved difficult decisions affecting one sectional interest or another. The degree of public cooperation necessary for ensuring the success of such a system of controls has not always been forthcoming, and doubts have from time to time been expressed whether, on balance there was advantage in such a system, or whether it might not be better to revert, at least in some degree, to the traditional organisation of the free market and the operation of the impersonal laws of demand and supply. And yet, the lesson of experience is unmistakable: the free market is not a dependable mechanism when the economy is or is likely to be under pressure due either to short supplies in the country or unfavourable developments abroad. It is not without significance in this context that most proposals for decontrol and the restoration of the free market visualise certain safeguards like cheap grain shops, licensing of traders, requisitioning of stocks if necessary, etc. But, these forms of control were tried in the early stages; and it was because they proved unsatisfactory that more stringent controls involving procurement, restriction of movements, price control and rationing had to be adopted.

3. The fact that food controls were a product of war-time scarcities is apt at times to obscure the role they have to play in a planned economy. A plan for development involves large outlays on investment, and this, in the early stages, increases money incomes faster than the available supplies of consumer goods. The pressure of these money incomes, especially if they accrue to the less well-to-do classes, is bound to be felt chiefly on foodgrains, with the result that if the prices of foodgrains are allowed to rise, the real income of these classes is likely to rise much less than their money incomes, thus depriving them of the beneficial results of increased employment and incomes. Nor are these adverse effects confined to the new recipients of income;

they affect all fixed income earners who may be subjected through these price increases to 'forced saving' out of proportion to their capacity. In a planned economy, food controls have thus certain positive functions, such as safeguarding the minimum consumption standards of the poorer classes, preventing excessive or ostentatious consumption by the well-to-do and facilitating the country's programme of direct utilisation of unemployed manpower for investment.

The 'Deficit'

4. A major question that arises in this context is as to the precise measure of the 'deficit' in foodgrains the country must provide for. For this purpose, it is necessary to assess the trends in production and to see how they compare with requirements. We have given careful consideration to this question, but we find that on the basis of available data, it is not possible to reach any definite conclusions on this point. Official figures regarding acreage and production prior to 1949-50 are not comparable with those for earlier years on account of changes in coverage, mergers of States, etc. The figures of production since 1949-50 indicate, as will be seen from the table below, no significant trend:

Foodgrains Production\*, 1949-50 to 1951-52.  
(in million tons)

	<u>Rice</u>	<u>Wheat</u>	<u>Millets</u>	<u>All cereals.</u>
1949-50	22.2	6.5	16.1	45.5
1950-51	22.0	6.7	15.5	44.2
1951-52	22.8	6.2	15.4	44.4

\*Official figures as corrected in the light of the results of I.C.A.R. Sample Surveys.

From an analysis of official figures it appears that there are large variations in the availability of foodgrains as between various States and considerable variations from year to year within the same State. To some extent, these variations might be indicative of the imperfection of the data themselves, but it is clear that an estimate of the 'deficit' arrived at on the basis of an average norm

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of requirements for the entire country is apt to prove wide of the mark.

5. Apart from the fact that it is not possible from available data to say how much precisely is the total food production in the country, there is also some doubt whether these data could safely be used for framing a judgement as to whether or at what rate food production in the country has been increasing. There is a view that foodgrains production is, in fact, significantly larger than is indicated by official figures. Certain data bearing on production and consumption of foodgrains have been compiled in connection with the National Sample Survey, and these may be expected to throw further light on the subject. For the time being, the official data, which represent information collected on a countrywide basis and over a continuous period of years, have to be used, though with due caution, for framing policies and for carrying on administration at different levels in the sphere of food and agriculture.

6. From a practical point of view, it is of no great consequence whether food production is or is not higher than is shown by the official data. For, if more is being produced, more is being consumed also. What matters for practical purposes is that over the last six or seven years, the country has imported on an average about 3 million tons of foodgrains. The following table gives these imports since 1946:-

Imports of Foodgrains, 1946-1952.  
(in million tons)

1946	...	2.25
1947	...	2.33
1948	...	2.84
1949	...	3.71
1950	...	2.13
1951	...	4.72
1952	...	3.90

Imports of foodgrains were lowest at 2.13 million tons in 1950 but this low level of imports necessitated a reduction of 0.85 million tons in the stocks held by Government. Taking into account

imports as well as changes in stocks, the net absorption of foodgrains from abroad for the last few years has been as follows:-

(in million tons)		
1947	...	2.3
1948	...	2.4
1949	...	3.2
1950	...	3.0
1951	...	4.1
1952*	...	3.4 @

\*(approximate)

Average net absorption for these years works out at 3 million tons the minimum being 2.4 million tons in 1948, and the maximum being 4.1 million tons in 1951. While it is not possible, as stated above, to estimate the 'deficit' directly in terms of food production and requirements, this net absorption of imports is indicative of the measure of deficiency that has to be made good. In the nature of things, the 'deficit' is not an invariable factor. If food prices are allowed to rise, the consumption of some sections of the population would come down for want of sufficient purchasing power to buy food at these prices. Through such cuts in consumption, the supplemental imports needed from abroad could be reduced, but this would involve serious hardship, which might even react on productive efficiency.

7. It would be wrong at the same time to take a static view of the deficit. Population in India has been increasing at the rate of about  $1\frac{1}{4}$  per cent per year, and the additional annual requirements needed on this account are of the order of  $4\frac{1}{2}$  lakh tons. This means that over a period of five years an increase of about  $2\frac{1}{4}$  million tons in foodgrains production would be absorbed by the increase in population. The problem thus is of providing for an increasing population, if and to the extent possible, at more satisfactory levels of consumption.

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@ As a result of the relaxation of procurement in the latter part of the current year, it is possible that some stocks will be available with private trade for carryover to the next year. But data regarding these are not available.

8. The 'deficit' in foodgrains works out roughly at about 6 to 7 percent of production as judged from official figures. In view of the possibility of these figures being underestimates, the actual deficit might be lower, say, about 5 per cent of total production. While, for the reasons mentioned earlier, a marginal addition to available supplies may prove under present conditions of more than proportionate benefit, the aim of policy must be to increase domestic production, to secure an increase in the marketable surplus, to distribute the same as equitably as possible, and to eliminate by the end of the Plan period the need to import foodgrains. It might be well to stress in this connection that the need to import from abroad is related more directly to the marketable surplus available for meeting the requirements of non-food producers than to total production, and that the problem is not merely one of increasing production but also of mobilising more effectively the surpluses which become available with the producers.

9. The total cost of imported grains since 1948 works out at over Rs 750 crores. Although part of the imports received in 1951-52 were financed out of the U.S. wheat loan, it cannot be questioned that the country has been paying heavily for these imports. Any change in food policy likely to reduce procurement and increase the dependence on imports, which, in turn, might mean further expenditure on subsidies, has therefore to be avoided. In fact, the aim should be to reduce imports progressively. The optimum utilisation of the resources available to the country demands that for meeting the requirements of the food administration, the system of internal procurement must not only be maintained but must be steadily improved.

10. For the immediate future, relative scarcity of foodgrains has to be regarded as a datum. The review of the Grow More Food campaign since 1943 undertaken recently by the Grow More Food Enquiry Committee brings out the fact that there has been in recent years an addition to the "production potential" in the country through schemes of minor irrigation and land improvement. It is also true that the efforts made under the campaign have created a new consciousness among agriculturists as to the need and scope for improved agriculture. The reorientation of the campaign suggested by the Committee and the schemes for agricultural development included in the Five Year Plan will undoubtedly show results. It may be hoped that when these results come, they will come cumulatively.

The point, however, is that it will be some time before the new trends are established. So far as the outlook for the immediate future is concerned, a particular year might turn out to be on the whole satisfactory, but food policy must, if serious risks in a vital matter like food are to be avoided, be based on the assumption of a continuance of the condition of relative scarcity and strain in spite of a progressive increase in production. This means that for the period of the Plan rationing and procurement, together with certain minimum imports, must be regarded as the key to the maintenance of a stable system of food controls.

Food prices.

11. The following table brings out the trends in wholesale prices and in cost of living since 1947 and shows also the indices for cereals in relation to these:-

	Whole- sale prices (Gen- eral index)	Cer- eals	Wheat	Rice	Food art- icles	Cost of living (Bombay General)
November'47	362	317	375	336	295	273
July, 1948	390	478	720	500	392	297
March, 1949	370	467	748	486	377	296
September'49	390	464	657	501	403	291
April, 1950	391	458	518	500	399	292
April, 1951	458	490	560	555	413	319
December'51	433	464	524	539	399	315
March, 1952	378	442	510	519	343	298
June, 1952	375	445	629	520	350	322
September'52	389	459	555	543	368	325
October'52	388	442	556	527	358	-

The rise in wholesale prices as a result of decontrol in 1947 was as high as 30 per cent. After the reimposition of controls in 1948, a measure of stability was attained until the devaluation of the rupee along with several other currencies in September, 1949. The anti-inflationary programme taken in hand soon after devaluation was again a stabilising factor. Prices rose sharply after the outbreak of the Korean War, and although steps were taken to prevent money income from rising as a consequence of the abnormally high prices

of exports, the economy was once again subjected to serious inflationary strain. The rise in prices in India was less than in the U.K. and the U.S.A., and a considerable part of it was due to speculative factors. The subsequent decline in prices in India was partly a corrective to the earlier speculative trend, and partly a consequence of the real change in world demand-and-supply conditions and of the adoption of disinflationary monetary and fiscal measures by the Government. The inflationary pressures associated with the Korean War have thus been neutralised during the last 12 months or so. But it is evident from the price trends in the last five years that the ground lost in 1947-48 was never regained. The present high level of cost of living is causing serious hardship to the middle classes and it is necessary to safeguard their legitimate interests. The need for a disinflationary price policy, therefore, remains.

12. The decline in wholesale prices since the break of the Korean War boom in April 1951 has been about 15 per cent. The largest fall has occurred in the case of industrial raw materials, which have gone down by 34 per cent. Food articles have registered a fall of 13 per cent, but the fall in the price of wheat and rice has been of the order of only 1 per cent and 5 per cent respectively. The general index of wholesale prices is now at about the same level as on the eve of the Korean War, and the index of food articles is about 10 per cent lower. But it must be noted that it is the prices of food articles other than wheat and rice that have fallen. The index for wheat now stands at 556 as compared to 518 in April 1950 and is close to the peak level of 560 reached in April 1951. The continued high level of the prices of basic cereals accounts largely for the failure of the cost of living to come down.

#### Recent change in Food control.

13. The large imports of grain in the latter part of 1951 and the early part of this year improved substantially Government's stock position in foodgrains. In March and April this year the low price of oilseeds and the difficulties in the disposal of cotton probably compelled farmers to sell more grain in order to meet their-cash requirements. To some extent, the bearish psychology created by the sharp fall in almost all prices

in the first few months of this year was also responsible for some dehoarding of grains. The satisfactory procurement in the first half of this year, the accumulation of stock with Government and the decline in offtake from ration shops led to relaxations of control in several States in June and July. In Madras statutory rationing was withdrawn as from the 15th of June and cheap grain shops were opened instead. Procurement was temporarily discontinued. The State was divided into six zones and inter-district movements within these zones were permitted. Thereafter, statutory rationing has been suspended in Bihar, U.P., Hyderabad, Mysore, Saurashtra and Madhya Bharat and inter-district bans have been lifted or modified. These changes must be viewed as changes in food administration in response to changes in circumstances. The basic policy of keeping down food prices to a reasonable level and of ensuring that the available supplies of foodgrains are mobilised effectively for meeting the needs of the vulnerable sections of the community must remain unchanged. Only when a substantial and enduring improvement in domestic production and marketable surpluses has materialized can change in basic policy be considered.

14. Between June and October 1952, stocks of foodgrains with the Central and State Governments came down by about 1.1 million tons. The year is, however, expected to close with stocks of about 1.8 million tons, which represents the highest level reached since the imposition of controls. The arrangements in regard to imports, domestic procurement and distribution for 1953 must, in our view, aim at a carry-over of between 1.5 and 2 million tons at the end of the year. A carry-over more or less of this order might be considered necessary for the entire period of the plan.

15. The period since relaxation of controls has been too short to warrant any definitive judgement as to the effects of such relaxation. Short-period movements in prices are inevitably subject to various influences, seasonal and others, which might not be of significance in the longer run. These trends have, however, to be carefully watched, and the machinery of basic controls has to continue to operate so as to check any undesirable developments.



16. In regard to millets, certain changes have recently been made in the system of controls with a view to stimulating freer movements within States and larger flows from the surplus States to deficit States. Inter-State movements as well as prices at which the deficit States buy from the surplus States will continue to be controlled by the Central Government. The index of jowar prices in September this year was 204 as compared to 382 towards the end of 1951. It is also significant that throughout the period of controls the prices of millets have risen much less than those of wheat. A measure of relaxation in respect of the internal movement of millets, subject to inter-State bans being maintained and buying by deficit States being kept under Central regulation, may thus be expected to ensure a better distribution of these grains as between States without producing direct repercussions on major cereals. With buying by deficit States under regulation, prices can be prevented from rising too much, and the retention of inter-State bans ensures that any undesirable developments can be checked in time through appropriate administrative arrangements. The administration of controls is a complex matter, and a measure of experimentation in regard to the detailed arrangements to be made, subject, however to certain essential safeguards, is desirable if excessive rigidity is to be avoided.

#### Food Controls in relation to the Plan

17. If "food for all" is to be the effective basis of policy and if the investment targets in the Plan are to be adhered to the basic structure of food controls has to be kept intact during the period of the Plan. It is our considered view that until the domestic production of foodgrains has been stepped up to the extent of 7.5 million tons as envisaged in the Plan, the country cannot be considered to have an adequate and assured food supply. Controls might be relaxed, or their form altered after the target of additional production has been achieved and adequate transport facilities have been created to ensure the expeditious movement of food-grains from one part of the country to another. The extent to which such relaxation or changes could be made will depend upon the investment targets that the country might then have and the alternative demands for additional production of raw materials like cotton, jute and oilseeds.

18. It is sometimes argued that controls act as a disincentive to production and that if free market conditions are restored, production will be stimulated, and even though prices rise in the process, the consumers will, in the long run, stand to benefit. To what extent controls are a disincentive depends on two factors, (a) the prices paid to producers for controlled commodities, and (b) the efficiency and fairness with which the controls are administered. This latter aspect of the problem has, of course, to be constantly kept in view. As regards prices, the problem is to define a level which may be considered reasonable under given circumstances and to ensure through direct controls or through fiscal and other devices that the producer of foodgrains is not placed at an undue disadvantage. The difficulty about the incentive which might be given by the unregulated operation of the free market to production in a particular line is that expansion in this line takes place at the expense of output in some other line. A general increase in output cannot, obviously, be secured by merely increasing the money reward for each unit of work. The great advantage of a system of controls is that under it the measure of incentive to be given can be regulated.

19. A policy of price stabilisation must have in view certain maxima as well as certain minima. At a time when the economy is subject to inflationary pressures, the emphasis is inevitably on the maintenance of the maxima. But if the trend of prices is persistently downward, a system of controls with defined procurement prices can be used - and indeed should be used - to safeguard the interests of producers by preventing prices from falling unduly. Judicious purchases by Government at defined prices are thus an excellent device for stabilising prices and for evening out to some extent inter-State disparities. Elsewhere in this Report, we have stressed the desirability of initiating State trading in a few essential commodities to begin with. With the bulk of the trade in grains already in the hands of Government, further extension of such trading can play a vital part in stabilising or reducing the cost of living and in diverting to the public sector the surpluses which might accrue in those lines.

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20. Food policy has a direct bearing on the investment programme which can be undertaken in an underdeveloped economy. The larger the available supplies of food and the more effectively they are mobilised, the greater is the investment effort the community can put forth, for food constitutes the wherewithal for sustaining the labour force employed in construction and in the production of capital goods and equipment. The rapid development of an under-developed economy is a function mainly of the rate of capital formation, and the latter can be stepped up as more food can be made available to the newly employed. The Five Year Plan, as it now stands, envisages a stepping up of total investment in the economy from about Rs 450 crores in 1950-51 to about Rs 675 crores by 1955-56, which amounts to an increase of 50 per cent in the course of five years. The yearly rates of investment are thus high enough to call for special effort. The resources available to the public sector for financing its plan of Rs 2069 crores are estimated, as has been shown in Part I, to necessitate a considerable measure of deficit financing. If economic activity in the country is stimulated, as is proposed under the Plan, incomes in the country-side must increase. This is bound to ensure a high level of demand for food. In fact, it may even be stated that a development plan which does not raise the demand for food in the country significantly must be considered inadequate. Persistently low or falling food prices, under present conditions of domestic production and availability can only indicate insufficient investment effort and low purchasing power in the community.

21. Throughout this Report, we have emphasised the need for utilising unemployed manpower more effectively. It is only through such utilisation of idle manpower and the spare hours of those partially employed that a comprehensive programme of development can be implemented. The low levels of employment which have become endemic in the economy are not merely so much economic waste; they constitute a big social problem involving the very stability of the economic and social system. The rate at which the unemployed can be absorbed in productive work depends, obviously, on Government's capacity to supply them food at reasonable prices. It is true that even the unemployed do in any case consume food but this only means that the increase in food requirements need not be proportionate to the increase in employment. On the other hand, it has

to be borne in mind that when the unemployed are put to work, firstly, their food requirements are likely to go up and, secondly, the necessary supplies will have to be found not directly from the families which were hitherto supporting the unemployed but from the marketable surplus available in the system.

22. There are parts of the country which are subject to periodical draughts and scarcity. Some areas are so under-developed and yet so thickly populated that special efforts are necessary to create new avenues of employment for the people in these areas in order to provide them with the minimum purchasing power necessary for sustenance. It is in this context as much as in the larger context of development that deficit financing on a big scale is often advocated. What limits the measure of deficit financing that can be undertaken under such conditions is not finance as such but the danger of larger money incomes generating inflationary pressures which might affect adversely the economy as a whole. Only to the extent that these latter are controlled and the supply and distribution of foodgrains and other essential commodities at reasonable prices arranged can deficit financing for fuller employment be safely proceeded with.

### Rationing and Procurement

23. The system of food controls to be maintained has to be related to the needs of the urban and other highly deficit areas. This means that cities and towns above a certain size - which might vary according to local conditions in each State - must be statutorily rationed and the needs of highly deficit areas like Travancore-Cochin must be similarly looked after. A system of controlled distribution through non-statutory rationing should normally be adequate for other areas.

24. The system of procurement to be adopted must aim at channelling into the hands of the official agency the surpluses available in each State after the needs of the local population are provided for. Whether monopoly procurement or some form of levy would best answer the purpose has to be determined in the

light of the conditions prevailing in each State. The aggregate requirements of the Central and State Governments for meeting their commitments have, since the restoration of controls towards the end of 1948, been between 7 and 8 million tons. These have been met through domestic procurement amounting to between 3.8 and 4.6 million tons and imports varying between 4.7 and 2.1 million tons. Of the total procured domestically, Madras and Bombay which are net importing States have been responsible for about 40 per cent. It will be noticed that the net exports from surplus States have been small relatively to total procurement, the maximum attained being 785,000 tons in 1950. In 1951, net exports from these States fell to 170,000 tons, and for 1952, they amounted 350,000 tons upto the end of October. If food controls are to function with increased efficiency, it is necessary to evolve a system which will increase the flow of grains from surplus States. For deficit States, the problem is to secure from local production what they need for meeting their commitments without, on the one hand, reducing unduly the availability of grain in the rural areas, and, on the other, increasing the demands from the central pool.

#### Administration of Food Controls

25. The maintenance of a satisfactory system of food controls depends upon (a) clarity and continuity in policy, (b) efficiency in administration and (c) the degree of public cooperation that can be secured. The last is, to a great extent, dependent on the first two. As regards policy, the question has to be approached not so much from the point of view of the needs of particular States as from the overall national point of view. In a country of the size and diversities of India, there is room for differences in the details of administrative arrangements. It is necessary in these matters to adopt a pragmatic rather than a doctrinaire view and to leave room for local adaptations in the light of prevailing circumstances. Nevertheless, the broad objectives must be kept clearly in mind. The aim of policy must be to secure from each surplus State the maximum it can make available to the common pool and to organise the procurement and distribution of grains in each deficit State so as to restrict its drawings from the central pool to the minimum necessary. It is evident that the

responsibility for fixing prices and for conducting the control policies of States must rest with the Centre.

26. The maintenance of a system of controls presupposes efficient administrative arrangements. Given the essential framework of policy and the determination to pursue certain objectives steadily, the necessary efficiency in administration can be secured. Planning implies the readiness to undertake new and onerous responsibilities, and to argue for decontrol on the ground of administrative difficulties is to question the feasibility of planning. A solution to such shortcomings and difficulties has to be found through progressive improvement of the administrative machinery. To a great extent, this is a question of selecting the appropriate personnel.

#### Change in Food Habits

27. Finally, we should like briefly to touch upon an important aspect of the food problem which relates to consumption habits. Of all the food-grains which form the staple diet of the country, rice presents special difficulties. Not only India but the world as a whole is short of rice, and the world price of rice is high and is rising further. Even a moderate import of 500,000 tons of rice is estimated to involve an expenditure of about Rs 40 crores. The outlook for wheat is, on the other hand, better. Considering these circumstances, the substitution of wheat for rice to a moderate extent in the customary diet is highly desirable. The shortfall in the country's rice production is not more than 2 or 3 per cent of total needs, and it should by no means be difficult to make good this deficiency by substituting wheat for rice. There is also scope for encouraging the use of supplementary foods. No doubt, food habits are not easy to change, but if the public is made aware of the cost involved as also of the undoubted benefits of a more varied diet, the necessary response could be secured.

## CHAPTER XII

### LAND POLICY.

#### The land problem

The future of land ownership and cultivation constitutes perhaps the most fundamental issue in national development. To a large extent the pattern of economic and social organisation will depend upon the manner in which the land problem is resolved. Sooner or later, the principles and objectives of policy for land cannot but influence policy in other sectors as well.

2. In the three preceding chapters, we have set out at some length the state of the agricultural economy, the approach to agricultural development in relation to the process of national development as a whole, and, finally, practical implications of the food problem. In this chapter and the next we consider what may be described as the social policy for bringing about those changes in the pattern of production and distribution and in the **structure** of the rural economy which will serve to establish increasing equality of status and opportunity and, at the same time, help fulfil the targets of agricultural production which are central to the success of the Five Year Plan. In other words, from the aspect of the national economy as a whole, the conclusions to be emphasised are:-

- (1) increase of agricultural production represents the highest priority in planning over the next few years; and
- (2) the agricultural economy has to be diversified and brought to a much higher level of efficiency.

From the social aspect, which is not less important than the economic, a policy for land may be considered adequate in the measure in which, now and in the coming years, it reduces disparities in wealth and income, eliminates exploitation, provides security for tenant and worker and, finally, promises equality of status and opportunity to different sections of the rural population.

3. The achievement of these economic and social aims is as much a part of the purpose of the Five Year Plan as the fulfilment of targets in industry or transport or agriculture. While broad principles and directions of policy can be indicated, it is necessary to remember that the form and manner of their application and the adaptations to which they are subject will differ widely in different parts of

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the country. In the main, land policy has to be worked out in terms of local needs and conditions. The texture of relationships concerning land, conditions of economic life, the social composition of rural communities and the pattern of occupational distribution differ widely, so that no generalisation can have more than a limited value. Nevertheless, developments in one State are often significant enough to exert influence elsewhere. On account of the abolition of feudal tenures, which is in progress in many States, the system of land holding over the greater part of the country is beginning to approximate in substance to the ryotwari system. Proposals for land reform raise important questions of policy and finance which call for close cooperation and consultation between the Central and State Governments. Even though the pace of land reform and of economic development cannot be the same all over the country, it is desirable that as between different States there should be a broad, common approach in land reform programmes and, as an essential aspect of the implementation of the Five Year Plan, the stages in which land reforms are to be carried out should be worked out by the Central Government and the States.

4. Problems of land reform may be viewed in two ways, (i) from the point of view of agricultural production and (ii) from the point of view of different interests in the land. The first aspect is the subject of land management legislation, the second of land reform legislation. To fulfil its broader objectives, land policy should include both elements, for, it is only in an economy in which production and employment expand that the community can realise fully the benefits of changes in the social and economic structure. Although, between the two aspects of policy, there is no conflict of principle, land reform will be fruitful in the measure in which each step is marked by a balance of emphasis. The main outlines of policy have to be conceived in terms of different interests in land and, at the same time, the effects on production of each measure that may be proposed have to be foreseen and provided for. The interests in question are: (1) intermediaries, (2) large owners, (3) small and middle owners, (4) tenants-at-will and (5) landless workers. These different interests cannot be considered in isolation from one another, for, any action affecting one interest must either give something to or take something away from one or more of the other interests. As social and economic adjustments affecting individual interests come into effect, a new social structure takes the place of the old. It is best that the period of transition and uncertainty should be short, so that the new social pattern can develop its own organic unity and can begin to evolve from within.



## Intermediary rights

5. The abolition of intermediary rights has been the major achievement in the field of land reform during the past few years. In varying degrees these rights had a long history behind them and, until quite recently, in some States, they were the essential elements of power in the feudal structure. As a result of the elimination of these rights, in States which had zamindari, jagirdari or other similar tenures, the State has now come into direct contact with the occupier of the land. Zamindari has been abolished in Uttar Pradesh, Madhya Pradesh and Madras and is in the process of abolition in Bihar. Legislation already enacted in Assam and Orissa is shortly expected to be enforced, and West Bengal, which has had serious problems in reckon with since Partition, is engaged in framing legislation for the abolition of zamindari. Legislation for the abolition of jagirdari has been enacted in Rajasthan, Madhya Bharat, Hyderabad and Saurashtra and also in some of the smaller States in Central India. It has not yet come into effect, however, except in Hyderabad and Saurashtra. The amendment of Article 31 of the Constitution in 1951 cleared the way for the completion of these reforms. In States such as Bombay, Punjab and PEPSU, elements of superior rights which existed have been eliminated or are in the process of being eliminated.

6. Although the abolition of intermediary rights can be described as the completion of one important phase of land reform, two principal problems have not yet been fully solved. These relate to (1) payment of compensation to zamindars and jagirdars, and (2) establishment of the necessary revenue administration. In a number of States compensation is expected to take the form of non-negotiable bonds carrying a rate of interest and repayable within a period which may extend to 40 years. The question arises whether the compensation to be paid could serve to some extent as a source of investment in public enterprises. One suggestion which has been made is that the bonds issued to zamindars, while they remain non-negotiable for

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periods to be indicated, might be made **convertible** into shares in projects undertaken by the State Governments concerned or even by the Central Government. The arrangement may have certain advantages both from the side of Government and **from** the side of the person who converts his compensatory bonds into shares in public enterprises. The suggestion, however, needs to be further examined with reference to conditions in the principal States in which Zamindari has been or is expected to be abolished.

7. The question of revenue records and revenue administration in zamindari and jagirdari areas is of paramount importance. From information which has been collected from a number of States, it is apparent that the subject needs urgent attention. In the temporarily settled areas, there has long been a framework of revenue administration which, if strengthened, will be capable of assuming new responsibilities consequent upon the abolition of zamindari. In most of the permanently settled areas and in the jagirdari areas, however, there is scarcely any revenue administration on behalf of the Government and the effective implementation of land reforms becomes a matter of some doubt. The responsibilities which a Government assumes with the abolition of zamindari are not confined to the collection of rent, for, important obligations relating to waste-lands, forests, fisheries and other miscellaneous rights have to be accepted. We have referred to this aspect already in the chapter on the administration of district development programmes and suggest that the States concerned should give high priority to the solution of administrative problems which arise from the abolition of zamindari and, in particular, to the building up of sound revenue administrations.

8. A revenue administration depends, in the last resort, upon a good system of village records. In States like West Bengal, Bihar, Orissa,

Rajasthan and Ajmer, there are scarcely any village records. In Hyderabad and certain other areas, over large tracts, there existed a system of village records maintained by zamindars and  jagirdars through their own petty employees. These records were seldom of adequate quality and could not be fully relied upon. Records of rights and other land records became even more important at a time when rapid changes affecting land have become a normal feature of legislative activity. It would not in fact be too much to say that in some States because of defective revenue records the implementation of reforms already enacted will remain incomplete and may even raise new problems which will come in the way of good administration.

#### Substantial owners of Land

9. The growth of population and repeated subdivision have led to a system of distribution in land in which large estates are an exception and the vast majority of holdings are relatively small in size. Legislation for the abolition of zamindari and for the protection of tenants has already reduced to some extent the degree of disparity which existed in the distribution of land.

10. Information concerning the distribution and size of holdings is available only to a meagre extent. As a result of an enquiry addressed to State Governments, a certain amount of information which was readily available has been obtained and is given in the annexure to this chapter. Even in

States which have an adequate system of land records, the data have to be corrected for the changes which have taken place during recent years on account of the abolition of intermediary rights or the merger of new territories. The data are also defective in that they do not distinguish between cultivated and uncultivated land and, in respect of land under cultivation, between irrigated and unirrigated land. Secondly, they do not indicate the effects of the tenancy legislation of the past few years. Under this legislation large numbers of tenants have acquired either rights of occupancy or of protected tenants and, at the very least, have obtained greater security of tenure. In considering the distribution of land as it exists at present, for purposes of policy, it is important to know how much land is under the direct management of owners as distinguished from that held on lease by tenants. Before making their proposals on the subject, the first recommendation which we have to make is that during 1953 all States in India should cooperate in undertaking a census of land holding and cultivation. The lines on which this census should be held and the details of the information which should be secured should be worked out by an expert group and the operations should be so planned that they do not place excessive burden on revenue administrations in the States. In this connection, it may be observed that areas in which village records and the revenue administration are not adequate will present special problems. Unless the preliminary step that we have recommended is taken, we believe that it will be difficult to give practical effect to a number of other steps which remain to be taken in the field of land reform.

11. If allowance is made for factors such as quality of land, area under tenants and the elimination of zamindari and jagirdari rights, the general picture is one of numerous small holdings, a large proportion of them being uneconomic, a small number of middle peasants and a sprinkling of substantial owners. For reasons mentioned above, it is not possible at this stage to indicate the approximate numbers in each group. It is safe to suggest, however, that substantial owners who are directly engaged in managing their land without the intervention of tenants constitute a very small number.

12. If it were the sole object of policy to reduce the holdings of the larger owners with a view to providing for the landless or for increasing the farms of those who now have uneconomic fragments, the facts at present available suggest that these aims are not likely to be achieved in any substantial measure. The question whether some limit should not be placed on the amount of land that an individual may hold has, therefore, to be answered in terms of general principles rather than in relation to the possible use that could be made of land in excess of any limit that may be set. We have considered carefully the implications of the various courses of action which are possible. It appears to us that, in relation to land (as also in other sectors of the economy) individual property in excess of any norm that may be proposed has to be justified in terms of public interest, and not merely on grounds of individual rights or claims. We are, therefore, in favour of the principle that there should be an upper limit to the amount of land that an individual may hold

13. The idea of an upper limit for land has already been given effect to in two different ways, namely, (1) as a limit for future acquisition and (2) as a limit for resumption for personal cultivation. Uttar Pradesh has, for instance, prescribed 30 acres as the limit for future acquisition. Similarly, where land is held by tenants, a land-owner may be permitted to resume up to a proscribed limit for personal cultivation. In Bombay this limit is set at 50 acres, in the Punjab at 50 "standard" acres, in Hyderabad at five times an economic holding, and in Uttar Pradesh, where the tenancy problem and the course of legislation differ from those of ryotwari areas, the limit for resumption is a holding of 8 acres. Although a number of States have not yet imposed limits for future acquisition and for resumption for personal cultivation, we consider that the determination of these limits is an essential step in land reform. Certain areas

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may, however, present special problems. It may happen, for instance, that in some States there may be a great deal of land requiring reclamation. Reclamation programmes may necessitate long-period leases of comparatively fair-sized blocks of land where schemes for State farming cooperative colonisation are likely to prove highly/economical or prohibitive in cost. Whether the expression 'future acquisition' should also include within its meaning the 'right to inherit' needs to be considered from the point of view of legislation for the imposition of estate duties which is now before Parliament. On this subject, therefore, at present we do not make any recommendation.

14. The question how the limit for resumption for personal cultivation or for future acquisition should be determined needs to be considered. In theory, there are five possible criteria with reference to which the limit may be fixed. Thus, the limit may be a varying multiple of (i) land revenue, (ii) value of the gross produce of land, (iii) value of net produce (or income) of land, (iv) sale value of land, and (v) lease value of land. Each of these criteria may prove useful in particular circumstances, but their limitations should be appreciated. Apart from the fact that in several parts of the country no land revenue assessment exists, different districts have been assessed at different times and on the basis of varying assumptions as to prices, yields and crop maturities. Comparisons of land revenue rates are, therefore, more valid as between different classes of land within a district than as between different districts assessed at different times and in varying circumstances. Statements of the value of gross produce of land are generally made on rough calculations and are sometimes misleading. The only satisfactory way of calculating the value of gross produce would be to prepare fresh estimates on the basis of a standard series of prices for commodities which go into the produce estimates prepared for different areas during settlement operations. This would be a laborious procedure which could hardly be commended and, frequently, the relevant basic information would not be available. The value of net produce for an acre of land is calculated after making allowance for expenses of cultivation which may have to be borne by an owner of land as distinct from the tenant. In view of the rapid changes in tenancy conditions which have been and are taking place, it is not possible to use this criterion. On account of tenancy reforms and other factors, the average sale value of different classes of land is also a less useful criterion now than it was in the past. Moreover, a decade of high prices has somewhat distorted the picture. Similar considerations apply to the of

test of lease value which is further vitiated by the fact that little accurate statistical information covering a sufficient number of instances is available and also because much of the land is leased on the basis of a share in the crop.

15. In the last analysis any particular method of determining a limit implies an average level of income or, in real terms, an average quantity of agricultural produce which it is proposed should become some kind of maximum for an individual agricultural family. It is sometimes suggested that the fair course would be to determine the maximum holding of land in terms of an average annual income. This would give an accurate measure of the change in the rural social structure which was sought to be brought about and would also ensure that different standards for reducing disparities in income were not adopted for the agricultural and non-agricultural sectors in the economic life of the country. There is force in these considerations. It has to be recognized however, that calculations of the amount of land of given quality in any area which may be expected on an average to yield a specified income are subject to so much guess-work that without much more statistical information than is at present available, there are real difficulties in applying the criterion of average income. In actual land reform operations, as the work of re-settlement of displaced persons on evacuated agricultural lands shows, there must be considerable flexibility in approach and, considerations of theory apart, it becomes necessary to adopt these criteria which will serve best against the background of the tenures and revenue arrangements peculiar to a State. Within a State, of course, for its different regions, the same criteria have to be followed. As one method of determining a limit, which may often prove applicable in practical work and is here used by way of illustration, it may be useful to apply a rough and ready criterion such as, for instance, a multiple in terms of what may be regarded as a "family holding" in any given area. A family holding may be defined briefly as being equivalent, according to the local conditions and under the existing conditions of technique, either to a plough unit or to a work unit for a family of average size working with such assistance as is customary in agricultural operations. Another possible method of indicating a limit may be to propose an average level of money income which the permissible holding may be expected to yield. The limit which may be appropriate has to be determined by each State in the light of its own circumstances but, broadly speaking, following the recommendations of the Congress Agrarian Reforms Committee, about three times the family holding would appear to be a fair limit.

16. Whether the principle of imposing a limit on holdings should receive retrospective effect and be applied to existing holdings raises wider issues than the limits proposed for future acquisition and for resumption for personal cultivation. The central question involved is whether, in the event of a limit being imposed, lands in excess of the limit can be acquired for consideration which falls short of fair compensation, that is, their market value at the time of acquisition. Merits of the proposal apart, we are advised that such a course would not be consistent with the provisions of the Constitution. We would suggest that the problem needs to be considered in terms somewhat different from those in which proposals are commonly made.

17. The problem of land held by substantial owners falls into two distinct parts, namely, (i) land now under the cultivation

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cultivated by tenants-at-will, in view of the limit on resumption for personal cultivation, we suggest that for areas in excess of this limit the general policy should be to enable the tenants to become owners. To achieve this object, the following measures have to be taken simultaneously. First, tenants have to be given security of tenure which could well extend to the conferment of occupancy rights. Secondly, it would be necessary to determine the principles on which (a) the price of land should be fixed and (b) payment should be made by the tenant. Depending again upon the local conditions, the most convenient course might be to fix the price of land as a multiple of its rental value, and payment might be made in instalments spread over a period. We suggest that there is advantage in the Government establishing direct contact with tenants upon whom these rights are conferred and collecting land revenue from them rather than through owners, the price of land being recovered along with the land revenue. Payment of compensation to owners of land can be made in bonds much in the manner already adopted or proposed for intermediary rights.

18. Where land is managed directly by substantial owners and there are no tenants in occupation, public interest requires the acceptance of two broad principles:

- (i) There should be an absolute limit to the amount of land which any individual may hold. 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 it is proposed to hold during 1953, will give the data relevant to this decision.
- (ii) The cultivation and management of land held by an individual owner should conform to standards of efficiency to be determined by law.

It is suggested that each State should enact suitable land management legislation. Under this legislation standards of cultivation and management should be laid down. Specific obligations should be prescribed, for instance, in respect of sale of surplus produce to the Government, production and sale of improved seed, wages and conditions of living and employment for agricultural workers etc. The legislation should also provide for suitable machinery for enforcing the various obligations. The legislation could be applied, in the first instance, to those holdings which exceed a limit to be prescribed, which



may be equal to or larger than the limit for resumption for personal cultivation, and future acquisition, depending upon the conditions in a State.

19. As a practical approach to the problem of large individual holdings, it would be best to divide substantial farms which are directly managed by their owners into two groups, namely, those which are so efficiently managed that their break-up would lead to a fall in production, and those which do not meet this test. For the latter category, the land management legislation should give to the appropriate authority the right to take over for the purpose of management the entire farm or such portion of it as might be in excess of the limit for resumption of personal cultivation and, secondly, the right to arrange for cultivation of lands so taken over. For the cultivation of such lands, preference could be given to cooperative groups and to workers on the lands which pass into the control of the land management authority. The proposals made above would provide for a large measure of redistribution of land belonging to substantial owners. In the legislation a date might be indicated with effect from which the law would be enforced in respect of farms in excess of the prescribed limit. Generally speaking, in order to set up the machinery for land management and to undertake the necessary survey before the law can be enforced effectively, a period of about two to three years might be necessary.

Small and middle owners.

20. The expressions 'small' and 'middle' owners cannot be defined precisely but, for most purposes, it might be sufficient to consider owners of land not exceeding a family holding as small owners and those holding land in excess of one family holding but less than the limit for resumption for personal cultivation (which may be three times the family holding) as middle owners. In the case of small and middle owners, the social considerations which apply are of a different order from those relevant to the circumstances of the larger owners. The general aim of policy should be to encourage and assist these owners to develop their production and to persuade them to organise their activities, as far as possible, on cooperative lines. Small owners include many who have uneconomic holdings which are also seriously fragmented. The experience

of consolidation of holdings in Punjab, Madhya Pradesh and Bombay has established the value of this measure for small holders. We suggest that since the idea of consolidation of holdings is well understood by the peasants and they are prepared to meet a large part of the cost, in all States, programmes for the consolidation of holdings should be expanded and pursued with vigour. The second important measure which has been taken in some States for the benefit of small holders relates to the fixation of a minimum holding below which subdivision is not permitted. There has been no investigation yet into the practical working of measures for the prevention of subdivision below a minimum such as have been taken in Bombay and Uttar Pradesh. It is, therefore, difficult to say to what extent they have proved immediately beneficial. They are, however, sound in conception and, while they need to be observed more closely in practice, we think that they could be extended.

21. The suggestion is sometimes made that in the event of redistribution of land belonging to substantial owners, those who have uneconomic holdings should receive additional land in order that their holdings may become economic. The effect of the proposals that we have made earlier in respect of lands of substantial owners will be to confer rights which will develop into ownership mainly on those tenants and workers who are already engaged in the cultivation of lands in excess of the limit for resumption for purposes of cultivation. In the ordinary course, therefore, there may not be much land available for the purpose of enlarging the holdings of uneconomic owners. The problem of uneconomic holdings has certain wider aspects to which we shall refer later. The solution lies more in the direction of evolving a suitable system of cooperative management of the land of a village and the organisation of cooperative farming groups rather than in attempting too many little adjustments in the holdings of individual owners of small plots.

22. Lands belonging to small and middle owners may be divided into two categories, namely, those under direct cultivation, and those leased to tenants-at-will. The problems which the former present are those of finance, technical assistance and organisation of cooperative activity. As regards the latter, two considerations are important. In the first place, any measures which are taken to protect the tenants of small and middle owners should

be simple to administer and, as far as possible, the problems which they raise should be solved at the village level by the people themselves. Secondly, care should be taken to ensure that measures for the protection of small and middle owners do not operate seriously to reduce the movement of the people from rural areas into other occupations, whether in towns or in villages. The pressure on land is already heavy and is growing. Voluntary movement from villages into other vocations has considerable advantage for the development of rural economic life, especially in conditions in which those who go out of the village for work retain their village roots and are encouraged to maintain active sense of obligation towards the village community of which they continue to be members. There is little to be gained by treating the leasing of land by small and middle owners as examples of absenteeism to be dealt with along the same lines as lands belonging to substantial owners which are cultivated by tenants-at-will. At the same time, steps have to be taken to afford adequate protection to the tenants of small and middle owners.

#### Tenants-at-will

23. The central question to be considered in respect of tenants-at-will who are engaged in the cultivation of lands belonging to small and middle owners relates to the terms on which the latter may resume land for personal cultivation. A distinction may be made between those small and middle owners who cultivate themselves and those who do not. Land could only be resumed for cultivation by an owner himself or by the members of his family. We suggest that resumption should be permitted on this ground for the number of family holdings not exceeding three which can be cultivated by the adult workers belonging to an owner's family with the assistance of agricultural labour to the extent customary among those who cultivate their own lands. A period may be proscribed - five years for instance - during which an owner may resume for personal cultivation. If he fails to do so during this period, the tenant should have the right to buy the land he cultivates on terms similar to those suggested earlier for the tenants of the larger landholders.

24. The rights of tenants who cultivate the lands of small and middle owners need to be defined. The two principal questions to be considered relate to the period of tenancy and the rent which the tenant may have to pay. We suggest that the tenancy should ordinarily be for five to ten years and should be renewable, resumption being permitted, as suggested earlier, if the owner himself wishes to cultivate. As regards the determination of rent, in recent years in various States, rents have been steadily reduced. In Bombay the rent of agricultural land was reduced to one-third of the produce (or its value) for unirrigated lands and to one-fourth of the produce for irrigated lands. In the Punjab, rent has been reduced from one-half to one-third of the produce for lands cultivated by owners whose holdings exceed the limit prescribed for resumption for personal cultivation. The determination of rent has to be regarded essentially as a question for consideration in the light of local conditions. The essential principle would appear to be that the rent of land should be

so fixed that, having regard to his expenses of cultivation and other risks, a fair wage remains for the cultivator. While it is difficult to suggest a generally applicable maximum rate of rent, over the greater part of the country, a rate of rent exceeding one-fourth or one-fifth of the produce could well be regarded as requiring special justification.

#### .Landless workers.

25. Schemes of land distribution are likely to confer somewhat restricted benefits on agricultural workers other than tenants. This is because in any scheme of distribution or resettlement the first claim will be that of tenants already working on lands which may be taken over from the larger owners. In view of this difficulty, the contribution which the movement for making gifts of land, which has been initiated by Acharya Vinoba Bhave, has special value, for, it gives to the landless worker an opportunity not otherwise easily available to him.

26. It would be difficult to maintain a system in which, because of accidents of birth or circumstance, certain individuals are denied the opportunity of rising in the social scale by becoming cultivators and owners of land. It is, therefore, necessary to consider the problem in terms of institutional changes which would create conditions of equality for all sections of the rural population. The essence of these change lies in working out a co-operative system of management in which the land and other resources of a village can be managed and developed so as to increase and diversify production and to provide employment to all those who are able and willing to work. The growth of industrialisation and of tertiary services is essential if any schemes of agricultural reorganisation is to succeed. Given this condition, whether the rural economy will expand and its techniques develop rapidly enough will depend largely upon the manner in which it is reorganised.

#### Co-operative farming

27. Small and <sup>un-</sup>economic holdings are at the root of many of the difficulties in the way of agricultural development. With the growing pressure on land, their number is increasing. Where agriculture does not

require much investment, natural conditions are favourable and the cultivators are skillful and industrious, it is possible that the average yield on small farms may be higher than the average for many of the larger farms. The problem in India is to secure a large increase in production over the entire area now under cultivation. This calls for the application on a wide scale of scientific knowledge and increased capital investment in various forms. These conditions are easier to secure where land is worked and managed in fairly large units than in the form of petty and fragmented holdings. In a farm of substantial size it is possible to eliminate several wasteful operations and to ensure better planning of the use of land, including selection of crops, rotation, soil conservation, development of irrigation and introduction of improved techniques. Economies which cannot be availed of by small farms are available to large ones. By its very nature a larger unit of operation and management can secure more credit and finance and can apply these to greater advantage, can diversify its economy and can make a relatively greater contribution to the solution of the country's food problem.

28. For these reasons it is important that small and middle farmers, in particular should be encouraged and assisted to group themselves voluntarily into co-operative farming societies. These societies may be formed on conditions such as the following:-

- (i) The area under a co-operative farming society should not be less than a prescribed minimum. This could be fixed according to circumstances, as, say, four to six times the family holding in an area. It is perhaps not necessary to prescribe a maximum for a co-operative farming society;
- (ii) Preference should be given to co-operative farming societies in the matter of supplies, finance, technical assistance and marketing;
- (iii) In undertaking consolidation proceedings, preference might be given to villages in which co-operative farming societies are formed;
- (iv) Preference should be given to co-operative farming societies in leasing agricultural waste lands belonging to the Government or taken over from private owners with a view to development. Suitable assistance in bringing such lands under cultivation should also be given;

- (v) It could be provided that so long as a co-operative farming society continues, no adverse tenancy rights would accrue against those of its members who might not engage in personal cultivation. The object of this concession is not to affect in any way the rights of existing tenants (as they should enter the co-operative farming society as members) but to encourage individual small and middle owners to join together to form co-operatives.

A widespread extension of the practice of co-operation in non-farm as well as farm operations will be a major determining factor in achieving the rapid re-organisation of the village economy.

#### cooperative village management

29. While the extension of cooperative farming and cooperative activities generally will do much to develop the social and economic life of the village and, in particular, will benefit small and middle landholders, the scope of rural organisation has to be conceived in wider terms. We have referred already to the fact that without a basic reconstruction of the village economy it is not possible to create conditions of equality of opportunity for the landless agricultural workers. Even after the problems relating to lands belonging to substantial owners have been dealt with, there remains considerable disparity of interest between the small and middle owner, the tenant and the landless worker. Concessions to one section at the expense of another may certainly benefit a few, but intrinsically the measures which may be taken may not promote sufficiently the rapid increase of agricultural production or the diversification of rural economic life or the growth of greater local employment. The possibility of achieving greater social justice through regulation of contractual terms between different constituent elements in the village is soon exhausted. Apart from sharpening the conflict of interests within the rural community, proposals for further regulation become in effect proposals for sharing poverty. While the objective of family holdings with increasing emphasis on cooperative methods of organisation may represent the most practical method of translating into practical

## XII

action the principal of 'land for the tiller', the effective fulfilment of this very principle requires that there should be a more comprehensive goal towards which the rural economy should be developed.

30. For several reasons it has become imperative that at the village level there should be an organisation deriving its authority from the village community and charged with the main responsibility for undertaking programmes of village development. In an earlier chapter we have suggested how these functions may be taken over by the village panchayat and how the panchayat may be strengthened for the purpose. In relation to land policy the role of the village panchayat becomes an extremely important one, because there are certain problems which none but the panchayat can deal with. These may be briefly mentioned:

(1) Tenancy legislation frequently proves infructuous because of the lack of administrative arrangements for enforcing it. It is known, for instance, that entries in revenue records relating to personal cultivation are not always correct, where the owners in question have a fear of losing their lands to tenants in the event of future tenancy legislation;

(2) While it is necessary to safeguard the interests of small and middle owners and permit them to resume land for personal cultivation, some way must be found for ensuring that the tenant who is thereby displaced has land to cultivate. It would make for cumbrous arrangements if a small owner's right to resume land for personal cultivation were made subject on each occasion to the proviso that a certain amount of land must be left for cultivation with the person who happens to be his tenant. Proposals of this character, which are sometimes made, do not take into account the fact that they are very difficult to work and will cause much friction and frustration in the daily life of the village community.

(3) It is necessary that tenants, even when they are displaced by small owners, should be able to obtain at least a minimum holding for cultivation. What the minimum should be can be determined with reference to local conditions, but the limit below which under the law, sub-division of holdings is not permitted, may be found to be a useful indication. If, for sheer lack of land, it is not possible to provide a minimum holding, then the obligation to provide work in some other form ensues.



(4) When lands belonging to substantial owners who do not meet the standards of efficiency prescribed by the land management legislation have to be settled with new tenants, the selection has to be made by some organisation at the village level.

(5) The cultivation of village waste lands is the responsibility of the village panchayat and for this purpose arrangements for cultivation these lands have to be made.

31. For the performance of the functions described above, the only answer appears to be that the village panchayat should become the agency for land management and land reform in the village. In other words, in the case of allowners, any leasing of land should be done, not directly, but through the village panchayat. Experience of practical working of restrictions on subletting suggests that these restrictions do not work out well in practice and the need for permitting some subletting is not adequately met through the listing of a few exceptions in favour for instance, of those who are, for any valid reasons, unable to look after their lands. In addition to being the agency through which leases of private lands belonging to small and middle owners take place, the village panchayat has also to be the body principally concerned with the management of lands belonging to substantial owners which are made available for cultivation and for village waste lands. If the village panchayat has all these functions, then it may be possible for it to provide, at any rate, holdings of minimum size for landless cultivators. Its capacity to do so may frequently be limited by the amount of land available in relation to the number of workers who have to be provided. This very factor suggests the need for planning development over groups of villages such as are comprised in community projects, and for vesting in the village panchayat functions which go beyond the management of those lands in the village which are not cultivated by their owners. In other words, the conception of cooperative management has to be extended to include the entire land of the village as well as activities for creating non-agricultural employment and providing social services.

32. The system of cooperative reorganisation which will be found most feasible in practice has to be evolved by village communities out of the practice of cooperation in various directions, and according to their own needs and problems. From the side of the Government what is needed is that village communities should receive sufficient guidance and assistance and, secondly, that the law should give them the means for bringing about the necessary changes in the management of land. There are at present in progress throughout the country a number of experiments in cooperative farming and in the organisation of various activities on cooperative lines. If systematic study of this experience were made, useful suggestions which could assist the progress of cooperative effort throughout the country would emerge. There is need also for an expanding programme of training and experiments in cooperative farming and cooperative organisation. For this purpose, in the Five Year Plan Rs. 50 lakhs have been provided by the Central Government.

33. The second aspect has to be dealt with mainly through the land management legislation. It is suggested that such legislation might include a provision conferring upon the village panchayat rights of management of village lands which are either lying uncultivated or are not directly cultivated by their owners. Secondly, it could be provided that if, for instance, a majority of the owners and occupancy tenants in a village wished to enter upon cooperative management of the land of the village, their decision should be binding on the village as a whole. To ensure confidence among all concerned, it could also be prescribed that those who express themselves in favour of cooperative management should as a body hold permanent rights in at least one-half of the land of the village, no individual holding being reckoned for this purpose in excess of the limit prescribed for resumption for personal cultivation.

34. The primary object of cooperative village management is to ensure that the land and other resources of a village can be organised and developed from the stand-point of the village community as a whole. The rights of ownership are determined by the land reforms legislation of a State. Even after a system of cooperative management is established, the rate of rent or ownership dividend to be allowed to an owner in respect of his land will be determined on the basis of the tenancy laws of a State. What the land management legislation enables a village community to do is to manage the entire area

of a village, both cultivated and uncultivated, as if it were a single farm. According to circumstances, the actual cultivation could be arranged, as might be found feasible, in family holdings, through small groups working blocks of land in the village on cooperative lines or through a combination of arrangements adapted to the operations to be carried out. As techniques develop and the manpower requirements of occupations other than farming increase, still larger blocks of land could be worked cooperatively. According to their needs and experience, village communities will discover the arrangements which serve them best. There has to be a great deal of trial and experiment before patterns of organisation which will best promote the interests of the rural population can be evolved. Nevertheless, it is important to work towards a concept of cooperative village management, so that the village may become a vital progressive and largely self-governing base of the structure of national planning and to the existing social and economic disparities resulting from property, caste and status may be obliterated.

#### **Central organisation for land reforms**

35. In the years following the achievement of freedom, it was natural that State Governments should endeavour to translate their programmes of land reform into action with the utmost speed. Some States carried out exhaustive enquiries before undertaking legislation. These enquiries were quite adequate for the first steps in land reform which related to the abolition of intermediary rights. Detailed information concerning the holding and cultivation of land, to which reference has been made earlier can be collected from village records. As a rule, however, such information is not available in the form and detail now required for a State as a whole or for individual districts. The stage has now been reached when new measures of land reform should be based on objective assessment of the working of measures already introduced. Since land reform affects every aspect of rural life, the evaluation of land reform programmes requires trained investigators. Within each State, therefore, there is need for some machinery for investigating and reporting upon the progress of measures of land reform. In the Central Government also there is need for an organisation which could pool knowledge and experience gained in the States and could suggest lines for further investigation. When millions of persons are affected by measures proposed by the Central Government or by the States or by political parties, it becomes a matter of the greatest importance that proposals should be tested with reference to data which have been correctly ascertained and embody experience which has

been carefully evaluated. Equally, it is important to maintain a continuous record of information concerning progress in the implementation of land reform programmes adopted by the States. To assist in the process, we recommend the establishment in the Central Government of a land reforms organisation. The details of the organisation which will be needed in connection with the implementation of a land national programme of such vital importance as reform will need to be worked out carefully. We believe that such an organisation will prove to be of considerable value both to the Central Government and the States and will help the progress of land reforms.

/land

Annexure

Size of holdings

(Proprietary and occupancy holdings)

(Figures in thousands)

Size group	Number of holdings	Percentage of holdings	Area (acres)	Percentage of area	Remarks
1.	2.	3.	4.	5.	6.
<b>1. <u>UTTAR PRADESH</u></b>					
0-5	9,971	81.2	16,024	38.8	The entire occupied area prior to merger which was 90% of the present occupied area, was included in the inquiry.
5-10	1,563	12.7	10,824	26.1	
10-16	440	3.6	5,464	13.2	
16-25	190	1.6	3,694	9.0	
Over 25 acres	114	0.9	5,310	12.9	
<b>Total:</b>	<b>12,278</b>	<b>100.0</b>	<b>41,316</b>	<b>100.0</b>	
<b>2. <u>BOMBAY</u></b>					
0-5	1,313	52.31	3,672	14.00	Figures relate to the entire ryotwari area prior to merger.
5-15	707	28.18	6,548	24.95	
15-25	274	10.90	5,163	19.68	
25-100	201	8.02	8,114	30.92	
100-500	14	0.57	2,314	8.82	
500 over	1*	0.02	428	1.63*	The actual number is 563
<b>Total:</b>	<b>2,510</b>	<b>100.00</b>	<b>26,239</b>	<b>100.00</b>	

1.	2.	3.	4.	5.	6.
<b>3. MADHYA PRADESH</b>					
0-5	1,296	51.5	2,856	10.0	Figures relate to 77 per cent of the total occupied area of the State (The remaining 23 per cent area not covered by the inquiry forms part of the merged territories.
5-10	493	19.5	3,528	12.0	
10-20	375	14.8	5,656	18.6	
20-50	269	10.7	8,453	28.9	
50-100	63	2.5	4,110	14.0	
100-500	26	0.9	3,680	12.9	
500 over	0.93	0.04	1,067	3.6	
<b>Total:</b>	<b>2,522.93</b>	<b>100.0</b>	<b>29,350</b>	<b>100.0</b>	

<b>4. ORISSA</b>					
0-5	N.A.	74.2	N.A.	30.1	The data are based on a sample survey conducted in different parts of the State covering an area of 60,230 acres.
5-10	N.A.	15.3	N.A.	22.0	
10-20	N.A.	7.1	N.A.	20.8	
20-50	N.A.	3.0	N.A.	17.1	
50-100	N.A.	0.3	N.A.	4.1	
over 100 acres	N.A.	0.1	N.A.	5.9	
<b>Total:</b>		<b>100.0</b>		<b>100.0</b>	

<b>5. BIHAR</b>					
0-5	N.A.	83.3	N.A.	N.A.	The data are based on a sample survey which was not considered adequate. The figures are, therefore, to be taken as indicative of the general situation.
5-10	N.A.	3.4	N.A.	N.A.	
10-15	N.A.	7.8	N.A.	N.A.	
15-30	N.A.	2.5	N.A.	N.A.	
30-50	N.A.	2.0	N.A.	N.A.	
50 acres and above	N.A.	1.0	N.A.	N.A.	
<b>Total:</b>		<b>100.0</b>			

<b>6. ASSAM</b>					
0-5	N.A.	66.1	N.A.	26.0	The sample survey relates to 26,000 acres comprised in 5295 holdings..
5-10	N.A.	22.5	N.A.	32.9	
over 10 acres	N.A.	11.4	N.A.	41.1	
<b>Total:</b>		<b>100.0</b>		<b>100.0</b>	

	1.	2.	3.	4.	5.	6.
<b>7. MADRAS</b>						
Holdings assessed on:						
1. Rs. 10 and less	5,906	82.2	11,356	41.2	The data relate to the ryotwari area which represents about 82 per cent of the total area and represents estimates.	
2. Over Rs.10 but not exceeding Rs.30	822	11.4	7,504	27.2		
3. Over Rs.30 but not exceeding Rs.50	264	3.7	2,826	10.2	The holdings include joint pattas. The area comprised in individual holdings in the larger size groups may, therefore, be considerably smaller.	
4. Over Rs.50 but not exceeding Rs.100 (23-45 acres)	137	1.9	2,337	8.5		
5. Over Rs.100 but not exceeding Rs. 250 (45-114 acres)	46	0.6	1,692	6.0		
6. Over Rs.250 (over 114 acres)	14	0.2	1,876	6.9		
Total:	<u>7,189</u>	<u>x.100.0</u>	<u>27,591</u>	<u>100.0</u>		
<b>8. MYSORE</b>						
0-5	820	66.2	2,061	25.3	The entire area of the State was included in the inquiry.	
5-10	265	21.2	2,002	24.0		
10-50	144	11.4	2,898	35.0		
50-100	11	0.9	856	10.3		
100-500	2	0.2	379	4.6		
over 500	0.1	0.1	67	0.8		
		(Below)				
Total:	<u>1,242</u>	<u>100.0</u>	<u>8,263</u>	<u>100.0</u>		
<b>9. TRAVANCORE-COCHIN</b>						
0-5	1,541	94.1	1,322	44		
5-10	56	3.4	368	13		
10-15	21	1.3	253	9		
15-25	11	0.7	207	7		
25-50	4	0.3	158	5		
50-100	2	0.1	118	4		
over 100	1	0.1	493	18		
Total:	<u>1,636</u>	<u>100.0</u>	<u>2,914</u>	<u>100</u>		

AIV

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1.	2.	3.	4.	5.	6.
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10. PERSU

0-5	239	45.4	518	8.2	The entire area of the State was included in the inquiry.
5-10	93	17.6	680	10.7	
10-20	107	20.3	1,572	24.8	
20-50	771	13.4	2,072	32.6	
50-100			543	8.6	
100-500 over 500	17	3.3	227	3.5	
<b>Total</b>	<b><u>527</u></b>	<b><u>100.0</u></b>	<b><u>6,347</u></b>	<b><u>100.0</u></b>	

11. DELHI

	N o t	a v a i l a b l e		
0-10			10	N.A.
10-20	30	N.A.	45	N.A.
20-50	1	N.A.	17	N.A.
50-100	0.2	N.A.	13	N.A.
over 100	0.1	N.A.		
<b>Total:</b>	<b><u>31.3</u></b>	<b>-</b>	<b><u>85</u></b>	<b>-</b>

12. HIMACHAL PRADESH

0-5	69	95.0	83	71	The data relate to Chamba district only.
5-10	2	3.0	13	11	
10-15	1	2.0	12	10	
over 15	1	0.1	1	8	
<b>Total:</b>	<b><u>73</u></b>	<b><u>100.0</u></b>	<b><u>119</u></b>	<b><u>100</u></b>	

13. COORG

0-5	42	76.0	128	30.0	The entire area of the State is included.
5-10	7	12.0	54	13.0	
10-15	3	5.0	31	7.0	
15-25	2	3.0	34	8.0	
25-50	1	2.0	31	7.0	
50-100	0.5	1.0	35	8.0	
100-500	0.4	1.0	95	23.0	
over 500	0.02	-	15	4.0	
<b>Total:</b>	<b><u>55.9</u></b>	<b><u>100.0</u></b>	<b><u>423</u></b>	<b><u>100.0</u></b>	

Percentage of cultivators according to size of holding.

14. WEST BENGAL

	According to Floud Commission's Report (%)	According to the 1951 census (%)
0-2 acres	41.9	34.4
2-4 acres	20.6	27.6
over 4 acres	37.5	38.0

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XIV

1.	2.	3.	4.	5.	6.
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7. MADRAS

Holdings assessed on:

1. Rs. 10 and less	5,906	82.2	11,356	41.2	The data relate to the ryotwari area which represents about 82 per cent of the total area and represents estimates.
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		(Below)			
Total:	<u>1,242</u>	<u>100.0</u>	<u>8,263</u>	<u>100.0</u>	

9. TRAVANCORE-COCHIN

0-5	1,541	94.1	1,322	44
5-10	56	3.4	368	13
10-15	21	1.3	253	9
15-25	11	0.7	207	7
25-50	4	0.3	158	5
50-100	2	0.1	118	4
over 100	1	0.1	493	18
Total:	<u>1,636</u>	<u>100.0</u>	<u>2,914</u>	<u>100</u>

1.	2.	3.	4.	5.	6.
<b>10. PEPSU</b>					
0-5	239	45.4	518	8.2	The entire area of the State was included in the inquiry.
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50-100			543	8.6	
100-500 over 500	17	3.3	227	3.5	
<b>Total</b>	<b>527</b>	<b>100.0</b>	<b>6,347</b>	<b>100.0</b>	

**11. DELHI**

	Not available			
0-10	30	N.A.	10	N.A.
10-20	1	N.A.	45	N.A.
20-50	0.2	N.A.	17	N.A.
50-100	0.1	N.A.	13	N.A.
over 100				
<b>Total:</b>	<b>31.3</b>	<b>-</b>	<b>85</b>	<b>-</b>

**12. HIMACHAL PRADESH**

0-5	69	95.0	83	71	The data relate to Chamba district only.
5-10	2	3.0	13	11	
10-15	1	2.0	12	10	
over 15	1	0.1	1	8	
<b>Total:</b>	<b>73</b>	<b>100.0</b>	<b>119</b>	<b>100</b>	

**13. COORG**

0-5	42	76.0	128	30.0	The entire area of the State is included.
5-10	7	12.0	54	13.0	
10-15	3	5.0	31	7.0	
15-25	2	3.0	34	8.0	
25-50	1	2.0	31	7.0	
50-100	0.5	1.0	35	8.0	
100-500 over 500	0.4 0.02	1.0 -	95 15	23.0 4.0	
<b>Total:</b>	<b>55.9</b>	<b>100.0</b>	<b>423</b>	<b>100.0</b>	

Percentage of cultivators according to size of holding..

**14. WEST BENGAL**

	According to Flood Commission's Report (%)	According to the 1951 census (%)
0-2 acres	41.9	34.4
2-4 acres	20.6	27.6
over 4 acres	37.5	38.0

## CHAPTER XIII

### THE AGRICULTURAL WORKER

#### Magnitude of the Problem.

The expression 'Agricultural Workers' denotes those rural workers who are employed on wages in agricultural occupations. In the census of 1951, out of a total rural population of 295 million, 249 million are shown as being engaged in agriculture. Of these, 18 percent were returned as cultivating labourers and their dependents. The census classified the agricultural population into four classes, namely, (1) cultivators of land, wholly or mainly owned; (2) cultivators of land wholly or mainly unowned; (3) cultivating labourers; and (4) non-cultivating owners of land. Cultivating labourers were broadly defined as employees of cultivators. Since, for varying periods, small owners, tenants and artisans find themselves working as cultivating labourers, the line between agricultural workers and the other agricultural groups is subject to marginal shifts and agricultural workers may be broadly described as a residuary group in the rural community.

2. In the past, not enough attention has been given to the problems of agricultural workers and information concerning the conditions under which they live and work has been extremely meagre. Since 1949 the Central Government have been engaged in carrying out a comprehensive enquiry for the collection of data on employment, earnings, standard of living and indebtedness of agricultural workers. The object of this enquiry was to enable the Central and State Governments to initiate protective and ameliorative measures, including the fixation of minimum wages. For the purpose of this enquiry, an agricultural labour family was defined as one in which either the head of the family or 50 per cent or more of the earners reported agricultural labour as their main occupation. The field operations under the Agricultural Labour Enquiry, which embraced 813 villages selected on the basis of random sampling and 104,000 families all over the country, have now been concluded and the data are under study. The enquiry has helped already to draw attention to the significance of the

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agricultural worker in the country's future development and its results are likely to be of material assistance in drawing up programmes for agricultural workers.

3. Until the data obtained in the agricultural labour enquiry become available, any assessment of the magnitude of the problem of agricultural workers for the country as a whole has to be based on the returns of the census of 1951. The census shows wide variations in different parts of the country in the proportion of the agricultural population who constitute agricultural workers. Among the States in which agricultural workers constitute substantial sections of the agricultural population are Travancore-Cochin (37%), Bhopal (31%), Madras (28%), Madhya Pradesh (27%), Bihar and Hyderabad (25%) and West Bengal (21%). Bombay, Orissa, Punjab, Madhya Bharat and Pepsu have an agricultural labour population varying between 12 to 15 per cent. Among the larger States, Uttar Pradesh has the lowest percentage (8%).

4. Agricultural workers may be classified broadly into two groups, namely, 'casual' workers and 'attached' workers. Casual workers are by far the larger group, representing in the recent enquiry undertaken by the Government of India, as many as 89 per cent of the total number. In this enquiry, 'attached' workers were defined as those who had continuous employment for one month or more at a time. The proportion of 'attached' workers is higher in some States, being about 24 per cent in the Punjab, 22 per cent in Bihar and 20 per cent in U.P. as compared, for instance, to about 6 per cent in West Bengal. Recent enquiries suggest that the period of unemployment for agricultural workers ranges from three to six months, interspersed in different seasons during the year. Plantation workers, who number about 1.2 million, constitute a distinct class of agricultural workers who are perhaps closer to industry than to agriculture.

5. Another class of agricultural labourers consists of those who leave their villages in groups for fairly long terms in search of employment. A large number of them can be seen in the more important cities without practically any shelter. As the influx of such workers is likely to continue, a first step should be to provide clean camp sites equipped with water supplies and sanitary arrangements. This would also reduce the risk of epidemics in the cities. A sample survey of such

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rural economy on cooperative lines, one of the major objects in view is to carry out changes which will rapidly place the agricultural worker in a position of equality in status and opportunity with other sections of the village community. As the economy as a whole develops, an increasing number of workers will be drawn away from the village, so that both those who move out of the village and those who remain in the village are likely to obtain more adequate employment. In addition to the industrial programmes in the Plan and those relating to transport and other fields of economic life, the Plan contains important programmes for village industries and the promotion of khadi. These will be of direct benefit to agricultural workers.

8. Agricultural labour populations are concentrated most in areas where population presses heavily on the land and the development in sectors of the economy other than the agricultural has been retarded. By selecting such areas for special programmes such as community development projects, it should be possible to make a distinct contribution to the problem of rehabilitating agricultural workers, for increase in the tempo of development is the effective answer to the problem of unemployment and under-employment.

9. . While a number of different programmes in the Five Year Plan will promote the interests of agricultural workers, special mention may be made of two which bear directly on their welfare. In the plans of State Governments about Rs 23 crores are provided for the amelioration of backward classes. About two-thirds/classes other than scheduled tribes, of whom a large proportion are to be counted among the agricultural workers. The Central Government's plan has also provided a sum of Rs 4 crores for the welfare of scheduled castes and other backward classes, in addition to programmes for scheduled tribes and scheduled areas. Furthermore, in the Central Government's Plan a sum of Rs 2 crores has been set aside for resettlement schemes for landless agricultural workers.

#### Minimum wages.

10. Under the Minimum Wages Act, State Governments are required to fix minimum rates of wages for agricultural labour by the end of 1953. The legislation permits them to fix minimum wages for such portions of the territories or for such

persons might give valuable information about their condition.

#### Approach to the problem.

6. The existence of large numbers of agricultural workers who lack sustained employment and frequently suffer from social handicaps is to be regarded as a source of serious weakness and even of instability in the present agrarian system. With the decline in rural industry, many artisans have become part-time labourers. The increase in fragmentation and sub-division of holdings has driven many peasant farmers to seek casual labour. Reduction in the larger farms which has been in progress in consequence of tenancy legislation leads to a diminution in the amount of higher employment which may be available. Few agricultural workers are dependent on agricultural labour alone; commonly they also combine other casual work with agricultural labour. Generally, agricultural workers have short periods of intensive employment, for instance, at harvest time or in sowing season or when cotton is picked. As compared to the farmer, the agricultural workers problem, is perhaps in a larger measure one of unemployment rather than of under-employment, but the degree of unemployment depends almost entirely on the character of local agriculture and on the distance from urban centres.

7. The Five Year plan has to be viewed as a comprehensive programme to remove the social and economic causes which account for the present condition of the agricultural workers. As a section of the village community, the economic condition of the agricultural workers depends upon the state of prosperity in the agricultural economy. The programmes under the Five Year Plan aim at increasing agricultural production substantially. Extension of irrigation, intensive cultivation and improvement in agricultural practises will increase rural employment and thus afford greater opportunity to agricultural workers. Through measures related to land reform many tenants, who are also in some part agricultural labourers, will obtain security and greater protection and will be on the way to becoming owners. Some land, especially that which is not now under the cultivation of tenants, will also be available for agricultural workers. It will be recalled that in making proposals for the reorganisation of the

classes of employment as they might consider feasible. In most States steps to implement the legislation have already been initiated. In nine States, including Punjab and Uttar Pradesh, minimum wages have been fixed. In Uttar Pradesh minimum wages have been fixed <sup>(already</sup> for farms over 50 acres in twelve districts. In a number of States draft proposals are at present under final scrutiny. Enquiries to ascertain low wage pockets are in progress as in Madras. The enforcement of minimum wages for agricultural workers in low wage pockets, for the larger farms and in areas selected for intensive development should be regarded as an important aspect of the programme for improving the conditions of agricultural workers and should receive high priority. We suggest that progress in the implementation of the minimum wage legislation should be reviewed from time to time at inter-State Conferences, so that experience gained in meeting common problems may be pooled and the implementation of the legislation expedited.

#### House sites.

11. Agricultural workers, not being owners of land in a village, are seldom the owners of the sites on which their houses are constructed. This makes them dependent on the consent either of individual owners of land or of village proprietary bodies. Landless workers holding temporary rights over house-sites in a village should be granted rights of occupancy in them. Where the house-sites are the common property of a village, the village panchayat should be placed under obligation to grant the sites free of charge to agricultural workers who may be in occupation of them. Even where the sites belong to individuals, by persuasion if possible and by legislation if necessary, the sites should be transferred in occupancy right to the landless workers who may be in possession of them. Such provision for compensation as may be unavoidable should be made and the obligation imposed upon village panchayats to provide the sites free of charge to the landless workers either by obtaining these by way of gift from the owners in question or by settling directly with the owners. In some areas the existing village site is so congested that a new village site has to be provided for further extension. The landless, and particularly the Harijans, should be fully represented in the allotment of sites in such extensions and, wherever possible, an effort should be made to provide small allotments for kitchen-gardens. In the State programmes for amelioration of backward classes, the provision of house sites and of small backyards should receive special emphasis.

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12. Full support should be given to the movement initiated by Acharya Vinoba Bhave for securing land/gifts for the landless by providing means of cultivation and other assistance to landless labourers selected for the allotment of the gifted land. The movement has considerable moral value and, if pressed forward, holds promise of relief in meeting some of the urgent problems of landless workers. The State Governments could make it a permanent feature of the work of rural development which might continue beyond the pioneering phase.

#### Labour cooperatives.

13. With the assistance of the cooperative staff, the irrigation, buildings and roads, forest and agricultural departments and other Government agencies in the States should try and organise cooperatives of village labourers. Under the technical guidance of their officials, these cooperatives should be encouraged and enabled to take up contracts for specific pieces of construction work. The success of forest labourers' societies in Bombay and of certain other similar efforts elsewhere suggests that, given suitable encouragement and assistance, the formation of labour cooperatives of rural unemployment and, in addition, make it possible for the government to assist more adequately with social welfare schemes and other ameliorative measures.

#### Resettlement schemes for landless workers.

14. Blocks of newly reclaimed land as well as culturable waste land should be set apart, wherever possible, for the settlement on cooperative lines of groups of landless agricultural workers and of holders of small, uneconomic plots of land. Even though the amount of land which could be thus made available would be limited and the proportion of agricultural workers who could be benefited might be small, the existence of such a scheme in each State could become a source of hope and encouragement in the lives of many families of agricultural workers and would go far to arouse confidence and enterprise in them. Within the scope of the programmes included in the Plan, there is considerable opportunity for



organising cooperative settlements and colonisation schemes for agricultural workers and, as a matter of policy, the fullest use should be made of these possibilities. As already mentioned, the Plan makes a special financial provision to promote resettlement schemes for agricultural workers.

15. Being without land, agricultural workers have no security to offer. As a rule, therefore, they do not become eligible for financial assistance from the Government. While individual loans may present certain administrative difficulties, we suggest that State Governments should formulate schemes for granting financial assistance to cooperative groups of landless workers for such purposes as house building, purchase of bullocks and implements and for ancillary industries which they may wish to take up after suitable training under the auspices of Government. Special assistance by way of educational stipends and for vocational and technical training should also be afforded, as indeed is already being done in most States.

16. In the past, there has been no agency on behalf of the Government for dealing with the social and economic problems of agricultural workers. The extension organisation in the districts, whose early establishment we propose elsewhere in this report, should concern itself with the problems of welfare and employment of agricultural workers no less than with those of agriculturists and every effort should be made to bring home to village panchayats their responsibility for the welfare of the agricultural worker equally with that of other sections in the community.

## CHAPTER XIV

### PROGRAMME FOR AGRICULTURE

In an earlier chapter we have indicated the shortages which exist in respect of food grains and the principal commercial crops. The problems of agricultural shortages has been intensified by certain special circumstances which arose during recent years, namely, the loss on account of Partition of about 20 million acres of irrigated land and the imperative need since 1949 of reducing the dependence of the jute and cotton industries on imported raw-materials. The programmes outlined in this chapter seek to overcome or reduce these deficiencies, to the extent possible, in respect of the major crops, namely, foodgrains, cotton, jute, oil seeds and sugarcane.

#### Production targets

2. The production targets in the Five Year Plan have been reached on the basis of programmes of works which aim at making specific additions to the existing production potential in each State. These programmes include, for instance, measures to bring additional areas under irrigation, to reclaim and develop new lands or bring fallow lands back to cultivation, and to extend the use of manures fertilisers and of improved seeds. In assessing the agricultural targets which are proposed, three considerations need to be kept in view. In the first place, allowance for seasonal variations cannot be made in advance; these variations are inherent in agricultural production itself and may extend to as much as 10 per cent of the average production thus upsetting all calculations. Secondly, through crop-cutting experiments and other tests, fairly reliable yardsticks about the production effects of different measures are now available for a number of States. In addition, as far as possible, in suggesting the targets every State has tried to take into account its own experience over the past few years. In the third place, estimates of increased production resulting from the programmes have been made on a cautious.

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basis, especially in respect of schemes for the increased use of improved seed and manures and fertilisers. It is true that through improved agricultural practices and double cropping it is possible to secure a substantial increase in production in the course of a few years. On the other hand, until there is sufficient assurance that these practices have become part of the normal operations of agricultural in any area, there is some risk of over-estimation of the possible benefits which may be anticipated.

3. The targets of additional production envisaged in the Plan are as follows:-

Commodity	Quantity (in millions)	Percentage increase
Foodgrains	7.6 (tons)*	14
Cotton	1.26 (bales)	42
Jute	2.09 (bales)	63
Sugarcane	0.7 (tons)	12
Oilseeds	0.4 (tons)	8

These targets have been arrived at as a result of prolonged discussion with State Governments. They were first worked out in the summer of 1951 and early in 1952 the programmes on which they were based were reappraised in considerable detail in a series of conferences with representatives of individual State Governments. As a result of the re-appraisal the targets for cotton, jute, sugarcane and oilseeds were those indicated above. In regard to foodgrains, however, as against the initial target of 7.2 million tons, re-appraisal indicated a total increased production over the five year period of only 6.5 million tons. If allowance were to be made for diversion of area from foodgrains to commercial crops, the net increase in the production of foodgrains worked out to about 6.0 million tons. The diversion in the area from food to commercial crops of vice versa does not follow a fixed pattern from year to year and is governed by various considerations such as seasonal factors, rotation of crops changes in prices and the ability of the growers to finance the operations\*\*

\* The target of 7.6 million tons of foodgrains would roughly comprise about 4 million tons of rice, 2 million tons of wheat, a million tons of gram and pulses and 0.5 million tons of millets.

\*\* A considerable diversion to commercial crops has already taken place during 1951-52

4. The shortfall in the original targets was recently examined by the Grow More Food Enquiry Committee. The Committee recommended additional measures so that, at the very least, the target for foodgrains proposed in 1951 for the five year period could be realised. The agricultural programme, as now presented, consists of two parts, namely, (a) schemes of State Governments, which together account for a total net food production target of 6.0 million tons to be achieved at a total cost of Rs. 125. crores; and (b) supplementary schemes proposed by the Planning Commission with a view to achieving additional food production of at least 1.6 million tons. The detailed break-up of the agricultural targets given in this chapter relates to the schemes of State Governments. During the course of implementation of the Plan, the additional schemes will be further considered in consultation with State Governments, and incorporated into the programmes of individual States. The measures now proposed as supplementary to those already included in the State programmes are as follows:-

	(Rs. crores)
(1) Additional provision for minor irrigation works	30
(2) Additional programme for the construction of tubewells.	6
(3) National extension organisation for intensive area development	3
(4) Supplementary allotment for Grow More Food during 1952-53	10
(5) Community Projects, including 55 projects already initiated	90

Two other measures may be mentioned. In the later stages of the Plan it is expected that the fertiliser programme will be substantially enlarged. The Plan also provides for agricultural finance on a very much larger scale than has been hitherto considered possible. It is now expected that in accordance with the recommendations of the Grow More Food Enquiry Committee, by 1955-56 short-term finance to the extent of Rs. 100 crores will become available to the farmer from the Government and through the co-operative movement. During the period of the Plan about Rs. 25 crores are likely to become available

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by way of medium-term finance and at least Rs. 5 crores by way of long-term finance. These proposals for agricultural finance, which are described more fully in a later chapter, include the amount of finance at present made available through government agencies and the co-operative movement.

5. The precise effects on production of the expanded programmes referred to above are at present difficult to estimate in detail. They will depend upon the actual programmes which are adopted in consultation with the States. On the basis of past experience it is considered that an increase of 1.6 million tons in the production of food grain over and above the net estimate of 6.0 million tons on account of the present State programmes would be a cautious anticipation. Additional minor irrigation works are expected to provide an increase in food production of 0.6 million tons, community projects and intensive development area projects of 0.5 million tons, and the additional fertiliser programme of a further 0.5 million tons. Although these details have necessarily a tentative character, the general conclusion indicated above follows from the substantial increase in agricultural investment that is now contemplated and the steps which are being taken to create the necessary extension organisation. Depending upon the distribution of the additional investment as between different States, some increase in the production of commercial crops is also to be expected; for the present, however, the targets already worked but are being retained.

6. Whereas after the achievement of the targets outlined above the deficiency in food grains will have been largely met, gaps would still remain in respect of the commercial crops, though they will be considerably reduced. The Plan, therefore, provides for imports upto 1.2 million bales of cotton and 0.8 million bales of jute.

### The programme.

7. The increase of 6.5 million tons in food production through programmes worked out by State Governments as distinguished from the supplementary programmes mentioned in paragraph 4, is expected to be achieved as follows:-

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	(million tons)
Major irrigation works.	2.01
Minor irrigation works.	1.78
Land reclamation and development.	1.51
Manures and fertilizers.	0.65
Improved seeds.	0.56
	<u>6.51</u>

The break-up of 6.5 million tons by States is given in Appendix I to this chapter. The total area expected to receive irrigation from major and minor irrigation works during the period of the Plan is outlined in Appendix III. Including 3 million acres to be irrigated as a result of the additional minor works programme costing Rs. 30 crores, to which reference has been made above, the total areas which will come under irrigation during the period of the Plan is 19 million acres. Of this, minor irrigation works account for 11 million acres, as below:-

	(million acres.)
(a) Schemes of State Governments	
1. Dams and channels	4.4
2. Wells (new and repaired)	1.6
3. Tube-wells (other than those included under major irrigation)	0.7
4. Tanks (improvement and construction).	0.8
5. Pumping installations	<u>0.7</u>
Total	8.2
(b) Additional minor irrigation programme (Rs. 30 crores)	3.0
Total (a + b)	<u>11.2</u>

The details of the minor irrigation programme included in the State Plans will be found in Appendix IV. The total cost of the minor irrigation schemes including the special provision of Rs. 30 crores comes to about Rs. 77 crores. In addition, about a third of the expenditure

on development in a community project is devoted to irrigation so that, with the progress of community projects, a larger area than that indicated above is likely to receive irrigation from minor works. In the execution of the minor irrigation programme three considerations have to be kept in view. Firstly, the schemes should be selected after a proper survey of the potentialities. Secondly, in selecting schemes a priority should be accorded to existing works which have gone out of use for lack of repairs and can be repaired at reasonable cost. Lastly, the benefits of minor irrigation schemes have been seen not to last for long for want of adequate arrangements for their repair and it is, therefore, necessary that the responsibility for the maintenance of the works be placed on local communities and, if necessary, a cess levied for the purpose.

8. The programme for land reclamation and development, on which a total sum of Rs. 25 crores is provided in State Plans and Rs. 10 crores in the Central Plan on account of the Central Tractor Organisation, envisages the reclamation of about 7.4 million acres of land. Of this, the Central Tractor Organisation is expected to reclaim 1.4 million acres and State Tractor Organisations 1.2 million acres. Reclamation by farmers with the assistance of State Governments and measures to bring recent fallows back into cultivation are expected to result in the development of a total area of 4.8 million acres. The bulk of this area lies in Hyderabad and Madhya Pradesh. It is important that in their agricultural programmes these two States should make adequate administrative arrangements to ensure that the proposed reclamation programme will be fulfilled. The Central Tractor Organisation expects to reclaim during the five year period, 474,000 acres in Madhya Pradesh, 238,000 acres in U.P., 300,000 acres in Madhya Bharat, 400,000 acres in Bhopal and 4,000 acres in Vindhya Pradesh. Several States have been building up their own tractor organisations. Details of area to be reclaimed in different States under the Plan are given in Appendix V. The Plan also provides for land improvement operations such as bunding and drainage to the extent of about 3 million acres and extension of mechanised cultivation to the extent of 3.4 million acres. Details of these also programmes are given in Appendix V.

9. Although the use of fertilisers has developed fairly rapidly during the past few years, there is considerable scope for further expansion and estimates of fertiliser requirements proposed in relation to the Five Year Plan may be considered moderate. Agricultural programmes of the States assume an

annual supply of 446,000 tons of nitrogenous fertilisers, 79,000 tons of superphosphates and 20,000 tons of bonemeal. It is expected, however, that during the course of the Plan the quantities which would in fact be available, after allowing for plantations and industries and assuring imports at an annual figure of about 150,000 tons, will be 600,000 tons of nitrogenous fertilisers and 176,000 tons of superphosphates in addition to 50,000 tons of bonemeal. It, therefore, follows that if imports are at the level indicated above, and additional fertiliser programme to the extent of about 300,000 tons can be undertaken by the end of the Plan. It is proposed to work out programmes for the utilisation of additional quantities of fertilisers. Some increase in production as a result of the increased use of organic manures which are locally available and constitute one of the most important items of rural extension work is also expected, but a quantitative estimate is not at present possible.

#### Commercial Crops.

1. Production programmes for commercial crops and, in particular, for cotton and jute are more recent than those for food crops. Programmes prepared for individual crops sometimes overlook the fact that, except for the price factor, the basic conditions which favour increase in production in one direction also favour increase in production in others. Agricultural production in any area should, therefore, always be viewed and planned for as one whole. Administratively, production programmes for commercial crops have not yet been fully integrated with those relating to food crops. In respect of programmes for commercial crops, the Central Government are guided mainly by the views of commodity committees for cotton, jute, sugarcane, and oil seeds. The commodity committees for cotton, and oil seeds derive their resources from special cesses while finance for sugarcane is provided from excise funds. These Committees are expected to finance the production programmes during the period of the Plan as follows:

Cotton	3.5 crores
Sugarcane	1.3 crores
Oilseeds	0.5 crores



For jute there is no separate cess and the Plan provides a sum of Rs. 50 lakhs. The break-up of the targets by States for commercial crops has been given in appendix II.

11. Production targets for commercial crops which were worked out in the summer of 1951 and were reassessed early this year assume the continuance, broadly speaking, of the structure of relative prices between foodgrains and other crops which prevailed at the time. It is obvious that the production of these crops is influenced by price changes to a much greater extent than food production. It is, therefore, important to stress that during the period of the Plan any attempt to offer price incentives of a varying order for different crops should be avoided. Secondly, the maintenance of adequate degree of control over the prices of different agricultural commodities continues to be the essential condition of all agricultural planning. Here it is sufficient to state that excessive price stimuli in favour of some crops, either through deliberate alteration of prices or through relaxation of controls, may frequently have the effect of jeopardising the achievement of the agricultural targets under the Five Year Plan. Price policy remains therefore, a pre-eminent factor in the fulfilment of the agricultural plan.

#### Other agricultural products.

12. Besides foodgrains, oil-seeds and sugar-cane, the production of fruits, vegetables, fish, milk and dairy products, which constitute important elements in the diet of the people, has to be systematically encouraged. Proposals relating to the production of fish, milk, and dairy products are described in subsequent chapters. It is considered that fish production might increase by about 50 per cent, from 1.0 million tons in 1950-51 to 1.5 million tons in 1955-56. Milk yields may increase by about 20 per cent as a result of improvement in the breed of cattle and increase in the availability of fodder and feeds. Schemes for increasing the production of fruits and vegetables and other subsidiary foods e.g. potatoes and tapioca, figure in the programmes of some of the States and also qualify for assistance from the Centre as 'Grow More Food' schemes. It is not, however, possible to assess precisely the cumulative effect of these schemes. With the establishment of a adequate extension service, the implementation of these schemes may be expected to become more sustained than it is at present. The problem

## The effects of the Plan.

14. It is difficult to forecast the effect of the agricultural programme on the crop pattern with any degree of precision. This is due to the fact that the decision of the cultivator to raise a crop is based on factors like prices, weather conditions, availability of capital resources, and supplies which vary from season to season. Even rice and wheat acreage gets diverted to crops like sugar cane, fruits and vegetables when irrigation is provided. Sugarcane, cotton and jute afford recent examples of the effect of prices on the crop pattern. Improvement in transport facilities, growth of urban areas, changes in food habits also at times affect the acreage under different crops. The influence that even one of these factors exercises has to be studied in detail so that some basis for making estimates might become available. On the strength of the material available to us and taking into account the fact that the cropped and irrigated areas are likely to increase by 10\* and 19 million acres respectively, the following pattern of crops may be anticipated at the end of the period of the Plan.

	( Area in million acres)		Figure subject to change
	1950-51	1955-56	
Rice	76.0	80.0	
Wheat	24.0	27.0	
Other cereals	93.0	90.0	
Grains and pulses	47.2	49.0	
Cotton	14.6	17.0	
Jute	1.4	2.0	
Sugarcane	4.2	4.5	
Oil seeds	26.7	27.0	
Fruits and vegetables	5.0	6.0	
Other crops.	23.6	24.6	
	-----	-----	
	317.1	327.6	
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\* This includes 7.4 million acres of reclaimed area and anticipated increase of 3 million acres in double cropped area.

## agricultural planning

14. In presenting the programmes described in this chapter, it may be useful to say a word about some of the implications of agricultural planning. The national targets of additional production or targets proposed for individual States indicate in a broad way the magnitude of the effort that is contemplated. They are of material assistance in laying down overall policies concerning prices of agricultural commodities and the allocation of resources for different programmes. They are, however, no more than a starting point for the actual planning which has to be done at different levels, from the village upwards. Agricultural production is subject to so many hazards that under the most favourable conditions any targets that may be proposed are essentially rough estimates which may be realised if certain assumptions hold good. In each State the targets have to be broken up by district and, within each district, by tahsils or taluks. Where the programmes already contemplated do not seem to produce the desired results, provided the necessary potential is available, these programmes should be suitably expanded or supplemented. Detailed agricultural planning will be possible in areas in which intensive development is undertaken through the rural extension service, for instance, in community project areas. In these areas special stress is to be laid on building up the village agency for development and in strengthening the cooperative movement. For an area as small as a development block, on the basis of local knowledge and experience, it should be possible to frame production programmes and provide for positive measures to ensure their fulfilment, subject of course, to circumstances such as failure of rainfall or floods.

15. Within the development block production has to be guided and aided in the main through the agency of the village body concerned with development. As a rule, it is unlikely that there is much to be gained by attempting to fix areas or proportions of individual holdings for particular crops. On the whole, it is best that each farm and each village should follow the crop plan which will enable it to utilize the available physical resources to the greatest advantage. Removal of large disparities between the return on the main competing crops is an obligation of overall policy rather than of detailed agricultural planning. To the extent to which individual farms join into cooperatives, crop planning will become the means, not merely for

regulating production, but also for expanding it to the greatest extent possible. The first stage in developing and adequate structure for agricultural planning may be to carry the targets at least as far as individual development blocks where *intensive* work is undertaken, and in a less detailed manner, as far as tehsils and taluks. After some years of *intensive* development and experiment it should become possible to ensure that agricultural targets in each State and for the country as a whole are related, on the hand to obligations which individual farms and villages accept and, on the other, to the goals of national agricultural policy.

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Target of additional production 1955-56  
(Foodgrains)

(In 000' tons)

S t a t e	Major irrigation	Minor irrigation	Land reclamation and development	Fertilizers & manures	Improved seeds	T o t a l
1.	2.	3.	4.	5.	6.	7.
<b>Part 'A' States.</b>						
1. Assam	77.0	104.0	25.0	4.0	45.9	255.9
2. Bihar	123.0	353.3	166.3	133.3	included under Col. (5)	775.9
3. Bombay	94.5	86.8	76.0	65.9	53.3	376.5
4. Madhya Pradesh	23.1	25.7	214.5	15.2	2.5	281.0
5. Madras	205.9	286.5	81.2	174.4	142.0	890.0
6. Orissa	52.6	86.4	63.3	43.3	14.0	259.0
7. Punjab	371.1	32.8	11.7	4.6	43.6	463.8
8. Uttar Pradesh	386.0	209.0	300.0	28.0	60.0	983.0
9. West Bengal	314.9	183.2	22.6	20.4	12.0	555.1
T o t a l	1648.1	1367.7	960.6	489.1	373.3	4838.8
<b>Part 'B' States</b>						
10. Hyderabad	41.4	136.1	255.0	33.0	31.0	696.5
11. Madhya Bharat	10.0	4.4	113.8	13.6	26.3	168.1
12. Mysore	11.0	35.2	23.5	11.7	18.1	99.5
13. P.E.P.S.U.	62.2	57.0	32.5	2.8	16.0	170.5
14. Rajasthan	153.3	23.3	2.3	4.1	3.0	186.0
15. Saurashtra	40.7	31.7	0.3	8.6	1.0	82.3
16. Travancore-Cochin	42.0	7.5	14.3	52.5	14.8	131.1
T o t a l	360.6	355.5	441.7	142.2	160.0	1460.0
<b>Part 'C' States</b>						
17. Ajmer	-	4.7	-	5.1	2.7	12.5
18. Bhopal	-	20.0	74.2	3.0	6.0	103.8
19. Bilaspur	-	2.9	0.5	1.2	0.1	4.7
20. Coorg	-	2.0	1.0	-	-	3.0
21. Delhi	-	1.7	1.3	0.4	1.1	4.5
22. Himachal Pradesh	-	20.0	13.0	0.3	11.1	44.4
23. Kutch	-	5.5	-	0.2	(a)	5.7
24. Tripura	-	0.2	-	0.2	1.9	2.3
25. Windhya Pradesh	-	3.6	20.2	6.2	0.4	30.4
T o t a l	-	6.1	110.2	16.6	23.3	211.3
Total State schemes	2008.7	1784.4	1512.5	647.9	556.6	6510.1
Supplementary schemes	-	600.0	-	500.0	-	1600.0*
Grand total - gross target (Indian Union)	2008.7	2384.4	1512.5	1147.9	556.6	8110.1*
		Less on account of diversion to commercial crops				(-) 500.0
		Net target of foodgrains (Indian Union)				7610.1

(a) Less than 100 tons.

\* Includes 1000 tons on account of... by P... &... ..

Targets of national production (Commercial Crops)

State	Cotton (1000 bales)				Jute ('000 bales)				Sugarcane (1000 tons)				Oilseeds ('000 tons)			
	Production in 1950-51	Additional Production during 1951-56	Production during 1955-56	% Increase over 1950-51	Production in 1950-51	Additional Production during 1950-56	Production during 1955-56	% Increase over 1950-51	Production in 1950-51	Additional Production during 1951-56	Production during 1955-56	% Increase over 1950-51	Production in 1950-51	Additional Production during 1951-56	Production during 1955-56	% Increase over 1950-51
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
(Col. 2 + 3)				(Col. 6 + 7)				(Col. 10 + 11)				(Col. 14 + 15)				
Assam	12	-	12	-	809	225	1034	68	68	-	68	-	55	-	55	-
Bihar	5	-	3	-	658	390	1048	59	309	50	359	16	60	-	60	-
Bombay	103	275	1078	34	-	-	-	-	543	87	630	16	745	10	755	1
Madhya Pradesh	510	170	680	33	-	-	-	-	54	-	54	-	241	10	251	4
Madras	340	180	528	52	-	-	-	-	716	80	796	11	1833	100	1933	5
Orissa	2	-	2	-	242	200	442	83	109	-	109	-	73	4	77	5
Punjab	196	150	346	77	-	-	-	-	364	70	434	19	89	4	93	4
Uttar Pradesh	45	40	85	89	49	250	299	510	2093	400	3303	14	767	61	828	8
West Bengal	-	-	-	-	1496	1000	2496	67	96	-	86	-	55	5	60	9
Hyderabad	266	200	460	71	-	-	-	-	291	-	4191	150	6498	150	643	30
PEPSU	175	80	255	46	-	-	-	-	73	7	80	9	21	1	21	5
Rajasthan	114	50	164	44	-	-	-	-	16	-	1	-	114	16	130	14
Madhya Bharat	219	92	311	42	-	-	-	-	36	-	36	-	152	25	177	16
Mysore	33	8	41	24	-	-	-	-	76	-	76	-	74	5	79	7
Saurashtra	215	6	222	3	-	-	-	-	48	-	48	-	247	1	248	-
Bhopal	4	6	10	150	-	-	-	-	8	4.6	12.6	57	10	4	14	40
Delhi	-	-	-	-	-	-	-	-	2	0.2	2.2	10	-	-	-	-
Vindhya Pradesh	-	-	-	-	-	-	-	-	5	1.2	6.2	24	49	3	52	5
Kutch	4	1	5	25	-	-	-	-	1	-	1	-	1	1	2	100
Tripura	-	-	-	-	47	25	72	53	6	-	6	-	3	-	3	-
Other States	27	-	27	-	-	-	-	-	2	-	2	-	16	-	16	-
Indian Union	2971	1250	4229	42	3301	2090	5391	63	5616	700	6316	12	5013	400	5503	8

Annex III  
Irrigation Programme

(In 000' acres)

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State	Cultivated area (1949-50)	Irrigated area (1949-50)	Extension of irrigation during the plan period			Area to be under irrigation in 1955-56 (Colm. 3 + Colm.6)	Irrigated areas as percentage of cultivated area		Percentage increase in irrigated area (Col. 6 over Col. 3)	State's share in the total increase (percentage of figures in Colm. 6 to the total)
			Minor	Major	Total		1949-50 (Col. 3 over Col. 2)	1955-56 (Col. 7 over Col. 2)		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Assam	7309	1327	770	218	988	2315	18.2	31.7	91.3	5.9
Assam	7309	1327	770	218	988	2315	18.2	31.7	91.3	5.9
Bihar	27535	5595	2086	675	2761	8356	20.3	30.3	64.5	16.5
Bombay	48124	1761	582	474	1056	2817	3.7	5.9	60.0	6.2
Madhya Pradesh	23375	1691	86	114	200	1891	5.1	5.7	11.9	1.2
Madras	41024	9850	556	435	991	10841	24.0	26.4	9.8	5.9
Orissa	7523	1672	434	741	1175	2847	22.2	37.8	73.2	7.0
Punjab	13028	4790	243	1547	1790	3530	34.6	47.6	30.6	10.7
Uttar Pradesh	42331	10878	1110	1361	2471	13349	25.7	31.5	20.6	14.8
West Bengal	19879	2329	933	1512	2445	4774	10.1	37.1	105.7	14.6
<b>Part 'A' States Total:</b>	<b>333933</b>	<b>39393</b>	<b>6900</b>	<b>7077</b>	<b>13977</b>	<b>53770</b>	<b>17.1</b>	<b>25.0</b>	<b>34.8</b>	<b>82.6</b>
Hyderabad	27183	1489	330	309	639	2124	4.0	5.6	42.7	3.8
Jammu & Kashmir	1062	701	-	-	-	701	35.7	35.7	-	-
Madhya Bharat	11601	462	40	83	123	585	3.0	4.9	26.6	0.7
Mysore	4263	1152	169	39	199	1351	13.9	16.8	17.0	1.2
P.E.S.S.U.	4091	1945	310	233	543	2392	37.0	47.7	30.0	3.3
Rajasthan	11007	1503	103	381	484	2176	13.1	19.3	15.6	1.0
Saurashtra	7041	515	105	100	213	523	2.5	7.5	67.5	1.3
Travancore-Cochin	2897	940	30	17	55	995	32.4	34.3	4.9	0.4
<b>Part 'B' States Total:</b>	<b>85,443</b>	<b>8,406</b>	<b>1135</b>	<b>1267</b>	<b>2452</b>	<b>10,853</b>	<b>9.6</b>	<b>12.7</b>	<b>29.2</b>	<b>14.7</b>
Ajmer	316	117	7	-	7	124	19.0	20.1	6.0	-
Bhopal	1653	17	59	-	59	76	1.0	4.6	347.1	0.3
Bilaspur	90	5	10	-	10	15	5.6	16.7	200.0	0.1
Borg	205	7	-	-	-	7	3.4	3.4	-	-
Delhi	236	68	11	-	11	79	23.8	33.5	22.9	0.1
Uttaranchal Pradesh	622	135	83	75	158	293	21.7	47.1	117.0	1.0
Kutch	2207	69	110	38	148	217	3.1	9.8	214.5	0.9
Lipura	401	-	2	-	2	2	-	0.5	-	-
Madhya Pradesh	5108	196	9	-	9	205	3.0	4.0	4.1	-
<b>Part 'C' States Total:</b>	<b>11,143</b>	<b>614</b>	<b>291</b>	<b>113</b>	<b>404</b>	<b>1018</b>	<b>5.5</b>	<b>9.1</b>	<b>65.8</b>	<b>2.4</b>
<b>Grand Total</b>	<b>339,574</b>	<b>48,913</b>	<b>8,276</b>	<b>8457</b>	<b>16,733</b>	<b>65,646</b>	<b>15.0</b>	<b>19.9</b>	<b>34.2</b>	<b>100.0</b>

## Five Year Programme

Minor irrigation works  
(area benefited)

(In 000' acres)

State	New Wells	Old Wells	Tube-wells	Tanks	Pumping installations on rivers	Pumping installations on wells.	Dams, Channels etc.,	Total
1	2	3	4	5	6	7	8	9
1. Assam	-	-	-	-	2.5	-	767.0	769.5
2. Bihar	106.3	-	172.0	-	130.0	89.0	1581.0	2098.3
3. Bombay	120.0	-	8.7	203.0	27.0	-	215.1	591.8
4. Madhya Pradesh	22.8	6.0	-	20.7	12.6	2.9	20.8	95.8
5. Madras	31.9	-	43.2	150.0	25.0	199.4	107.0	556.5
6. Orissa	-	-	-	-	-	3.0	431.0	434.0
7. Punjab	27.0	6.0	180.0	-	-	30.0	-	243.0
8. Uttar Pradesh	407.5	392.5	105.0	-	1.7	-	154.0	1110.7
9. West Bengal	-	-	-	168.0	65.0	-	700.0	933.0
10. Hyderabad	30.0	9.0	-	107.8	-	22.9	151.8	330.5
11. Madhya Pradesh	17.6	10.1	-	-	-	12.2	-	39.9
12. Mysore	13.2	-	-	25.0	-	7.8	123.0	169.0
13. P.E.S.U.	102.3	55.7	84.0	-	-	63.2	5.0	310.2
14. Rajasthan	30.0	25.6	43.0	40.5	-	3.6	-	142.7
15. Saurashtra	40.0	20.0	-	-	-	-	45.0	105.0
16. Travancore-Cochin	4.5	-	-	5.5	23.0	4.6	-	37.6
17. Andhra	0.3	6.9	-	-	-	-	-	7.2
18. Punjab	1.6	7.2	15.0	9.0	7.2	-	19.5	58.5
19. Bihar	-	-	-	-	-	-	10.0	10.0
20. Delhi	3.8	0.2	-	-	2.0	-	-	11.0
21. Himachal Pradesh	2.0	-	9.2	-	1.8	-	70.0	83.0
22. West Bengal	20.0	4.8	-	37.8	2.0	-	45.2	109.8
23. Tripura	-	-	-	2.3	-	-	-	2.3
24. Vindhya Pradesh	1.2	-	-	-	4.0	2.6	1.4	8.2
<b>Total</b>	<b>2574.0</b>	<b>544.0</b>	<b>660.1</b>	<b>769.6</b>	<b>311.8</b>	<b>441.2</b>	<b>4476.3</b>	<b>8276.5</b>



## Five Year Programme

## Land reclamation and development

(In 1000 acres)

S t a t e	Reclamation by					Land Development	
	Central Tractor Organisation	State Tractor Organisation	Private parties with State help	Other means including Fallows	Total	Bunding, drainage etc.	Mechanical cultivation
1.	2.	3.	4.	5.	6.	7.	8.
Assam	-	-	-	-	-	358.5	130.0
Bihar	-	45.0	-	180.0	225.0	639.0	-
Bombay	-	10.0	-	-	10.0	1005.4	1835.6
Madhya Pradesh	474.0	378.9	339.0	1000.0*	2191.9	106.7	48.0
Madras	-	-	198.5	-	198.5	47.4	565.0
Orissa	-	175.6	150.0	-	325.6	-	-
Punjab	-	50.0	-	-	50.0	97.5	25.0
Uttar Pradesh	238.0	162.0	125.0	-	525.0	300.0	-
West Bengal	-	68.0	48.3	-	116.3	-	19.9
<u>Total Part 'A' States</u>	<u>7124.00</u>	<u>889.5</u>	<u>860.8</u>	<u>1180.0</u>	<u>3642.3</u>	<u>2554.5</u>	<u>2375.5</u>
Hyderabad	-	92.4	64.0	2000.0*	2156.4	-	154.0
Madhya Bharat	300.0	100.0	30.0	370.0	800.0	17.4	10.0
Mysore	-	13.2	-	-	13.2	7.4	150.0
PEPSU	-	68.3	76.0	65.7	210.0	130.0	508.2
Saurashtra	-	-	-	-	-	13.7	-
Travancore-Cochin	-	-	-	50.0	50.0	-	-
<u>Total Part 'B' States</u>	<u>300.0</u>	<u>273.9</u>	<u>170.0</u>	<u>2485.7</u>	<u>3229.6</u>	<u>168.5</u>	<u>880.2</u>
Bhopal	400.0	14.0	-	2.5	416.5	160.0	30.7
Bilaspur	-	-	1.0	0.4	1.4	-	-
Delhi	-	0.4	-	5.8	6.2	9.1	4.0
Himachal Pradesh	-	-	-	-	-	64.8	-
Kutch	-	-	-	-	-	8.0	20.0
Vindhya Pradesh	4.0	20.0	44.8	16.0	84.8	68.0	72.4
<u>Total Part 'C' States</u>	<u>404.0</u>	<u>34.4</u>	<u>45.8</u>	<u>24.7</u>	<u>508.9</u>	<u>309.9</u>	<u>127.1</u>
<u>Total Indian Union</u>	<u>1416.0</u>	<u>1197.8</u>	<u>1076.6</u>	<u>3690.4</u>	<u>7380.8</u>	<u>3032.9</u>	<u>3427.8</u>

\* These areas represent fallow lands which will be brought under cultivation of cotton and foodgrains.

## CHAPTER XV

### COMMUNITY DEVELOPMENT AND RURAL EXTENSION.

#### Section 1 - Basic principles.

Community Development is the method and Rural Extension the agency through which the Five-Year Plan seeks to initiate a process of transformation of the social and economic life of the villages. The Plan provides Rs.90 crores for community projects and proposes the establishment over a period of about ten years of a network of extension workers throughout the country. The object of this chapter is to indicate briefly the significance of the two programmes and their place in national reconstruction.

2. For some three decades rural development work has been undertaken by different branches of the administration in the States. Until a few years ago, the expenditure on development was meagre and rural development work was thought of largely in terms of particular items of improvement in village life and in agricultural practice, and special attention was given, for instance, to the number of wells, sunk or repaired, for the supply of irrigation or drinking water, the supply of seeds or fertilisers, or the number of manure pits dug, starting of rural credit societies etc. These are essential items in any rural programme, but there was no coordinated approach to village life as a whole.

3. If one goes back to the study of the efforts made before World War II in individual Provinces and States and considers the experience gained in later years in Sevagram in Madhya Pradesh, in the Firka Development scheme in Madras, in the Sarvodaya centres in Bombay, in Etawah and Gorakhpur in Uttar Pradesh and other centres which are perhaps less well known, certain broad conclusions emerge. These are:

(i) When different departments of the Government approach the villager, each from the aspect of its own work, the effect on the villager is apt to be confusing and no permanent impression is created. The peasant's life is not cut into segments in the way the Government activities are apt to be; the approach to the villager has, therefore, to be a coordinated one and has to comprehend his whole life. Such an approach has to be made, not through a multiplicity of departmental officials, but through an agent common at least to the

principal departments engaged in rural work, whom it is now customary to describe as the village level worker.

(ii) Programmes which have been built on the cooperation of the people have more chances of abiding success than those which are forced down on them.

(iii) While the official machinery has to guide and assist, the principal responsibility for improving their own condition must rest with the people themselves. Unless they feel that a programme is theirs and value it as a practical contribution to their own welfare, no substantial results will be gained.

(iv) Programmes largely dependent on expenditure by the Government, in which the elements of self-help and mutual cooperation on the part of villagers are present only in a nominal degree are short-lived. The essential idea should be the reduction of chronic unemployment which is a feature of rural life - through the practice of scientific agriculture and cottage and small-scale industries.

(v) Advice and precept are of no avail unless they are backed by practical aids - supplies of seed and fertiliser, finance and technical guidance for solving the farmer's immediate problems.

(vi) Whatever the measures of the effort which the Government wishes to make, the best results will be gained if the programmes are pursued intensively, and practically every agriculturist family has its own contribution to make through a village organisation.

(vii) The approach to the villager would be in terms of his own experience and problems, conceived on the pattern of simplicity, avoiding elaborate techniques and equipment until he is ready for them.

(viii) There has to be a dominant purpose round which the enthusiasm of the people can be aroused and sustained, a purpose which can draw forth from the people and those who assist them on behalf of the Government the will to work as well as a sense of urgency. The aim should be to create in the rural population a burning desire for a higher standard of living - a will to live better.

## Section 2

## Community development programme

These lessons from the experience of the past have been brought together in the conception and concrete formulation of the community development programme, which has been launched during 1952. While the concept is not a new one, progress has in the past been hampered by insufficiency of available funds.

## Size of the Unit

2. For each community project as at present planned, there will be approximately 300 villages with a total area of about 450 to 500 square miles, a cultivated area of about 150,000 acres and a population of about 200,000. The project area is conceived as being divided into 3 Development Blocks, each consisting of about 100 villages and a population of about 60,000 to 70,000. The Development Block is, in turn, divided into groups of 5 villages each, each group being the field of operation for a village level worker.

## Location of Units.

3. The initial programme has been started with approximately 55 Projects of rural development located in selected areas in the several States of India.

4. As increased agricultural production is the most urgent objective, one of the basic criteria in the selection of this first set of Project areas has been the existence of irrigation facilities or assured rainfall. In assessing irrigation facilities and the possibilities of development, irrigation from river valley projects, from tubewells, as well as from minor irrigation works, have been taken into account. In States like West Bengal and Punjab, with a large population of displaced persons, the selection of project areas aims also at helping the resettlement of these persons. Seven areas have been selected on the ground of their being inhabited predominantly by scheduled tribes. In every field of activity, whether social or economic, urban and rural development are complementary, for, neither towns nor villages can advance alone. Where the existing urban facilities are inadequate or where large numbers of displaced persons have to be rehabilitated, the intention is that the urban development should take the form of new townships. Six such projects have been proposed to be taken up under the current programme. Elsewhere, it will be sufficient to expand existing urban facilities and opportunities

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to meet new needs arising from the development of the resources in the project area and its neighbourhood.

Main lines of activity. 5. The main lines of activity which will be undertaken in a community project, can be briefly divided into the following:-

Agriculture and related matters.  
Communications.  
Education.  
Health.  
Supplementary employment.  
Housing.  
Training.  
Social Welfare.

6. Agriculture and related matters.

The programme includes reclamation of available virgin and waste land; provision of water for agriculture through minor irrigation works, e.g., tanks, canals, surface wells and tube-wells, the intention being that at least half of the agricultural land, if possible, be served with irrigation facilities; provision of commercial fertilizers and improved seeds; the promotion of improved agricultural technique and land utilisation; supply of technical information, improved agricultural implements, improved marketing and credit facilities; provision of soil surveys and reclamation; encouragement of the use of natural and compost manures and improvement of livestock, the principal emphasis here being on the establishment of key villages for breeding pedigree stock and the provision of veterinary aid, as well as artificial insemination centres. For attaining this objective, agricultural extension service will be provided at the rate of 1 agricultural extension worker for every 5 villages.

One of the important functions of the agricultural extension worker will be to encourage the growth of a healthy cooperative movement. The aim will be to see that there is at least one multi-purpose society in every village or group of villages on which practically every agriculturist family is represented.

It is expected that the cooperative principle, in its infinitely varying forms, will be capable of adaptation for finding a solution to all problems of rural life". Multi-purpose societies will therefore have to be used for practically every development activity in the community project area, including the encouragement of rural arts and crafts.

## 7. Communications.

The road system on the country-side is to be so developed as to link every village within the Project area up to a maximum distance of half a mile from the village, the latter distance being connected by feeder roads through voluntary labour of the villagers themselves, only the main roads being provided for and maintained by the State or other public agencies.

## 8. Education.

It has been realised that the full development of a community cannot be achieved without a strong educational base, alike for men and women. The community projects are intended to provide for social education, expansion and improvement of primary and secondary education provision of educational facilities for working children and promotion of youth welfare.

Vocational and technical training will be emphasised in all the stages of the educational programme. Training facilities will be provided for imparting improved techniques to existing artisans and technicians, both in urban and rural areas. Training centres which already exist in any area, will be strengthened and developed and new ones established to meet the requirements of the Project area.

## 9. Health.

The Health Organisation of the Project area will consist of 3 primary health units in the Development Blocks and a secondary health unit equipped with a hospital and a mobile dispensary at the headquarters of the Project area and serving the area as a whole. It would aim at the improvement of environmental hygiene, including provision and protection of water supply; proper disposal of human and animal wastes; control of epidemic diseases such as Malaria, Cholera, Small-pox, Tuberculosis, etc. Provision of medical aid along with appropriate preventive measures, and education of the population in hygienic living and in improved nutrition.

## 10. Supplementary Employment.

The unemployed and the under-employed persons in the village community will be provided with gainful employment to such extent as is possible, by the

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development of cottage and small scale industries construction of brick kilns and saw mills and encouragement of employment through participation in distribution trade.

11. Housing.

Apart from the provision of housing for community projects personnel, steps will be taken, wherever possible, to provide demonstration and training in improved techniques and designs for rural housing. In congested villages, action in the direction of development of new sites, opening of village parks and playgrounds and assistance in the supply of building materials, may also be necessary.

12. Training.

The training of village level workers, project supervisors and other personal for the Community Development Programme will be carried out in 30 training centres which have been set up with the assistance of the Ford Foundation of America. Each training centre will have facilities for about 70 trainees. Each centre will have double training staff, so that the trainees can be divided into two groups. One group will be getting practical and supervisory work experience, while the other group will be utilising the centres' facilities for lectures, demonstrations and discussions. In view of the great demand on the training centres to turn out people quickly for the opening of new projects, the training period will, in the first instance, be limited to six months.

In addition to the training of village level workers and supervisors, the agricultural extension service workers in the Project areas will take steps for the training of the agriculturists, panches and village leaders.

13. Social Welfare.

There will be provision for audio-visual aid for instruction and recreation, organisation of community entertainment, sports activities and Melas.

Organisation

14. For the implementation of the Community Development Programme as indicated above, the Central Organisation will consist of a Central Committee (the Planning Commission) has been designated as the Central Committee) to lay down the broad policies and provide general supervision, and an Administrator of Community Projects under the Central Committee. The Administrator will be responsible for planning, directing and coordinating the Community Projects throughout India under the general supervision of the Central Committee and in consultation with

appropriate authorities in the various States. He will be assisted by a highly qualified executive staff to advise him on administration, finance, personnel, community planning and other matters.

15. At the State level, there will be a State Development Committee or a similar body consisting of the Chief Minister and such other Ministers as he may consider necessary. There will also be a State Development Commissioner or a similar official who will act as the Secretary to the State Development Committee and will be responsible for directing community projects in the State. Where the work justifies it, there may, in addition, be a Deputy Development Commissioner specifically in charge of community projects.

16. At the District level, there will be, wherever necessary, a District Development Officer responsible for the Community Development Programme in the district. This officer will have the status of an Additional Collector and will operate under the directions of the Development Commissioner. He will be advised by a District Development Board consisting of the officers of the various departments concerned with Community Development, with the Collector as Chairman and the District Development Officer as executive Secretary.

17. At the Project level, each individual project unit (consisting of a full project or one or more Development Blocks where there is not a full project) will be in charge of a Project Executive Officer. In the selection of Project Executive Officers, special regard will be paid to experience, general outlook, understanding of the needs and methods of Community Development, capacity for leadership and ability to secure both official and non-official cooperation. Each Project Executive Officer in charge of a full project, will have on his staff approximately 125 supervisors and village level workers, who will be responsible for the successful operation of all activities at the Project Level.

This organisational pattern will be adapted to local conditions and needs as may be deemed necessary by the Administrator and the respective State Governments.

18. While on the subject of organisation, it is necessary to stress the importance of ensuring, right from the start, the people's participation, not merely in the execution of the Community Development project but also in its planning. This in fact is the very essence of the programme.



19. The Community Development Programme aims at the establishment of a suitable organ to ensure participation of the villagers at the planning stage. It contains provisions for the setting up of a Project Advisory Committee. It is intended that the Project Advisory Committee should be as representative as possible of all the non-official elements within the project area.

In securing participation of the villagers in the execution of the programme, the Community Projects Organisation will have recourse to the voluntary organisation to be known as the Bharat Sevak Samaj, which is likely to be set up in the project area on the lines indicated in the pamphlet recently circulated by the Planning Commission.

20. Villager's contribution to the programme.

The pattern of the project as drawn up includes major items of works normally implemented through Government agencies. This is bound to involve higher expenditure through elaborate administrative staff, middlemen's fees and possibly in certain cases, questionable practices. If the people are to be trained to be builders of the future, the works have to be entrusted, even at certain risks, to the people themselves through their representative agencies, the Governmental organisation furnishing the technical assistance. It is intended that a qualifying scale of voluntary contribution, either in the form of money or of labour, should be laid down and this contribution will be a condition precedent to development schemes being undertaken under the Community Development Programme.

In all these cases, contributions may be in the form, either of voluntary labour or of cash. In respect of backward areas and areas predominantly populated by scheduled castes and scheduled tribes it may not be possible for the villagers to make any final contribution. In these areas, the villagers should be asked to contribute by way of labour effort required for executing the works programme under various heads. The agency of the Bharat Sevak Samaj will become a major avenue for the organisation of the voluntary effort on the part of the villagers.

21. Finance.

The estimated expenditure on a basic type of a rural community project, i.e. a project without the provision for an urban unit, is Rs.65 lakhs over a period of 3 years. Of this amount, about 58.47 lakhs will be rupee expenditure, and Rs. 6.53 lakhs will be dollar expenditure.

The estimated cost of an urban unit (which it is intended to provide in a few projects) is Rs.111 lakhs. Of this amount, the estimated rupee expenditure is about Rs.95.55 lakhs and the dollar expenditure is Rs.15.45 lakhs.

The Community Development Programme imposes financial obligations on the Centre as well as on the State Governments. Broadly, the proportions which have been fixed are 75 per cent for the centre and 25 per cent for the State in respect of non-recurring expenditure, and 50 per cent each for Centre and States in respect of recurring expenditure. This applies ~~to grants~~ / to in aid'. Loan amount is totally found by the centre. After the three-year period, the Community Project areas are intended to become Development Blocks under the plan recommended for adoption in Chapter VI of the Grow More Food Enquiry Committee's Report. It is expected that in so far as the Community Project areas are concerned, the expenses of such development blocks will be borne entirely by State Governments after the third year. The expenditure, mostly recurring, is likely to be about Rs.3 lakhs per project. In order to enable expansion of the programme in future years, the Central Committee felt that some reduction in the estimated cost of a Rural Community Project Basic Type should be made, and after examination of the question, has now decided that all community projects should be operated on the basis of a reduced total of Rs.45 lakhs per project. So far as the existing projects are concerned, this would mean that the area of operations

under each project on a population basis of 2 lakhs per project should be so revised or adjusted as to conform to the new expenditure pattern.

## 22. Supporting Projects.

The Community Development Programme is related to and supported in part by most of the other projects under the Indo-American Technical Cooperation Programme. The fertiliser required by the Community Development programmes will be acquired and distributed in accordance with the Operational Agreement No.1 which deals with the "Project for Acquisition and Distribution of Fertilizer". Similarly, the iron and steel needed for farm implements and tools will be acquired and distributed in accordance with the "Project for the Acquisition and Distribution of Iron and Steel for Agricultural purposes". The tubewells to be constructed in the project areas will be allocated from the "Project for Ground Water Irrigation". Information and services with respect to soils and fertilizer application will be made available from the "Project for distribution of soil fertility and fertiliser use". Assistance in Malaria control in the project areas will be forthcoming from the "Project for malaria control planned under the Technical Cooperation Programme". The training of Village Level Workers and Project Supervisors will be carried out under the "Village Workers Training Programme".

## 23. Evaluation.

A systematic evaluation of the methods and results of the Community Development Programme will, no doubt, make a significant contribution by pointing up those methods which are proving effective, and those which are not; and furnishing an insight into the impact of the Community Development Programme upon the economy and culture of India. In order that it may be useful to those administering the Community Development Projects and serve as a basis for informed public opinion regarding the programme, the evaluation work is being arranged to be conducted by the Planning Commission in close cooperation with the Ford Foundation and the Technical Cooperation Administration.

## Section 3

## • National extension service.

In setting out our proposals on the subject of administration of district development programmes, we have already attempted to analyse the organisational features of extension work in the district. The entire subject has been carefully reviewed recently by the Grow More Food Enquiry Committee. After examining the results of the campaign for increased food production, which has been in progress for several years, the Committee state the problem which extension workers have to meet in the following words:

"No plan can have any chance of success unless the millions of small farmers in the country accept its making, regard it as their own and are prepared to make the sacrifices necessary for implementing it. The integrated production programme has failed to arouse enthusiasm for the reasons we have given. The food problem is a much wider one than mere elimination of food imports. It is, the problem of bringing about such a large expansion of agricultural production as will assure to an increasing population progressively rising levels of nutrition. In other words, the campaign for food production should be conceived as part of a plan for the most efficient use of land resources by the application of modern scientific research and the evolution of a diversified economy. In its turn, agricultural improvement is an integral part of the much wider problem of raising the level of rural life.

The economic aspects of village life cannot be detached from the broader social aspects; and agricultural improvements is inextricably linked up with a whole set of social problems.

The lesson to be derived from the working of the G.M.F. programmes thus confirms the experience of States and private agencies engaged in village development. It is that all aspects of rural life are inter-related and that no lasting results can be achieved if individual aspects of it are dealt with in isolation. This does not mean that particular problems should not be given prominence but the plans for them should form parts of, and be integrated with, those for achieving the wider aims. It is only by placing this ideal - of bringing about an appreciable improvement in the standards of rural life and making it fuller and richer - before the country and ensuring that the

energies of the entire administrative machinery of the States and the best unofficial leadership are directed to plans for its realisation that we can awaken mass enthusiasm and enlist the active interest and support of the millions of families living in the countryside in the immense task of bettering their own condition

2. This analysis led the Committee to propose the establishment of a national extension organisation for intensive rural work which could reach every farmer and assist in the coordinated development of rural life as a whole. The detailed proposals of the Committee on the organisation of the extension network at various levels have been described earlier. The programme envisaged by the Committee, for which the necessary provision has been made in the Plan, is that the Central Government should assist State Governments in establishing extension organisations so as to bring their entire area under extensive development within a period of about ten years. During the period of the Plan, a total of about 120,000 villages are to be brought within the operations of the extension, that is, nearly one-fourth of the rural population. The Central and the various State Governments are expected in the near future to frame detailed programmes for reorganising the existing extension services, arranging for further recruitment and preparing training programmes.

In drawing up these programmes the Central and State Governments will have to examine the necessity for providing the basic training in agriculture and animal husbandry to the village level workers and the various supervisory subject matter specialists. Where existing facilities are inadequate steps will have to be taken to augment them with a view to ensuring an adequate supply of extension workers for each major linguistic region. There is little doubt that the implementation of these proposals can give a new and powerful momentum to all rural work and, in particular, to the programme for increased agricultural production.

3. The organisation of extension services with the object of securing increased production and raising the standard of village life is a new undertaking. Extension is a continuous process designed to make the rural people aware of their problems and indicating to them ways and means by which they can solve them. It thus involves not only education of the rural people in determining their problems and the methods of solving them, but also inspiring them towards positive action in doing so. It is, therefore,

Personnel

of the highest importance that for this task, personnel of the right type should be obtained who will take to their work with zeal and enthusiasm. The qualities required are not only the ability to acquire knowledge but also dedication to the task of serving the rural people and the development of a will to find solutions for their problems. People from village surroundings with experience of practical farming are likely to prove of special value as extension workers.

4. The training of extension workers requires the closest attention and must be related to the services that they will have to perform. They have to understand rural problems, the psychology of the farmer, and offer solutions to his various difficulties. They have to try and find out the felt needs of the people and the solutions that they offer must be demonstrated by acting in such close cooperation with the farmers. They should be able to discover leadership and stimulate it to action. Their success will depend on the extent to which they gain the confidence of the farmers. Their duties have thus to be educative and demonstrative. Their training will thus have many facets. Periods spent in gaining a thorough training will be a good investment. If the period of extension training is to be shortened, so as to be able to cover a larger area than may be otherwise possible, care should be taken to see that it is preceded by adequate opportunities for basic training in all aspects of rural development. Their conditions of service should also be such as are calculated to keep up their zeal and enthusiasm and ensure the continuous maintenance of high standards of performance. There should be considerable scope for promotion for men who start at the bottom. In order to develop the true extension approach much might be gained if all extension workers, whether graduates or field level workers, were to start at the field level and only those who proved their worth, received promotions to higher positions. A fair proportion of these positions should also be open to village workers who display the necessary qualities of leadership and ability. For this purpose, courses should be provided at different levels to enable the promising extension workers who start at the field level to reach positions of greater responsibility.

5. It is important to secure that the extension service retains its character of continued utility to the rural areas whom they serve. This factor should, therefore, be particularly borne in mind in judging the work of officials who manage this service. Local opinion on the extent to which an extension worker

himself useful should be an important criterion in assessing his ability.

6. The confidence of the villager is gained with difficulty and lost easily. It is, therefore, of the essence of extension that the initial start is made with items whose usefulness to the cultivator in increasing agricultural production has been well established. It is only after sufficient confidence is gained that comparatively untried measures can be put forward, and even these should be held out as experiments until the people have found the answer for themselves.

7. The immediate effect of the first impact of an extension organisation is to increase the demands of the cultivator for credit, supplies and implements. The satisfaction of these demands is a necessary consequence of extension activities and they will succeed to the extent this responsibility is handled efficiently. Extension activities will be adversely affected if arrangements cannot be made for supplying the needs which they generate.

8. Finally, it may be pointed out that extension workers have to be supported effectively by research workers to whom they can bring their problems and whose results they carry to the people. Special arrangements are, therefore, needed to ensure the closest cooperation between extension and research.

## CHAPTER XVI

### FINANCE FOR AGRICULTURE

Agricultural production in this country depends upon millions of small farmers. It is the intensity of their effort and the efficiency of their technique that will help in raising yields per acre. Because of inadequate financial resources and absence of timely credit facilities at reasonable rates, many of the farmers, even though otherwise willing, are unable to go in for improved seeds and manures or to introduce better methods or techniques. Works of minor irrigation like wells owned by the cultivators either get into disuse or are not fully utilised for want of capital. The major object of the agricultural programme discussed earlier is to develop local resources of seeds, manures and irrigation and to provide other accessories of production. To utilise man-power and cattle resources more fully than is done at present, these aids to better and more intensive farming are essential. It is, therefore, of the utmost importance that the financial requirements of the producers for these purposes should be adequately met. The achievement of targets in the agricultural sector which covers production of food and essential raw material like cotton, jute and oilseeds, ought not to be allowed to suffer for want of adequate credit facilities. Provision of sufficient and timely credit at fair rates of interest has, therefore, to be considered as an integral part of the Plan. Assistance rendered by way of credit has, however, to be related to specific items of productive work or of essential costs of cultivation. For providing these facilities all the existing agencies e.g. money lenders, commercial banks, co-operatives and the State have to be integrated and harnessed to a common purpose. Such a comprehensive approach is essential for ensuring the best use of all the available resources of the nation.

#### Nature of requirements and agencies of agricultural credit.

2. 2. Finance required for production can broadly be divided into: (a) short-term, (b) medium-term and (c) long-term. Short term loans are needed for purchasing seeds, manures and fertilizers or for



meeting labour charges etc. These are expected to be re-paid after the harvest, the total period varying from 9 to 15 months, and for purchase of bullocks, pumping plants and other improved implements. Such loans are to be recovered in instalments spread over a period of about 3 to 5 years. Loans repayable over a longer period, extending, say to over ten or twenty years are classified as long term loans. These are utilised for payment of old debts, purchase of the heavier machines, making permanent improvements and increasing the size of the holding. A quantitative assessment of the finance required under these three categories is extremely difficult as adequate data for the purpose are not available. It is hoped that the rural credit survey undertaken by the Reserve Bank will provide more reliable estimates on the basis of which policy can be formulated. It is, however, clear that there is a wide gap between funds at present available on reasonable terms and the requirements of the cultivators.

3. The following agencies provide finance to the cultivators:-

- (1) Private agencies: (a) money lenders and landlords; (b) commercial banks.
- (2) Public or semi-public agencies: (a) The State; (b) co-operative societies.

Until recently, at any rate, the money lenders and the landlords were the principal sources of rural credit. It is generally believed that the recent debt relief legislation, the system of licensing money lenders and restrictions on the use and transfer of land as security have led to a considerable decline in their operations. The abolition of all privileged tenures and the impending reforms both in zamindari and ryotwari areas have discouraged investment by the landlords and larger cultivators. No estimates are available regarding the extent to which the money lenders and landlords have been affected by these considerations or of the extent of the role that they now play as providers of credit. The findings of the rural credit survey may throw more light on this important aspect of the matter and provide the basis for further thought and action. In the meantime, however, it is necessary to build up and expand the system of Government or co-operative credit so that

the implementation of the Plan may proceed according to schedule.

#### State Loans

4. As the finance provided from private sources was not adequate, the assistance rendered by the State in the form of taccavi loans had to be increased considerably during the last few years. The amount of taccavi loans sanctioned in 1949-50 was about Rs 15 crores as against Rs 1 crore in 1938-39. The State which formerly gave loans mostly for relieving distress or meeting the needs of a few indigent cultivators has now assumed increased responsibility for development finance especially as a result of the Grow More Food campaign. It is a matter of common complaint that the actual disbursement of these loans involves considerable delay and that the procedure connected with it causes considerable inconvenience to the cultivators. Our proposals regarding appropriate use of taccavi loans are discussed at a later stage in this chapter.

#### Loans by cooperative societies

5. Besides State loans, a significant share of the finance for agriculture is provided by co-operative societies. There are 1,42,000 agricultural societies which advanced about Rs 28.25 crores in 1949-50 as against Rs 7 crores in the year 1938-39. Nearly two thirds of the total loans made by agricultural credit societies are granted in the two States of Bombay and Madras while 22 per cent of the funds were utilised by the societies in U.P., Madhya Pradesh and the Punjab. The credit movement in other areas has yet to be developed. Long term loans extending upto a period of 20 years are provided by the 283 Land Mortgage Banks which advanced a sum of Rs 1 crore during the year 1949-50. A major part of the long term loans was taken up again by Madras and Bombay where the movement has progressed fairly well. Punjab and West Bengal have not yet recovered from the unsettling effects of partition. In many of the Part 'C' and the newly integrated Part 'B' States, co-operative structure at the Apex and district levels has yet to be created.

Reorganisation and adjustment are also necessary in other areas. The progress and achievements of the movement in Bombay, Madras and the other cooperatively advanced States prove that co-operatives are the most effective agency for providing finance for agricultural purposes. A co-operative society organised by the people for their economic and social welfare places proper emphasis on the character of a member without losing sight of his material security. Compared to State agency a co-operative can exercise better supervision and it can ensure utilisation of loans for productive purposes more effectively. Recovery of loans is also facilitated as, besides coercive action, public opinion is also brought to bear against wilful defaulters. Co-operatives are also in a better position to mobilise local savings. It would, therefore, be advantageous to distribute even the State loans for development purposes through the co-operative societies. We recommend this policy.

6. As the major portion of the funds that they advance are derived by way of shares, deposits or loans co-operative societies like other credit agencies have to operate on recognised banking principles. To avoid a serious risk of losses they have to deal generally with credit-worthy farmers. In addition to these, there are a large number of potentially credit-worthy cultivators in the rural areas who are just on the margin. Facilities granted to them either in regard to the terms of repayment or the rates of interest would go a long way to improve their productive capacity. It is considered desirable that the co-operatives should handle the credit business of this class also, as a separate agency for them would not only be expensive but would also lead to an undesirable duplication because in practice, it is difficult to distinguish between the credit-worthy and potentially credit-worthy people. Dealing with the latter class, however, involves more risk than that normally covered by the societies. To the extent that the co-operatives incur losses on account of the additional risk they may have to be compensated. This principle has been accepted by the Bombay Government and can be followed elsewhere. The same procedure can be adopted for providing finance in less developed areas. The uneconomic cultivators should not be denied the benefits of the movement. In fact it is difficult to maintain a distinction between economic and uneconomic cultivators as in the strict economic sense, most of the Indian farmers would be classified only as potentially credit-worthy or uneconomic

cultivators. Many of them receive and re-pay loans from the societies, and will have to continue to do so. In their case character will be a very important factor in determining their eligibility for loans and the State will have to share a major part of the risk involved in this work.

7. To take up the functions visualised above the co-operative credit structure has to be strengthened at various levels in each State. The manner in which this can be brought about depends upon the conditions prevalent as well as the needs of the State. The Co-operative Planning Committee (1946) recommended that 50 per cent of the villages and 30 per cent of the rural population should be brought within ten years. The programme for a national extension service discussed earlier also contemplates organisation of multi-purpose societies ~~in every village~~ or a group thereof and efforts should be made to reach by 1955-56 the target set by the Cooperative Planning Committee. However, a slower rate of progress would be preferable to hasty expansion.

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8. The success of the programme outlined above as well as the management of the co-operatives largely depend upon personnel. The absence of adequate trained staff is at present a serious limiting factor in the growth of the movement. The necessity of proper training for all grades of administrative, managerial and field staff in the Co-operative Department and co-operative institutions is being increasingly realised. The Reserve Bank has recently organised a special course of training for higher and intermediate personnel at the Cooperative College at Poona, which is conducted by the Bombay Provincial Co-operative Institute. A single institution, however, will not meet the needs of the country and similar facilities should be provided in other areas. We consider that there is scope for starting at least three more regional colleges almost immediately. Training for the subordinate personnel has also to be arranged simultaneously. We accord a high priority to the training programme and we have provided a sum of Rs.10 lakhs in the Plan to subsidise a part of the expenditure. If the expenditure is to be put to good use co-operative departments and institutions must increasingly appropriate the importance of employing trained staff and of deputing their employees for training

9. Reorganisation and expansion of the movement in this manner for effectively carrying out the production programme will call for large scale investment. The co-operatives will have to initiate a drive for tapping local resources and for inculcating the habit of thrift in the local people. As the response to the savings campaign is, however, likely to be slow, finding adequate finance for the legitimate needs of their members may well prove to be beyond the resources of the co-operatives. Though ultimately the societies will have to build up adequate funds of their own, in the first instance they will need considerable financial and technical assistance from the Reserve Bank. The Bank has already taken a long step in this direction. Under the scheme of concessional finance it provides accommodation to the State Co-operative Banks for seasonal agricultural operations and marketing of crops at  $1\frac{1}{2}$  per cent (i.e. 2 per cent below the current Bank rate). The period of re-payment has been extended by an amendment of the Reserve Bank of India Act from nine months to a maximum of 15 months. Several other facilities are also now offered by the Reserve Bank by liberalisation of the procedure for grant of advances.

10. As a result of this liberal attitude of the Reserve Bank its advances to the Apex Co-operative Banks have increased from Rs 1.5 lakhs in 1946-47 to Rs 12.51 crores in 1951-52. At present these facilities have been availed of mostly by the developed Apex banks of two States viz. Madras and Bombay. The Reserve Bank is taking an active interest in re-organising the co-operative movement in all States, especially the undeveloped States, on a sound footing. It has completed a study of the movement in practically all the States. In the light of these studies the Reserve Bank should be in a position to suggest measures of improvement for adoption by the States concerned.

11. The Bank provides short term accommodation to the co-operative societies through the State Apex institutions which, in turn, make it available to the District Banks. The Apex Banks exist in the Part 'A' and a few important Part 'B' States, but some of them are not yet fully equipped to take up the increased responsibilities involved in borrowing from the Reserve Bank. In many of the Part 'B' and 'C' States the Apex agencies have still to be created. The Reserve Bank has devoted attention to this task as well. The problems involved in expanding the movement are: (a) Securing trained personnel, and (b) finding adequate

capital. As regards the capital it is likely that the funds necessary for organising or strengthening the Apex Banks may not be forthcoming in adequate measure from the local people or co-operative societies. State Governments which have an interest in creating these institutions and fostering their growth should subscribe a part of their capital and should be represented on their boards of management. The Apex agencies established in this manner would have greater stability and would give better results, even though such participation by the State would be a departure from the pattern hitherto favoured by most co-operators. While this effort to overcome the shortage of finance is underway, the State Governments may, if necessary, guarantee re-payment of the amount advanced by the Reserve Bank to the Apex Bank. This practice has already been adopted in a few cases. This must, however, be a temporary expedient and the movement should be able in the near future to secure its requirements on the basis of its own resources and the credit-worthiness of its constituents.

12. The essential characteristics of short term finance should be cheapness, elasticity and promptness. The concessional rate at which the Reserve Bank grants loans helps to reduce the interest rates charged to members. The characteristic of promptness and elasticity have remained comparatively neglected and as the time lag and the rigidity of procedure associated with the whole mechanism of co-operative credit detract from the usefulness of the loans.

13. As the measures indicated above succeed in placing the credit structure in the States on a sound footing, the Reserve Bank and the Government should be able to provide even larger assistance. We are in agreement with the Grow More Food Enquiry Committee that in the next four years the advances to the cultivators through the institutional agencies should be steadily increased so as to reach the limit of at least Rs 100 crores per annum by the fourth year. For achieving this and the other targets outlined later, it is necessary that a detailed plan of agricultural finance and co-operative development should be worked out by every State in consultation with the leaders of the movement, the Reserve Bank and the Central Government. The State plan will have to be broken

down by districts keeping in view the main objective of the Plan in regard to its production targets and the relative priorities of its several parts.

#### Medium and long term loans

14. While short term loans meet the immediate and pressing needs of cultivation, medium term loans enable the farmer to raise the standard of his tillage and to bring about an improvement in yields. Much greater emphasis, has, therefore, to be placed on medium term loans than has been done hitherto and adequate accommodation should be provided for them. Precise estimates of the amount of such loans advanced by co-operative societies are not available. It is, however, known that the bulk of their advances are repayable soon after the harvest. This pre-occupation of the societies with short term loans is due firstly to their greater urgency and secondly to the very limited availability of funds (by way of long term deposits, etc.) which they can safely invest for a medium term, say upto five years. The comparative inability of the co-operatives to meet this demand of the cultivator deters many a credit-worthy person from seeking even short term loans as in this process he gets indebted to more than one creditor. The co-operatives will not, therefore, be really effective agencies for credit unless they are in a position to grant these so called medium term loans which are essential to large production. Medium term loans of the societies do not qualify at present for assistance from the Reserve Bank. Many leading co-operators feel that the Bank ought to be empowered to make medium term advance as well. We understand that the proposal has been accepted by the Reserve Bank, which has agreed to make such advances upto a limit of Rs 5 crores. To enable the Bank to take up this work, amendment of the Reserve Bank Act is necessary. A Bill incorporating these changes has been placed before Parliament.

15. Medium term finance upto Rs 5 crores provided by the Reserve Bank under the proposed arrangement will help the co-operatives in building up their business on a sounder and a more productive footing. Larger assistance from the Reserve Bank for short term loans will also release some of the medium term funds of the movement where they are at present utilised for crop loans.

the extent that this occurs, the amount available for agricultural improvement will increase. However, in view of the fact that there is great demand as well as scope for productive investment in this sphere and also in view of the fact that the co-operative structure is being created and extended in areas in which cooperation has so far been less developed, it is to be expected that the sum of Rs. 5 crores to which the Reserve Bank has limited medium term finance will prove inadequate. It is essential that this limit should not be allowed to hamper the normal pace of production. We, therefore, recommend that a provision of Rs. 5 crores spread over the next three years should be made in the Plan to supplement the resources of co-operative banks or other credit agencies created as an interim arrangement. These resource will, of course, include the intermediate finance which the Reserve Bank will be able to supply after its statute has been amended. Taking into account this additional provision, the accommodation likely to be available from the Reserve Bank and the funds that may be found within the movement, we consider that the target for ~~medium term finance~~, Government and co-operative, at the end of the present Plan might be placed at Rs. 25 crores per annum.

16. As regards long term loans, the responsibility for financing improvements of a long term character, which benefit the community or a group of villages, will increasingly devolve on the State and the need for individual loans may diminish to some extent. However, this can be only a gradual process and assistance to individuals or a group for schemes of a permanent nature will continue to be an important item of production programmes. Consolidation of holdings and other schemes for improving the productivity of agriculture by increasing the size of the unit of cultivation are bound to widen the scope for long term loans. It is, therefore, necessary to have an organization which will assess these requirements and be ~~xxxx~~ in a position to satisfy them. This function can be best discharged by the land mortgage banks which possess long term funds raised by shares, debentures and fixed deposits. These banks exist in only a few States, e.g. Madras, Bombay, Mysore and Madhya Pradesh. The two main difficulties responsible for the slow progress of land mortgage banks are the lack of trained personnel and the inability (legal) of the borrower to offer land



as a security. As a result of recommendations made in this report elsewhere, these difficulties will soon be surmounted and we trust that as a part of the State Plan suggested in paragraph 12 of this chapter a long term agency will be created in more States. However, we do not deem it essential to have a separate land mortgage bank either at the State or district level in every case. Considering that the borrower and the security that he has to offer are generally the same for various types of loans, it has yet to be established that a separate agency for long term credit is invariably preferable to a single agency for different types of credit.

17. A major part of the advances made hitherto by the land mortgage banks are for repayment of old debts. The funds obtained either from the State or the community need in future to be utilised for purposes which will step up production and thus create a surplus of savings out of which the old debts may be discharged. The land mortgage banks should hence-forward lay greater emphasis on this developmental aspect and should give preference to applicants who want to increase their resources for enhanced production.

18. Another difficulty encountered by these Banks relates to finance which is often raised by floating debentures. The debentures latterly issued by some of the well-established Banks were not subscribed fully even though they carried State guarantee and the Reserve Bank subscribed nearly 20 per cent of the value. There is therefore some apprehension that land mortgage banks, as a structure for long term credit, may languish for want of funds. This would hardly be in consonance with the objectives of the Plan. We have, therefore, made a provision of Rs. 5 crores spread over the next three years to supplement the long-term resources of the co-operative movement. We consider that the target for long term finance, Govt. and co-operative together should be Rs. 5 crores per annum at the end of the present Plan.

19. In regard to the principles which ought to govern the actual disbursement of the amount of Rs. 5 crores each which we have recommended to supplement the medium-term and long-term resources of the co-operative agricultural credit system, the following recommendations are made :-

- 1) The loans made out of these amounts should in all cases be linked to the

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programme of increased agricultural production, and should therefore be subject to the same priorities as that programme.

- ii) Without prejudice to the above subject, the loans should be so distributed, with reference to regions and to classes of agriculturists, as to reach, by preference, areas and classes not served at present by the co-operative credit system.
- iii) In planning the distribution of credit among such areas and classes, forms of organization should, if possible, be devised (e.g. borrowers' groups in villages) which can be readily developed into, or eventually fitted in with, ~~the co-operative~~ type of organization.
- iv) Where credit is ~~disbursed in an area~~ already served by the co-operative organization, the agency of that organization should be utilised as far as possible.
- v) The contribution to long-term agricultural finance may, among other things, take the form of Government purchasing part of the debentures issued by land mortgage banks.
- vi) ~~In regard to the implementation of these recommendations, a detailed plan should be chalked out by the Government of India in consultation with the Reserve Bank and other organisations concerned.~~

20. Finally, in putting forward the proposals outlined in this chapter we envisage them as helping in the realisation of the targets in the Plan and as a part of and a first step to a comprehensive and integrated policy of agricultural credit to be evolved as early as possible on the basis of the factual material which is expected to be furnished by the rural credit survey. At this stage we would only suggest that in the wider solution of the problem the integration of financial agencies would have to extend to all organisations - co-operative, commercial and other which act as repositories and suppliers of credit.

The history of agricultural development in all advanced countries shows that such an integrated system of credit laid the foundation for agricultural development and prosperity. Whether there should be a single agency dispensing all types of credit, or a separate agency for long term or for long and medium term, what form this agency should take at the State level and whether the State agencies need to be integrated in a Central Agency at the All-India level, and what part the Agricultural Credit Department of the Reserve Bank should play in this organisation, are matters which will have to be considered in the context of the wider issues referred to above.

CHAPTER XVII  
AGRICULTURAL MARKETING

1. The problems of agricultural finance discussed in the previous chapter relate to the pre-harvest requirements of the cultivators. The disposal of the produce after the harvest and the return obtained therefore also have a significant effect on production and on the welfare of the cultivator. Production in agriculture being seasonal, the crop is harvested during a short period and consumed gradually. While commodities like cotton and groundnut require large storage space which the average cultivator lacks, fruits, vegetables and sugarcane are of a perishable nature. The farmer, therefore, has to dispose of his surplus immediately either at the village or at the mandi. In the absence of staying power the large number of small farmers compete with each other and the markets witness conditions of occasional glut and scarcity. A major part of the commercial crops like cotton, ~~cute~~, sugarcane and oilseeds has to be marketed immediately as the farmers are in need of cash for meeting their dues and other expenses. As regards food-grains the marketable surplus varies by crops and regions but may be placed at about 20 to 30 per cent under normal conditions. The total quantity and value of the marketed produce, even in a predominantly subsistence economy as in India is considerable.

2. Sale of agricultural produce involves a number of functions such as assembling, storing, grading, standardising, transporting and financing the produce and negotiating sale. Some of these operations may be performed by the farmer, but storage and sale of a commodity and finding finance for purchase, call for specialised knowledge and adequate resources which the individual cultivator does not possess. Those who render these services, therefore, perform a useful function for which a reasonable return is due.

3. The village money lender or the Mandi Arhatrya advances loans to farmers for securing production requirements like seeds, and manures and for meeting other needs. These debts some times carry an understanding or an obligation to sell the produce to or through the lender or his nominee. At the time of sale the position of advantage occupied by the village banker gets reflected either in a lower price or unfair weights or delayed

settlement. If the sale takes place in the mandi, or the market through the brokers or Arhatryas the farmer pays not only for the services rendered by the middlemen but is also subjected to other unwarranted deductions.

4. To remove the disabilities of the farmers in the mandi, regulated markets have been established in the States of Bombay, Madras, Hyderabad and Madhya Pradesh. Unauthorised deductions are prohibited and the charges of brokers and weighmen regulated. In some of these places the system of open auction or sales has been introduced. These improvements have benefitted the cultivator to a certain extent. Regulated markets, however, do not exist in the States of Uttar Pradesh, West Bengal, Bihar, Orissa, etc. Some of the States which have adopted the Agricultural Produce Markets Acts have a large number of markets which still continue to be unregulated. It is necessary to extend the operation of the Act so as to cover all the important markets in each State by 1955-56, as this is the first step in improving marketing facilities.

5. The management of regulated markets vests in committees on which growers are also represented. Their voice is, however, seldom effective. Many of the marketing committees are not yet fully conscious of their responsibility of utilising their funds for developing marketing facilities. The Madhya Pradesh Government have, therefore, amended the Cotton & Agricultural Produce Markets Act with a view to entrusting the management of regulated markets to the Co-operative Societies and the Cotton Market at Amravti has been handed over to the local marketing co-operative.

#### Progress of co-operative marketing

6. The benefits of a regulated market which attempt only to improve the existing practices are limited; without changing the marketing structure the number of middlemen and costs cannot be reduced. Efforts in this direction have been made in some States by organising cooperative marketing. For example, 1,600 cane cooperative unions and other primary societies have been organised in Uttar Pradesh in the last 10 years. They handle 85 to 90 per cent of the total cane supplied to sugar factories. The average value (3 years ending 1951-52) of about 50 lakh tons of cane annually sold by the societies amounted to more than

Rs. 25 crores. This has been achieved under the Sugar Factories Control Act which requires every member of society in the zone to deliver a specified quantity of cane through the cooperative society for which minimum prices are paid by the factory. The cooperatives are paid a commission of about Rs. 1/4/- per ton for their services by the sugar factories. This is taken into account while calculating the sale price of sugar. Besides arranging the sale, these cooperatives are making an attempt to link up credit with marketing. They supply seeds, manures, fertilizers and other requirements. The unions also carry on rural welfare activities.

7. Co-operative marketing of cotton has been attempted in Bombay where 84 cotton sale societies functioned in 1948-49. While the societies in Karnatak arrange the sales of the produce of their members in individual lots, the Gujrat cotton growers pool cotton of a similar variety for purposes of sale. The co-operatives own 11 ginning and pressing factories in the State. The producer-cum-consumer societies in Madras which have been converted into marketing societies and a few others in other States are also making efforts in this direction. Some of them have taken up procurement work for the Government. Provincial marketing societies which have been established in 9 States to assist the primary units registered only a small volume of business which amounted to Rs. 1.15 crores in 1949-50.

8. The progress of marketing societies, inspite of immense scope, has so far been slow. The entry of a cooperative even as an agent is not generally favoured by the trade. For instance it refused to buy cotton offered by the cotton sale society in Karnatak and boycotted its sales. The buyers also make payment after a time lag and the co-operatives acting as agents are required either to raise a larger amount of finance to meet their commitments or to keep the amounts outstanding. The U.P. sugar factories, for example, were in arrears to the extent of about Rs. 2 crores, to the societies by the end of the year 1950. Some of the co-operatives had to engage contractors for finding finance and making payments. The performance of the contractors was unsatisfactory and their charges were heavy. To overcome such difficulties the Gujrat Cotton Sales Society established a ginning factory. This facilitated the sales and the ginning charges were reduced by 50 per cent. The Society however, did not own the pressing factory and utilized a plant belonging to the traders. After sometime the press owners raised their charges by more than 75% and declined to undertake the pressing work on behalf of the Society. The Society was, therefore, compelled to erect its own press. The cane growers of Ahmednagar District in Bombay State who had suffered

for the last 30 years from violent fluctuations in prices of gur they produced, have recently set up a Cooperative Sugar Mill which has not only ensured them better prices and timely payment but has also helped them in improving the efficiency of production through the supplyin of manures, fertilizers and seeds. The society tries to work with each farmer on his problems and provides long term credit for development. The loyalty and the support of the members, the enlightened leadership, financial aid in the shape of share capital, Rs. 6 lakhs from the Bombay Government and a loan of Rs. 20 lakhs from the Industrial Finance Corporation are some of the important factors which have led to the success of the scheme.

9. It would thus appear that even after the linking of credit with marketing cooperatives, which act only as commission agents for sale, ( as in Uttar Pradesh) are not effective and that ownership and management of processing facilities on a cooperative basis are essential for protecting the interests of the growers and strengthening the economy. The benefits of efficiency and economy in the processing activities are considerable, and if they are transmitted to cultivators, there will be an incentive for increasing production. A co-operative which functions in this manner can also assist in crop planning by introducing improved varieties of seeds, by giving the necessary technical advice to cultivators and by financial help wherever necessary.

10. There are, however, some commodities which are marketed without elaborate processing. In such cases the marketing cooperative will have to establish direct dealings with the consumer cooperatives. In Canada, the Grain Growers' Cooperative Company in Winnipeg, having been boycotted by the Canadian traders, had to negotiate sales of wheat with the Scottish Cooperative Whole-sale. In this country there exists a considerable volume of inter and intra State trade in wheat, pulses, fruits, vegetables, etc. By contacting its counterparts in other States the provincial marketing association should work out an arrangement for imports and exports. Similar arrangements within the State could also be made.

11. Some of the marketing societies appear to have been organised without adequate share capital. The Madras Provincial Marketing Society, for instance, has a share capital of about Rs. 50,000 while Orissa and West Bengal Apex Marketing Societies are functioning with a share capital of about Rs. 13,000 and Rs. 5,000 respectively. The credit limit assessed by and assistance available from the State Apex credit agency and the Reserve Bank for financing marketing operations depend upon the capital structure

and owned resources of the society and the volume of its business is largely regulated thereby. It is, therefore, necessary that marketing associations especially those which are meant to be apex agencies should obtain sufficient capital from their constituents.

12. Marketing requires technical skill and specialised knowledge. Associations operating in a group of villages or in a commodity do not have the volume or turnover to warrant employment of trained or qualified personnel. The area of operation of a marketing society should, therefore, be fairly large, say a Tehsil. Further, separate societies for individual commodities should be restricted only to such staples of trade as have a specialized wholesale market.

#### Storage & warehousing

13. Another difficulty that the societies encounter relates to storage facilities. Most of the surplus produce in an area is assembled and sold at the mandi or market which is generally at the rail or motor head and possesses road transport and banking facilities. On the strength of the goods pledged the banks finance the marketing operations. Release of goods and their despatch either on consignment or sale can be arranged more quickly from the godowns at the mandi than from those located in the rural areas. It would, therefore, be an advantage to develop storage facilities at mandi centres. Some godowns space- temporary, semi-temporary or permanent - are available in every mandi. This accommodation is often unsatisfactory as it fails to provide adequate protection to goods from damage and deterioration by moisture, rodents, insects, pests etc. Moreover even for getting such space, fairly high rent has to be paid. It would, therefore, be better if the cooperatives plan to have their own storage facilities. Some State Governments, particularly Madras, Bombay, Orissa are alive to this problem and are rendering assistance by providing loans and subsidies for the construction of godowns. Other States, we suggest, may follow this practice.

14. Several committees and commissions including the Royal Commission on Agriculture, the Central Banking Enquiry Committee, the Marketing Sub Committee, the Agricultural Finance Sub Committee, the Cooperative Planning Committee and the Rural Banking Enquiry Committee have emphasised the need to promote warehousing in the country and have also made various suggestions in this connection. In the absence of warehouse receipts which could serve as collateral for the promissory notes of the borrowing banks, it has not been



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possible for the Reserve Bank to extend assistance to the cooperative and scheduled banks under section 17 of the Reserve Bank Act for financing marketing operations. The Reserve Bank, therefore suggested establishment of licensed warehouses. The States of Bombay, Madras, Madhya Pradesh, Mysore, Hyderabad and Travancore-Cochin have already enacted the necessary legislation. We recommend that similar action should be taken by other State Governments as well. Even though the Warehousing Act has been passed in some States more than four years ago, licensed warehouses have not been established so far. This is largely due to the fact that the law, being an enabling piece of legislation, leaves it to the trade, private investors, limited companies or the cooperatives to set up the warehouses. The investors generally hesitate to take up a new venture in which they have little experience. Further the law provides not only for regulation and inspection of the warehouses but also for fixing the charges at a reasonable level. Under the present conditions when the money market is tight and there are other more remunerative fields for investment it is doubtful if private capital would be attracted, particularly in producing areas. Progress will, therefore, depend mostly on the initiative of the cooperatives and their ability to secure the required long term capital. We therefore suggest that the State Governments and the Reserve Bank should assist warehousing development by measures such as provision of loans etc. to organisations which are willing to undertake this work.

#### Future pattern of development

15. Cooperatives will be successful to the extent that they render efficient service to the growers at the minimum cost. This in turn depends upon their ability to undertake processing activities, command warehousing accommodation, and obtain sufficient financial resources and above all honest, capable and efficient management. Though some States have fostered the growth of marketing societies a policy for their development has yet to be laid down or followed for the country as a whole. Cooperative marketing linked with production finance and cooperative ownership of processing industries will be a useful instrument in increasing production, cutting costs and introducing a system of crop planning. Favourable conditions for their growth have, therefore, to be created without loss of time.

16. In this context we suggest that processing plants established hereafter should be owned and managed by cooperative societies, and licences

and other forms of support given to them by the States. Where such societies do not exist active and timely steps should be taken to organise and to equip them. As regards cooperative management and ownership of the existing facilities the progress will depend upon the speed with which the necessary organisation can be created and personnel trained. Where the movement has developed well in other fields, such as the States of Madras and Bombay - marketing societies may develop more rapidly as to them would be available the longstanding and valuable experience of cooperative workers. Cooperatives in other States would also benefit thereby as they would be able to build societies after taking into account the result obtained in these States.

17. The ~~technical~~, marketing, financial and administrative problems involved in these operations need expert study, guidance and supervision particularly in the initial stages. As every State may not be in a position to provide the experts and in some cases they may not have full-time work, it would be an advantage to have a standing committee of four experts on processing and marketing at the Centre. The Committee should assist the State Governments and the cooperatives in drawing up detailed schemes after a careful examination. It would be their responsibility to review the progress of work of every unit in the State from time to time and make a comparative study of the factors which hinder the work. In the past many marketing cooperative has foundered because the local manager and the Board are not able to foresee or tackle a problem on their own. While failures in private trade industry often go unnoticed, mistakes or shortcomings of a cooperative attract a good deal of public attention and criticism because of their democratic character and economic and social significance. Hence the need for and importance of expert guidance. As regards long term finance required by the societies for purchasing machinery and other equipment we consider that it should be made available by the State and Central Industrial Finance Corporations.

18. As the cooperative gain a surer foothold in the commodity markets it should be possible to bring the management of regulated markets more and more under cooperative direction. Immediately, cooperatives should be given adequate representation on the managing committees of regulated markets. As the positive services made available to growers by these cooperatively directed market committees

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become more evident, the committees may be empowered to make a small charge on the produce handled by them for a further expansion of these services. In this manner it would be possible for each market to build up funds of its own. On their strength the cooperatives could obtain accommodation from the bank for financing their operations.

### Grading

19. The introduction of proper grades and standards is another matter in regard to which the State can usefully assist. Grading of farmers' produce before sale on the basis of well defined grades in a regulated market will help in the proper valuation of his produce which will enable him to claim a price commensurate with the quality offered, thus providing an incentive to improve its quality. Grade standards are also necessary as a basis for the issue of negotiable receipts by warehouses and economical development of public storage facilities. The poor quality of the agricultural produce has been an important handicap in export markets. Shipments of cashew nuts, black pepper, turmeric, wool, etc., fetch reduced prices and get condemned abroad as they contain foreign matter and are not of uniform quality. On the other hand, the introduction of grading on the basis of Agmark quality standards has yielded satisfactory results in respect of tobacco and sannhemp. To remove the handicaps experienced by other commodities and promote export trade, it is proposed to undertake grading of wool, bristles, lac, sheep and goat skins, cashew-nuts, vegetable oil seeds, oils and kopak, the export value of which was of the order of Rs. 110 crores annually during the 3 years immediately after partition. These commodities would be brought under compulsory grading in successive stages. The total estimated expenditure on the scheme would be Rs. 86.47 lakhs which amount would be recovered from the levy of charges under Section 3(f) of the Agricultural Produce (Grading and Marking) Act of 1937. The following statement shows the programme :-

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Year	Scope of Plan	Developmental Expenditure (Rs. lakhs)
1951-52	Grading of tobacco and sannhemp.	5.06
1952-53	Grading of wool, bristles and goat hair and lac.	11.41
1953-54	Grading of sheep and goat skins.	14.38
1954-55	Grading of cashewnuts, pepper spices and lemongrass oil.	22.62
1955-56	Grading of kapok, myrobalans and other forest produce (rosin, turpentine, etc.), vegetable oil-seeds and oils.	33.00
Total:		86.47

It is estimated that as a result of grading the export value of these products would increase by about 10 per cent.

20. In the internal trade the question of grading of food products, particularly, milk, ghee and oil, is very important in view of its bearing on the health of the nation. We have discussed the problems connected with the purity of milk elsewhere. Our remarks here are confined to the grading of ghee and oil. The grading of ghee started in the year 1939 and a peak figure of 3 4½ lakh maunds was reached in 1944 and then dropped down to 95,000 maunds; today it is about 1.2 lakh maunds. Grading is voluntary and will develop to the extent that a market for graded products can be created. All departments of Government and other institutions, which buy ghee on a large scale, particularly hostels, hospitals, railway contractors, etc., should be made to purchase Agmark products. The graded ghee costs about Rs. 10/- per maund more than the ungraded product. The grading costs would get reduced by improving the efficiency of the operators and increasing the volume of business. A little rise in price is warranted by the superior quality of the products. Grading of mustard oil, groundnut oil, and til oil has also been taken up by the Department and about 1.8 lakh maunds are being graded at present. The railways have decided to buy

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graded oil for the requirements of their personnel. In some areas experiments with compulsory grading of oil and ghee could be tried by prohibiting the movement of ungraded oil by rail and road.

Sufficient power does not exist under the Agricultural Produce (Grading and Marking) Act, 1937 to prevent misuse of Agmark labels. The Act is being amended to secure these powers.

Laying down specifications for grading agricultural commodities should always be done in consultation with all the interests concerned, the State Governments and the Indian Standards Institution. This is necessary to preserve uniformity in standards throughout, India. There are certain products which, though absolutely pure, have regional standards different from all-India standards. In such cases these regional standards should have the same validity as the Agmark standards and should be accepted by all State Governments. At present this is not so. Agmark standards should also be considered as satisfying the pure food laws of the local bodies.

### Weights and measures

21. The importance of standardisation of weights and measures may also be stressed here as there is a bewildering variety thereof in the country. To introduce uniform system the Central Government enacted the Standards Weights Act in 1939 and commended it to the States. Bombay, Punjab, Bihar, Mysore and Hyderabad have enacted and are enforcing the necessary legislation. But in Madras, Madhya Pradesh, Uttar Pradesh and Orissa the Act though passed has not been fully implemented. We consider that every State should introduce and enforce the Standards Weights Act as this will benefit both the producer and the consumer.

## CHAPTER XVIII

### SOME PROBLEMS OF AGRICULTURAL DEVELOPMENT

In this chapter we consider a number of problems of agricultural development most of which are linked to the question of agricultural research. Training and research are discussed in the circluding sections of the chapter; but most of the problems dealt with earlier, whether it be the supply of better seed and fertilisers, the protection of crops from pests, the improvement of agricultural implements, or the devising of better methods for conserving the moisture of the soil, depend for their solution on the successful application of scientific knowledge to the everyday operations of the ordinary cultivator.

.Minor irrigation and rainfall.

2. A timely and adequate supply of water is absolutely essential for securing the maximum output from the land. In India nearly four fifths of the cultivated area is dependent on rainfall which is seldom adequate and timely throughout the whole country. Annual failure of crops in different regions of India is, therefore, a common feature of Indian Agriculture. The most effective way of increasing crop production in India is to provide through irrigation an additional source of water supply to cultivated land.

3. Irrigation is usually classified under two heads, major and minor. The area under major and minor irrigation works is 20.6 million and 26.4 million acres respectively. Another classification is based on the agency providing irrigation i.e. whether private or government. While most of the canals are government owned, wells and tanks etc. are largely owned by private parties. The area under private and canal irrigation has varied as follows during the last 25 years in two of the principal States for which comparable figures are available:-

State average for	(in million acres)			
	Irrigation by canal		Private	
	U.P.	Madras	U.P.	Madras
1920-25	2.15	3.80	5.18	5.07
1925-30	2.61	3.95	4.98	4.69
1930-35	3.15	3.88	5.00	4.77
1935-40	3.63	3.91	5.40	4.41
1940-45	3.95	4.24	5.25	4.76

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It will be seen that there has been practically no increase in private irrigation while the area under canal irrigation has increased by 83.71 and 11.6 per cent in U.P. and Madras respectively.

4. The fact that during the last 25 years the area under private irrigation has remained more or less unchanged, indicates that future scope for individual investment in irrigation works is small; and this is likely to be still further diminished by reduction in the present size of holdings consequent on land reform legislation. Such works will in future have to be increasingly undertaken on a community basis with or without State assistance. We endorse, however, the recommendation of the G.M.F. Enquiry Committee that separate funds should be allotted for sinking of wells by small landholders.

5. Small and medium irrigation works have an important part to play in developing irrigation in the country. They have many obvious advantages. They provide a large amount of dispersed employment. They involve smaller outlay and can be executed in a comparatively shorter period. Being spread over the country, they confer wide-spread benefit, and it is, therefore, easier to mobilise public co-operation in their construction. In view of these advantages and their contribution to increased production, a special provision of Rs. 30 crores has been made in the Plan for minor irrigation schemes. We recommend that every State should carry out a systematic survey of the possibilities of undertaking such schemes, and formulate a programme of execution in an order of priority, so that their construction can be effected in a planned manner. An administrative arrangement under which a trained corps is available to execute such projects on condition that certain contributions in labour and cash are provided by the local people would stimulate local competition for their execution. Such an arrangement is being adopted for the Community Projects and should be extended as and when the State can put in the field a suitable organisation for the purpose.

6. The question of maintaining these works in a proper state of repair has assumed importance, because the traditional systems in vogue have fallen into disuse. While legislation has been passed for the abolition of Zamindari, alternative arrangements have

not been made for the repair of tanks which were under the Zamindar's management. Frequently the beneficiaries of these works do not pay any water rate or other dues, and repairs are postponed, as responsibility for recovery of their cost cannot be fixed. In view of the large area irrigated by these works and the capital invested in them, we consider that the responsibility for their maintenance and repair should be unambiguously fixed and that the beneficiaries should be required to pay water rate in proportion to the advantage derived by them. The management of these works should vest in the irrigation Department which should be made responsible for their annual maintenance and repair and should utilise village panchyats or cooperatives where they exist, as agencies for carrying out these repairs.

7. Since so much of the cultivated area depends entirely on rainfall, problems of dry farming should receive much more attention than they do at present. By preventing field run-off and surface evaporation the moisture of the soil can be conserved and crops successfully raised under dry conditions. Research on this important matter has been conducted at Sholapur and Bijapur in Bombay, and at Rohtak in the Punjab. The experiments indicate that fair crop yields can be assured in a bad year and increased yield obtained in a normal year by following improved methods which include construction of bunds and embankments, production of soil mulch, proper weeding and hoeing and the use of drought resistant varieties of seed. There is scope for wider adoption of these practices by agriculturists. The difficulties experienced therein have to be studied by the extension staff and their solution found with the help of research.

8. The Meteorological Department has five Regional Forecasting Centres in India which issue weather bulletins daily for farmers. The bulletin is ready by noon, but it is broadcast by the All-India Radio in the Villagers' Programmes in the evening, so that the villagers can listen to it. The Director of Agricultural Meteorology receives check reports from Government farms comparing the forecasts with the weather actually experienced. A periodical assessment of these returns shows that the forecasts have a very high degree of accuracy.

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9. No steps have yet been taken to ascertain how these forecasts can be used to secure better timing of agricultural operations. The Agricultural Experimental Stations which verify the forecasts could be utilised for this purpose. This will involve some of them being equipped with radio sets to enable them to take full advantage of the forecasts. It is necessary that this should be done as it has yet to be established that the knowledge provided by weather forecasts can be utilised for the better timing of agricultural operations and so for obtaining increased production. It is only after this is established that the forecasts can be passed on to the cultivators and they can be advised to use them to guide their agricultural operations.

Simultaneously with this, each State might select an area where communications can be so arranged that it is possible for the weather forecast to reach the cultivator the same day that it is issued. Observations could then be made how this knowledge helps the farmer in timing his agricultural operations. Many States have community radio sets in blocks of villages and we suggest that a beginning should be made in any such area where this can be organised.

### Improved seed - production & supply.

10. One of the most outstanding achievements of modern agriculture is the production of improved varieties of seed for different crops. The cultivator is generally well aware of the importance of using good seed. Good cultivators are known to preserve their own seed. Certain varieties of seed have spread by themselves without special departmental efforts; and if improved seed is not making such headway as it should, the cause must be sought in some defect in the seed or elsewhere than in the apathy of the cultivators.

11. The mechanism for the production and distribution of pure seed is generally the same in all the States. A variety is bred and nucleus seed is produced on Government farms. It is then multiplied in two or three stages with two or three classes of cultivators, usually known as A, B & C. The seed from government farms is handed first for multiplication to 'A' class cultivators. The seed multiplied is then made over for further multiplication to 'B' class cultivators after which it is distributed. In some States, however, there is a third stage of multiplication. It is noticed that the larger the number of intermediate stages, the less the purity of the seed available for

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distribution. Failure to rogue properly, mixture with other grains and bad storage are some of the causes of the loss of purity and viability.

12. The scope for securing increased production from the use of improved seed is very considerable. We are not satisfied with the progress achieved so far, and feel convinced that there is much room for improvement in the system of multiplication and distribution. Some States have adopted legislation making the use of improved seed obligatory. In the case of crops liable to cross-fertilization, such a course is essential, but where soils differ considerably and require to be planted with different varieties of the same crop, compulsion would be possible only if pure seed of each variety is available. A strong public opinion has necessarily to be built up before legislation can be made effective.

13. In some States the collection and distribution of pure seed was handed over to co-operatives, but the results have not been altogether satisfactory. In the Punjab, where pure seed is collected along with other grains in the course of monopoly procurement, there have been complaints of seed deterioration. We consider that the multiplication and distribution of pure seed should be decentralised as far as possible, so that nucleus seed can be made to reach every single village or a group of villages. This will need a large number of seed farms operated by or under the close supervision of the Agricultural Department. Such farms, if large enough, can also be used for other experimental work. We recommend the location of one such farm in each block of a Community Project i.e. one for every group of about 100 villages. These farms can supply pure seed to the surrounding villages, and the duty of multiplying that seed and making it available for local distribution should be cast on holders of large farms.

14. Pedigree seed, issued for cultivation in a particular area, has to be renewed every four or five years to keep up its quality. This is the present experience of the Agricultural Departments.

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but scientific explanation for it is lacking. There is need to obtain accurate information as to what exactly happens under the cultivator's field conditions which leads to the deterioration of sound seed. Gradually the responsibility of the Agricultural Department for the supply of pure seed will devolve on registered seed supply agencies, and this information would be useful in arranging this transfer.

15. Experience has shown that pure seed of commercial crops, like sugarcane, groundnut, cotton, etc., spreads much faster than the seed of food crops. This may be partly due to the greater attention paid to these crops in the past, and to the work of specialised agencies created for their development. The supply of pure seed for food crops improved somewhat in the past few years, when considerable stress was laid on their propagation as part of the G.M.F. campaign. In spite of this, the progress has not been very great. It may be that there is special difficulty in maintaining the purity of the seed of crops which are widely consumed as food. The question requires further examination.

16. The Agricultural Departments should guard against the tendency to issue new varieties of seed for adoption by cultivators without full and complete trials conclusively establishing their superiority over those in use. In such cases, carefully docketed information on the experience of various growers of the new variety should be available. Frequent changes of seed - particularly if it is not fully tried - may shake the confidence of the cultivators and add to the difficulties of extension workers.

17. Attention has often been drawn to the saving which can be effected by a reduction in seed-rate but no systematic attempt has been made in any compact area to introduce sowing with a low seed-rate. The practice of treating the seed with a suitable fungicide before sowing requires to be introduced. The advantages of this practice are not widely known and deserve to be demonstrated.

18. We recommend the appointment by the Indian Council of Agricultural Research of a Standing Committee of Plant Breeders and Extension Workers to review every year the technical and administrative aspects of the multiplication and spread of improved varieties of seed and to make recommendations in the light of the review.

## Manures and fertilizers.

19. Manures and fertilisers play the same part in relation to the soil as food in relation to the body. Just as a well-nourished body is capable of the maximum effort, a well-nourished soil will have the best fertility.

20. The quality of the soil varies greatly in a country of the size of India. A systematic survey of the soils of India has not yet been carried out, though it is generally known that Indian soils are deficient in organic matter, nitrogen and phosphates. Soil samples have been analysed in different areas, but their correlation into a soil-survey for the whole country has not been undertaken. Field experiments have been conducted in various regions to determine the response of crops to various combinations of organic and inorganic manures, but in most cases crops responses and soil analysis have not been linked up. A very little work in connection with the effects of trace-elements in the soil has been done hitherto. It is now proposed to undertake a programme, designed to correlate soils, manurial trials and crop responses over the whole country. A beginning will be made with the Community Project areas and other selected areas in each State. A systematic study of the effect of trace elements in soils is also being made. Assistance under the T.C.A. has greatly facilitated this work.

21. Organic matter, nitrogen, phosphorus and potash are the chief constituents which must be supplied to the soil. Nitrogen is of the first importance in crop production. The soil has a mechanism by which it absorbs nitrogen from the atmosphere and makes it available to living beings in the form of grain and fodder; men and cattle derive energy from the consumption of these and the nitrogen taken from the soil is returned to it in the form of organic manures like farmyard manure, green manure, oilcakes, composts of various kinds, bonemeal, and various types of chemical fertilizers, thus completing the nitrogen cycle.

Next in importance is phosphate. Plants absorb phosphates from the soil which are returned to it through animal and human excreta and through decayed plants and their ashes and the bones of dead animals.

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Indian soils, while deficient in nitrogen and phosphates, are generally rich in potash. Lack of potash does not, therefore, present a serious problem at present but it is one that should be watched.

22. Manures may be classified into two categories - (a) organic manures and (b) inorganic manures. Organic manures may further be sub divided into (i) bulky organic manures; (ii) concentrated organic manures. Bulky organic manures include farmyard manure, compost manure, nightsoil and green manure, while concentrated manures are oil cakes, bonemeal, dried blood, horns and hoofs etc. Tropical soils often lack humus. The addition of bulky organic manures like farmyard manure, which is a by-product in farming by bullocks, helps the soil by increasing its water holding capacity, improving soil aeration, and by changing the plant nutrients through slow decomposition into forms readily available to plants. There are other advantages in the use of organic manures namely (a) steadiness in yield over a period of time (b) benefit to the succeeding crops by their residual effects, and (c) ability to withstand unfavourable weather conditions.

23. On the basis of the 1951 livestock census the total production of fresh dung is estimated at 800 million tons; however all this valuable manure does not go back to the land. A large part of it - which may amount to nearly 50 per cent - is used as fuel by cultivators. The dung which is now burnt can be saved for agriculture if suitable supplies of fuel are made available. We have recommended in the chapter on Forests the creation of village plantations and popularising the use of coke.

The above estimates do not relate to cattle urine which is rich in nitrogen but mostly goes to waste. Conservation of cattle urine should be an item of extension work in all States and increasing attention should be paid to the conservation of this useful source of manure.

24. Human excreta and urine are very important sources of nitrogen, phosphorous and organic matter.. Their maximum utilisation occurs in China and Japan but in those countries they are applied in a raw

uncomposted form, and harmful bacteria find their way to the crop and affect the health of those who consume it. This is avoided in India, where such manure is almost invariably applied after proper composting.

25. In urban areas, where the night soil is removed by sweepers, it is usually composted with refuse, and the manure is sold to ~~the cultivators~~ ~~the agriculturists~~. Most State Governments have passed legislation making it obligatory on Municipalities and Notified Area Committees to dispose of nightsoil in this way, and a steady improvement in the amount of urban compost is noticeable.

		<u>Lakh tons.</u>
1946-47	...	2.89
1947-48	...	3.80
1948-49	...	5.17
1949-50	...	9.23
1950-51	...	10.63
1951-52	...	13.50

Out of about 3,000 towns where Municipalities and Notified Area Committees are functioning, composting is in progress in 1684 towns only, yielding annually about 17 lakh tons of compost. Provision has been made in the Plan for extension of composting to the remaining towns. At the end of the period of the Plan about 30 lakh tons of compost would be available.

26. The utilisation of urine, whether human or animal, for manure is of even greater importance than the utilisation of nightsoil or dung, as the former provides a much larger proportion of nitrogen. We have not yet developed any efficient and popular system or appliances for utilising urine as manure. Its collection is easier in towns with underground ~~sewage~~ ~~sewage~~, which have a scheme of sewage-utilisation. In other towns only the nightsoil is collected by municipal authorities. Urine collection is not practicable, unless

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community urinals have ~~proper appliances for soaking and~~ utilising the urine, and suitable urinal is devised for family use where the urine can be collected and absorbed.

27. Preliminary work has been done on this subject at the Indian Agricultural Research Institute and the 'Agri-San' urinal is being evolved. In the Punjab, the 'utility' urinal is being recommended for collection and utilisation of urine. The installation of these urinals would help to conserve urine in areas without underground drainage. In order to introduce these urinals into the daily life of the people a beginning should be made with institutions like jails, hospitals, schools, boarding houses, cinema houses, and other public places.

28. In the rural areas the nightsoil and urine are not generally being utilised as manure. Here it is necessary to distinguish between a mere return of urine or nightsoil to the soil and its utilisation as manure. When a field is utilised for defecation, as frequently happens in a village, there is a return to the soil but the manurial value of it is small as most of the valuable constituents are lost by exposure to the air and sun. It is necessary to devise a suitable latrine, which villagers can use and which will be sanitary, convenient, and fly-proof and can be shifted. The trench-type holds the field at present. It may be mentioned that the cost of construction and maintenance of these latrines with local materials, can be covered by the sale of the manure that will be made available. Public urinals should also be located at suitable places in the village area.

29. It has been recently found that cattle and human wastes yield fuel gas by appropriate fermentation without much loss of organic matter and of nitrogen compared to the ordinary composting process. If this process, which has successfully passed through laboratory and pilot plant stages, is developed, it will check the burning of dung as fuel and thus augment materially the supplies of organic manures.

30. The growing of leguminous crops and burying them under the soil is a well known method of soil building. The nodule bacteria fix the atmospheric nitrogen in the soil in a form

readily available to plants and the turning under of the crop adds organic matter which is essential for keeping the soil in good heart. The value of green manuring has been recognised, but it has not become a common practice even in the area where adequate rainfall or ample irrigation facilities are available. The pressure of population in such areas is generally so great that the cultivator cannot afford to bury a crop which does not directly bring him any return. On the other hand larger land-holders have been observed to practice green manuring on a reasonable scale. In the case of small cultivators, the introduction of leguminous catch crops, especially pulses, in the ordinary rotations preferably with phosphate manuring would do much to help increase the nitrogen contents of the soil. They will not only add to the food reserve of the country but would also be valuable as a rich source of proteins. They are important also from the point of view of animal nutrition to which they contribute indirectly in the form of hulls and straw. Where conditions are favourable the State should take steps to encourage such crops by providing necessary facilities and inducements such as supply of seed and irrigation at the time of sowing, and by offering concessions such as remission of water rate or land revenue.

31. The principal oilcakes available in the country are ground-nut, sesamum, rape, linseed, cotton seed, castor, mamba and neem. They contain about 3 to 6 per cent nitrogen and 1 to 2 per cent phosphoric acid. Used as manure, they serve as carriers of available nitrogen and have shown consistently good results on a variety of crops. Most of the edible oilcakes are valued as cattle-feed, but lately some of them particularly ground-nut, are also being extensively used as manure. We consider this practice undesirable especially as there is a shortage of cattle-feed in the country. Non-edible oil cakes alone should be used directly as manure. Better results are obtained if chemical fertilizers are used in combination with these oilcakes.

32. Blood meals, horns, hoofs and meat meal are the by-products of the slaughter houses which can be used for fertilizing the soil. Fresh blood in its natural state contains 2.5 to 5 per cent of nitrogen



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while in the dried form it contains from 8 to 14 per cent of nitrogen depending largely upon the method of manufacture. Dried blood in the form of cakes grinds easily and can be used alone or mixed with other manures. It is estimated that about 10,000 tons of dried blood could be produced from the slaughter houses in the country.

Other material available from the slaughter houses consists of pieces of skin and rejected meat etc., which, mixed together, are generally known under the trade name of 'tankage'. Tankage varies greatly in its chemical composition depending upon the various constituents forming it. It may contain from 3 to 10 per cent of nitrogen and from 7 to 20 per cent of phosphoric acid. These products can be a source of income to the Municipalities if proper methods of conserving blood and tankage are adopted. The material prepared will soon find a market as a good fertilizer for fruits and vegetables.

The hoofs and horns of dead animals are collected in this country along with the bones. At the assembling centres they fetch higher prices than the raw bones and are, therefore, crushed separately. A considerable quantity is at present exported. The horn meal contains about 15 per cent nitrogen and can be utilised as a fertilizer with advantage.

33. Bonemeal is a good form of phosphatic manure which contains organic matter and some nitrogen also. It is suitable as a manure for all types of soils, more particularly acidic soils, where superphosphates cannot be used. Apart from its phosphatic value, bonemeal helps to increase the phosphorous content of grain and thus enhances its nutritive value. Sterilised bone-meal is also a valuable cattle feed, and its use in this form has great scope.

34. The average annual collection of bones amounts to about 1,50,000 tons. This is only one-fourth of the estimated quantity available judging from the number of cattle that die in a year. It is possible to crush bones completely as bonemeal, but crushing factories, interested in the more lucrative export trade of grist, do not produce the maximum amount of bonemeal. The demand for bonemeal has also to be built up. At present 25 percent of the bones is converted into bonemeal and the

remaining 75 percent is exported as grist for which there is a considerable demand in foreign countries as it is a source of glue and gelatine. The export of bonemeal is prohibited and the whole of it is used internally as manure. The high price fetched by the export of grist enables the crushers to make bonemeal available at comparatively low prices.

35. The export of bones from India has been going on for a long time. The earliest record is for the year 1884-85, when 18,000 tons were exported. Since then exports have steadily increased and between 1884 and 1951, a total of about 4 million tons of bones have been exported. This export has been criticised on the ground that it deprives the Indian soil of a valuable manurial constituent which should return to it. Indian soils are known to be deficient in phosphates. While grist, which could be converted into bonemeal, is exported, the phosphatic deficiency is sought to be met by importing rock phosphate and converting it into super-phosphates. Grist certainly does fetch high prices and there is ~~some~~ saving to the country in the export of grist and its substitution by superphosphates as a source of phosphatic fertilisers. On the other hand, the supply of organic matter and nitrogen is a feature of bonemeal which is not present in superphosphates.

36. In order that the export of bones should cease, steps ~~must~~ be taken to manufacture by-products, like glue and gelatine, in India. Increased crushing capacity should also be provided, particularly in areas far ~~away~~ from railheads, so as to stimulate better collection of bones. Our attention has been drawn to a bone digester which has been lately imported from Japan. Bones are steamed under pressure, and fats and glue are extracted; thereafter the bones become so brittle that they can be crushed in any pounding machine. The bone-meal thus obtained can be used ~~as manure~~, as well as cattle-feed. The collection of bones will increase only if crushing units or plants like the bones digester are located in areas where collection is not paying because of the long distances from railheads. If any State considers it necessary to impose a provincial ban to enable it to increase the crushing capacity in the rural areas, such a request from it should be favourably considered by the Centre.

37. Coming now to inorganic or synthetic fertilisers, the most important nitrogenous ones are ammonium sulphate, ammonium nitrate, calcium nitrate, ammonium phosphate and urea. The important phosphatic fertilizers are superphosphate, rock phosphate, and ammonium phosphate. In the past 50 years several types of nitrogenous and phosphatic fertilisers were introduced into this country and experimented with at the different experimental stations. Of these ammonium sulphate and superphosphate are most in use today, and these are at present being manufactured in the country. Ammonium sulphate requires for its manufacture gypsum which has to be transported over long distances. Super-phosphate and sulphur or sulphuric acid. In the Indian Union there are no rich deposits of sulphur and the supply position of sulphur in the world is difficult. It is, therefore, desirable that the possibilities of manufacturing ammonium phosphate, which supplies both nitrogen and phosphorus to the soil should be investigated. Deposits of rock phosphate are reported to exist in India and the fertilising value of ammonium phosphate has already been established by field experiments in different parts of the country.

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38. There has been some criticism of the introduction of chemical fertilisers without full steps being taken to mobilise all the manurial resources of the organic type. This criticism, insofar as it stresses the necessity of mobilising these resources, is just; but the process is bound to take some time as it necessitates the disturbance of age-old habits. We do not consider that it is necessary to wait for such full mobilisation before introducing chemical fertilisers. The two processes should and can go on simultaneously. Both these types of manure are necessary for maintaining and increasing soil fertility. It is well known that a continuous application of chemical fertilisers only, without the support of any bulky organic manure, leads in course of years to soil deterioration and progressively lower yields. It has, therefore, been a practice to recommend the use of chemical fertilisers more particularly bulky organic manures, in conjunction with bulky organic manures.

Phosphate is best applied to leguminous crops for this not only helps the growth of that crops but also thereby augments the quantity of nitrogen added

to the soil which increases with the yield of the leguminous crop. This is, therefore, a useful method of supplying the soil with the nitrogen and phosphorous so much needed for cereal crops.

39. The fact that fertilisers are in demand today shows that their use is profitable to the cultivators. But their high prices in recent year have resulted in larger quantities being utilised for commercial crops in preference to food crops. Unless, therefore, the prices of fertilisers are substantially reduced so as to be within the reach of the grower of foodgrains, any expansion of the use of fertilisers for food crops will be difficult.

40. The problems relating to the conservation, production distribution and utilisation of manures and fertilisers are sufficiently large and important to warrant their being kept under review by a competent body of experts. We recommend the appointment of a Committee of the ICAR charged with the following functions:-

- (a) to review annually and to obtain accurate information on the potential supply of manurial resources and the quantities actually developed and utilised;
- (b) to estimate the country's manurial and fertiliser requirements, the potentialities for production in different parts of the country and the optimum conditions for their utilisation;
- (c) to estimate the response obtained by the use of fertilisers and their economic cost to the cultivators; and
- (d) to report on the development of the utilisation of manures, human and cattle wastes, green manures and fuel gas.

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### Agricultural implements and machinery.

41. Though State and Central Governments have paid considerable attention during the last 20 years to agricultural research, comparatively little has been done to improve indigenous implements. The Governments of Madras, U.P., and the Punjab have achieved something in this direction and so have educational institutions and manufacturers, but no definite schemes were drawn up nor was the work systematically followed up until the Agricultural Engineering Section was added to the Indian Agricultural Research Institute in 1945.

42. Agricultural implements may be classified broadly into the following categories: implements (a) for preparing the seed bed; (b) for cultivation operations; (c) for harvesting and threshing work; (d) for processing and utilisation of agricultural produce; and (e) for lifting water. Attention has been hitherto devoted mostly to improvement of the implements used for processing the produce and lifting water. Improved sugarcane crushers, the Persian Wheel, and the Revolving Drum illustrate this tendency. There exists considerable scope for improving the efficiency of implements used for seed bed preparation, planting cultivation and harvesting operations.

43. While Dr. Stewart considered that as long as the land is kept free from weeds it makes little difference to crop yields whether 'desi' implements or improved implements are used, it is generally accepted that by using improved implements a larger area can be covered in the same time, and the timely performance of agricultural operations results in reduction of costs as well as better yields. For certain agricultural operations, e.g. turning under of green manure improved implements are essential. The need for encouraging research in this field is thus obvious. For this purpose we recommend that every State should have in its agricultural engineering section a whole-time officer for conducting research on indigenous tools and implements. Many of the existing agricultural engineering sections deal mainly with power drawn machinery, and a special officer is required to devote exclusive attention to the important subject of indigenous implements. The engineering section at the Indian Agricultural Research Institute will have to be similarly strengthened with a special officer. The section so established in the States and Centre should

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have adequate facilities for research and trials. Besides conducting research on indigenous implements the special officer at the Centre will try out imported implements. He will also co-ordinate the work done in various parts of the country and pass on the information regarding improved implements to executive agencies. It will be his responsibility to furnish the results of research to manufacture for commercial development.

44. As implements have to be adjusted to crop, soil and climatic conditions, the research problems have to be examined on a regional basis, i.e. for a group of States. Regional Committees consisting of technical experts, enlightened farmers, representatives of the State Governments, manufacturers and dealers should therefore be set up by the I.C.A.R. The Committees should indicate the lines on which research and development work should proceed. They should also approve the schemes drawn up by the States and review their progress regularly. The special implement officers at the Indian Agricultural Research Institute should act as a convener of the regional committees. The Indian Council of Agricultural Research might also convene an annual conference on implements and machinery to which nominees of the regional committees, prominent research workers, and manufacturers should be invited. The programmes of research drawn up by the State and accepted by the regional committees should be accorded a high priority by the Council which should provide necessary financial assistance. It should also offer technical advice and follow a policy of sponsoring research on implements in all the important States.

45. Along with research, the difficult task of popularising improved implements and arranging their supply has to be tackled. This would also be the responsibility of the special officer to be appointed in every State. He will have to do this work with the assistance of the extension staff. As research gets organised in the States and at the Centre, new designs will be evolved. These designs and models will be supplied to the fabricators for manufacturing the implements on a commercial scale. It may be desirable to encourage the establishment of small fabricating units which will provide employment to rural artisans. These could be further developed into workshops where the manufacture of steel trunks, buckets and other utilities could also be undertaken. It would be advantage to organise local fabricators and blacksmiths into co-operatives for undertaking

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production of implements. The implements manufactured should be recommended to cultivators only after careful trial and test by the implements officer of the State, who should be provided with the necessary equipment for carrying out tests.

46. As regards arrangements for distribution the implements can be supplied direct by the dealer or from the Government depots or through the cooperative societies. Takavi loans or loan from cooperative societies may be provided to popularise new implements if their cost is high.

47. The facilities for the servicing and repair of implements and tools are not very satisfactory. The technique of the local blacksmiths and carpenters needs to be improved by organising a short training course at important centres. Co-operative societies of fabricators besides undertaking production should also provide servicing and repair facilities at reasonable rates. In addition the machine tractor stations and workshops which are being established by the Central and the State Governments should also have a section for undertaking repairs of indigenous implements. Spare parts needed for implements should also be stocked by the machine tractor stations and the co-operatives.

48. During and since the second world war cultivators have begun to use power driven machinery to a greater extent than before. Increased financial assistance under the G.M.F. campaign for the purchase of tractors, diesel engines, electric motors, has accelerated the process. The rising cost of labour as well as its scarcity in certain areas are other factors which have tended in the same direction. The rapid increase in the use of tractors in this country may be judged from the following table :-

	<u>No. of tractors imported</u>
1949-50	3,318
1950-51	4,930
1951-52	7,400

49. The use of tractors has distinct advantages in certain operations such as : (a) reclamation of waste or weed infested lands; (b) cultivation of lands in sparsely populated areas where there is a shortage of labour; (c) drainage and soil conservation operations such as contour bunding, terracing, ridging etc. The utility of tractors for reclamation operations has been demonstrated by the Central Tractor Organisation which has been working in the Terai areas of U.P. and the kans infested tract of Madhya Pradesh, Madhya Bharat, and Bhopal. The States have also acquired some experience of this work during the last five years. The precise extent to which waste and fallow lands can be brought under the plough can be ascertained only after a detailed survey, but it is believed that out of 98 million acres classified as cultivable yet lying waste about 11 million acres can be reclaimed in the near future. The Plan provides for reclamation of 2.62 million acres. While the pressure of population is generally heavy in the country as a whole there are thinly settled areas, particularly in Vindhya Pradesh, Madhya Bharat, Rajasthan etc. where labour shortage is an important limiting factor in the expansion of cultivation. Reclamation by tractors and mechanised cultivation in such tracts has obvious advantages. Large areas can thus be developed either as State farms or for settlement of landless labourers on a co-operative basis.

50. While tractors can safely be utilised for the above purposes, care will have to be taken to see that their use for general cultivation work in other



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areas does not cause unemployment. The small size of holdings, the absence of avenues of employment other than agriculture, the shortage of fuel-oils and iron and steel are factors which militate against the use of tractors in this country for cultivation on any substantial scale and, by and large, Indian agriculture will continue to depend upon animal power for a long time to come. Even though tractors reduce labour costs and facilitate agricultural operations, there is no conclusive evidence that they increase production, though they are a valuable aid when speed of operations is a relevant factor. It is reported that some of the bigger cultivators have acquired tractors recently because of a feeling that those who adopt the mechanical means of cultivation will be accorded special treatment and allowed to retain larger holdings for personal cultivation in case a ceiling is imposed on existing holdings. This has led to displacement of tenants. This trend is likely to be maintained and may even increase unless protected tenancy rights are conferred on those who occupy the land as tenants-at-will and as sub-tenants. Some of the States have initiated action on these lines.

51. During the year 1951-52 tractors worth about Rs.6 crores were imported into the country. Imports are likely to continue in future at this level and the total value of imported tractors during the Plan period may be around Rs.30 crores. The imports include machines of numerous makes and designs from various countries. It is understood that about ten to fifteen per cent of the tractors remain out of use as many of them are not suitable for Indian conditions. Import and sale of machines whose utility has not been fully established, not only causes loss to the cultivators but also retards the pace of technological progress as the unfavourable experience of a few farmers discourages many others from making purchases. To avoid the wastage and losses that thus take place it is essential that imports of undesirable types of machines should be reduced to the minimum. For this purpose it is necessary that every make of tractor received should be tested in regard to its utility under Indian conditions. The test may be carried out at a testing station to be established by the Government of India and imports regulated on the basis of the findings of the test. It should be possible to set up such a station at a cost of Rs.2 to 2½ lakhs in addition to the recurring expenditure which may be in the neighbourhood of about Rs. 75,000.

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In this connection it would be an advantage to study the organisation of similar institutions which are operating in U.S.A. and U.K.

52. The cultivators also experience difficulty in obtaining spare parts and the arrangements for servicing and repairs are not always satisfactory. The Government have been trying to remove these difficulties but there is considerable scope for improvement. The Government should see that adequate facilities for supply of spares and repairs are provided either by the dealers or at the State workshop as this would reduce breakdowns, avoid dislocation and lead to better utilisation of the equipment.

53. Though some data are available regarding the cost of reclamation by tractors comparative and thorough study of the economics of mechanised and bullock-power cultivation has yet to be made. The I.C.A.R. might undertake such a study for various regions and crops.

54. Besides tractors other power driven machines, electric motors, diesel engines, etc. are becoming increasingly popular in rural areas as water lifting appliances. The power available from these engines can also be used for other agricultural operations such as cane and oilseed crushing, grinding etc. It is estimated that about 60 thousand diesel engines are required annually for agricultural purposes. To encourage their use many of the State Governments are providing assistance in the form of loans which the farmers can repay over a period of years. The testing station suggested in paragraph 10 above should also carry out tests on diesel engines and pumping sets, etc. so that the cultivators may be able to ascertain the makes which are inefficient or undesirable.

~~Plant protection, quarantine and storage.~~

55. No systematic quantitative studies have been conducted so far to determine the losses caused by insect pests and plant diseases in India. The International Conference, organised by the F.A.O. in London in 1947, considered that in tropical and sub-tropical countries, where climatic conditions are conducive to a rapid

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multiplication of pests, the losses in storage alone might be estimated at about 10 per cent. The losses in the field, particularly in the case of epidemics, can be very severe.

56. The Plant Protection Organisation at the Centre consists of a Directorate, with the Plant Protection Adviser as its head, and three main divisions, (i) Entomology, (ii) Plant Diseases, and (iii) Quarantine. There is a Storage Entomologist and a Quarantine Entomologist and other staff to help the Adviser. The Directorate advise the states on the control of various diseases and pests and helps them in setting up Plant Protection Organisations in their areas. The locust control work is also its responsibility.

57. The primary function of the Plant Protection Organisations at the Centre and in the States is to fight outbreaks in epidemic form, and they should be sufficiently equipped for this purpose. At the time of an epidemic, the extension and the plant protection staff together with the equipment and insecticides have to be moved to the affected place at short notice.

58. A secondary function of the organisations in the States is the investigation of plant diseases and pests and the prescription of measures for their destruction. Research and investigation must be directed towards evolving remedies and methods which can be adapted to the local practices of the cultivators and which will utilise local materials. Imported insecticides and pesticides should be recommended only after trials with local materials and methods have failed to achieve results.

59. The pests and diseases which occur during the various stages of growth of a plant are well known, and so are the methods of fighting them. In the case of diseases, preventive measures have to be taken, generally at the sowing stage. Both these measures assume a routine character and can be taken by the ordinary field staff with some previous training. No separate organisation for this work at the village level is necessary. Technical staff is, however, required to locate the focus of an onset, to devise special measures in the case of epidemics and to train the field

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staff. It is necessary to state these considerations as we notice considerable variation in the strength of the plant protection staff in different states.

60. It may be an advantage for each State to study over a period of years all outbreaks which have assumed an epidemic form and to trace the factors favourable for their growth and subsidence. If the results are shown on maps it would facilitate the location of centres of attack, the siting of plant-protection equipment and the determination of the strength of staff required. It may also help in forecasting epidemics.

61. The methods of control adopted for preventing damage to crops by insects and pests may be classified under four categories:

- (1) Quarantine
- (2) Biological Control
- (3) Cultural methods, and
- (4) Chemical treatment.

62. Quarantine is the prevention of entry of plant and animal pests and diseases from countries outside India. In the past, owing to lack of efficient quarantine arrangements, injurious insects entered the country and established themselves as pests. The requirements for efficient quarantine operations are that the plant material coming into this country should be fumigated. A fumigatorium with modern equipment was established at the port of Bombay a few months ago. The plan provides for setting up quarantine and fumigating stations at Madras and Calcutta. Land frontiers and air ports have also to be guarded against both plant and animal pests and diseases.

63. Biological control involves employment of an insect to check the development of another insect pest or weed. A well known example of such control is the use of the cochineal insect for the eradication of prickly pear. A considerable amount of work has been done in the country during the past twenty years on the science and practice of biological control and methods have been in operation against sugarcane borers and naphanthes of cocconut in the South. There are facilities for biological control work at the Indian Agricultural Research Institute.

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64. ~~Variation in cultural practice is another~~ useful method of control. Introduction of resistant varieties of crops, changes in rotation, time of sowing or planting, deep and shallow cultivation, giving or withholding of irrigation, are the usual methods tried. This system of control has the advantage that the results are obtained without any additional cost and do not depend on equipment which may not always be locally available. Change in the time of sowing wheat was a major factor in Hessian fly control, and a similar method has dealt effectively with the Tirak disease in cotton. The limitations of this method are, that a variation of cultural practice which prevents the onset of the disease or pest has also an adverse effect on crop yields, and the cultivator prefers the former risk. Sufficient stress has not been laid on these methods and there is a tendency to try out insecticides without fully investigating the possibilities of variation in cultural practices or other methods based on resources available to the cultivator.

65. During recent years the use of insecticides particularly D.D.T., B.H.C. and other similar chemicals has increased considerably and manufacture of D.D.T. and B.H.C., which are at present imported, has been visualised in the Plan. These chemicals are superior to those previously used because they act both as contact and stomach poisons. An ideal insecticide, however, is one which kills the harmful insect pests without creating any hazards to the consumer - human beings and cattle - of the plants to which it is applied. It should also not upset in the long run the biological balance in nature by destroying other beneficent forms of plant and insect life. More experience regarding the use of these insecticides and experimental evidence of their effect on human beings and cattle, who consume the straw and grain of the treated plant are required before their extended use can be recommended. There is a difference of opinion regarding their after-effects even in the most advanced countries.

Organised guidance regarding the use of pesticides is also necessary in this country as at present different firms market a variety of brands without authorised tests of the claims made for their products. It should be function of the Plant Protection Organisations to conduct experiments with the different brands on sale in the market and advise the extension agencies etc.

on the best material available.

66. As regards the manufacture of insecticides and fungicides, the possibilities of utilising indigenous material for this purpose should be more thoroughly explored. For example pyrethrum has active ingredients of high toxicity to many common insects. Black mustard oil also has been claimed to have fungicidal value. The scope in this regard has to be examined as systematic cultivation of such crops would raise the income of the farmers.

67. It is difficult to calculate the loss due to pernicious weeds in terms of money, but in the case of severe infestation, the yield is considerably reduced. Weeds, such as pohli and kandiari in wheat, cause harvesting difficulties. Some tenacious weeds such as baru and kans get such a firm hold on the soil that the land goes out of cultivation. In the case of annual and biennial eradication of weeds, the treatment usually is their removal before seed formation, while perennial weeds are eradicated by deep ploughing and exposure of their stems and roots to the severity of the climate. In the United States weeds are being controlled on a large scale by the use of flame throwers and selective herbicides. A research scheme has been sanctioned by the ICAR for the investigation of the control of weeds by means of selective herbicides. While ~~not~~ ~~the~~ ~~best~~ ~~method~~ ~~to~~ ~~be~~ ~~used~~ ~~for~~ ~~securing~~ ~~definite~~ ~~infor-~~ information

68. During the present century there have been five locust cycles during which Rajasthan, Punjab, Pepsu, Saurashtra, Kutch, and parts of Bombay State have witnessed large scale invasions which often resulted in considerable damage. The permanent homes of locusts lie in extensive belts of Africa and countries of the Middle East. Locusts not only attack agricultural crops, but also forests and in fact any green vegetation available. The Government of India have maintained a Central Locust Organisation to fight this menace. This organisation is responsible for control operations in desert areas, while the States are in charge of the work in their cultivated areas. A fresh locust cycle which started in the year 1949-50 is still in progress and the Government have adopted necessary control measure which include spraying and dusting of chemicals on a large scale in the breeding areas. The attacks ~~should be encouraged~~

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on crops in cultivated areas are met by mechanical and chemical methods such as the destruction of eggs by exposure after ploughing, burying them in trenches etc. To intensify the campaign aid in the form of aeroplanes, helicopters and other equipment is being obtained under the Technical Assistance Programme.

69. The crops have also to be protected from stray cattle let loose either through carelessness or wilfully by unsocial elements. Such cattle when caught are impounded in cattle pounds. The charges levied for their release are often so small that they do not act as a deterrent. To ~~overcome~~ this nuisance it is necessary that heavier penalties be imposed and exemplary punishment awarded to habitual offenders. The cattle Tress Pass Act should be amended to secure this. Damage by wild animals to crops and cattle is another menace in certain areas. Organised action against them is necessary as individual action only shifts the burden on to other cultivators. Destruction through gun-clubs, trench pits and similar methods is the only solution.

70. Losses in storage area also quite high. At the village level most of the surplus produce is marketed by the farmer soon after the harvest. Village storage is not, therefore, a major problem and the traditional system of storage is fairly satisfactory. It requires, however, to be further studied.

Losses are greater in the godowns and storage space in the assembling markets as they are continuously occupied and are generally maintained in a poor condition. In their case preventive measure against stored grain pests such as fumigation, super-heating and use of insecticides should be adopted on a wider scale. With the introduction of controls and government imports, steps were taken by the State to construct and lease storage accommodation. It is understood that the Central and State Governments have at present a storage capacity of about 51 lakh tons of which nearly 15 lakh tons are Government owned. The Directorate of Storage and Inspection are responsible for the disinfection and fumigation of the Central Government stocks, and also supervise the work in the case of the State civil

supplies departments. The Civil Supply godowns are generally located at important railheads and mandis where the trade also has its facilities. It would be an advantage if the Civil Supplies staff also actively assist in the periodical inspection and disinfecting of the godowns.

#### Agricultural education and training

71. The ability of the extension service to appreciate the difficulties of the farmers and to render effective assistance in resolving them are factors which will largely contribute to the success of the agricultural programme. The extension staff, particularly at the village and tehsil level, has to be properly trained and equipped for this work. Provision of adequate teaching and training facilities for this staff is an important aspect of agricultural education. Another equally important but broader aspect is the education of the cultivators, so that they may practice scientific agriculture.

72. The main defect of the extension work carried on hitherto has been its relatively greater reliance on propaganda rather than on actual demonstration to the cultivator under his field conditions. This is largely due to insufficient stress being laid in agricultural institutions on practical work and on the correlation of practice with theory. The complaint that students from agricultural institutions prefer jobs to private agriculture largely arises from this drawback. A trainee must be moulded physically and mentally into the practice of the 'dirty hands' method, before he can be expected to demonstrate it successfully in the field, or practice it himself in his own cultivation. We commend the Manjri pattern of two year schools in the Bombay State as the best for ensuring that this background is sufficiently emphasised. These are boarding schools, and every item of work on the farm where the school is located has to be done by the students; servants are allowed on the farm only during the vacation period. The schools have the additional advantage of being less costly and of enabling the student to supplement his income, during the school period. They supply village-level workers, and also offer agricultural training to sons of cultivators. Their drawback is that a student passing out from such a school is not able to prosecute his studies further in an Agriculture college.



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This handicap should be removed, by extending the course by one year for those who want to prosecute their studies further. This may necessitate a special admission examination for them by the Agriculture college.

73. All village level workers are trained either at agricultural schools, or in special training centres. The total number of schools in the country is 38, and ten more will be started during the Plan period. The training period in the schools generally extends from two to three years. We recommend that all existing schools should be converted into the Bombay type of school as early as possible. As the full requirements of the village level staff cannot be met by the existing schools, and a large number of village level workers are immediately required for manning the Community Projects special centres have been organised through the help of the Ford Foundation. The training period at these centres is only six months, as ordinarily the trainees have a previous training in an agricultural school or a knowledge of practical agriculture.

74. There are 22 agricultural colleges turning out annually about 1000 graduates, a large proportion of whom are employed by the Agricultural Departments for extension, research and educational work. These colleges, even in a greater measure than the schools, suffer from the same complaint of insufficient stress on practical work. Recognising this drawback the Indian Council of Agricultural Education, recently set up by the Indian Council of Agricultural Research, has suggested that the course should include supervised intensive practical training under rural conditions for a period of two months every year. Another drawback of college education is the absence of facilities for specialisation in extension and farm management. Post-graduate education in research only is available. The result is that the responsibility for extension work or management of farms falls on a person, who has only received a general education in agriculture. A person would be better qualified for service either in the extension or farm management branch, or in the research and teaching branch after he has intensively studied these subjects. If the agricultural college course after graduation is considered too long for these qualifications, facilities should be

provided for a bias in the field of special interest in the final year.

75. Short practical courses for farmers of a general nature in different fields of agriculture, such as compost making, pre-sowing treatment of seed, crop protection, cattle feeding, etc., have proved to be of great value. They can be held on each Demonstration Farm at suitable intervals.

#### Agricultural research

76. Prior to the constitution of the I.C.A.R. in 1930, agricultural research was carried out in the Indian Agricultural Research Institute at Pusa and in the Research Institute attached to the Departments of Agriculture in the various States. The Royal Commission on Agriculture found that 'there was lack of sufficiently close touch not only between Pusa and the Provincial Departments but also among the provincial departments themselves'. The Indian Council of Agricultural Research was, therefore, constituted in 1930, with the object of promoting, guiding and co-ordinating agricultural research in India.

77. In the course of research work a vast amount of valuable information has been obtained, and striking results have been achieved particularly in the field of plant breeding, utilisation of manures and fertilizers and plant protection, the use of improved varieties of seed, pre-sowing treatment of seed, preparation and utilisation of compost manures, utilisation of fertilisers, etc., are some of the results of research which have come to form a part of an enlightened cultivator's agricultural practice. But the lack of a properly trained extension service has retarded this process. The recommendation of the G.M.F. Enquiry Committee is that such a service should be available throughout the country within a period of ten years, and a beginning is being made in connection with the Community Projects. An extension service helps to connect the research centre with the farmer in the field - his problems being brought to the research centre and new discoveries being carried to him. The absence of such a service has had its effect on research work also, in that the demands on research workers were not sufficiently insistent or pressing and

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tended to be unrelated to the practical needs of the cultivator. Now that the foundation of an extension service for India is being laid, it is of the utmost importance that for each soil climate and region a compendium should be prepared, for the use of the extension service, of the various research practices which have been sufficiently proved for immediate adoption by the cultivators of the region, and of those which require further proof by trials in the cultivator's fields. The I.C.A.R. should actively help the State in the preparation of these compendiums by a financial grant, if necessary. It may be necessary to appoint a special officer in each State for this purpose who will work under the guidance of the Agricultural Commissioner.

78. Agricultural research is of a continuing nature. New knowledge has to be gained, and fresh problems tackled. With this object Dr. Stewart had recommended the location of research and experimental stations in carefully selected centres for each crop soil-region. Unless these are established, or existing research centres converted to the attainment of these objectives, extension work may soon come to a standstill. These stations have been of great significance in the agricultural development of Japan, and we consider that the establishment of such stations should be an important concern of the I.C.A.R. and the State Governments.

79. The functions of the I.C.A.R. in respect of promoting, guiding and coordinating research work were masked to some extent by the growth of research by organisations over whose research programmes it had imperfect control i.e. the States, the Commodity Committees and the Central Research Institutes. Research work in the States may be divided into two categories:-

- i) schemes sponsored by the I.C.A.R. by sharing a portion of the cost, and
- ii) schemes the cost of which is borne entirely by the States.

The latter category of schemes were never formally examined or considered by the I.C.A.R. Its annual review only related to the schemes, the cost of which it shared. The same was the case with the programmes of the Commodity Committees which were only sent to the ICAR for information.

The Central Research Institutes also drew up their own programmes and the ICAR had no voice either in their framing or their modification. The ICAR was thus till lately largely confined to the research programmes the cost of which it shared with the State Governments. No overall review or coordination of research under such conditions was possible.

80. The idea underlying the Commodity Committees, which between 1921 and 1949 were established for cotton, jute, tobacco, sugarcane, oilseeds and other commercial crops, was that quick results could be obtained if a Special Committee representing all interests concerned with the commodity, e.g., growers, traders, processors, etc., was charged with the function of advancing research in that commodity. These expectations have been fulfilled, and some Committees have done good work. But this exclusive attention to the problems of one crop led inevitably to the disregard of the problems of other crops grown in the same region. This type of crop-wise compartmentalisation of research was discouraged by the Royal Commission on Agriculture in 1929 and also later by Dr. Stewart in 1946. His view was that the functions of Commodity Committees should be confined to problems which arise after a crop is grown, e.g., processing, marketing, etc. but that so far as agricultural research is concerned, it must comprise all crops grown on a soil, in the interest of all round agricultural development. "We must start with the soil and consider it in relation to all the crops which it is asked to grow, rather than starting from the opposite direction involved in the widely accepted policy of sectionalising research into a series of crop compartments". Another drawback of the Commodity approach is that it involves earmarking of funds in respect of particular crops, and prevents a balanced allotment of finances, according to the needs of the different crops. And this has actually happened. Relatively much more work has been done on crops under Commodity Committees than on other crops like millets, wheat and rice, though their importance in the national life is equally great, if not greater.

81. A logical result of the acceptance of the commodity idea would be to have Commodity Committees for each important crop in India. But today they

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are confined only to the commercial crops, like cotton, jute, sugarcane, oilseeds, coconuts, areca nuts, tobacco and do not include important food crops, like wheat, rice, pulses, millets, potatoes, etc. At a later stage, it appeared that instead of Commodity Committees, All-India Institutes for research in respect of food crops should be started, and we have all-India Research Institutes for rice and potatoes. But, as already indicated, there is considerable doubt whether crop-wise organisation of agricultural research is the best form of organisation; and in some cases it is impossible. This may be illustrated by the example of the crops grown in the south-west corner of India. This area grows valuable crops, like pepper, cashew nuts, cardamoms, cloves, lemon-grass, etc. A single organisation for research and development of these crops would lead to expeditious and coordinated action. Such a regional body could well have delegated to itself the functions of the ICAR. A commodity approach here is an impossibility.

82. The Central Research Institutes are the IARI at Delhi, the Potato Research Institute at Patna, and the Rice Research Institute at Cuttack. The IARI carries out fundamental research but its research programme is not coordinated by the ICAR with the Research Programme of the rest of the country. Apart from this drawback, the IARI provides the background against which applied research is carried out over the rest of the country.

83. The same cannot be said of the Potato and Rice Research Institutes. Ordinarily there are no fundamental problems with respect to individual crops which are unrelated to the ecological conditions in which they are grown, and which would, therefore, have an all-India application. Even special work like cross-breeding with foreign varieties can be done in Research Stations, all over the country, and Central Institutes for particular crops do not appear to have a special advantage. Their present usefulness lies in enabling research men of high standing to work in a well-equipped laboratory, a facility which a State might not be able to afford on its own.

84. The role of universities in promoting agricultural research is a question which needs attention. Although universities are eminently suited for such research, especially of the more fundamental type, they have not taken it up to any

significant extent in the past, owing perhaps to lack of funds and other causes. It is a striking fact, for example, that there is not a single chair of genetics in any Indian university, although breeding of plants and animals, which rests on the foundation of this science, has been in progress in the country for several decades. It is important that whatever limitations there may be in the way of the universities taking an appropriate part in agricultural research should be removed and the universities encouraged to make their contribution to research. This will benefit the universities also by bringing their scientific staffs into direct contact with real problems which are in urgent need of solution for the betterment of the vast majority of our people.

85. India is now embarking on a vast programme of agricultural development. It has before it the ambitious target of doubling agricultural production in the next fifteen years. An extension service, which will cover the whole country in a ten year period, has been proposed to be constituted. The pace of agricultural development largely depends on the speed with which solutions to the practical problems of the cultivators are found by research workers. The whole organisation of agricultural research in India will have to be geared to fulfil this task. The ICAR was constituted in 1929, and its work was subsequently reviewed in 1937 by Sir John Russell and some aspects of it in 1946 by Dr. Stewart. We feel that the stage has now been reached when a high level committee should examine the whole question of the organisation of research in India, and, in particular, the changes that should be brought about in the existing Commodity Committees and Central Research Institutes and research in universities so that they can answer the increased demands for research that will be made upon them. As things stand today, the ICAR organisation has to examine a large number of schemes, and it may have to be considered whether some regional decentralisation could not be usefully introduced.

86. In the meantime, we suggest that the following measures should be immediately adopted to remove some of the drawbacks which affect the Commodity Committees and the organisation of the ICAR.

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(a) All schemes of the Commodity Committees should be subject to examination and scrutiny by the same body which examines the research schemes pertaining to other crops grown in that area. This would ordinarily be the Standing Scientific Committees of the ICAR. It would be the function of this body to suggest what other schemes should be undertaken on crops grown in the same region to ensure allround agricultural development and a balanced growth of research in that area.

(b) Wherever any research station is working under any Commodity Committee, the same staff should also carry out the research in respect of other crops in the area.

(c) The ICAR should have authority to suggest to a Commodity Committee what coordinated research in respect of other crops grown in the region or rotational crops grown with the main commodity should be undertaken by it.

In order that the ICAR may be enabled to discharge its statutory duty of coordinating all agricultural research in the country, it should be in a position.

(a) to review all research work done in the country. All research programmes, whether of the Commodity Committees, State Governments, or Central Institutes, should be sent to this body for scrutiny and approval. Appropriate dates could be specified for the receipt of these programmes, so that all programmes are received at a time and considered together;

(b) to undertake a detailed examination of all research programmes received. The ICAR today tries to discharge this duty through Scientific Committees, which meet for a few days just before the annual meeting of the advisory Board and the Governing Body. Such a procedure does not permit a detailed and proper examination. We suggest that these bodies should meet more frequently, and at least twice a year, once for examining the schemes received by the ICAR, and once for assessing their progress. These meetings should allow sufficient time for a proper examination of these schemes;

(c) to take an overall view of research in the country as a whole, assess the result of the past years' working and indicate the direction of future research.

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The Research Board which has been recently constituted by the ICAR is expected to perform this function. It must consist of top-ranking agricultural scientists in the country, on whom would fall the ultimate responsibility of guiding and coordinating research in the country;

(d) to initiate research into utilisation of agricultural products which today go to waste. Such utilisation has an important bearing on the agricultural economy and no work in this direction has so far been done.

87. A matter which we would like to emphasise, particularly in connection with the research programmes in the States, is the need to associate representatives of progressive cultivators, traders and processors with the drawing up of annual research programmes and their evaluation. Though many of the problems of cultivators will be brought up by the extension service, such association will provide a more direct opportunity for the inclusion in the research programmes of matters which directly interest them.

88. The conditions of employment of the research workers is an important factor in determining the quality and quantity of the work done. In this respect the research workers employed in the projects sponsored by all India organisations, such as the ICAR or Commodity Committees, suffer from the handicap that their tenure is temporary as the schemes on which they work are sanctioned for limited periods. Although it may be argued that a research worker is actually seldom thrown out of employment, the feeling of insecurity is always there. This needs to be removed and the research services brought more in line with other permanent services under the Government. As far as the human element in research is concerned, the important pre-requisites for the production of satisfactory results are stability of service and congenial conditions of work and proper guidance and direction.



CHAPTER XIX  
ANIMAL HUSBANDRY

According to the 1951 livestock census there are 150 million cattle and 43 million buffaloes in the country. Bullocks are the principal motive power available for agricultural operations. To a large number of people who are vegetarians, milk and milk products constitute the main source of animal protein. The importance of livestock to the economy of the nation can be judged by the fact that their annual contribution to the gross national income has been estimated at about Rs. 1,000 crores. This excludes the value of the animal power for draft purposes in agriculture and transport.

2. The total bovine population of undivided India as ascertained at the quinquennial census from 1920 onwards is as under:-

Year	Number in millions	Variation taking 1920 as the basis
1920	145.8	100
1925	151.0	104
1930	154.6	106
1935	153.7	105
1940	147.7	101
1945	144.5	99

The figures for the 1950 census which relate to the Indian Union have not been included in the above table as these cannot be compared with the previous figures which are for undivided India.

3. It will be seen from the above figures that the variation is slight, the maximum being 6 per cent. The small variation may be accounted for by marginal errors and it may be said that the cattle population of India is tending to be stationary.

What is the relation of this population to the country's resources and requirements? It is estimated that the quantity of fodder available is about 78 per cent of requirements while the available concentrates and feeds would suffice only for about 28 per cent of the cattle. As concentrates are usually given only to animals which are heavily-worked either for milk or draft purposes, it can be said that two thirds of the cattle can be maintained in a fair condition on the existing fodder and feed resources.

4. The overall estimates made by the Cattle Utilisation Committee show that about 10 per cent of the cattle population or roughly 11.4 million adults are unserviceable or unproductive. These estimates relate to the country as a whole, and the position varies in different zones. A study of the 1951 census figures shows that the ratio of dry and other cows which are not in milk with those in milk differs very considerably. While in Madras, Mysore, Orissa, Bihar and Travancore and Cochin there are more than 200 dry cows for every 100 milk cows over three years of age, the number declines in Madhya Pradesh and Uttar Pradesh to about 150 and it is as low as 75 in the Punjab. The figures indicate that in the rice belt and the south a comparatively larger number of unproductive cows are maintained. The normal ratio of dry animals to those in milk should be 1 to 1, and the high ratio in the above regions imposes an avoidable strain on the country's resources. Measures for upgrading the cattle and removing useless and inefficient animals to Gosadans should, therefore, receive high priority in these areas.

5. As regards requirements of bullock power for cultivation and draft purposes calculations made on a basis suggested by Dr. Burns indicate that in U.P. and Bihar there is a surplus of about 4 million bullocks; but while some farmers with small holdings maintain bullocks which are not fully utilised, in certain areas of these states there is a shortage of bullock power. It would not be correct to assume that there is surplus bullock power in each and every State. For instance, in Pepsu and Punjab the number available is just adequate to meet the needs. But the efficiency of draft cattle is low and, according to Dr. Burns, could be increased by 60 per cent for the country as a whole.

6. To sum up, the available feeds cannot adequately sustain the existing bovine population. While there is a deficiency of good milch cows and working bullocks there exists a surplus of useless or inefficient animals; and this surplus, pressing upon the scanty fodder and feed resources, is an obstacle to making good the deficit.

7. The improvement of cattle involves, firstly, the selection of high class animals which are to be found mixed up in India's vast cattle population and their utilisation for up-grading the large number of non-descript cattle; and secondly, provision for these of an adequate quantity of well-balanced feed, protection against diseases and efficient management.

Work on cattle improvement has been done by the Government, by cattle breeders and by Charitable agencies. Among the well-defined breeds in India there are three broad divisions viz. milch, draft and dual purpose breeds. Recent investigations have indicated that some of the draft breeds are potentially capable of yielding more milk and this capacity can be developed by proper methods of breeding and management. There is thus a possibility of most of the breeds of Indian cattle being developed eventually into dual purpose animals and this is the prime objective of the breeding policy of the Government of India.

The buffalo population in India consists of several indigenous breeds, but not much concentrated work has yet been done on their improvement. The development of buffaloes has now been included in the key-villages scheme discussed later in the chapter.

8. Approximately 750 farm-bred bulls of known pedigree are distributed annually by the government in different States for developing draft as well as milch breeds. Besides, there are approved bulls belonging to private cattle owners. But the existing number of approved bulls meets less than 0.5% of the total requirements of the country. The distribution is defective in that there is no concentration of effort with the object of achieving sustained results. In the absence of arrangements to castrate or remove the inferior

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bulls before a pedigree bull is located in an area, the progeny of the pedigree bulls have access to scrubs which nullify the efficiency achieved in the first generation. A programme of cattle improvement should, therefore, include arrangements for the production and use of an adequate number of superior bulls of known parentage and productivity and the elimination of inferior and unapproved bulls.

### Key village scheme

9. This work is proposed to be taken up at six hundred centres under the key-village scheme during the period of the Plan. Each centre will consist of three or four villages having altogether about 500 cows over three years of age. In these areas breeding will be strictly controlled and confined to three or four superior bulls specially marked out and maintained by the farmers for the purpose. The unapproved bulls will be removed or castrated. Other essential features of cattle development, namely, maintenance of records of pedigrees and milk production, feeding and disease control, will receive full attention at every centre. The technique of artificial insemination will also be utilised in these areas as it will accelerate progress and reduce the requirements of bulls. About 150 artificial insemination centres at the rate of one per four key villages are proposed to be established during the period of the Plan.

10. The key villages are thus almost similar to the seed multiplication farms. During 1951-52, a beginning was made by the sanctioning of 94 artificial insemination centres with 196 key villages around them. So far 60 centres and 150 key villages have started work and arrangements are in progress for the rest. The targets for the establishment of key villages, artificial insemination centres and bull rearing farms under the key village scheme during the course of five years are given below:-

Year	Number of key villages	Progressive total	Number of A.I. centres	Progressive total	Number of bull rearing frames**	Progressive total
1952-53	196	-	94	-	-	-
1953-54	206	402	24	118	-	-
1954-55	946	496	16	134	125	125
1955-56	104	600	16	150	100	225

\*\*Provisional and subject to review

When in full swing this scheme is expected to produce about 60,000 bulls per year. Each Community Project will have an artificial insemination centre at a convenient place with four key villages attached thereto. It would also be an advantage to locate some of the key villages in the suburban areas around the important cities, where development of dairy farming has been recommended.

11. The success of the key village scheme largely depends upon the measure of public support that it invokes. Selection of only high class bulls coming from strains which have proved their value and are suitable to the tract is the most important factor for the success of the scheme as it will be difficult to retain the confidence of the villagers if in the initial stages ill-chosen bulls give poor results. The effects of such mistakes may be aggravated through artificial insemination centres. Sufficient supervisory and expert staff has been included in the scheme to reduce such mistakes to the minimum. A proper administration and technical organisation consisting of one Veterinary Assistant Surgeon, one Milk Recorder and 3 Stockmen has been provided for every centre. They would assist the villagers in implementing the programme.

12. The improvement of common grazing grounds, the growing of fodder crops in suitable rotations, the preservation of surplus monsoon grass, the use

of hitherto untapped fodder resources, etc. are matters which would receive due attention in the selected villages. Demonstrations under village conditions are essential as conditions on Government Farms are not always similar to those in the villages.

13. To facilitate the castration of scrub bulls and the protection of animals against contagious diseases legislation will have to be introduced. The States of Assam, Bombay, Madhya Pradesh, Madras, Orissa, Punjab, West Bengal, Kashmir, Mysore, Ajmer, Delhi and Himachal Pradesh have passed the Control of Contagious Diseases Act while Bombay, Madhya Pradesh, Madras, Travancore Cochin and Delhi have passed the Livestock Improvement Act. Orissa and Corg have the Livestock Improvement Act under consideration. It is essential that the other States should adopt these two Acts as early as possible.

#### Gosadan scheme.

14. The problem of unproductive cattle and its impact on the economy of the country has already been referred to. Though the availability of fodder and feed will increase to a certain extent as targets of additional production, particularly food grains, are realised, the benefit derived would not be of much consequence as the per capita increase would be insignificant. Mal-nutrition is to a great extent responsible for the disproportionately large number of dry animals. The census returns show that out of a total of 48 million cows over three years of age as many as 28 million are dry. The removal of useless cattle to areas of natural grazing or tracts where fodder supply is not being utilised has, therefore, been accorded a high priority in the Plan for livestock development. The Plan in this connection provides for establishing 160 Gosadans at a cost of about Rs. 97 lakhs. Under this scheme, all old infirm and useless cattle will be segregated and sent to Gosadans located in wasteland, in forests and other out-of-the-way places where cattle grazing facilities exist which have not hitherto been utilised. The male stock will be castrated. The remains of the dead animals such as hides, skins, horns, hoofs etc. will be fully utilised by setting up a small tannery at each centre.

15. The following programme is envisaged during the period of the Plan under the Gosadan scheme:

<u>Year</u>	<u>Number of Gosadans</u>	<u>Progressive total.</u>
1952-53	35	35
1953-54	75	110
1954-55	50	160
1955-56	160	160

Each Gosadan will maintain about 2,000 cattle. In 1952-53, therefore, the Gosadans will remove from the improvement areas 70,000 animals, in 1953-54 220,000 and in 1954-55 320,000. In removing cattle, preference will have to be given to areas of intensive cattle improvement, that is, key villages. Surplus cattle from the key villages will, therefore, be sent to the Gosadans in the first instance.

These measures by the States will, however, touch only the fringe of the problem. It is considered that this movement should receive wide public support especially from charitable institutions like the Pinjraples and Gausshalas.

#### The fodder and feed problem.

16. An important aspect of livestock improvement is the proper feeding and management of the animals. The effects of better breeding can be largely negated if the animals are not properly fed and looked after. Some experts think that feeding alone can bring about an increase of 30 per cent in the milk production of cows. The supply of green fodder so necessary for the healthy upkeep of cattle and milch cows is not only meagre, but erratic. In order to improve the supply leguminous fodders such as lucerne, berseem, cow peas, field peas, etc. should be introduced in crop rotations in irrigated areas. This practice will give nutritious fodder and will also help to increase soil fertility. The possibilities of kudzu vine and clovers etc. should be explored. Kudzu can be successfully grown on steep slopes in regions of good rainfall both for grazing purposes and for checking soil erosion, while clovers

can be used for improving the pastures wherever irrigation facilities are available. In improved pastures there must be an emphasis on rotational grazing and wherever feasible pastures should be sowed with krapier grass. In the valleys of the foot hills, where surplus grass is available after the monsoon, the possibilities of hay making should be explored.

To begin with, action on the lines suggested above may be attempted in Community Project and key village areas. There is also considerable scope for research on fodder crops and in the possibility of evolving schemes for the supply of green fodder for the greater part of the year. In addition, the ~~research on feedstuffs~~ mango-seed-kernel and jaman-seed, etc. should be continued.

#### Disease control

17. The benefits of improved breeds and better feeding are often obscured by the cattle falling a prey to epidemics. Besides causing a large number of deaths contagious and other diseases, reduce the vitality and the working efficiency of the animals considerably. The common animal diseases are rinderpest, haemorrhagic-septicaemia, black quarter and anthrax. Of all the diseases that affect Indian cattle, rinderpest is the most important and is responsible for about 60 per cent of the total mortality. The Government of India have, for some time past, been examining a scheme for the eradication of rinderpest by large scale vaccination with the newly evolved lapinised vaccine. A sum of Rs. 15.7 lakhs has been provided in the Plan to initiate this work.

18. It is also necessary that every State should have adequate facilities for the protective treatment of cattle. At present there are about 2,000 veterinary dispensaries in the country. The Plan provides for expansion of these facilities and during the next five years the total number is likely to go up to about 2640. This would mean an increase of 32 per cent over the existing number. The phasing of the programme is as under:-



VETERINARY DISPENSARIES OF STATE  
AND LOCAL BODIES.

	<u>1950-51</u>	<u>1951-52</u>	<u>1952-53</u>	<u>1955-56</u>
Part A States	1311	1380	1486	1773
Part B States	623	666	725	806
Part C States	58	69	81	101
<b>Total</b>	<b>1992</b>	<b>2115</b>	<b>2292</b>	<b>2640</b>

Poultry

19. Poultry keeping is an important subsidiary industry of the poorer classes in the rural areas, and can be a useful source of income to them. Eggs are a very valuable food and the population would benefit by increased consumption of them. The number of poultry in the country is estimated at about 70 million, but the ordinary village hen is generally undersized and lays only about 50 under-sized eggs in a year. Breeds like white Leghorn, Rhode Island Red, and Black Minorca may improve both the number and the size of the eggs. The Indian Veterinary Research Institute by a process of selective breeding has evolved an Indian strain which would step up the yield by about 100 per cent. This strain should be tested in the field under different soil and climatic conditions. One serious handicap of poultry in this country is Ranikhet disease, but an effective vaccine has been recently brought out and the prospects of poultry raising appear to be now more favourable. The State Governments have provided a sum of Rs. 25.15 lakhs during the five year period for encouraging poultry farming. Selective breeding and proper development of poultry have also been included as a part of the key village scheme. It is hoped that in areas of intensive cultivation and in Community Projects areas necessary facilities will be offered to the cultivators.

## Sheep

20. The thirty nine million sheep of the India Union constitute an important source of wool and meat for the country. On an average, about 55 million pounds of wool are produced per year and about 31.6 million pounds of wool worth about Rs. 43 crores are exported from India mainly to the U.K. and U.S.A. Rajasthan alone accounts for nearly one third of the total production. The wool locally available is supplemented by about 19 million pounds of fine wool, which is obtained mainly from Tibet. The average yield of wool per sheep is 2 pounds which is very low. The quantity as well as the quality of the wool of the local sheep can be improved very considerably. For this purpose a plan of regional development has been drawn up by the I.C.A.R. Three regional centres will be established in important wool producing areas, viz., the U.P. hills, Rajasthan, and the Deccan Plateau and the quality of the sheep improved by selective breeding in the plains and cross breeding with the Merino breed in the hills.

## Veterinary education and research

21. There are at present nine Veterinary Colleges in the country with an output of 275 graduates. In addition to these colleges, the Government of India maintain the Indian Veterinary Research Institute for post graduate training at Izatnagar, with a sub-station at Muktesar, U.P. During 1949-50, 75 students were enrolled and diplomas were awarded to 69 successful candidates.

In the Five Year Plan a sum of Rs. 84.43 lakhs has been provided for Veterinary education and training. Ninety-two per cent of this will be utilised in Part A States for the expansion of training facilities for veterinary graduates and stockmen. In addition, village level workers will also be trained in giving first aid to cattle.

The existing facilities at the colleges for higher studies are adequate, but difficulties are being experienced by some colleges in obtaining qualified teachers and research workers, especially in the fields of anatomy, surgery and physiology. It may be desirable for some teachers from the colleges

to be sent abroad to acquire further training.

22. The total expenditure of the programme provides for livestock and animal husbandry schemes amounts to Rs.1473 lakhs the details of which are given below:-

(a) Central Government

( Rs. in lakhs)

Key village schemes	293.53
Gosddann	97.15
Rinderpest	15.70
Other Schemes	5.64

Total: 412.02

(b) State Governments schemes

Part A States	794.70
Part B States	194.60
Part C States	71.60

Total: 1060.90

Grand Total 1472.92

## CHAPTER XX

### DAIRYING AND HORTICULTURE

For a country like India with a large vegetarian population, milk is a very important food. Despite this fact and the large number of milch animals in India, dairying is in a backward condition, and has not received the attention it deserves. Poor quality cattle, insufficiency of feeds and fodder, high incidence of disease and lack of organised production, improper handling of milk and milk products are problems requiring urgent attention. The improvement of cattle depends primarily upon a proper policy and programme for breeding and feeding. The measures necessary in this connection i.e. schemes for key villages, Gosadans, artificial insemination and use of oil cakes as cattle feed etc. have been indicated earlier.

2. The average yield of milk per cow in India is 413 pounds which is about the lowest of any country in the world. The highest yield is 8,000 pounds in the Netherlands followed by 7,000 pounds in Australia, 6,000 in Sweden and a little more than 5,000 pounds in the United States of America. The low average production per animal is responsible for the over-all low production in the country.

3. Out of about 193 million cattle and buffaloes in the Indian Union, 70 million or about 36 per cent are milch animals i.e. females over 3 years. Though buffaloes form only 30 per cent of the milch animals, they account for 54 per cent of the milk compared with 42 per cent yielded by the cows. This is due to the fact that a buffalo yields on an average 1,151 pounds of milk per annum and a cow only 413 pounds. Besides, buffalo milk is richer in fat and generally contains 6.5 to 7 per cent fats as compared to 4 to 5 per cent in the case of cow's milk. If milk were the only consideration, buffaloes would appear to be more useful than cows. The cow, however, has the advantage as its progeny also provides the motive power for cultivation.

4. According to the 1951 human and cattle census, the average per capita consumption of milk and milk products works out at 5.5 ounces, which comes to about 2.5 Chhataks or 1/6th of a seer per day. The consumption of milk and milk products,

however, varies considerably in different parts of the country. It is as high as 16.89 ounces in the Punjab and 15.72 ounces in Rajasthan, while in Orissa it is 2.64 ounces only. Except Punjab and Rajasthan all the major States are deficient in milk consumption by the standard of 10 ounces per day recommended by nutrition experts.

5. The gross annual milk production in 1945 was estimated at 21.42 million tons, of which 14.5 million tons only were marketable, the balance being either fed to calves or retained for home consumption. The production of milk in villages is on a small scale and scattered. The average daily production per village as given in the Report on the Marketing of Milk in the Indian Union is only 2.5 maunds. There are, however, some 'milk pockets' or areas of concentrated milk production in the States of Bombay, Uttar Pradesh, Bihar, Madhya Pradesh and Saurashtra where large quantities of surplus milk are available during the flush season. Except in Bombay State where milk is railed from Anand to Bombay city, surplus milk in other milk pockets, distant from urban centres is generally utilised for the manufacture of ghee and khana. Even though 95 per cent of the milch cattle are found in the rural areas where 86 per cent of the people reside, the effective demand for milk and milk products is found in urban markets.

6. The supply of milk to urban areas is unsatisfactory both in quantity and quality. This is due to lack of organised production in the surrounding villages, difficulties of transport, production of milk in urban areas under insanitary conditions and at high prices and its distribution by a host of middlemen. It is estimated that at present 60 to 70 per cent of the fluid milk requirements of the urban areas is derived from cattle maintained within the municipal limits. These cattle are generally kept in insanitary and congested conditions which affect their health, milk performance and breeding capacity. They are also a source of nuisance to the surrounding residential area. A majority of these animals when they become dry are sent to the slaughter house. Maintaining cattle in this manner is uneconomic and is a drain on the cattle wealth of the country. The remaining 30 to 40 per cent of the urban milk supply is derived from villages situated within 30 miles of the urban areas. The trade is in the hands of milk vendors whose methods of handling and transporting milk are neither efficient nor sanitary. A few Pinjrapoles, Gaushalas

and Co-operatives are engaged in dairy farming for the supply of milk to urban areas. They, however, meet only a fraction of the total demand. There were also about 75 dairy farms in the Indian Union in 1949, most of which belonged to the Military and Civil Departments of Government.

7. Urban consumers pay a high price for milk although it is of poor quality. According to a recent survey the retail milk price is higher in India than in any other important country. The high level of prices is principally due to shortage of supply. Measures for increasing milk production have, therefore, to be accorded the highest priority, especially as the per capita consumption is much below what is desirable from a nutritional standpoint. Proper arrangements are also necessary for the collection, transportation and distribution of milk. The work started in rural areas surrounding towns like Poona and Delhi for organising milk production and distribution of a cooperative basis has shown good results. The supply of milk to Poona has been increased in the course of about two and a half years from 332 lbs. to 8,240 lbs. per day. A sum of Rs.2 lakhs was spent on purchasing good class animals and an artificial insemination sub-centre has been started in the suburban area. Feeds and concentrates are purchased wholesale resulting in a saving of 20 to 25 per cent. The quality of the milk is tested in the villages before collection and arrangements made for transporting it to the cities. The scheme has also benefited the consumers as they are able to get milk of good quality at reasonable rates. All this has been brought about at quite a small cost. The experience gained at Poona and other cities indicates the future pattern of development. It is, however, clear that in any scheme of urban milk supply the emphasis will have to be laid on increasing production in suburban areas, gradually shifting the cattle from the urban centres, and adopting strong measures of quality control.

8. The State Plans include 27 schemes for dairying and milk supply. They are estimated to cost Rs.779.3 lakhs. The expenditure of Part 'A' States has been put at Rs.769 lakhs, Part 'B' States - Rs.5 lakhs and Part 'C' States - Rs.6 lakhs. Among Part 'A' States Bombay has provided for the largest sum viz. about Rs.6 crores or 77 per cent of the total expenditure. The West Bengal Government have earmarked a sum of Rs.50 lakhs for the removal of dairy cattle from Calcutta to the adjacent farm at Haringhat and also for the supply of standardised milk to Calcutta proper.

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9. The provision made in the Plan for milk supply schemes is inadequate except in Bombay. Even though the problems of a few cities may be tackled through the schemes envisaged in the Plan, many of the important towns and cities will not get any benefit. The problem cannot, however, be solved by government initiative alone. Better results may be had if the work of improving the milk supply is taken up jointly by the States, the Municipal Committees, the local Pinjrapoles and Gaushalas and producers' co-operatives.

10. We, therefore, suggest that a Milk Board be set up for each urban area. It should be a statutory body with a paid executive, consisting of representatives of producers, distributors, consumers, municipalities, health authorities and the State Government. A Milk Plan for the area would be drawn up by the Board after careful survey of needs. All matters relating to import, handling and distribution, quality control and prices of milk and milk products should be dealt with by the Board, which would also be responsible for organising production in the suburban and urban areas through a co-operative. The Plan would include removal of cattle from urban areas, a measure highly desirable both from the standpoint of public health and the conservation of the cattle-wealth of the country. The dislodged cattle and their owners may be rehabilitated by providing facilities for settling them in villages around the cities. The Co-operative would supply cattle fodder, feed and other requisities, would provide loans to the members for buying cattle, and would arrange for collection of the milk. The society would also look after the distribution of milk in the town either through its own depots or through licensed private milk vendors or agents. The financial assistance needed by the Milk Board and the co-operatives should be provided by the Government, the municipal committee and the co-operative bank. As the scheme would popularise mixed farming in suburban areas it should qualify for assistance under the Grow More Food campaign. We also suggest that some of the key village centres may be located in areas surrounding the cities as the increased supply of milk obtained as a result of improved breeding and management will find a ready market in these urban centres. While these steps are being taken to augment supplies, the machinery employed for licensing, sampling, and testing would be strengthened by the Board and prosecutions hastened against the un-social elements who adulterate milk. The standards now in force in different urban areas in regard to the quality of milk and milk products will have also to be examined and revised wherever necessary.

11. As regards rural areas, improvement in milk yield would come about mostly by the better breeding contemplated through the key village scheme and by arranging better fodders and feeds. By achieving a target of food production of

7.6 million tons the fodder-availability would increase to the extent of about 14 million tons. Allowing for wastage etc. about 10 million tons of fodder would be available for consumption by the cattle. The problem of milk production and its greater use in rural areas is thus closely related to the overall rise in agricultural production and standards of living. There is, however considerable scope for improving the production of ghee as its sale will bring additional income to the farmer and the use of a by-product-butter milk will enrich his diet.

#### Horticulture.

12. Fruit and vegetables, like milk, can be a very useful element in the diet of the people. Although exact statistics are not available, the area under horticultural crops amounts to about 4 million acres, i.e. about 3 million acres under fruit and 1 million acres under vegetables, which roughly means a little over one per cent of the total cropped area.

13. The production of fruit is estimated at about 6 million tons, and that of vegetables at about 4 million tons. Allowing for wastage of about 25 percent in the case of fruit, this production would permit of consumption of only about 1.5 oz. per head per day and in the case of vegetables even less. According to nutrition experts 3 ozs. of fruit and 10 ozs. of vegetables per day are required for a balanced diet. There is, therefore, wide scope and need for increasing the production and consumption of fruit and vegetables. This can be achieved partly by increasing the area devoted to their cultivation and partly by adopting improved agricultural practices to get increased yields from the existing area. A substantial increase in production per acre can be brought about by removing some of the existing defects of fruit and vegetable-growing in this country e.g. haphazard lay-out of the gardens, employment of inferior seeds and varieties, absence of regular pruning, training, and weeding, inadequate measures against insect-pests and diseases, lack of credit facilities and of arrangements for grading, packing, and marketing, and lastly want of readily available means of conserving the surplus by cold storage and preservation so as to prevent a glut in the market at the height of the season.



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14. The State plans envisage a total expenditure of Rs. 121.22 lakhs on schemes relating to horticulture. Part A States account for about 90% of this expenditure. The Schemes are of a varied nature such as research on fruits and vegetables, multiplication of vegetable seeds, supply of nursery plants, extension of the area under potatoes, etc.

15. For the further development of horticulture special consideration should be given to the following measures:-

- (i) Fruit growers in the principal fruit-growing regions should be assisted to organise themselves on cooperative lines for raising nursery plants, controlling pests and diseases, and for marketing fruit and fruit products.
- (ii) Suburban belts around large towns should be developed for raising fruit and vegetables and the growers organised on a cooperative basis, especially for the purpose of marketing their produce. Steps should also be taken to popularise kitchen-gardening in urban areas by supplying seeds and plants and technical advice.
- (iii) The preservation of fruit and vegetables, which has been started on a small scale, should be expanded on modern lines. There are at present 467 factories with a total output of 10,000 tons valued at Rs. 1.63 crores. This is less than 002% of the total produce. Research on modern and indigenous methods of fruit preservation should receive increasing attention at the hands of the Central and State Government.

16. The Governments of some countries besides providing facilities for research, give assistance and encouragement to fruit and vegetable preservation in the following ways:-

- (i) sugar for fruit preservation is supplied at the world market rate,
- (ii) the import of machinery and other essentials is allowed either duty free or at concessional rates, and
- (iii) concessions are granted in freight rates for transport of raw materials to the canning factories and of the finished products from the canning factories to the centres of consumption of the products.

With the development of horticulture the adoption of similar measures in this country for encouraging the preservation of fruit and vegetables will have to be considered. At a later stage it may be desirable to make available cold storage facilities at important markets and refrigerated railway wagons for transportation of horticultural produce.

17. The suggestion has also been made that a Fruit and Vegetable Development Board should be established in the Food and Agriculture Ministry which should be responsible for developing the industry on a country-wide basis by enforcing quality standards, supervising research, maintaining statistics and giving technical advice to States which need it. This suggestion deserves consideration.

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## CHAPTER XXI.

### FORESTS

Forests play a vital role in India's economy. They are an important source of fuel and also of raw materials such as timber, bamboos, lac, gum, katha, useful for domestic, industrial and agricultural purposes. They also provide materials for defence and communications as well as grazing for cattle. Forests help in the conservation of soil fertility and play an important part in the maintenance of the water regime of the land. The organic matter they yield improves the tilth and increases the water-holding capacity of the soil thereby reducing the run-off. The presence of vegetation acts as a physical check to the velocity of the run-off and reduces its soil carrying capacity. Thus forests protect the hilly areas against excessive soil erosion. Similarly, they protect flat lands against desiccation and erosion caused by winds. They exert a beneficial influence on the growth of agricultural crops and on the climate of the region in which they exist.

#### Forest areas

2. Accurate statistics regarding the area under forests are not available. "Indian Forest Statistics" puts the area under forests in 1949-50 at 147.7 million acres (230,789 sq. miles) i.e. 18 per cent of the total land area as detailed in appendix I. This figure includes a considerable area of unwooded waste land, but no account is taken of tree lands, and there are gaps in coverage in respect of many States. On the whole, however, it is reasonable to assume that the area under forests constitutes about 20 per cent of the total land area.
3. Compared with most other countries this is a low proportion. The Forest Policy Resolution of May 12, 1952, suggests that "India as a whole, should aim at maintaining one-third of its total land area under forests. As an insurance against denudation a much

larger percentage of the land, about 60 per cent, should be kept under forests for their protective functions in the Himalayas, the Deccan and other mountainous tracts liable to erosion. In the Plains, where the ground is flat and erosion is normally not a serious factor, the proportion to be attained should be placed at 20 per cent; and in view of the pressure of agriculture, efforts at the extension of tree lands should be concentrated on river banks and other convenient places not suitable for agriculture." The gap between the aim outlined in this resolution and estimates of the area now under forests is very large. Further, the forests are confined mainly to the Himalayas, the Vindhya and the Deccan; the Indo-Gangetic basin has been left almost bare. A planned extension of regular forests would be subject to the availability of adequate waste areas and the demands made thereon for agricultural expansion to meet the needs of the ever increasing population. We suggest that an immediate reconnaissance survey be made of waste land with a view to evolving a system of balanced and complementary land use. We further recommend two-fold measures, namely:-

- (1) for each State, the proportion of the area that ought to be under forests should be clearly indicated by the Central Board of Forestry, keeping in view the principle of proper land use, the nature of the terrain and the national needs. Deforestation may be allowed for the extension of permanent agriculture only where the area under forests is above this proportion or where some equivalent area can be afforested; and
- (2) the area under forests should be steadily extended over waste lands considered suitable for the purpose.

4. The extension of the area under regular forests would necessarily constitute a long-term plan. Considerable improvement can, however, be brought about by renovating large areas which, though classified as forests, have been deforested or have not been properly managed. For instance, about 40 million acres of zamindari forests have vested or will soon vest in State Governments on the abolition of zamindari and jagirdari. Over a

considerable portion of this area large scale removal of trees has occurred in recent years as a result of zamindars' attempts to realise their forest assets. Further, overfelling of trees occurred in State forests during the last war. During 1945-46 production of timber and fuel wood increased by about 62% over the pre-war ~~triennium~~. The rehabilitation and development of these forests should be given the first priority. In most Part B and Part C States, as well as in Part A States where merger has expanded the State-managed forest area, an adequate administrative organisation has to be built up. Provision has been made in the Plan for increasing the number of forest circles in U.P., Bihar, Madhya Pradesh and Bombay; and we consider that generally this five-year period will be best utilised in planning the rehabilitation of these areas and setting up an adequate administrative machinery.

5. There is, however, immediate scope for extending the area under forests in three directions, namely -

- (1) afforestation as a measure to prevent soil erosion;
- (2) extension of tree lands; and
- (3) establishment of village plantations.

We have elsewhere outlined measures for preventing soil erosion. The area under tree lands could be immediately extended with the cooperation of the public and of local bodies. The cooperation of the public should also be sought in planting trees along canal banks, village roads and railway lands. Useful work in this direction has been initiated as a part of the Van Mahotsava programme which should be organised on a systematic basis.

#### Village plantations

6. There is also immediate scope for the establishment of village plantations for increasing the supply of fuel and fodder. The present production of fuel wood is estimated at 5 million

tons\* which means an availability of less than half a maund (0.02 tons) per capita per annum as against an average consumption of a ton or more in U.S.A. and 0.34 tons for the world as a whole. Even this availability is by no means uniform as will be seen from appendix II. The Indo-Gangetic Plain has been almost denuded of forests which has caused acute scarcity of fuel and fodder supplies in the rural areas and has resulted in the practice of burning cow dung which should go to replenish the fertility of the exhausted soil. We, therefore, accord a high priority to protecting and extending village plantations of fuel and fodder species over suitable waste lands in selected localities. Large areas of waste lands have already vested in State Governments as a result of the abolition of zamindari and this should make the task less difficult. The survey referred to in paragraph 3 would serve to locate these areas and village panchayats or their unions should play an important role in the establishment of village plantations. The village plantations may, in the first instance, be set up in areas selected for Community Development Projects. Provision for the establishment of nurseries are being made in areas selected for these projects and these could be enlarged to meet the requirements of village plantations where necessary.

#### Soft coke as household fuel

7. Another step towards augmenting fuel supplies and conserving cow dung for manurial purposes would be the popularisation of the use of soft coke in the rural areas, particularly in the Indo-Gangetic plains where the need is the highest and where owing to the proximity of the coal fields the supply of soft coke may be comparatively easy. Soft coke being perhaps the cheapest form of fuel is becoming increasingly popular as a household fuel in urban areas. Despatches of soft coke have increased steadily as follows:-

1920	...	1.8 lakh tons
1930	...	7.4 " "
1940	...	9.4 " "
1950	...	11.5 " "

The total consumption of soft coke is estimated at

\*The estimate of 5 million tons does not, however, include the quantities of fire wood derived from wooded waste lands not classified as forests. The availability may, therefore, be somewhat larger.

about 2 million tons. Very little of it, however, is consumed in the rural areas. India's deposits of low grade coal from which soft coke is prepared are fairly large. Increased manufacture of soft coke can, therefore, be easily organised in the Bihar and Bengal collieries. The real bottleneck will be transport. In view of the increasing pressure on the railway system we would set as a target that an additional 1 million tons of soft coke should be sold for consumption in the rural areas. Its sale in rural areas should be organised through recognised agencies on a no-profit-no-loss basis.

8. The Soft Coke Cess Committee, which was intended to popularise the use of soft coke, ceased to operate during the war as increased supply of coke became difficult owing to the demands of the war effort on the rail transport system. The Planning Commission is examining the suggestion that the Soft Coke Cess Committee should be revived for the purpose of demonstrating in the rural areas the use of soft coke and its economies. A small cess on the sale of soft coke may be necessary to provide adequate finances for the Committee.

#### Production and requirements of timber.

9. The production of timber recorded a large-scale increase during the forties. This occurred mainly to meet war requirements and resulted in considerable over-felling of trees and destruction of forests. Production has since declined and is at present in the neighbourhood of 1.8 million tons per annum. Including imports the total quantity of timber available is about 2.10 million tons. This consists of 0.69 million tons of soft wood and 1.4 million tons of hard wood. Although as a result of partition some valuable species have been lost, the principal forest areas are still included in the Indian Union.

10. The present consumption of timber is classified as follows:-

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(In thousand tons  
of round logs)

(a) Government consumption

Railway sleepers	340
Other railway demands	80
Defence and other Civil Departments	160

Total 580

~~(b) Manufacturing industries~~

Match industry	120
Packing case industry	75
Plywood industry	60
Tea chests	40
<del>Robbins, battery separators etc.</del>	<del>40</del>

Total 335

~~(c) Balance available for other~~

~~industries and for domestic and  
building purposes~~ 1195

Grand Total 2110

About 73 per cent of the total timber is thus utilised in the private sector and the ~~official~~ ~~by the Government~~ is about 27 per cent.

11. Since the war the demand for timber for defence has decreased. On the other hand the demand for domestic and building purposes has increased considerably as a result of increased urbanisation and the rehabilitation programme. Further, as the availability of steel is far short of total requirements, a policy of conserving steel and replacing it by timber has become imperative and should be adopted in the following cases.

(1) Treated timber should be used for telephone, telegraph and electric power lines as is done in most countries of Europe. The annual demand for poles and the means of meeting it in various parts of the country have to be worked out in consultation with the State Forest Departments. We understand that about 50 thousand poles could be obtained annually from the Andamans and 30 thousand



poles from the Sunderbans and Mahandai areas. The Communications Ministry should take steps to utilize these poles and the States should see that the poles are supplied according to specifications.

(ii) The Central and State Public Works Department should explore the possibilities of greater use of treated timber in building construction and major and minor engineering structures.

With its growing population and large scale development programme, India is likely to experience scarcity of structural materials for a long time to come, and it is, therefore, necessary to effect the utmost economy in this regard. We, therefore, recommend that a National Structural Board should be established which should consider which results of research can be carried into practice and adopted in building construction and how structural materials can be rationalised and standardised so that there may be the greatest possible economy.

12. Adoption of the measures outlined above will result in increased demand for timber. It has already been indicated that exploitable forests, particularly State-owned forests, have been over-exploited during the war. Greater production of timber would generally have to be obtained either from increased yields per acre or through development of potentially exploitable forests (about 20 million acres), which have not yet been exploited for lack of communications. The State Plans provide Rs. 104 lakhs for development of forest communications. It is necessary that schemes for utilising the inaccessible forest areas should be worked out in detail by a Committee of experienced Forest Officers.

These are, however, essentially long term measures and the availability of timber is required to be stepped up immediately. This can be done to a considerable degree if besides the conventional species, substitutes like 'salai' and other perishable species are utilised after proper seasoning and treatment by suitable chemical methods, if necessary. The establishment of seasoning kilns and treatment units should, therefore, receive a high priority and it is suggested that

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- (1) Seasoning kilns and treatment units should be installed in every government saw mill;
- (2) The Railways should increase the number of their seasoning kilns and treatment plants to cover their entire requirements of timber; and
- (3) The D.G.S.D. should give preference to suppliers of wood who have their own seasoning kilns and treatment units.

Further, most species of timber are liable to deterioration through fungal decay or insect attacks, especially when the timber is green and the weather is humid and hot. Large scale wastage occurs on this account due to delay in transport and want of proper storage arrangements in forests and sale depots. These losses can be greatly minimised by the adoption of prophylactic measures giving temporary protection. Similarly the use of treated fence poles by the Defence and Forest Departments would lead to reduced wastage and consequent economy.

14. It is expected that as a result of these measures the availability of timber would be raised by a lakh of tons by 1955-56. Another lakh of tons may be obtained by developing the North Andamans. About 50 thousand tons may also be obtained from the systematic exploitation of the private forests which, as a result of the abolition of zamindari, will vest in the State Governments. The total availability of timber by the end of 1955-56 would thus increase by about 2 to 2.5 lakh tons or by about 10 per cent without increased pressure on exploitable forests.

Forest industries and minor forest produce

15. Besides supplying timber and fuel, the forests are an important source of raw materials for the matchwood, plywood and paper industries and also potentially for the rayon industry. We have described elsewhere the programme for the development of these industries. The present requirements of timber for the matchwood industry are estimated at about 1,40,000 tons. The Andamans are supplying the needs of the match industry at Calcutta and to a limited extent at Madras and Bombay. The supplies from the Andamans would be increased by about 45,000 tons by 1955-56, which should meet the requirements of the expansion of the match industry during the period of the Plan. As regards plywood timber, the present production is estimated at about 60,000 tons. Another 20,000 tons

may be found by either substituting timber like mango or arranging imports. The total availability of plywood timber would not, therefore, exceed 1,10,000 tons in 1955-56. This sets the limit to the expansion programme for the plywood industry.

16. Bamboo is the principal forest produce used in the manufacture of paper. Other forest products used for paper manufacture are Sabal grass in U.P. and East Punjab and Boswalia Serreta (Andukwood) in Madhya Pradesh. With the partition of Bengal, the supplies of bamboo from East Pakistan have been mostly cut off and the paper industry in West Bengal has to depend mainly on Orissa forests for the supply of bamboos. Their annual requirements are estimated at about 75,000 tons, while the yield of bamboos from the Orissa forests is estimated at about 2,35,000 tons after making allowance for the needs of the local population. The extraction of bamboos from inaccessible areas involves a considerable outlay of capital on equipment, overheads and the construction of roads and paths. Long term leases by the Orissa Government directly to the paper mills should facilitate the development of the unworked areas and the expansion of the paper industry at the mouth of the Mahanadi.

17. India is wholly dependent for its supplies of newsprint and pulp for staple fibre and rayon on imports from abroad. Large quantity of fir logs are available from the Himalayan region which could be utilised for the manufacture of mechanical and chemical pulp for the newsprint and staple fibre and rayon industries. Their annual supplies are estimated at about 1,80,000 tons. We have described elsewhere the feasibility of establishing a project for the manufacture of pulp, which should receive urgent attention.

18. The Forests also yield such minor products as lac, tanning materials, gums and resins, drugs, etc., the annual value of which is estimated at about Rs. 303 lakhs. Two of the minor products, namely, lack and myrobalans occupy a position of considerable importance in our export trade.

During 1950-51 we exported seed lac, stick lac and shellac worth Rs. 11.87 crores. Internal production of lac could be increased almost indefinitely and should be intensified. Synthetic resins, though costlier, have come into use recently and are replacing lac for electrical insulations. India has almost a monopoly in shellac and it is of considerable importance to this country that shellac should not lose ground to synthetic resins. There have been complaints about adulteration and it is necessary for standardisation of contracts and grading to be adopted for all exports. India also exported myrobalans and their products valued at Rs. 1.32 crores during 1950-51. There is scope for the expansion of these exports provided collection can be intensified and grading done. Provision has been made elsewhere in the Plan for introducing grading of forest produce.

19. Cane has importance for internal consumption. Indian cane is generally considered less durable than Singapore cane. It would be worthwhile to get seed and cuttings of the varieties grown in Malaya and try them in India. We understand that the durability of the Singapore cane is due to some processing which might be tried in India.

#### Grazing lands

20. Grazing in State forests yields about Rs.95 lakhs of revenue annually. More important still, it provides fodder for about 13 million cattle, 3 million buffaloes and 9 million other animals and thus plays a vital role in the agricultural economy. On this subject the Forest Policy Resolution says:-

"Cheap forest grazing has a demoralising effect and leads to the vicious spiral of reckless increase in the number of cattle, inadequate forest grazing, reduced quality of the herds and further increase in their numbers to offset the fall in quality. Free and indiscriminate forest grazing is, therefore, a serious dis service to cattle breeding ...

Grazing should not be looked upon primarily as a source of revenue but the simple and obvious way of regulating and controlling grazing as also improving the quality both of grazing and cattle themselves is to institute a reasonable fee for the privilege of grazing."

We are in general agreement with this policy. We would, however, suggest that cultivators and other residents in the rural areas may be allowed to graze their cattle to the extent of their requirements for agricultural purposes or for domestic milk consumption free of charge and all animals maintained over and above these requirements should be treated as part of a commercial enterprise and a fee for grazing at rates bearing a reasonable relation to the value of cattle produce should be levied.

21. There are considerable grazing lands still available in the areas under ryotwari settlements, usually known as village commons. These lands have for long been neglected and are subject to continuous soil erosion. Where suitable local agencies exist or can be created to undertake their management, rotational grazing should be introduced and these agencies assisted in the erection of enclosures. Where management of these areas by local bodies is not found feasible it may be better either to put them under village plantations or under cultivation rather than allow them to suffer further erosion and thus ~~endanger cultivation in neighbouring cultivated areas.~~

#### Forest administration

22. Although forests fall within the State Governments' sphere, in view of the important place of forest products in the national economy and for national defence it is necessary that the forest policies of State Governments in respect of development and conservation should be coordinated. At present, though the Inspector-General of Forests at the centre along with his staff is expected to discharge this function, he is not in a position to do so as the working plans of the States and subsequent deviations therefrom are not referred to him. We understand that in the past this was invariably done but later, it was given up. In our opinion, some measure of centralized coordination of working plans of the States is necessary. We recommend two measures. Firstly, the summary of the State Governments' prescriptions of working plans should be forwarded to the Inspector-General of Forests for scrutiny and comments. Secondly, periodical inter-state conferences should be organised on a regional basis to enable the forest officers of the State Governments responsible for the working plans in States to discuss their working plans and exchange ideas on technical matters. Adoption of these measures will promote the coordinated development of the forest resources of India.

## Forests research and education

23. Very valuable work has been done in research on forests and forest products at the Forest Research Institute, Dehra Dun. Besides evolving methods for preserving timber and bamboos from attacks of pests and diseases, the Institute has played an important role in the establishment of industries for the production of paper, plywood, rosin and turpentine, catechu, santonin from artemisia, ephedrin from ephedra, tamarind seed powder, rosa grass oil and several other commodities. There is, however, a considerable time lag between the research and its application. It appears necessary that a proper documentation office should be organised for putting the results of research in a form in which the public can understand them and that a closer liaison should be established between the Institute and the industries. The three institutions where forest officers and forest rangers are trained are the Indian Forest College, Dehra Dun, the Indian Forest Rangers College, Dehra-Dun and the Madras Forest College, Coimbatore. Their average annual output is 35, 70 and 35 respectively. As stated earlier, a large area of private forests has vested in State Governments and for their proper management the need for trained staff will be greater. The Inspector-General of Forests should ascertain the requirements of all States over the next few years and make arrangements for the training of the required staff at these institutions. The need for a separate research centre in the South, which has special problems of its own, has long been felt and should receive attention.

## Forest tribes.

24. Various tribes inhabit forest areas. Measures for their welfare form part of the programme for the advancement of the backward classes, described elsewhere, for which we have provided Rs. 18.02 crores in the Plan. The bulk of the forest produce is collected through contractors who tend to exploit the tribesmen. Useful work has been done in Bombay in organising co-operatives of forest tribes to replace contractors. The number of such societies increased from 11 in 1947-48 to 58 in 1949-50. The value of forest produce handled by the

co-operatives during 1949-50 rose to Rs. 17.94 lakhs. It should be the object of State policy throughout India to organise the tribes into co-operatives for the collection of forest produce, and for this a phased programme should be drawn up. Responsibility for organising them into co-operatives should be laid on the forest departments which should have co-operative staff on their establishments.

25. The shifting cultivation practised by some of the tribes has caused heavy damage to many forests. To wban them away from this practice will take time and will not be easy. Gradually they have to be attracted to a settled and more intensive form of agriculture by providing them with opportunities for it and persuading them of its advantages. In some places it may be possible to settle them on cultivable land well away from the forests. In others it will be necessary to instruct them in the art of terraced cultivation and show them that more can be derived from the intensive cultivation of a few permanent fields in well-chosen localities where the slope is not too great than from periodic clearing and sowing of a whole mountain side. In some of the areas inhabited by these tribes fruit is grown by them on a small scale and with the improvement of communications and the introduction of better varieties this can be considerably developed. Generally speaking, the improvement of communications by opening up markets for agricultural and horticultural produce, will be a strong inducement to the tribes to abandon the wasteful system of shifting cultivation and take to settled agriculture.

#### The programme

26. The considerations on which the programme for the development of forests should be based have been outlined in the foregoing paragraphs. Priorities for particular items in any programme of development of forests may vary from region to region. In general these would be:

- (1) strengthening the forest administration where large territories have been merged or private forests have been

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transferred to public ownership as a result of abolishing zamindari and jagirdari;

- (2) renovation of the areas which were over-exploited to meet war requirements;
- (3) afforestation where large scale soil erosion has occurred;
- (4) development of forest communications;
- (5) development of village plantations to ease the fuel supply position; and
- (6) stepping up supplies of timber by increased use of non-conventional species after proper seasoning and treatment by chemical methods and, therefore, increasing the number of seasoning kilns and treatment units.

27. Based on these priorities the forest plan provides for the following expenditure:-

	Rs.in lakhs
1. Forest Development	611.3
2. Administration	249.4
3. Forest industries	49.5
4. Education and training	39.3
5. Research	10.0
Total :	<u>959.5</u>

Forest development schemes include provision for the management and development of private forests and the waste lands vesting in State Governments besides Rs. 39 lakhs for soil conservation, 28 lakhs for village plantations and Rs. 104 lakhs for development of communications.

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\* A further lump-sum provision of Rs. 2 crores has been made in the Plan for soil conservation.



## APPENDIX I

Statement showing area under forests in different  
Forest Regions of India (1949-50)

Region	State	Total geographical area	Area under forests (000 acres)	Percentage of colm.3 to colm.2
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Eastern Region

Assam		54,408	13,339	24.52
Bihar		45,011	9,043	20.09
Orissa		38,487	2,913	7.57
West Bengal		19,696	4,062	20.62
Manipur		5,518	1,440	26.10
Tripura		2,580	2,213	85.78
Andaman & Nicobar		2,058	1,600	77.74
	Total :	167,758	34,610	20.63

North Western Regions

Punjab		23,922	2,943	12.30
Uttar Pradesh		72,597	8,115	11.18
Jammu and Kashmir		59,379*	7,077	11.92
PEPSU		6,431	182	2.83
Rajasthan		83,327	8,180	9.82
Saurashtra		13,655	592	4.33
Ajmer		1,547	380	24.56
Bilaspur		290	128	44.14
Delhi		370		
Kutch		10,864	127	1.17
Himachal Pradesh		6,692	2,150	32.13
	Total :	279,074	29,874	10.70

\* Includes enemy occupied area.

## APPENDIX I

Statement showing area under forests in different  
Forest Regions of India (1949-50)

Region	State	Total geographical area (100 acres)	Area under forests (100 acres)	Percentage of colm.3 to colm.1
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Central Region

Madhya Pradesh	83,375	26,181	31.40
Madhya Bharat	29,785	7,138	23.97
Bhopal	4,402	1,436	32.62
Vindhya Pradesh	15,104	4,937	32.69
Total :	132,666	39,692	29.92

Southern Region

Bombay	71,213	13,097	18.39
Madras	81,786	18,442	22.55
Hyderabad	52,572	6,287	11.96
Mysore	18,873	3,010	15.95
Travancore- Cochin	5,852	1,953	33.37
Coorg	1,015	740	72.91
Total :	231,311	43,529	18.82

INDIAN UNION	<u>810,809</u>	<u>147,705</u>	<u>18.22</u>
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Production and availability of Fuel  
(1947-48)

S t a t e	' Production ' '(000 tons)	Availability 'per capita per 'annum (in lbs.)
Assam	148	34.8
Bihar	114	6.4
Bombay	985	6.2
Madhya Pradesh	1061	112.3
Madras	690	27.5
Orissa	96	14.7
Punjab	335	59.4
Uttar Pradesh	1229	40.4
West Bengal	302	27.6
Hyderabad	107	13.1
Jammu & Kashmir	179	91.7
Mysore	308	77.5
P.E.P.S.U.	5	3.2
Rajasthan	N.A	-
Saurashtra	36	19.9
Travancore-Cochin	131	32.3
Ajmer	6	19.7
Ehopal	10	26.9
Bilaspur	N.A	N.A
Coorg	7	70.3
Himachal Pradesh	16	36.4
Kutch	N.A	-
Tripura	2	7.0
Vindhya Pradesh	8	5.0
The Andaman & Nicobar Islands	2	144.5
Total :	5677	35.6

Source: Indian Forest Statistics 1947-48.  
Conversion from cubic feet to tons  
has been done on the basis of 50  
cubic feet to a ton.

N.A: Not available.

## CHAPTER XXII

### SOIL CONSERVATION.

Soil conservation in its widest sense includes not only control over erosion but all those measures like correction of soil defects, application of manures and fertilisers, proper crop rotations, irrigation, drainage etc. which aim at maintaining the productivity of the soil at a high level. In this sense, soil conservation is closely allied to improvement of land use in general. In this chapter, however, we are concerned only with the measures for control over soil erosion, which is one of the most serious problems facing the country. Large areas in all parts of the country have been rendered useless as a result of soil erosion, and areas which suffer from moderate or slight erosion and whose productivity is reduced as a result of soil losses are very much larger still. Sheet erosion, which consists in the washing away of the fertile top-layers of the soil, is the most extensive form of erosion, occurring even on moderately sloping lands. It causes enormous losses to agriculture every year by reducing the productive capacity of lands. Gully erosion, which generally starts after sheet erosion has remained unchecked for some time, has already rendered large areas useless, and is steadily increasing. In the dry western part of the country, erosion as a result of wind action and covering of croplands by desert sands along the margins of the Rajasthan Desert constitutes serious problems.

2. The most important cause of erosion is destruction of forests and other vegetation from sloping lands, desert margins and other areas susceptible to erosion. Vegetation acts as a protective cover against the forces of wind and water, protecting the soil from being washed or blown away and preserving the physical and hydrographic balance of nature. Forests for instance, provide the most effective protection against erosion on hill slopes. They break the force of run-off by impeding the flow of rain-water down the slopes and by absorbing large quantities of it in their dense mat of undergrowth. This absorbed water flows away slowly over a period of time; a large part goes into the soil, flows undergrounds, feeds springs and streams and is available

For utilisation in the foothills and plains. In this way, the hill slopes are protected from erosion, the flow of streams is regulated, the danger of floods is reduced and sufficient quantities of water are available in dry periods. But, when the protective cover of forests is destroyed, this natural balance is disturbed. Rain-water flows down the slopes unimpeded at great speed and carries with it large quantities of soil and other loose material. The hill slopes are denuded of valuable soil and lands in the foothill zone where this unsorted mass of sand and gravels is deposited are in turn rendered unproductive. Most of the water flows away during the rainy periods with the result that on the one hand floods are more frequent and more severe and, on the other, little water is available during the dry periods. Ground-water, supplies are also reduced as much less water is absorbed in the soil than before.

Destruction of trees and natural grasses in dry areas has similar harmful effects. Trees act as wind-breaks, reducing the force of the wind, and the grasses bind the sandy soils. But when such protective vegetation is destroyed, the sandy soils, exposed to the full force of the wind, begin to be blown away. Large areas in the marginal zones of deserts are thus rendered unproductive by the deposit of sand. It is believed that many deserts of the world (including the Thar Desert of India) have increased in area in historical times by this process.

3. The causes of destruction of forests and soil erosion, and the nature and severity of the erosion problem vary greatly in different parts of the country. In some areas as in the forests of Assam, Bihar, Orissa and Madhya Pradesh, shifting cultivation, which is practised by the tribal people living in these areas, is the main cause of destruction of forests and soil erosion. Unregulated grazing is the cause of destruction of forests and consequent soil erosion over large areas in all parts of the country. In the north-western Himalayas for instance, grazing by cattle, sheep and goats is the most important cause of depletion of the vegetation cover and soil erosion. Similarly, over large parts of peninsular India, the destruction of forests and soil erosion are due mainly to over-grazing. Intensive felling to obtain supplies of fuel or timber, and clearance of forests for extension of

cultivation under the pressure of demand for agricultural land from the increasing population are other important causes of deforestation and soil erosion.

Besides the damage caused as a result of the destruction of forests, considerable erosion results from faulty land use practices on farmlands themselves. Failure to practice such measures as ploughing along the contours on sloping lands, proper crop rotations and in particular growing of cover crops are causes of erosion over large areas. Much damage originates also in fallows, grazing lands or uncultivated waste lands which are generally neglected.

4. Measures for controlling erosion and restoring the productivity of eroded lands can be divided into four classes:

(1) Regulation of land use. This includes all measures for securing such alterations in the existing patterns of land use as are necessary to ensure that the different types of lands are used according to their land use capability i.e., the use for which, in view of their physical characteristics, they are best fitted. Retiring cultivated lands in highly erodible areas from cultivation and bringing them under forests or grazing; restrictions on or closure of grazing in badly eroded forests or grazing lands, and settlement of shifting cultivators to permanent cultivation are some examples of the types of alterations which are needed.

(2) Afforestation and preservation of forests by scientific forest management.

(3) Improvement of land use practices on farm lands. This includes such measures as ploughing along the contours and strip-cropping on sloping lands; proper crop rotations; application of adequate manures and fertilizers; care of fallows and other uncultivated lands.

(4) Engineering measures. Under this are included construction of bunds and terraces, check dams, channels for drainage of surplus water, gully plugging etc.

.. comprehensive programme for soil conservation for an area would include all four types of measure, although the relative importance of the different measures would vary greatly in different areas depending upon the particular conditions.

5. As a large part of the soil conservation work has to be done by the farmers, proper understanding on their part of the nature of the erosion problem, and their active participation in soil conservation programmes are essential for the success of these programmes. Improvements in farming practices depend entirely upon the cultivators. Government's function is mainly one of convincing them of the need for such improvements and demonstrating the correct methods of adopting them. Financial assistance, in the shape of supplies at reduced rates or in other forms may also be given. Engineering measures have to be taken mostly on the farmers' fields. These may be taken by the farmers, individually or in cooperation, with technical or financial assistance from the Government; or the work may be done by Government and the cost (or a part thereof) recovered from the farmers. Finally, restrictions on usage in forests can be really effective only if the cultivators, graziers and other users of forests understand the importance of these and feel that they are essential in their own long term interest, besides being vital for the welfare of large populations in the plains. Education for soil conservation, publicity and demonstration aimed at creating among the general public and especially among the farmers an awareness of the erosion problem, its causes and effects, and what they can do to control it must form a very important part of soil conservation programmes. Formation of associations of cultivators for soil conservation work has also been proposed in order to provide a suitable medium through which soil conservation measures can be taken on a cooperative basis at the village level.

6. Steps for the control of erosion and conservation of soil have been taken for a number of years in certain States like the Punjab (afforestation in the Sivalik Hills) and Bombay (bundling and terracing work in the Deccan). More recently soil conservation work has been taken up in several other States also. But there has been no country-wide effort in this direction so far, and even in States where the work has been going on, this has been on a very limited scale. The programme for soil conservation in the Plan, though small in comparison with the

magnitude of the problem, marks the beginning of a country-wide effort to tackle it. There are many limitations to undertaking a larger programme at this stage. Very little work has been done on soil conservation so far; data on such basic items as soil characteristics and type and severity of erosion in different parts of the country is lacking, and technical personnel with the necessary training and experience is limited and has to be drawn from many different fields. These limitations will be largely overcome during the period of the Plan. The necessary administrative machinery will have been set up at the Central and State levels; survey and research organisations established and essential data collected; suitable legislation enacted, and a much greater consciousness of the erosion problem will have been created. As a result, it will be possible to take up a more adequate programme in subsequent years.

7. Programmes for soil conservation and improvement of land use during the period of the Plan should be worked out for each State by its Land Utilization and Soil Conservation Board, the formation of which we are recommending (vide para 19) their respective States. These programmes should be based on an assessment of the erosion problem in the State. Such an assessment can best be made by a rapid survey of the reconnaissance type by which the major erosion affected areas are demarcated and the types and degree of erosion in each area broadly indicated. One or more areas of suitable size should be selected for work during the period of the Plan. Preference should be given in making this selection to areas which are representative of much larger regions suffering from erosion so that the experience gained in these would be applicable to the larger areas. In States where soil conservation work is already going on, the possibility of extending the scope of this work should be carefully examined. The State Plans would be reviewed and approved by the Central Land Utilization and Soil Conservation Organisation. Assistance from the experts of the Central Organisation may be obtained by States which may need them in drawing up these programmes or subsequently in their execution. A sum of Rs.2 Crores has been provided for soil conservation work during the period of the Plan\*. Out of this, allocations will be made to finance approved soil conservation programmes of States.

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\* This sum is in addition to the expenditure on conservation and land improvement measures provided for in the Plans of several States.



## Soil conservation associations

8. As much of the soil conservation work has to be done by the farmers themselves, constitution of co-operative associations of farmers for soil conservation work would be most useful. Such associations should be constituted by law after a specified proportion of the farmers in an area decide upon their establishment. All the farmers in the area covered by such associations would then be required to have to make such improvements in their farming practices, and on their fields as may be specified by the association. The establishment of such associations is especially necessary in such areas as the catchments of small streams and nullahs, in the case of which soil conservation programmes can be successful only with the co-operation of all the farmers in the area. These associations should get preference in receiving technical guidance and financial help for approved soil conservation programmes. In the United States considerable success has been achieved by the organisations of farmers into Soil Conservation Districts. This experience should be drawn upon for the constitution of these associations. The Central Land Utilization and Soil Conservation Organisation should prepare a model law for the constitution of such associations which can be adopted by the States with suitable modifications to suit their particular needs. Encouraging the formation of such associations should be one of the main functions of the State Land Utilization and Soil Conservation Boards.

## Legislation

9. Suitable legislation for soil conservation should be undertaken by the States. In the main, legislation should provide for:

(i) Powers to execute specified improvements on the farmers' fields and allocation of the costs of these improvements between farmers and the State.

(ii) Constitution of co-operative associations of farmers for soil conservation work.

(iii) Powers to restrict of usage practices in certain areas, which may be declared "protection areas" i.e. areas in which restriction of such practices is necessary for protection of much larger areas from erosion, floods, silting and desiccation.

## Research and demonstration

10. The Plan provides for the establishment of a Soil Conservation Branch at the Forest Research Institute, Dehra Dun, at which research on various problems connected with soil conservation will be undertaken. In addition six research and demonstration centres will be established in different parts of the country.\* Each of these centres will be located in an area of wide-spread erosion, and one which has been chosen for a soil conservation programme during the period of the Plan. Each centre will serve as a Pilot station (or laboratory) for the programmes in its respective area, and the site for the centre will be selected with this end in view. Data on soils, land-use, rain fall, run-off, soil-wash under different conditions, and the effectiveness of various types of Vegetation cover in arresting soil erosion will be collected at these centres. They will also serve as centres for demonstration of improved land-use and soil conservation practices to cultivators in their respective areas.

## Soil and land utilisation survey

11. For the execution of a long term programme of soil conservation as also for the wider objects of improving land use and increasing crop yields, a soil and land utilisation survey of the country is most essential. Lack of such a survey is one of the major handicaps in the improvement of agriculture. Data on soils and utilisation has been collected by Irrigation Departments in various States, by agricultural experiment stations, universities and other institutions. But such data is confined to limited areas scattered in different parts of the country, and as the techniques of classification used by different agencies vary greatly, the data is not comparable. An all-India survey of soils and land utilisation should be instituted. Through this survey data on soil characteristics and the present position as regarding land use in different parts of the country should be collected and lands classified according to their land use capability (i.e. the use for which the lands are best fitted). The survey should be carried out by a central agency so that, there is uniformity in the systems of classification and in surveying and mapping techniques and scientific nomenclature, so that results from different areas are comparable. Programmes of soil survey and testing of soils which are being carried out at present by the Indian Agricultural Research Institute and by other agencies should be coordinated with the work of the survey

\* Note: The Desert Research Station at Jodhpur will be in addition to these.

### Soil conservation in community development projects

12. Improvements in land-use and agricultural practices form the major part of the work in the community project areas. While the main emphasis in these projects has necessarily to be on increasing agricultural production, adequate steps should also be taken for the control of erosion and conservation of soil and water, wherever these are necessary. In case of projects located in the plains erosion may not be a problem except in limited areas and soil conservation measures may be necessary only for these. But in projects located in hilly regions, soil conservation measures should form an important part of the development programme. Large areas suffer from erosion in hilly regions and no permanent improvement is possible if the fertile soil of such large areas is continuously washed away by erosion. Similarly in the case of projects located in the desert and semi-desert areas (as in Rajasthan) afforestation and the creation of vegetation belts composed of trees and soil binding grasses must form an important part of the programme. Instructions in soil conservation measures should be given to village level workers and to the other project staff, especially those who have to work in hilly or dry areas. Certain States may also find it suitable to select one or more of the community project areas for their soil conservation programmes during the period of the Plan.

### Soil conservation in river valley project areas

13. A programme of soil conservation should be taken up in the catchment area of every river valley project. Adequate steps for soil conservation in catchment areas are as essential to the proper development of water resources as construction of dams and reservoirs on the rivers. If these measures are not taken and erosion goes on unchecked, the catchment areas will be reduced in their productivity. The high silt loads resulting from erosion will increase cost of operation and impair efficiency, and reduce the life of dams and reservoirs. The danger of damage to dams and other structures by sudden and violent floods will also be greatly increased. Measures for control of erosion and improvement of land-use should, therefore, form an integral part of work on every river valley project. In the case of certain catchments like that of the Kosi in which the rate of silting is known to be very high, adequate soil conservation measures are a prerequisite to the undertaking of the project.

14. Surveys of soil erosion and land use capability should be undertaken in the catchment areas and detailed plans for soil conservation should be drawn up on the basis of these surveys. Critical areas should be demarcated and a programme of preservation of forests and other natural vegetation by regulation of grazing and felling, protection from fires, control over cultivation especially shifting cultivation, should be undertaken. Afforestation and other erosion control measures like gully plugging, construction of bunds and terraces should be taken up in suitable areas. Cultivators should be taught conservation practices and should be given technical and financial assistance for adopting them. The cultivators of each sub-catchment should be encouraged to form themselves into soil conservation associations and formulate a conservation programme with the sub-catchment as the unit. Approved conservation programmes of such associations should receive preference in respect of technical and financial assistance from the Government.

15. The adoption of conservation measures will generally involve curtailment of the customary rights of certain classes of persons like graziers and shifting cultivators. Such restrictions are, however, absolutely necessary in the interest of the entire population of the river valleys and should be strictly enforced. Suitable arrangements should, however, be made for resettling and providing alternative means of employment for the populations whose privileges or rights may have been restricted.

16. Most of the large rivers of the country pass through the territories of two or more States. In many cases soil conservation measures are necessary in one State in which the catchment area of the river is located while areas receiving irrigation or flood control benefits are located in other States. Soil conservation measures in such cases can be effective only with the cooperative effort of all the States concerned, and if suitable arrangements are made for financial contribution towards the cost of these measures by States which would receive benefits from the projects. One of the principal functions of the Central Organisation which we are proposing would be to secure agreement among the various States concerned, and to see

that a coordinated programme of soil conservation is adopted for every river valley project.

### The Problem of the Rajasthan Desert.

17. Desert and semi-desert conditions prevail over a large area in western India - in Rajasthan and the adjoining areas of Punjab, Pepsu, U.P., Saurashtra and Kutch. The Planning Commission in its Draft Outline Report drew attention to the reported advance of the desert and encroachment of sand on fertile lands. The Government of India recently appointed an ad hoc Committee of experts to investigate this problem. The Committee has recommended a comprehensive programme of action which includes creation of a vegetation belt - five miles wide - along with the western border of Rajasthan; afforestation measures so as to increase the proportion of forest area in Rajasthan; improvement of land-use practices, especially the creation of shelter belts of trees by cultivators; and establishment of a research station to investigate the problems of the desert. The report of the Committee has been considered by the Central Government. As a first step, a Desert Research Station is being set up at Jodhpur and a pilot scheme for the creation of vegetation belts and the improvement of land use is being taken up. Research on soils, land-use and silvicultural practices would be undertaken at this station. The scope of research is proposed to be extended later to include detailed hydrological, meteorological, geological and geophysical investigations. The station would serve also as a centre for the demonstration of improved land-use techniques and the distribution of seeds and other supplies.

18. As a number of States are affected by the advance of the desert, and as successful tackling of the problem would depend in large measure, upon co-ordinated action by the various States concerned, the need for inter-State cooperation in this sphere cannot be over-emphasized. We recommend that a co-ordinated programme of action, indicating measures to be taken in each State should be jointly worked out by the various States concerned, in consultation with representatives of the Central Organisation.

### Organisation.

19. For carrying out the programmes outlined above and generally for formulation and implementation of suitable policies in the fields of land utilisation and soil conservation, we recommend the constitution of (a) a Central Land Utilisation and Soil Conservation Organisation at the Centre, and (b) a Land Utilisation and Soil Conservation Board in every State.

20. The Central Land Utilisation and Soil Conservation Organisation will have two parts:

(a) A Board in the Ministry of Agriculture which may consist of the following:-

Secretary to the Ministry	Chairman.
Inspector General of Forests	Member.
Member (Irrigation) Central Water and Power Commission).	Member.

The Board should have a full time Member-Secretary who should be a senior officer with experience of agriculture or forestry work.

(b) A council composed of representatives from the various States. This Council should meet once or twice each year to frame general policies.

The Board should have an adequate technical staff for carrying out the various functions of the organisation which would be as follows:-

(i) Assessment of the soil erosion problem in the country on the basis of the reconnaissance survey which would be conducted.

(ii) Framing a common policy for the control of erosion and for soil conservation in the country. The Board will scrutinize and review the States' plans for improvement of land-use and soil conservation. Officers of the Board may be loaned to State governments which do not have the necessary staff of their own for assessment of the erosion problem, preparation of soil conservation plans, and, if necessary, also for their execution.

(iii) Helping the States governments in drafting  
drafting

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suitable legislation for soil conservation purposes.

(iv) Bringing together State Governments with a view to evolving agreed programmes of action on problems like soil conservation in river valley projects areas and checking the advance of the Rajasthan Desert where Inter-State cooperation is necessary.

(v) Research and demonstration. The Soil Conservation Research Branch at the Forest Research Institute, Dehra Dun and the Desert Research Station at Jodhpur will be under the charge of the Organisation. The other soil conservation and demonstration centres will be managed jointly by the Central Organisation and the Board of the State in which they are located. The Organisation may aid suitable research programmes at other institutions in India. It should also evaluate and publicise research on soil conservation, and secure adoption of results of such research in soil conservation programmes.

(vi) Survey: The proposed Soil and Land Utilisation Survey will form part of the Organisation.

(vii) Publicity and Training: The Organisation will have suitable programmes for publicity and for the training of personnel for soil conservation work.

21. A State Land Utilisation and Soil Conservation Board should be created in the Department of Agriculture or Forestry of every State. The composition of the Board may be as follows:-

Minister-in-charge of Agriculture or Forestry.	.. Chairman.
Secretary, Development Department	.. Member.
Chief Conservator of Forests.	.. Member.
Chief Engineer, Irrigation.	.. Member.
Director of Agriculture.	.. Member.
Head of the Revenue Department in the State	.. Member.

The Board should have a full time Member-Secretary who should be a senior officer with experience of agriculture or forest management work.

Other members may be appointed as necessary.

The Board should have adequate technical staff as well as field staff for the execution of its various programmes. The Member-Secretary of the

Board will be the Director of such programme and should be given a suitable status.

The functions of the Board will be:-

(i) Assessment of the soil erosion problem in the State. For this purpose a reconnaissance soil erosion survey should be carried out.

(ii) Preparation of plans for control of erosion and soil conservation in the State.

(iii) Drawing up suitable legislation for the execution of improvement of land use and soil conservation programmes.

(iv) Execution of plans e.g. construction of bunds; terraces and other works; demonstration of soil conservation practices; aid to cultivators for execution of approved soil conservation programmes, and promoting formation of soil conservation associations of cultivators. Those of the measures which lie in the sphere of action of other Departments should be undertaken through the regular agencies of the Department concerned. Thus the necessary restrictions on grazing, felling etc. should be enforced by the Forest Department. The presence of representatives of the various Departments concerned on the Board will ensure the cooperation of these Departments.

(v) Framing suitable programmes for demonstration and research, publicity and training of personnel.

(vi) Supervision and control of Soil Conservation Associations.



## CHAPTER XXIII

### FISHERIES

Fisheries in India, though very under-developed, contribute annually about Rs. 10 crores to the national income. Rich in proteins, vitamins and mineral salts, fish is a valuable protective food. It forms an important constituent of the diet over considerable areas. The development of fisheries is, therefore, one of the most promising means of improving the diet of the people.

#### Production trends

2. The inadequacy and inaccuracy of the existing statistics for fisheries have been emphasized by several committees. The Report on the marketing of fish published by the Directorate of Marketing and Inspection is the principal source of information. Some useful data about the marine fisheries has been recently collected by the Central Marine Fisheries Research Station. The technical committee on the coordination of fisheries statistics has examined the question of statistics in detail. Its report was published in 1950 and we hope that with the implementation of its recommendations by the Central and State Governments the position will steadily improve. A sum of Rs. 8 lakhs has been provided in the Plan for the improvement of fisheries and livestock statistics.

3. Precise estimates of production of fish are difficult to obtain. The available evidence, however, shows that the present production is about a million tons, out of which about 70 per cent is sea and estuarine fish and 30 per cent - fresh water fish. Madras, Travancore-Cochin and West Bengal are the three States which account for a major part of the production.

4. As comparable figures of production for a sufficiently long period are not available, it is difficult to examine production trends. Information about the quantity of fish landed on West Coast of Madras since 1936-37 is available.

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The figures indicate:

- (i) Wide variation in the catch from year to year; and
- (ii) An increasing trend in production.

However in the absence of comparable data for other areas, it cannot be concluded that production of sea fish as a whole shows an upward trend.

As regards fresh water fish no figures are available to show the trend of production. The stocking of more than 70,000 acres of water area under the Grow More Food schemes should have increased production. On the other hand, the opinion has been expressed that a progressive decline in the production of fresh water fish has taken place due to:

- a) the excessive growth of water hyacinth and submerged weeds in impounded waters;
- b) neglect of tanks, and beels, etc. consequent on the development of major irrigation works;
- c) the silting of rivers and channels and beels;
- d) Over-fishing and destruction of fingerlings and immature fish; and
- e) construction of dams and weirs over rivers which obstruct the migration of fish from and to their customary spawning grounds.

The measures required to promote the development of the inland fisheries are outlined in subsequent paragraphs. Here, it will suffice to emphasize the importance and urgency of adopting adequate measures.

5. At the present level of production the availability of fish for the country as a whole works out at 3.4 lbs. per annum per capita as against 16 lbs. in Ceylon, 70 lbs. in Burma and 90 lbs. in Japan. A considerable section of the population of

India does not, however, eat fish. Allowing for this, the average per capita consumption is estimated at 4.94 lbs. Availability varies considerably from State to State. Travancore has the highest consumption of 21 lbs. per capita (about one ounce per day). Other States which consume considerable quantities of fish are West Bengal (13 lbs.), Madras (12 lbs.), Bombay (7 lbs.), Assam (6 lbs.) and Orissa (5 lbs.). Consumption is lowest in the Punjab (0.8 lbs.). The requirements of a balanced diet are estimated at 1.3 ounces per day per adult i.e. 30 lbs. per capita per annum of fish and/or meat. The availability of meat is poorer still. This indicates a large gap between availability and requirements.

#### Scope for development

6. The scope for increasing production of fresh water and sea fish is certainly large. In the case of inland fisheries statistics for the area developed so far are not available, but it is known that only a fraction of the water area of 15 million acres under rivers, canals, jhils and tanks has been utilised. No surveys have, however, been carried out to determine the extent of culturable waters. The back water and estuarine fisheries are still very largely underdeveloped. India's coast line is 2,900 miles long. Though it is not as well indented as the coasts of, say, England and Japan and has a rather narrow continental shelf, it offers considerable scope for the development of sea and estuarine fisheries. Only a small portion of the resources is being exploited at present mainly for two reasons, namely, (1) the small country craft cannot operate beyond a few miles from the shore and (2) over a large area adequate harbour and landing facilities do not exist. Recent charting and exploratory offshore fishing operations carried out in the Bay of Bengal and along the west coast indicate that our seas are rich in a variety of commercial species of fish which can be economically exploited.

3.

7. In order to draw up a phased programme for the development of the inland fisheries the first essential step would be to conduct a rapid survey so as to determine the culturable waters and simultaneously to investigate fish seed resources for undertaking large-scale stocking operations. It would also be necessary to classify culturable waters into (1) those that can be utilised for fish culture without any expensive measures for their improvement and (2) derelict waters which would require a large capital outlay for improvement. For States which are at present deficit in fish seed resources, supplies would have to be arranged from surplus areas, where large-scale collection and distribution of fish seed would have to be organised. Large wastages occur in the transport of fingerlings and fry. Research work done at the Central Inland Fisheries Research Station at Barrackpore and the sub-station at Cuttack has demonstrated that mortality during transport and cultural operations can be greatly reduced. This work should be intensified. The bulk of the existing culturable water area consists of tanks and beels, Carp, which are the fish most frequently reared in Indian waters, do not spawn in impounded waters with the result that stocking operations in the same water have to be carried on year after year. If the artificial spawning of carp could be developed or alternatively such species of fish located as would spawn in impounded waters and would be otherwise suitable for stocking, the industry could be improved considerably. The artificial spawning of species of fish that do not normally breed in enclosed waters has been successfully achieved in Brazil and in Indonesia common carp from Europe are made to spawn three to four times in a year by special methods. We recommend that a high priority should be attached to research in this direction.

8. Other necessary steps for the development of inland fisheries would be to prevent over-fishing and the destruction of fry and fingerlings by adopting, where necessary, adequate legislative measures, to improve derelict tanks and beels and to demonstrate improved cultural practices. The inland fisheries are dispersed all over the country side and their development requires an extension work should generally form part of the normal duties of the agricultural extension organisation and pisciculture should form part of agricultural education in agricultural schools and colleges.

\*organisation on a large scale. We do not however visualise a separate organisation for the purpose and suggest that fishery extension

Some fisheries staff may, however, be necessary at State and other levels for giving technical guidance and training to the field staff. Arrangements exist at the Central Inland Fisheries Research Station for theoretical and practical instruction in modern piscicultural practices and this staff could be trained there.

9. The appearance of water hyacinth and other weeds in impounded waters has affected their productivity very seriously. Attempts at destruction of this weed have not yielded satisfactory results so far and further investigation and research appear necessary to evolve suitable mechanical devices and chemical weedicides for their destruction.

10. The existence of private rights in village tanks has often hampered the development of inland fisheries. These have largely disappeared as a result of the abolition of zamindaris and fishing rights in them now vest in State Governments. Their systematic management is therefore a responsibility of the State. This work would be very much facilitated by enlisting the co-operation of local bodies. We would recommend the acquisition of fishery rights in waters which do not vest in the State Governments if their owners fail to carry out the suggestions made by the State Fisheries Department. The West Bengal Government have already enacted legislation to this effect. The Fisheries Department should also have facilities for developing fisheries in all State waters without necessarily taking over their management in other respects. We would also suggest that for developing fishing in the multipurpose projects and dealing with other problems arising therefrom the State Irrigation Departments should have staff for fisheries development, which should work under the technical guidance of the Fisheries Department.

11. The long coast line of India has numerous estuaries and brackish-water lakes and backwaters rich in fish. The brackishwater area is computed at about 1.9/ acres, and includes the Chilka lake covering about 256 thousand acres and yielding about 8,000 tons of fish annually. / n

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The bulk of the area vests in State Governments and is very largely undeveloped. Its development for fisheries involves large capital investment for the construction of suitable embankments and sluices. The stocking operations should not present much difficulty as fish seed is available locally. In Travancore-Cochin, a small area has been reclaimed and converted into productive fisheries. Similar undertakings should be organised in other States and areas settled in suitable blocks with cooperatives of fishermen.

### Marine Fisheries.

12. Efforts at development of marine fisheries should be directed towards:

1. mechanisation of country craft and introduction of new mechanised boats,
2. introduction of mothership operations,
3. charting for deep sea fishing and development of the located fishing grounds.
4. provision of training facilities;
5. creating adequate ground organisation;
6. supply of requisites to fishermen; and
7. efficient marketing.

The number of boats in operation is estimated at about 70,000. It has been indicated that the small country craft do not operate beyond a few miles from the shore and spend much of their time in going to and from the fishing grounds. Consequently production per unit of effort is low. Mechanisation of fishing operations would enable the fishermen to reach areas outside the range of the existing craft and also to fish for longer hours. The manner in which mechanisation can be accomplished is likely to vary from region to region. In some areas some of the indigenous craft may be found suitable for mechanisation through installation of small in-board or outboard engines; in other areas they could be brought into

service on the basis of mother-ship operations. In still others, it may be found more economical to introduce new types of small powered fishing craft scientifically designed and constructed but conforming to the traditional lines of the craft normally used. About 4,000 boats operate along the Bombay coast of which it is estimated that about a thousand would lend themselves to mechanisation. Some Machhwas, Hodas and Hodis on the Saurashtra Coast can also perhaps be mechanised. The catamarans operating along the east coast which are perhaps the cheapest and most efficient contrivance for landing fish on surf-beaten beaches, are not suitable for mechanisation. Although it is not possible to determine, without a proper survey, the total number of existing boats which could be mechanised, their number may not be very large. In Bombay useful pilot work has already been done in mechanising country craft and in Madras small mechanised vessels, not very different in design from the existing craft have been introduced and are reported to be doing well. It may be useful to send parties of fishermen from other areas to see these boats for themselves. The Plan provides for mechanisation of 140 boats - 100 in Bombay, 20 in Saurashtra and another 20 on the west coast of Madras. Provision has also been made for the introduction of fourteen 30-35 feet mechanised boats of multipurpose type. We would also recommend that the construction of new boats should be guided and supervised so that they may lend themselves to mechanisation subsequently.

14. There is also good scope for development of mother-ship operations on the west coast of India. These would require tugs equipped with refrigeration facilities and suitable for towing the types of craft at present operating along the coast. The Plan provides for 2 tugs as mother-craft - one to be located off the Saurashtra Coast and the other at Cochin.

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15. As in other countries, the large scale development of off-shore fisheries in India would require the introduction of larger types of powered fishing vessels such as purse seiners and trawlers. It is believed that purse seiners, which have not yet been tried in India, would be useful for catching mackerel, oil sardines and other shoaling fish which appear in Indian waters during certain months. We have, therefore, provided for two purse seiners, for experimental purposes, one to operate around Karwar, mostly for catching mackerel, and the other to be based at Cochin for catching oil sardines.

16. The Fisheries Department of the Government of India and of the West Bengal Government have done useful exploratory trawling in waters off Bombay and in the Northern Parts of the Bay of Bengal. They have located good fishing grounds and collected other useful data which indicate that our off-shore waters offer considerable scope for fishing. There are some other areas, such as Wadge Bank and Pedro Bank, which offer equally good prospects. The Ceylon and Madras Government trawlers have charted these areas and demonstrated that there are commercial possibilities. Possibly due to lack of proper ground organisation, i.e. transport, landing and marketing, Indian trawlers have not yet fully demonstrated the possibilities of commercial operations and the trade has not therefore, been attracted to undertake such operations. Since 1951, a Japanese trawler, Tayo Maru No. 17, has worked along the west coast. The catches obtained by this vessel during the last six months have been satisfactory.

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and servicing facilities, refrigeration arrangements



Even under severe monsoon conditions fairly good catches have been obtained. Provision has, therefore, been made in the Plan for a somewhat similar trawler for operations in the Arabian Sea. Bull trawling i.e. operations by two small trawlers working together, as practiced in Japan, appears to offer good chances of success in Indian waters. If the Japanese technique and personnel, with experience of fishing in tropical waters, were made use of in these operations, it should be possible to obtain better results. We have, therefore, provided for 3 small trawlers for the West Bengal Government for bull trawling. Provision has also been made in the Plan for renovating Government of India trawlers and fitting them with equipment for bull trawling in the Arabian Sea for which they are considered suitable. The Madras Government have also got eight motor fishing vessels which have recently been repaired for off-shore operations.

17. It is well known that fishing grounds carry a greater abundance of fish when virgin than after having been fished, and therefore the initial catches should not be regarded with excessive optimism. For trawling to be commercially successful it is necessary that there should be a sustained catch over a long period. A close analysis of the catch landed in ports is, therefore, essential to ensure that grounds are not depleted.

Personnel and training.

18. The commercial success of trawling even though the grounds are well charted, will depend largely on the efficiency of the personnel employed. It is, therefore, important that immediate arrangements be made for the training of adequate Indian personnel. The Government of India have been alive to this and a batch of eight trainees are being given intensive training in modern fishing methods. It was also made one of the conditions of the licence granted to the Japanese Company that they would undertake the training of Indian crews. In the selection of the crews preference should be given to persons belonging to the fishing community. For a balanced and planned development of the Industry it is necessary to take the assistance of experts with considerable knowledge and experience of ground

organisation and marketing, such as fisheries engineers, naval architects and harbour specialists. The Government of India are arranging to get the services of some of these experts through the F.A.O and under the Point Four Programme. It is important that the experts arrive, so far as possible, simultaneously and work as a team. Provision has also been made in the Plan for obtaining the services of fishing technicians required for manning fishing vessels. Where boats are mechanised or new mechanised boats are introduced, arrangements for training fishermen in handling such boats would be necessary. A sum of Rs. 15 lakhs has been earmarked for the purpose in the Plan.

#### Ground Organization

19. As stated earlier the success of commercial fishing operations is very largely dependent on the efficiency of the ground organization, which should include landing and servicing facilities, refrigeration plants, quick transport arrangements and efficient marketing. Liaison with port authorities would be necessary for provision of landing facilities. Inadequate servicing facilities have meant plenty of waste of time in the past which should be remedied immediately by permanent long term arrangements. To avoid glut and scarcity conditions and prevent the considerable amount of spoilage which occurs at various stages, arrangements for ice and cold storage and quick transport facilities are necessary at the landing ports and assembling and distribution centres. The Plan, therefore, provides for installation of 9 ice factories and cold storage plants as follows:-

Madras (West Coast)	1 of 50 tons
(East Coast)	2 of 50 tons each
West Bengal	1 of 50 tons
Bombay	2 of 20 tons each
Orissa	2 of 20 tons each
Saurashtra	1 of 20 tons
Total :	9

20. Transport of large quantities of fish to inland areas at considerable distances from the coastal centres will require the use of insulated or refrigerated rail transport and we suggest that the Railway Board should examine the feasibility of introducing insulated wagons at the important assembling centres. Insulated road vans will also be useful for supplying fish within short distances of these centres and we have, therefore, provided for 9 such vans as follows:

Madras (West Coast)	4
(East Coast)	1
West Bengal	2
Bombay	2
Total :	9

Landing facilities for the country craft at the fishing hamlets and minor harbours, particularly along the west coast, require the clearance of silted up approaches, and provision for a dredger has therefore been made in the Plan.

#### Supplies and marketing

21. The fishery trade is beset with middle-men. Almost everything required by fishermen for carrying on their trade-boats, hooks, yarns, and sail cloth has to be obtained through middlemen to whom they have to part with much of their earnings. A boat is generally manned by 3 to 12 men working as a team. It may be owned by one of them or all may be the employees of an absentee owner. There have been complaints that the right types of supplies are not available to fishermen at reasonable rates and in good time, which means a considerable loss of working hours. The difficulty of getting enough hooks, yarn, twine, nylon and other lines has been repeatedly brought out. A determined effort to organise fishermen's cooperatives and liberalise supplies of essential requirements is necessary to eliminate middlemen and enable fishermen to increase their working hours. In Bombay, Madras and Orissa a good amount of pioneering work has already been done in distributing fishermen's requisities through cooperatives. We would recommend that all

supplies should be distributed through cooperative societies as far as possible. Provision of these facilities should attract more men to the fishing industry and result in increased production. About Rs. 60 lakhs have been provided in the Plan to facilitate distribution of supplies and subsidize costly items.

22. Lastly we come to the question of efficient marketing which is of the greatest importance for the development of fisheries and improving the lot of fishermen. Most of the fresh water fish is marketed and consumed as fresh fish. On the other hand, only 20 per cent of the sea fish catch is marketed as fresh fish and the remaining 80 per cent is either preserved as sun-dried fish or as salted fish or converted into fish meal and manure. Increased marketing of sea fish as fresh fish is necessary not only to meet the large unsatisfied demand for fresh fish but also in the interest of the small fisherman, who will get a better return if it can be marketed fresh. It, however, raises the problems of the supply of ice, cold storage and quick transport facilities. Many fishing centres - and these include some of the most important fishing towns on the west and east coasts - have little or no communications with the hinterland. Recently some launches on the west coast have been mechanised for carrying fresh fish and this needs to be further developed. Development of communications and quick transport is a long-term process. For many years to come the bulk of the catch has, therefore, to be preserved before it is marketed. Preservation by canning has been tried off and on but the attempts have not been successful. Smoking is almost as universal as salt curing in many countries other than India. Possibly the Indian consumer has little taste for smoked fish. For preservation, therefore, we have very largely to depend on sun drying or salt-curing.

23. Preserved fish is very largely used by the poor because of its cheapness. The provision of quick transport and refrigeration plants would increase the supplies of fresh fish but would add to its cost and would probably be beyond the reach of the poor man. Increasing supplies for the poor man will, therefore, depend on increasing the availability of preserved

fish. Facilities for the supply of the requisites of fishermen and the mechanisation of country craft for which we have made provision in the Plan, should result in larger production and, therefore, increased availability of preserved fish.

24. There is considerable scope for improving the quality of preserved fish. Salt impurities result in large scale spoilage. Useful work has been done in salt curing by the establishment of government curing yards. Fish cured at Government yards is generally more wholesome as it is prepared under more hygienic conditions and expert supervision. There is, however, scope for research to determine the best curing seasons and types of cure and the degree of purity and correct proportion of salt required for preserving the different varieties of fish. This research should be intensified. The government yards had become popular because salt was supplied free of excise duty for curing, but with the abolition of the excise duty the differential rate of salt has disappeared and in many areas the people are reverting to curing at private yards. There are only two ways of preventing them from doing so, namely: (1) subsidising the supplies of salt; and (2) compulsion. Both of them may be necessary for some time. Salt supplies at the curing yards in Madras, Travancore-Cochin and Saurashtra are subsidized. The Madras State Plan provides Rs. 53.1 lakhs for salt distribution.

25. The margin between the producers' price and the consumers' price even in the case of cured fish is large. Any increase in producers' (fishermen's) margin of profit without raising consumers' price would largely depend on increasing the return per unit of effort by improving the efficiency of fishing operations and eliminating spoilage at stages preparatory to marketing. Reduction in consumers' price without depressing producers' margin would depend on decreasing handling charges and retailers' margin. It is well known that in most fish markets in India handling is unhygienic and a considerable amount of wastage occurs. Regulation of markets and establishment of planned marketing premises are as essential for improving the quality of the marketed fish as for reducing costs and should receive high priority. Elimination of middlemen by cooperative marketing may bring about some reduction in handling charges as and when efficiency in operations is developed.

26. As large scale fishing operations develop, large catches will be landed at Bombay, Cochin and Calcutta ports on some days of a month when, as a result, conditions of glut may be created which may cause wide fluctuations in prices and, therefore, a feeling of uncertainty in the trade. This would depress prices in the producing centres and as a result the small fishermen would suffer. To protect the interests of the fishermen as well as the consumers the best course would be that the supplies at these three centres should be marketed through Cooperatives which should, so far as possible, also operate the ice factories and refrigeration plants. We suggest that the State Governments should take early steps in that direction and arrange for the training of adequate managerial staff for these cooperatives. Meanwhile fish marketing Boards consisting of representatives of fishermen, the trade, the consumers and the State Government, may be established at these centres to regulate marketing.

#### The Fisheries plan

27. In working out the development programme outlined above we had to allocate certain priorities which were based on a balance of many considerations such as the nature of the fisheries, the availability of resources and technical skill, the present stage of development, the interests of small fishermen and lastly the need for immediate increase in production. For instance, in the maritime State of West Bengal emphasis has been on the development of inland fisheries for which there is very considerable and immediate scope. On the other hand, in Madras, Bombay and Travancore-Cochin the principal schemes relate to the development and expansion of marine fisheries. In the case of inland fisheries the priorities are the survey and stocking of new culturable and collection of fry. In the case of marine fisheries the priorities are (1) mechanisation of country craft or introduction of new mechanised boats; (2) harbour facilities; (3) supply of requisites to fishermen; (4) development of marketing; (5) provision of ice and cold storage and transport facilities; (6) introduction of mothership operations; and (7) provision for off-shore fishing with larger powered vessels such as purse-seiners and trawlers. Based on these priorities the Plan provides for a total expenditure of Rs. 695.87 lakhs.

28. The above plan is calculated to raise production from the present figure of 1 million tons to 1.5 million tons at the end of the Plan. This may be compared with the requirement of 6 million tons estimated by the Nutrition Advisory Committee on the basis of 1.3 oz per day per adult for 70% of the population. This indicates the gap that has to be bridged.

## CHAPTER XXIV

### VILLAGE INDUSTRIES

Village industries have a central place in rural development programmes. Diminishing opportunities for gainful employment account to some extent for the reduction in the standard of life of some sections of the rural population. Products of large-scale industries have increasingly limited the market for several classes of artisans. Their occupations now give them only partial employment, so that they tend to join the ranks of agricultural workers. Development outside the rural sector has not been rapid enough to arrest the increasing pressure of population on the land. The development of village industries should, therefore, be as much a matter of State action as the increase of agricultural production. Indeed, one cannot be separated from the other, for, increase in agricultural production presupposes fuller utilisation of the available manpower and release of surplus workers for other occupations. Village industries, therefore, call for programmes which will develop a great deal of local initiative and co-operation, and an economic environment in which they have a reasonable chance of succeeding. If the measures to be undertaken are to be effective in dealing with so difficult a problem, it is essential that they should be commensurate with its size and importance.

2. Village industries are concerned, in the main, with the processing of local raw materials for local markets and with simple techniques. The scope for such industries depends, in part, on their relation to the corresponding large-scale industry; in part, on the development of agriculture and the growth of rural amenities. As agriculture becomes more intensive, there will be greater demand for certain articles of consumption and tools and implements which could be met by village industries. Amenities in rural life such as supply of pure drinking water, street lighting, sanitation, hospitals, recreation grounds, community centres and roads increase the field for village industries. The possibility of turning waste into wealth, for instance, production of gas from cow dung and other refuse of the village through gas plants in so far as the operations prove economic, production of bone manure through bone digestors, soap making out of non-edible oils, etc., will further provide scope for the development of village

industries.

3. We may refer here also to rural arts and crafts which have both social and economic significance. Village printing, embroidery and pottery and the crafts of tribal people, for instance, have not only a long tradition but have also been essential elements in the organic unity and culture of the villages. In any programme for the revival of village industries, these crafts which have suffered much from the economic development of the past few decades, will deserve special attention.

4. If village industries are to be developed, it is necessary to deal with these deficiencies which have led to their decline. These relate to (1) Organisation, (2) State policy, (3) Finance, (4) Raw materials, (5) Research, (6) Technical guidance, (7) Supply of equipment, and (8) Marketing.

#### Organisation

5. So long as villages worked largely as self-sufficient units, goods and services were mutually exchanged within a group and there was a great deal of inter-dependence and identity of interests within the village. One effect of new large-scale industry and of imports was to reduce steadily the demand for the products of local artisans. It follows, therefore, that village industries have the best chance of growing on the basis of local demand, that is, increase in mutual exchange. The village organisation has to be rebuilt to suit changed conditions. It can hardly function now in the form of a loose organisation in which individuals work as largely distinct units; it has instead to function as a fairly compact unit. The exact pattern of the village organisation can only evolve after a series of experiments, but, with assistance from the Government, the village should become capable to a large extent of discharging the obligation of providing employment to all the workers in the village, whether they are farmers, landless labourers or artisans. In this context, it is village industries which become all-important in village development. They have, therefore, to become the concern of the village community functioning as an organised group. While artisans may form associations on the basis of single craft or multi-craft cooperatives, preferably the latter, carrying on operations connected with their crafts, they are likely to derive the maximum benefits in respect of finance, raw materials and demand for the finished goods if the village organisation takes upon itself the principal responsibility for developing village industries.



6. There are a number of institutions in India such as the All-India Village Industries Association, the All-India Spinners Association and the Khadi Pratisthan, Sodepur, which have a long record of valuable work and considerable experience in the field of village industries. In addition to organising industrial co-operatives, a useful method of developing village industries would be to give a measure of assistance to such associations so that, in turn, their workers can assist village artisans.

7. While organisation in the village provides the base, the development of village industries requires drive and direction from the Central and State Governments. The **primary** responsibility for carrying out programmes for village industries rests with State Governments, but in many aspects the framework within which they can execute programmes for individual village industries is set by the policies followed by the Central Government. In the Central Government, there is, therefore, need for an organisation which will give close attention to the problems of village industries and help to create favourable conditions for action by State Governments, constructive organisations and village Co-operatives. In view of the growing importance of the problem of employment, the Central Government must now give the same attention to village and small-scale industries as it has undertaken in view of the shortage of food and raw materials, to give to agriculture.

8. The Central Government is shortly constituting a Khadi and Village Industries Development Board for executing programmes of khadi and village industries. Experience will indicate whether these two sets of industries are in practice handled separately or together. The board is intended to be an organisation outside the departmental machinery of the Government and is to be composed of experienced workers in the field of khadi and **Village Industries** and a few representatives of the Central Government. Some members of the board might devote their entire time towards its work, some only part of their time. The board would be responsible for preparing and organising programmes for the production and development of khadi and village industries, including training of personnel, manufacture and supply of equipment, supply of raw materials and marketing, research and study of the economic problems of different

Industries. The board would also be in executive charge of village industry schemes suggested later in this chapter. New schemes for village industries, for which assistance may be needed from the Central Government would also be considered by the board. The board is expected also to function as a clearing house of information and experience relating to the progress of cottage industries. Training programmes too would be within the purview of the board.

9. In the State also there is need for similar organisations for working in collaboration with the Central organisation. In Bombay, for instance, there is already a Village Industries Committee which consists of experienced social workers and has executive responsibility for certain industries for which the funds are provided by the Government. In many States there are Cottage Industries Boards, but these function as a rule in an advisory capacity. This factor limits their value considerably. In addition to any non-official organisation that may be proposed, it is essential to have well-staffed departmental organisations as well. At present village industries do not receive as much attention from State departments of Industries as they require. The arrangements in any State will depend upon its own requirements and the nature of the industries for which the State Government has to provide. For instance, in Uttar Pradesh, there is a separate Director of Cottage Industries. On the other hand, in Bombay, where the role of industrial cooperatives has been emphasised, there is a separate officer designated as Joint Registrar of Industrial Co-operatives and Village Industries.

#### State Policy

10. A programme of village industries, such as is suggested later in this chapter, has to be supported both by specific measures of assistance as well as by appropriate State policy. In addition to the emphasis on technical improvement, research and other measures for improving efficiency, the primary objective of policy should be to provide a field within which each cottage industry may be able to organise itself. Wherever a large-scale industry competes with a cottage industry, the appropriate course to adopt would be to try and formulate a common production programme. In preparing a common production programme, account would have to be taken of the factors determining the efficiency of large-scale and small-scale production, the scope for development through small-scale methods, the extent to which the social aspect has to be emphasised and the value of any

particular course for increasing rural employment. The aspect of employment will naturally receive special emphasis in considering the details of any common production programme. Common production programmes, which include cottage industries within their scope, have necessarily to be worked out in general terms, because these industries are still more or less unorganised. Gradually, however, as organisation develops, the programme for cottage industry could be integrated more closely with that for a corresponding large-scale industry. In addition to a determination of the overall conditions of supply and demand one or more of the following elements may enter into a common production programme for the related large-scale and small-scale industries :

- (1) reservation of spheres of production;
- (2) non-expansion of the capacity of a large-scale industry;
- (3) imposition of a cess on a large-scale industry;
- (4) arrangements for the supply of raw materials; and
- (5) coordination for research, training etc.

A common production programme for an industry necessarily implies a measure of control by the Government, especially over the organised side of the industry. The subject is considered further in the following chapter.

11.. The general principle underlying common production programmes can, as a rule, be applied only after detailed study and investigation with reference to the conditions of a particular industry. What is certain is that unless the planning and development of village industries and many small-scale industries is conceived as part of the process of formulating policies and programmes for the related large-scale industries, it will be extremely difficult to promote the smaller industries and almost every technical and economic factor will weigh against them. Reservation of spheres has, for instance, been already attempted on a small-scale between the organised textile industry and handloom weavers. In view of the unemployment which has become a fairly constant feature of the handloom industry, there is scope for the extension of this principle. The principle can also be applied to a number of other industries. For instance, in the oil

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industry the policy could be adopted of developing the production of edible oils through the village industry and the production of non-edible oils through oil mills.

12. In the sphere of food processing industries the stage appears to have been reached when further expansion of large-scale industry should not be permitted, except under certain conditions such as, for instance, establishment of a unit by the government or by a cooperative organisation. Rural employment has been affected directly by the growth of privately owned units in this field. For example, in the paddy growing areas rice pounding was always a substantial source of employment, both whole-time and spare-time, especially for women. The recovery of rice from paddy by hand processes was also widely prevalent. The introduction of rice mills of the huller type greatly diminished this employment and was also wasteful in various ways. It appears to us that in the interest of rural employment and to ensure better nutrition, the Government should now formulate a programme for replacing the huller type of rice mill by organised hand-pounding of rice.

13. The imposition of a cess on a large-scale industry for the benefit of the corresponding cottage industry may have two objects. The first object may be to equalise the difference in their costs of production. We believe that the scope for the imposition of a cess for achieving this object is limited and, in any event, such a measure should only be taken after careful investigations by an appropriate body. On the other hand, if the problems of the large-scale industry and the cottage industry are viewed in terms of a common production programme and it is recognised that improvement in the efficiency and growth of the cottage industry are basically in the interest of the development of the industry as a whole, it is legitimate to suggest that the organised sector of the industry may provide, by means of a small cess, the means for promoting technical improvement and organisation in the

weaker and the unorganised sector. It is for this reason that the Central Government has recently decided to impose a cess on all mill-made cloth so as to raise funds for the development of the khadi and handloom industries. On similar grounds, we recommend the imposition of a small cess on mill oil for the benefit of the village oil industry.

14. The Government is directly in a position to assure the supply of raw material for the cottage industries only in those cases in which it is itself in control of it. It, therefore, follows that in industries in which a common production programme is adopted or is considered necessary for the related large-scale and cottage industries, either a suitable machinery of control over the raw materials should be maintained, or some other arrangements to ensure the supply of raw materials should be made. The outstanding case of distribution of a controlled raw material by the Government is of course yarn for handloom weavers. The difficulties are no doubt greater where the raw material is an agricultural commodity which is not subject to procurement. In such cases, the only means at the disposal of government can be supply of finance and, when this course is justified, resort to requisitioning.

#### Research and training

15. While it is essential that village industries should receive the maximum support in terms of State policy and specific assistance from the Government, these measures cannot have more than short-term value unless the techniques of cottage production improve rapidly. The utmost importance must, therefore, be attached to arrangements for research and training in village industries. There are a number of institutions already engaged in research in the problems of village industries but, by and large, they are not adequately equipped and staffed, their programmes are not coordinated with one another and, so far,

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their problems have not become actively linked with research work in the National Laboratories. One of the first results of an intensive programme for the development of village industries will be to bring to light the problems on which research is most needed. Some of these problems are already known. For instance, in the direction of improved tools, the need has been felt for suitable hand-ginning machines, delinting and decorticating machines for cotton-seed, better hand-carding machines, improved spinning machines, a small carbonising machine for removing vegetable matter from indigenous wool etc. Similarly, for paddy husking, improved implements are needed for reducing the proportion of broken rice and for separating unhusked paddy. Some work has already been done on improved types of oil presses. Another field in which, for want of research and adaptation the artisan is being steadily reduced is that of village pottery. In addition to tools and implements which are operated by hand or foot, there is need for evolving machines worked by power which may be suitable for small-scale operations. The prospect of rural electrification in several parts of the country during the next few years emphasises the importance of investigations of this kind.

16. These illustrations suggest the need for an institute for village technology which could carry out investigations into problems of small industries, especially those pointed towards rural areas. Such an institute could itself try out new ideas, adaptations and designs and indicate directions in which artisans could be trained and guided. The institute would have to maintain close contact, on the one hand, with the existing organisations in different parts of the country and, on the other, could present problems to the National Laboratories and other centres of advanced research. It could also communicate its experience and results to the smaller research centres and to artisan groups in different parts of the country. The proposal has to be worked out by a group of experts. We suggest that the proposal for an institute of village technology should receive priority in the Central Government's programme for the development of cottage and small-scale industries.

17. In the past there was no organised system of training for village artisans. For the greater part, crafts were chosen on the basis of caste, and skills were passed on from one person to another. These methods proved inadequate against the competition which village crafts had to face, so that new products came into the village market and tended to replace the old. With tools of new types coming into increasing use, for instance, in agricultural operations, the demand for the services of local artisans has further diminished. Training programmes have now to be organised on a large scale if the process of adaptation on the part of village artisans is to be expedited. For many years State Governments have relied on demonstration parties and peripatetic parties for achieving this result. It has been found that demonstration parties are unable to provide continuous guidance. On the other hand, peripatetic parties, which give longer training, are unable to maintain any system of follow-up after they have imparted training. In Uttar Pradesh a system of training-cum-production centres/training is provided under normal working conditions side by side with trained artisans who work either as instructors or as employees. Another recent development in Uttar Pradesh which deserves study relates to the establishment of pilot workshops for training village blacksmiths and artisans in the more advanced skills such as smithy, tin work, casting, etc. New types of machines which are gradually finding their way into the villages are also repaired at these workshops so that the artisans trained by them enter the field with much greater ability to hold their own and to develop their crafts than the ordinary type of village artisan. With better training arrangements, it might also become possible to arrange for the manufacture of standard tools and equipment for work in the villages.

#### Finance

18. Village artisans have scarcely any financial resources of their own, nor have they any security to offer. They produce mainly for local demand and, if they manufacture for a market outside the village, finance is generally found by some middle-man. Finance for the development of village industries has to be viewed as a problem inseparable from finance for agriculture. The formation of industrial cooperatives is essential

if the Government and the cooperative movement are to be able to render substantial assistance to village artisans. Given the necessary organisation, it should not only be possible to extend financial assistance, but also to initiate organised development programmes and, if need be, in the process, to assist cooperative societies which lend money through guarantees and in other ways. The operations of State Governments under legislation relating to State aid for industry have not touched village artisans to any extent. These again depend upon the existence of suitable organisations such as industrial cooperatives being available. With the establishment of Industrial Finance Corporations in different States - a process which itself should be hastened - it should be possible to render much greater assistance to village industries, if departments of industries and rural extension workers give special attention in the immediate future to the organisation of industrial cooperatives in villages.

19. While the development of cooperative organisations has ~~to be expedited to the maximum~~ extent possible, in the immediate future the responsibility for revitalising village industries devolves upon the Central and State Governments. In the States the Five Year Plan makes a total provision of Rs.12 crores for cottage and small-scale industries which represents a doubling of the level of development expenditure in this field prior to the Plan. Realising that the resources of the States have to be substantially supplemented if the progress is to be at all commensurate, in the plan of the Central Government a total provision of Rs.15 crores has been made. In undertaking programmes for cottage and small-scale industries, finance is perhaps not the major obstacle. Organisation, both on the side of the Government and on behalf of artisans and the determination of fields of work in which small scale operations can be sustained continuously raise the more difficult problems.

#### Village industry programmes

20. We summarise below the programmes which have been drawn up by the Planning Commission in consultation with a number of experts, for the following village industries:



- (1) village oil industry;
- (2) soap-making with neem oil;
- (3) paddy husking;
- (4) palm gur industry;
- (5) gur and khandsari;
- (6) leather industry;
- (7) woollen blankets;
- (8) high-grade hand-made paper;
- (9) bee-keeping; and
- (10) cottage match industry.

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It is proposed that the khadi and village industries board should take further action on these programmes in consultation with State Governments and other organisations engaged in the field of village industries. The programmes have been prepared on the basis of a period of four years being available for their implementation.

(1) Village oil industry: The programme for this industry envisages a common production programme for village oil presses and for oil mills. The production of ghanis is proposed to be raised from 10 to 13.8 lakhs tons of seed pressing. This will involve some diversion of seeds now pressed by mills and substitution of them by cotton seeds. It is suggested that 12,000 village oil centres, each serving a group of 40 to 50 villages and about 50 village oil presses may be organised. Inefficient types of village oil presses are to be replaced by efficient types. A research and training institute and five regional training centres are proposed for training artisans in the manufacture and repair of improved oil presses and for generally improving the efficiency of the village oil industry. Apart from giving greater employment to village artisans, this industry is expected to improve the nutrition of the rural population by supplying fresh and pure oil which has become difficult to obtain owing to the widespread practice of adulteration in the mill oil.

(2) Soap-making with neem oil: This is a small scheme, the main object of which is to utilise material now going waste. The scheme aims at establishing production-cum-demonstration centres in different States where neem oil will be produced and utilised in soap manufacture. It provides for 11 neem units, each unit consisting of 1 soapery and

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7 neem pressing centres producing a total of 1260 maunds of neem oil and utilising it for the production of about 78 tons of soap per year.

(3) Paddy husking: Hand-pounding of rice is an important village industry even to this day. It processes about 65 per cent of the paddy, the mills processing the remaining 35 per cent. The programme aims at improving the hand process for increased recovery of rice and production of bran in a pure form by the introduction of paddy husking stone chakkis in place of the pounding method. It is recommended that over a period of four years the distribution of about 50,000 chakkis in rice pounding areas might be subsidised. Research is proposed to be carried out for evolving suitable implements for paddy husking such as paddy separator, a better type of chakki which can reduce breakage etc. It is also proposed that rice mills of the huller type should be gradually eliminated.

(4) Palm gur: The scheme for the development of palm gur envisages increase in production to the extent of about 80,000 tons of gur. This will afford employment to about 60,000 rural workers. The scheme provides for training and research and an element of subsidy may also be necessary.

(5) Gur and Khandisari: These are well-established village industries. The object of the programme is to extend the use of improved types of cane crushers to obtain a higher percentage of extraction. It is proposed that over a period of four years about 100,000 improved cane crushers should be introduced. The introduction of small centrifugals for the manufacture of khandisari is also suggested.

(6) Leather: The object of this scheme is to minimise waste due to the incomplete utilisation of dead animals. The four-year programme provides for recovery work, tanning, leather craft in municipal areas and in adjoining rural areas and also for the organisation of cooperatives of village leather workers.

(7) Woollen blankets: It is proposed that four wool spinning and weaving centres may be established for developing hand-spinning and hand-weaving for the production of woollen blankets

required by the defence services. The centre may be run by State Governments or by cooperatives. It is suggested that carding and finishing should be done by machinery operated by power, but the spinning and weaving should be done by hand.

(8) Hand-made paper: The programme suggests the production at 11 existing centres of varieties of high-grade hand-made paper which are at present imported. These centres should be assisted in respect of equipment, training and research. Pulp-making is proposed to be done by power-operated machines, while other processes will be done by hand.

(9) Bee-keeping: The intensive development of bee-keeping is proposed in selected areas in States in which the industry has already made some progress, for instance, Madras, Bombay, Uttar Pradesh, Punjab, Mysore, Travancore-Cochin and Coorg. In each selected area there may be a sub-station serving a group of 20 to 30 villages. The scheme provides for training of staff and bee-keepers and for supply at subsidised rates of bee-hives and other appliances. Cooperatives of bee-keepers are envisaged in each sub-station for collecting and marketing of the honey produced by the members.

(10) Cottage Match Industry: The scheme aims at increasing the production of the cottage match industry from about 0.6 million gross to about 1.8 million gross at the end of four years. This result is to be achieved through provision of training and certain concessions as also financial assistance to cottage match manufacturers.

(11) Khadi: Certain tentative proposals for the khadi programme have been prepared, but these have to be considered by the proposed Khadi and Village Industries Board. It is expected that the cess to which a reference has already been made above, will yield at this stage about Rs.2 crores per annum.

(12) Coir: The depressed state of the coir industry in Travancore-Cochin calls for special action for the reorganisation of the industry on cooperative basis. A programme for this purpose has been indicated in the State Government's Five Year Plan.

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18. An illustrative statement summarising the programmes for the village industries mentioned above, other than khadi and coir, is given in Appendix. It is expected that finance for the village oil industry and soap-making from neem oil will be found by means of the cess mentioned earlier and for the remaining industries assistance will be extended to the States by the Central Government from the allotment for Rs.15 crores made in the Five Year Plan. / the

## Appendix.

Summary Statement showing Production  
Expenditure and Employment in selected  
Village Industry Schemes.

Serial No.	Industry	Production in 4 years		Expenditure (Rs. lakhs)	Rough estimate of employment.
		Total Production	Additional production.		
1.	Village Oil Industry		0.16 lakh tons oil (2.6 lakh tons @ 5 tons per improved ghani and 0.6 lakh tons @ 0.85 tons per ghani)	203.10	1,00,000 organised mistries oil pressers.
2.	Soap making with neem oil.	3448 tons soap	3448 tons soap	18.12	300 employees and part-time work of seed collection for others.
3.	Paddy husking	2 lakh tons		10.00	40,000 hand- pounders.
4.	Palm Gur.	2,58,852 tons of palm gur.	81,852 tons of palm gur (recurring addi- tional annual produc- tion after 4 years will be 40,943 tons)	100.00	60,000 agriculturists, tappers, etc.
5.	Gur and Khandsari	(a) 450 lakh mds. of improved ordinary gur. (b) 5.1 lakh mds. of ordinary gur. (c) 1 lakh mds. of coloured jaggery. (d) 13.6 lakh mds. khandsari	Net gain through (in Rs.) 1) better extraction 4 crores. 2) improving quality 2.60 crores. 3) better marketing 1.60 crores. Total - 8.20 crores	100.40	1200 whole-time worker 3800 part-time workers 4600 local honorary workers,  600,000 cane-growers in 30,000 villages for part of the year.
6.	Leather Industry	Hides, bones, tallow. Indigenous footwear.	Increased production of hides, bones, tallow due to greater recovery from dead animals Production of better footwear	160.37	1200 employees in- cluding 900 tanners, flayers etc; also about 2 lakh cane-growers in 72,000 villages.
	Woollen Industry	10 lakh blankets.	10 lakh blankets	47.49	200 employees, 4000 spinners, 200 weavers.
	Hand-made paper Industry	1400 tons high-grade hand-made paper, valued at Rs. 54 lakh.	1400 tons high grade hand-made paper.	18.86	1000 paper makers.
	Bee-keeping	....	....	16.29	150 apiarists and fieldmen; bee- keepers forming cooperatives.
	Cottage Match	1.8 million gross	1.8 million gross	20.60	2000 student workers 6000 labourers.
				725.23	

## CHAPTER XXV

### SMALL INDUSTRIES AND HANDICRAFTS

It is customary to refer to industries which are not required to be registered under the Factory Act as cottage and small-scale industries. There is no accepted line of distinction between cottage and small-scale industries and different definitions are adopted according to the object in view. The distinction frequently made between establishments which employ power and those which do not become less useful as electricity becomes more generally available. The number of workers employed in an establishment has only a limited value as a criterion for distinguishing large-scale and small-scale establishments. In addition to the test of numbers employed and the use of power, a further test may be whether a unit which may otherwise be regarded as small is owned by an individual or by a co-operative group. In implementing programmes which involve concessions or assistance for small-scale industries, the approach has to be flexible and it may frequently be necessary to evolve some practical criteria according to the aims in view which might be appropriate to the circumstances of each industry or group of industries.

2. In the preceding chapter we have considered the problems of those small industries which are, in the main, an integral part of the village economy. In this chapter we refer to the problems of the remaining small industries. These could be divided into two main groups, namely, those which represent traditional skills and crafts and those which are more recent and have an intimate connection with the corresponding large-scale industries. Village industries are at present of a rudimentary character but, with the progress of rural electrification, their character is likely to be transformed. Employment is as weighty a consideration in small industries and handicrafts as it is in village industries and in both it is of the utmost importance that the process of technical improvement should be hastened. Along with measures to create or maintain demand for the products of small industries, equal emphasis must be placed on the need to change methods of production and organisation.

3. Small industries derive part of their significance from their potential value for the employment of trained and educated persons. The field of public employment which a large proportion of those who receive education seek to enter is limited; so also is the employment that may be available in large-scale industries or in allied fields. For those who have received some training and education, generally speaking,

the most promising direction of activity appears to be the development of the smaller industries. Further both small industries and handicrafts have great importance as means for providing employment for women in their homes as well as on a more organised basis.

4. During recent years a great deal of development in the field of small industries has taken place. During the war, for instance, new small industries sprang up throughout the country for the purpose of meeting defence requirements. A number of these have now disappeared wholly or partially. For this there may be several reasons. In some cases the difficulties may relate to the supply of raw materials or to the existence of capacity in excess of demand; in others, the fact that the units are uneconomic or are unable to produce the quality or precision needed may account for their failure. Nevertheless, the experience of numerous small industries growing up during the war and manufacturing products which still continue to be obtained from other countries has significant lessons in the context of programmes under the Five Year Plan.

5. The information available on the subject of the existing small industries is extremely meagre. A large-scale sample was carried out recently by the National Sample Survey, but its results are not yet available. While surveys of individual industries or individual centres of small industry are available, often the information they furnish is not recent enough and does not throw sufficient light on the problems of an industry as a whole. The result is that there has been far too little formulation of policy on the subject of small industries, and executive action has been largely confined to such activities as the provision of power or the distribution of controlled materials. There have been hardly any considered and coordinated programmes of development and technical improvement, and a great deal of small industry has grown up without much direction and assistance from the Government. The growth of small industry over the past two decades has been an unplanned process which has been lacking in some of the elements that make for efficiency and stability. The planned development of small industry is a task of immense magnitude, of equal importance with the planning of agriculture, or transport or industry. This task has been taken in hand by the Central Government and, as a first step, programmes for a few selected industries, such as wool development, the manufacture of woollen goods, sports goods, agricultural implements, brassware and bell-metal, cycle parts etc., are under preparation in cooperation with the States concerned.

6. In this Chapter an attempt is made to indicate some of the problems which are involved in formulating substantial

development programmes for small industries and handicrafts and the directions in which, both at the Centre and in the States, action has to be taken. In this field, the work of the Central Government as well as of the States is still in its preliminary stages. The Central Government's plan contains a total provision of Rs.15 crores from within which it should be possible to finance approved programmes and to render a fair measure of assistance to the States. Programmes for small industries and handicrafts call for a comprehensive approach in which, on the one hand, there is adequate co-ordination with large scale industries and research institutions and, on the other, the State governments ensure that the artisans are sufficiently organised to be able to avail of technical and financial assistance and to provide as far as may be possible co-operatively for their essential requirements.

#### Handicrafts

7. Skilled craftsmanship is the principal feature of handicrafts. For the greater part trade in handicrafts is in the hands of the middlemen, many of whom have been associated with handicraft production for generations. As a rule, these middlemen operate on a small scale and work to orders. They find their own finance and constitute a real link between the artisans, the exporter and the foreign buyer. There have been instances of improvement effected at the instance of these middlemen but by and large, the present organisation of handicraft industries does not make for efficiency or for improvement in quality or adherence to standards or, for that matter for planned increase in production. Nor are the middlemen in a position to ascertain sufficiently the requirements of foreign markets. The result is that, with some exceptions, the handicraft industries remain largely static in their methods and outlook.

8. There are numerous problems concerning handicraft industries which need close study and investigation. Some of these are known, but systematic enquiry is necessary if action on the part of the Government and scientific institutes is to be properly directed. A few of the problems which affect the volume and character of the export trade, which is undoubtedly an important element in their production. The measures which are calculated to increase the export demand are also likely to enlarge the internal market, could be mentioned by way of illustration. The foreign demand for brassware products from Banaras, Moradabad, Jaipur and Tanjore could be increased if more utility articles



were manufactured and their shapes adapted to the requirements of customers. Similarly, uses of brocades and gold thread saris and other articles manufactured in Banaras could be greatly developed if the tastes of foreign buyers and the character of their needs were studied more closely and the necessary guidance passed on to artisans. The recent slump in the coir industry, which is no doubt due in part to exchange restrictions, is also to be traced to the decline in quality, lack of adequate organisation and failure to adapt production to market conditions.

9. These illustrations show that in the case of handicrafts there is an intimate connection between measures needed to improve production and supply and those required for stimulating demand. The internal demand for products of handicrafts is limited mainly by the low purchasing power of the population but, through the extension of State patronage in its various forms and greater emphasis on the use of indigenous handicraft goods in the home and elsewhere, the demand can be greatly extended. The external demand in many markets has varied considerably in recent years on account of exchange restrictions and the fact that a number of handicraft products fall under the description of non-essential goods. In markets like the United States where this difficulty does not exist, the demand for Indian handicrafts could be developed much more if certain minimum conditions could be fulfilled by the suppliers. Complaints are not infrequently made that in supplying goods samples are not adhered to and the quality varies a great deal. Lowering of quality cannot but affect future orders. Secondly, for a large market like the United States goods are required in bulk, but the middlemen who arrange for production in India are not able to finance more than a limited quantity of goods. Production programmes for handicrafts goods should be based on the study of the requirements of customers in foreign markets, not only of the wealthy but, increasingly, of the average citizen. In other words, as suggested earlier, in addition to meeting luxury demands for artistic wares, the utility possibilities of handicrafts should be developed as fully as possible.

10. In improving the quality of handicraft products and in increasing the demand for them emporia can also play an important part, provided they are efficiently organised. Emporia should not only increase the sale of cottage industry products but should, in turn, be the means of conveying to artisans information and guidance concerning new demands and new designs. A direction in which useful results are likely to be secured is the linking up of consumers' co-operatives with producers' co-operatives. To

the extent such a development can take place, a stable internal demand can be created for the products of small industries and handicrafts. Similarly, in the sphere of foreign trade the Central and State governments could attempt increasingly to promote links between the producer's in India and large buyers abroad.

11. The Central Government have recently constituted a Handicrafts Board to advise the Government generally on the problems of the handicraft industries, particularly with a view to improving and developing production and promoting sales in India and abroad. The board would also advise the Government on grants or loans to State Governments and private organisations and institutions for financing activities necessary for the development and improvement of handicrafts. The purposes for which grants or loans may be recommended by the Board may include introduction of better technique and improved equipment, prescribing standards of quality and arrangements for their enforcement, training of personnel, promotion of research, publications on cottage industries, procuring and supply of raw materials for handicrafts, setting up handicrafts museums and conducting economic surveys etc.

12. Not all handicraft production takes place in such established centres as Benaras, Mirzapur, Farukhabad, Jaipur, Hyderabad, Tanjore or Srinagar but, since skills in handicrafts are imparted by one craftsman to another, the growth of traditions and, consequently, of a measure of concentration is a fairly common phenomenon. The craftsman or the artisan himself works on a small scale and independently of others. As a rule, despite the fact that many craftsmen in the same trade may be working near one another, their common problems are seldom taken care of by a representative association, nor have many cooperatives been formed. If the artisan is to become less dependent on middlemen and technical knowledge and guidance are to be carried to him, the two lines of advance have to be, (a) formation of cooperatives and (b) formation of associations in.

each established handicraft centre with cooperatives as well as individual workers as members. The work of organising cooperatives is a responsibility of the industries departments in the States with the assistance, where necessary, of the cooperative departments. Some progress in this direction has already been made. For instance, taking all the States together the number of industrial cooperatives rose from 3,758 in 1949 to 5,305 in 1950 and, according to the current schemes of State Governments, it is expected to rise to about 8,000 by 1955. If it is remembered that not all these cooperatives are concerned with handicrafts and that their total membership is less than half a million, the need for accelerating programmes for organising artisans and craftsmen into cooperatives will be readily appreciated. As regards the formation of associations in established centres of production, the essential object is to create well-organised agencies through which assistance by way of materials, equipment, technical guidance, new designs, etc., can be taken to the home of the craftsman.

13. The industries departments in the States, even with such assistance as the Central Government can provide, will not be able to organise the production of handicrafts on the lines suggested above and, in due course, to replace the middlemen by cooperative associations, unless they are themselves equipped with the necessary knowledge and are in continuous contact with the technical and business problems of the producer and the artisan. In addition to finance and organisation, there are three directions in which research and investigation are needed. In the first place, standards for quality control should be established for all important lines of production. Enforcement of these standards will have to be undertaken as the associations mentioned above develop their marketing functions and through rules governing State purchase. Export trade also represents a field in which quality control can be enforced successfully, at any rate, for the major products. Secondly, the study of

designs and materials needs to be organised. There is too little work in this direction at present, although in arts and crafts school and elsewhere valuable experience exists which could be brought together and further developed. In respect of designs in particular, the country has scarcely begun to explore its own rich heritage. In the third place, there are no adequate arrangements at present for either discovering the technical problems which hamper the work of the craftsman or for solving them where they are known.

14. Research in handicrafts involves study of art, skill and tradition as well as the study of materials. The former have necessarily a local colour. For this and other reasons it is necessary to develop in different parts of the country a number of institutions in which research in some aspect or other of handicraft production is undertaken. The Central Government might also consider the possibility of establishing a Central institute for the study and preparation of designs. Such an institution could work in co-operation with arts and crafts schools, institutions like Shantiniketan and industries departments in several States.

#### Small industries.

15. The expression 'small industries' includes many newly organized industries which are worked with power, as well as some of the older industries such as handloom weaving, manufacture of locks, utensils etc. In the organization of the newer small industries, the middle-man trader has a less prominent part than in the older industries. A higher level of technique demands a higher level of training and, therefore, the newer small industries open out a most promising field for the educated young man who is prepared

to make his way on the strength of his own skill and enterprise. In the organization of these industries, the State can give even greater help than in the older industries, because their planning is a part of the planning of the corresponding large-scale industries and also because it is possible for the Government to locate the new industries in a planned manner.

16. Apart from the distinction between the old and the new, small industries may be divided into three groups, namely,

- (i) those in which small-scale production has certain advantages and is not affected by large-scale industry to any great extent,
- (ii) those in which small-scale industry is concerned with the manufacture of certain parts or with certain stages of production in a manufacturing process in which the predominant role is that of large-scale industry and,
- (iii) those in which small-scale industry has to meet the competition of the corresponding large-scale industry.

The three types of industries could perhaps be described respectively as industries which exist independently or as units integrated with or as units competitive to large-scale industries.

17. Among the examples of small industries which are largely able to hold their own may be mentioned the manufacture of locks and padlocks, wax candles, buttons, chappals and badges. In these industries, while work may be done on an individual basis, it has to be organized through groups primarily to facilitate sale and marketing and the financing of production. To the extent to which such articles enter into State purchase, it is possible directly to promote improvement in quality.

18. In the engineering industries, there is considerable scope for allocating to small-scale production particular stages in the process of manufacture. Among the leading examples of this type of small industry may be mentioned the manufacture of cycle parts, electrical goods, cutlery, pottery and agricultural implements. During the war the smaller engineering units achieved valuable results but, subsequently, the shortage of iron and steel and their own weakness in organization have hit many of ~~the smaller units~~. With improvement in the supply of

pig iron and iron and steel generally, for which the Five Year Plan provides, it is expected that these industries will have an expanding field. This result cannot, however, be achieved without a reservation of spheres according to some central plan for an industry as a whole, supported by considerable assistance in finance, organisation and training on the part of the Central and State Governments.

19. Of the third type, namely, those which are seriously affected by competition from large-scale industry, the best example is the handloom industry. In 1951 it was reckoned that there were 3 million handlooms at work, in addition to about 23,000 power looms. Power looms are a comparatively recent development, which has brought to the fore the question of competition between the more advanced and the less advanced forms of small industry. This is a different problem from the competition between a large-scale industry and the corresponding small-scale industry. The entire subject of 'protection' for the handloom industry in relation to the textile industry is to be shortly reviewed by a committee which has been appointed by the Central Government. However, as an urgent interim measure for the relief of the industry the principle of reservation in favour of the handloom weaver has been recently extended. The importance of ensuring an adequate market for the handloom industry is well recognised. This is also required for the plan for the textile industry which postulates an increase of handloom production from 810 million yards in 1950-51 to 1700 million yards by 1955-56.

20 It will be seen, thus, that both for those small industries whose production has to be integrated with and form a part of the production of the large-scale industry as well as for those which have to be 'protected' in relation to the large-scale industry, policy has to be based on the premises that there should be a common production programme for an industry as a whole, including both the large as well as the small-scale units. The nature of the common production programme would of course have to vary with each industry. In some cases, as explained in the chapter on village industries, the essential points are that the supply of the basic raw materials should be assured, a sphere of production earmarked and perhaps a small cess enforced on the large-scale industry, either with a view

to reducing the difference in the cost of production or merely with the object of providing funds for improving the efficiency and organisation of small-scale units. In other cases, a common production programme takes the form of a closely integrated programme in which the large and the small units are essentially complementary. The principle of reservation of a sphere of work is implied in both cases.

#### State purchase.

21. Apart from the field of production for any small-scale industry which may be specified by a common production programme, there are two directions in which the demand for products of small industries could be deliberately developed. These are: (i) stores purchase and (ii) replacement of imports. The question of stores purchase has been the subject of a recent decision by the Central Government. It has been agreed that where basic considerations like quality, delivery date etc. are comparable, the products of cottage and small-scale industry would receive preference for the requirements of the Governments over the products of other manufacturers. In those items in which cottage industry has advantages over large-scale industry or has established itself as a supplier to government on competitive terms, orders should be placed with cottage and small-scale industry to the fullest extent before orders are given to large-scale industry. In the case of other products, according to the circumstances and merits of each case, a price advantage and suitable relaxation as regards specifications would be allowed. It has also been provided that preference should normally be given only to offers made by cottage and small-scale industry through a cooperative society or through agencies approved by the Central Ministry of Commerce and Industry in consultation with State Governments. While, over a period, this stipulation will encourage the growth of cooperative organisations, in order to extend immediate support to small industry, it has been further agreed that price preferences would not be withheld from cottage industry products on the ground that purchases were made from a middleman, provided that the middleman is a traditional employer, for instance a 'master weaver' or a 'master cobbler'. These decisions embody a considerable advance in policy and we suggest that they should be followed by those States which have not already adopted such a policy. It is important, however, that there should be machinery for the enforcement

can be both a method of increasing the output of industry and a means for raising its technical efficiency and improving its organisation.

#### Replacing imports

22. A preliminary study of the possibilities of replacing by cottage and small-scale production articles which are now imported, has been made, but we suggest that the subject requires detailed examination by panels of technicians and businessmen in different trades. Such examination should be taken in hand and completed as a matter of priority. These panels could work out in detail the directions in which imported articles could be substituted and the stages in which the programme of production by cottage and small-scale industries could be organised.

#### New centres of small-scale production

The scope for initiating the production of articles in replacement of those now imported is likely to be most considerable where the Government has the opportunity of organizing new centres of small-scale production. Thus, for instance, for the rehabilitation of displaced persons, especially those who had non-agricultural occupations or interests, it has been necessary to establish important townships such as Nilokheri, Faridabad, Phulia, Gandhidham etc. In the Punjab, new industrial areas have been added to a number of towns and, besides the provision of sites and the necessary social amenities, power has been made available. Independent artisans and small-scale entrepreneurs are being assisted with finance and technical guidance to establish production in selected lines. Among the community projects recently initiated there are a few, especially in West Bengal, in which the establishment of towns and of local industries constitute the principal programme. In community projects of the rural type also, some provision has been made for the promotion of arts and crafts

24. From these examples it would be apparent that by far the most important method of developing



small-scale industries is to establish either small new townships or, what might frequently be even more advantageous, to extend existing towns and provide sites, services, power etc. It is hoped that from the funds provided in the Plan for cottage and small-scale industries, community projects as well as under certain other heads, it would be possible to promote and assist a number of centres for small industries. In the river valley projects, particularly when power becomes available, development of this kind will have a great deal of importance. The creation of such centres of industrial production is a development of such importance for the economy that if the programmes require additional financial provision in the later stages of the Plan, we recommend that this should be considered. It should be added, however, that progress in establishing new centres for industries is likely to be impeded, not so much by lack of finance for establishing them, as by the lack of capital for those who have to establish the enterprises, failure in marketing arrangements and by inadequate training of workers. The problems of marketing are already proving a source of anxiety in some centres which were started in connection with the rehabilitation of displaced persons. Frequently, acute problems of marketing develop because (a) in laying down lines of production sufficient study is not made of the prospects of future demand and (b) there is no overall planning in terms of common production programmes between large-scale and small-scale units. There are, therefore, dangers which have to be considered carefully in advance by the Government concerned before new industrial centres are established.

#### Training

25. The question of training has received considerable emphasis in the Five Year Plan. The training centres maintained by the Central Government under the Directorate General of Resettlement and Re-employment have trained during the past few years 144,000 persons. The Ministry of Rehabilitation has so far arranged for the technical training of 52,000 persons from West Pakistan and at present 12,000 persons are under training, in addition to 8,000 trainees from East Pakistan. The plans of the State Governments provide for the following training programmes:

#### State programmes of training

	1950-51	1955-56
Number of industrial schools	365	456
Number of pupils trained	14,750	21,797
Number of technical and vocational institutions	260	407
Number of persons trained	26,708	42,997

The Central Ministry of Education has also provided for substantial assistance to technical institutions engaged in imparting more advanced training. Technical training programmes should be so designed that they fit in with the overall plan for the development of cottage and small-scale industries in the country. The training should be directed towards those trades in which the prospects of stable employment are reasonably clear. There is need also for considerable emphasis on the training of artisans in the existing small-scale industries. Exhibitions of cottage and small-scale industries which are valuable in stimulating demand should also be utilised for providing instruction concerning new techniques and designs to artisans.

26. Research: The importance of research for the development of village industries and of handicrafts has already been stressed. Small industries of the modern type have their own problems of research which can only be solved in close collaboration with the larger industries to which they are related. We suggest that the Central Government should arrange, in consultation with the State Governments, for the opening of special research sections for small industries in research institutes associated with individual large-scale industries. Where necessary, a measure of assistance could be afforded to enable an institution to expand its facilities. In view of the variety of problems which small industries of the modern type are likely to raise, it is doubtful if a single research institute will be sufficient.

27. Finance: We have referred already to the need for finance. One suggestion may be made. Some States are likely to find it difficult to establish industrial finance corporations of an economic size because of their small resources or the undeveloped state of their industry. We suggest that the Central Government should consider the possibility of making regional arrangements for the establishment of industrial finance corporations for those States which may not be able, with advantage, to support independent financial institutions.

28. In conclusion, we may refer to a number of small industries which call for skill and training and, invariably, for the use of power. The growth of these industries is related closely to the development of heavy industry, including the manufacture of machinery in the country. The advance of technological education is also a material factor in the progress of such small industries.

## CHAPTER XXVI

### IRRIGATION AND POWER

#### Assessment of water resources

In India, as in other countries, rivers have had a powerful influence on national and local life. Successful agriculture in most parts of the country is not possible without the use of river waters. The large land resources of India cannot be put to productive use without a simultaneous development and use of the water resources. In fact an integrated development of the land and water resources of India is of fundamental importance to the country's economy. From times immemorial, life and civilization in India have been dependent largely on rivers. The earliest civilizations developed along the banks of the Indus and the Ganga and their tributaries. In the Deccan, except for the narrow strip along the western coast, large parts of the population have depended for their existence on river waters.

2. Irrigation, or the artificial application of water to crops, is an old art in India; in many parts it began with agriculture itself. References to the practice of irrigation in India have been traced to many centuries prior to the commencement of the Christian era. The large numbers of tanks, which are found in the Deccan, have been in existence for ages. The Cauveri delta canals date back to the second century and the Jumna canals were constructed originally about the 14th century. Under certain favourable condition, river waters provide a cheap source of power either directly or through the generation of hydro-electric power. In India, with little oil and coal deposits confined to certain parts of the country, hydro-electric power has an important part in her development. Apart from rivers, under-ground waters constitute an important source of water supply for domestic and agricultural purposes. The exploitation of sub-soil water resources must be integrated with the use of river waters.

3. Physiographically, India may be divided into four parts: the Peninsula proper, the Himalayas and associated mountains, the Indo-Gangetic alluvial plains and the Thar desert. The Peninsula is an ancient landmass owing its present features to denudation and weathering over long ages. It is composed mainly of ancient crystalline and metamorphic rocks. The western third of the Peninsula is covered by lava flows. Except for a fairly broad strip along the east coast and a comparatively narrow one along the west coast, most of the surface of the Peninsula is composed of hills and plateaus. The coastal plains are the most productive parts of the Peninsula. The Himalayas and associated mountains ranges of northern India are folded mountains of the tertiary age. The Indo-Gangetic plains lie between the Himalayas and Peninsular India and represent a sag or depression in the earth's crust which has been filled up with alluvium brought down by the rivers. They constitute one of the most fertile tracts in the world. The alluvial soil of these plains is being cultivated from times immemorial and shows little signs of exhaustion. The rivers flowing through the plains are snowfed, active during the rainy season and carry enormous detritus load. The Thar desert is an arid region in the north-western part of the country. It occupies a large part of Rajasthan.

4. India lies partly in the tropical and partly in the sub-tropical regions of the world; the Tropic of Cancer passes through the Rann of Cutch and the middle of West Bengal. The sub-tropical zone, comprising Rajasthan and the Western part of the Indo-Gangetic Plains shows extremes of climatic condition, while the tropical zone is more equable. In most of the country, there are three seasons: (i) Winter: November to March; (ii) Summer: April to June; and (iii) Rainy season: July to October. The exact duration of each season, however, varies in different parts of the country.

5. The outstanding feature of the rainfall in India is its unequal distribution during the year and its variation from year to year in respect of quantity, incidence and duration. The average annual rainfall of India is 50 inches but it is only of the order of 5 inches in the desert in the north-west, increasing gradually across the plains of northern India from west to east until it is about 100 inches in Assam (see Figure 1). In central India, the mean rainfall is of the order of 50 inches a year, and in the peninsula, except along the west coast, the mean annual rainfall is of the order of 30 inches. Almost the entire rainfall in the country is due to the south-west monsoons and is received during the four months of June to September, with the exception of the south-east portion of the Peninsula, where the rainfall is heavier from October to December. In winter the rainfall varies from  $\frac{1}{2}$  to 2 inches except in north-east monsoon areas, and from March till the onset of the south-west monsoons, the country is almost rainless. Apart from its unequal distribution in the year, the rainfall shows considerable variations from year to year. It is not uncommon in many places for rainfall in a year to be less than half the normal; even one fourth of the normal during a critical period in the crop rotation has been experienced.

#### Available water resources

6. The rivers of India may be broadly divided into two groups: (1) The snow-fed rivers of northern India, and (2) the rivers of central and southern India. The Himalayas give rise to these important river systems of northern India; the Indus, the Ganga and the Brahmaputra. The chief rivers of central and southern India are the Mahanadi, the Godavari, the Krishna and the Cauvery flowing eastward into the Bay of Bengal

and the Narmada and the Tapi flowing eastward into the Arabian Sea. The Chambal, the Betwa and the Sonu drain the northern edge of the Peninsula and flow into the Ganga system.

7. The rivers of northern India, rising in the Himalayas, are snow-fed and flow all the year round though the supplies available in winter are low. The rivers rise with the melting of snows in spring and with the break of monsoons they swell further and carry enormous floods during the rainy season, the supplies falling again from October onwards. The rivers of central and southern India have no snow-fields at their heads and their supplies depend entirely on rainfall. Since this rainfall is confined to a small part of the year, the rivers carry large supplies in these months and the dry weather flow sometimes dwindles down to almost a trickle.

8. Detailed gauge and discharge observations are available for many of the major rivers in India for the last few decades. Most of these observations are, however, mainly in connection with existing or projected irrigation works. There has been no attempt to make a complete hydrographic survey of the country; the task is one of great magnitude. The Indian Irrigation Commission of 1901-1903 estimated that the total annual surface flow in the rivers in India, (as it was then, but excluding Burma, Assam and East Bengal) was 51 billion cubic feet. This is equivalent to 1170 million acre-feet\* of water. A more recent

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An acre-foot represents a volume of water sufficient to cover an acre of land with one foot depth of water.

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appraisal of the water resources of the country, based on an empirical formula co-relating the river flow in each basin with its rainfall and temperature, gives the total annual flow as equivalent to 1356 million acre-feet for the Indian Union. Of this only 76 million acre-feet or 5.6 percent are at present being used for purposes of irrigation; the rest flow waste to the sea. The position in regard to utilization of water resources in the important river basins is set out below:

River system.	Estimated average annual flow.	Existing utilisation & proposed projects.
Indus	170 million acre-feet for the entire river system lying both in India and Pakistan.	Existing utilisation in India is about 8 million acre-feet. The Bhakra Nangal project is the main project in this system. A mean annual utilisation of 8 million acre-feet is contemplated in this project.
Ganga	400 million acre-feet.	Only a small part has been utilized, chiefly by canals on the Ganga, Yamuna and Sarda rivers. The Damodar Valley Project is the major project within this system. This proposes to utilise nearly 2.7 million acre-feet of water. Other schemes for development are under consideration.

River system.	Estimated average annual flow.	Existing utilisation & proposed projects.
Brahmaputra	300 million acre-feet.	Existing utilization is negligible. In general, irrigation is unnecessary because of heavy rainfall in Assam.
Godavari	84 million acre-feet.	About 14 percent has been utilized so far.
Mahanadi	74 million acre-feet.	Small quantities are utilized for irrigation in the delta areas. Hirakud project will be the first major development on the system. This project would utilize about 11 million acre-feet of water.
Krishna	50 million acre-feet.	Approximately 18 percent of the flow has been utilized. The Tungabhadra project will ultimately utilize an additional 6 million acre-feet. Schemes for further utilization are under consideration.



River system.	Estimated average annual flow.	Existing utilization & proposed projects.
Cauvery	12 million acre-feet.	Over 60 per cent of the waters are utilized for irrigation in Madras & Mysore.
Narmada	32 million acre-feet.	There has been no large project on either of the rivers. The Kakrapara project on the Tapi would be the first major scheme.
Tapi	17 million acre-feet.	

9. There are numerous other rivers and rivulets in which waters are available for utilization, mostly on an intermittent basis during the rainy season. On quite a large number of these, small irrigation reservoirs have already been built; but many more can be constructed and there is an increasing activity all over the country to utilize the waters of these small streams.

10. Substantial water supplies for irrigation, industrial and municipal uses are available from under-ground waters. Wells have been constructed in all parts of India for domestic water supply and for irrigation of land and they are in use from times immemorial; but large-scale irrigation from this source is possible only with the help of tubewells operated by power pumps. No inventory of the ground water resources for the country as a whole has as yet been prepared. The information available indicates that ground water is generally available in all parts of the country, but it would be economical to tap it for large scale irrigation by means of power-driven tube-wells only in parts of Uttar Pradesh, Bihar, Punjab, Rajasthan and Gujerat.

Water resources that can be developed  
for irrigation.

11. Water supplies for irrigation can be obtained from three sources:

(1) directly from the water normally flowing in rivers i.e. by diversion canals; (ii) from storage of flood-waters flowing in rivers or directly of rain water from small catchments; and (iii) from the waters available underground i.e. by wells or tube-wells. The extent to which supplies are available from the three sources mentioned above varies in different parts of India; so also does the extent to which the available sources can be utilized economically.

12. The total quantity of water flowing in the rivers, a rough quantitative indication of which has been given in paragraph 8 above, is not wholly available or needed for irrigation. This is due mainly to the following reasons:

- i) Over most of the country, rainfall is concentrated in a comparatively short period of 4 to 6 months. The rivers carry large volumes of water during this period, a great portion of which must go unutilized because it is neither physically possible to divert, nor economic to store, all but a small portion of this flow.
- ii) The volume of water, in the rivers, also varies greatly from year to year. Schemes of development, on the other hand, can be executed only on the basis of firm supplies i.e. supplies which would be available during most of the years.
- iii) In areas of high rainfall, like the west coast and north-eastern India, irrigation is either not necessary or is needed only to a very limited extent.

- iv) Certain quantities of water must be allowed to flow in rivers for hydro-electric development, for purposes of navigation, conservancy and water-supply for towns and villages.

It is difficult to state the percentage of the total river flow that can be used for irrigation. On the Cauvery, which is the most developed river in India, about 60 per cent of the annual flow is utilized. On the other hand, on the Brahmaputra the utilization is almost nil. While conditions certainly vary from river to river, it will not be far out to state that out of a total of 1356 million acre-feet of water, it should be possible to put to beneficial use about 1/3rd or 450 million acre-feet; the existing utilization is 76 million acre-feet. It should be clear, however, that the extent to which river supplies can be put to further use is governed largely by the extent to which monsoon flows can be stored. Storage projects, by their nature, are more costly than diversion projects. There are, however, two important features of these projects which offset their high cost; viz. the possibilities of hydro-electric generation at the dams and the protection afforded against flood damage.

#### Existing development.

13. Irrigation:- A hundred years ago, about 1850, two or three million acres of land were irrigated by large numbers of indigenous irrigation works. These works were in the nature of small tanks in southern India, inundation canals in northern India and reconditioned canals like the Cauvery delta system in Madras and the Yamuna canals. About five million acres were under well irrigation at that time mostly in northern India. The first major irrigation work constructed in India was the Ganga Canal in Uttar Pradesh, opened for irrigation in 1854. This was followed by the Upper Bari Doab canal in the Punjab and the Godavari-delta system and the Krishna delta system in Madras. Then came the

Sirhind canal in the Punjab, the Lower Ganga and the Agra canals in Uttar Pradesh and the Mutha canals in Bombay, the last named being from a storage reservoir. A number of other large irrigation works were constructed towards the end of the last and the beginning of the present century and again after the end of the first World War. Table 1 gives particulars of important irrigation works existing in the country and Table 2 shows important irrigation and agricultural statistics by States.

14. Subsoil waters have been used in India for irrigation from time immemorial by means of ordinary percolation wells. During recent years, electrically driven tube-wells have opened up a new method of utilising ground-waters on an extensive scale and in Uttar Pradesh, there are over 2000 State - owned tube-wells. Bihar, Punjab and some other States have also recently taken up the exploitation of ground waters for purposes of irrigation by tube-wells. Tube-well irrigation is generally more costly than irrigation by gravity canals from diversion projects. But for areas not otherwise commanded it is a useful means of irrigation in regions with good underground supplies.

15. It will be seen from Table 2 that India has a gross area of 812.52 million acres of which 491 million acres lie in Part 'A' States and 322 million acres in Part 'B' and Part 'C' States. Agricultural statistics are not available for the entire area of the country; about 230 million acres which formed part of some of the former "Indian States" have not yet been classified. Statistics are at present available for only 581 million acres of land and out of this 369 million acres are culturable. The area actually under cultivation in a year is 277 million acres. The area irrigated from all sources is a little less than 50 million acres or roughly 18 per cent of the total area sown in a year. Thus 92 million acres out of the classified area have yet to be developed in addition to large areas similarly awaiting development from out of the 230 million acres so far unclassified.

16. Navigation:- Apart from the use of river waters for irrigation and power generation, for water supply and disposal of sewage, another important use is for purposes of navigation. At one time the rivers of northern India were the main

arteries of communication. With the construction of railways, river traffic gradually fell off and inland water transport today is restricted to certain parts of Assam, West Bengal and Bihar. The waterways have also gradually gone out of use because of the withdrawal for purposes of irrigation of the bulk of the dry weather flow. In central and southern India, inland transport could not have been very extensive as the dry weather flow was not enough for navigation except by very small country boats.

**Flood control:-** Although flood control cannot be called a water use, the problem of flood control can best be considered in relation to the existing development on the rivers in India. Every year considerable damage occurs from floods in different parts of the country. Until recently no regular statistics of this damage were collected. Whenever heavy damage resulted from a flood in the larger rivers, enquiry committees were set up and in some cases suitable flood control measures were undertaken. Extensive embankments have been constructed in parts of Assam, Bihar, West Bengal and Orissa. The problem of flood control is now always considered in conjunction with the construction of multi-purpose projects. The construction of large dams to store these floods waters is the most effective way of preventing flood damage.

**Recreation:-** Rivers, natural and artificial lakes and large canals provide important places of recreation for the people. Some of these sites are potential centres of tourist traffic.

**Fish Culture:-** Large collections of water and regulated river flow provide excellent facilities for fish culture. Some of these have been developed but not on any large scale.

#### Assessment of power resources.

17. Sources of power can be divided broadly into two classes: (i) exhaustible or those which represent accumulation of energy, gradually formed under the action of the sun's light and heat, e.g. coal, mineral oil, peat, natural gases; and (ii) inexhaustible, or those which are replenished by nature as fast as they are utilized, e.g. water falls, winds and tides.

The production of power from sources like tides and winds is by its nature limited. Among the fuels derived from growing vegetation, alcohol, which can be manufactured from molasses, mahua flowers, etc., alone has good prospects in India. Projects for increased production of alcohol are dealt with elsewhere in the report. Until atomic power and solar energy come into the field, the development of power resources in India can only be from coal, oil and water.

18. India's reserves of coal have been discussed in Chapter XXV of the Report. It will be seen that out of total workable reserves estimated at 20,000 million tons, good quality coal is only 5,000 million tons. This has to be conserved for important metallurgical and other operations in which the use of good quality coal is indispensable. There are however large reserves of low grade coal available which it is now possible to utilize for steam generation in suitably designed furnaces. This opens up a new source of supply for electric power generation by burning lignites (available in large quantities in South Arcot district and in Cutch) and other coals of high ash content which were hitherto considered to be unuseable for this purpose. It is however obvious that on account of the high inert content of these coals, their transport over long distances cannot be economical and these can be used for power generation only in areas in which they occur.

India's wealth of coal is confined to Bihar and West Bengal with small outliers in Assam, Madhya Pradesh and Hyderabad; large deposits of lignites occur in South Arcot district in Madras and in Cutch. The distribution is uneven and distances from the coal field to industrial centres are so great that except at or near localities where coal mines exist thermal generation of power may often prove uneconomic. Resources of petroleum, so far as known, are small. There is only one field in Assam which produced about 5 percent of the total requirements of the country; the remaining 95 percent of the consumption has to be met by imports.

19. India's resources of hydro-electric power are vast. These resources have not even been surveyed in their entirety. A committee was appointed which issued a preliminary report in 1919 and a final report in 1921 and indicated a minimum continuous water power potential in India of 3.5 million KW. This, however, is proved to be an under-estimate. Projects not included in that survey have since been taken up for investigation and some of them are in an advanced stage of development. There are no doubt other sites which have not yet been taken up for investigation. The total hydro-power potential of India may be upto 40 million KW.

#### Existing development

20. Most of the electrical installations in India in the early years were established for meeting the domestic and industrial needs of urban areas. The first large station for the supply of electric power was erected in Calcutta about the end of the last century and in the next two decades similar power supply stations were established in 3 other large towns. These were nearly all thermal stations. The first hydro-electric station in India was erected at Sivasamuiram in Mysore in 1902. This was followed by the Tata hydro-electric stations for the Bombay area. The progress of public electricity installations in the country since 1900 is shown in Figure 2. It will be seen from this that upto 1920 progress was rather slow, but after that date, the industry has seen rapid and continuous expansion. During the twelve years since 1939, the total electric generating capacity has nearly doubled - from about 1,000,000 KW. in 1939 to 1.71 million kW in 1950. The total electricity generated (see figure 3) has also increased from about 2500 million kWh to 5100 million kWh during the same period. Approximately 60 per cent of the electric generating capacity is in coal burning stations, 32 per cent in hydro-electric stations and the remainder in oil burning stations.

A comparison of Figures 2 and 3 shows that although the installed capacity of hydro-installations is about 50 per cent that of the steam installations, the units generated by the hydro-electric plants are about 110 per cent of those generated by the latter. The existing pattern of development of public electricity undertakings is indicated in the following table which shows the installed capacity and power generated by different categories of public electricity supply undertakings:

Particulars of Public utility power stations	Number of undertakings	Installed capacity		Power generated	
		As on 31.12.50 k.W.	Per-centage of grand total	Mill-ion kWh.	Per-centage of grand total
<b>Steam</b>					
<b>(i) Public undertakings</b>					
(a) Government	30	245,914	14.36	619.497	12.13
(b) Municipalities	Nil	Nil	--	Nil	--
(ii) Companies	35	758,520	44.29	1,767.700	34.62
<b>Total</b>	<b>65</b>	<b>1,004,434</b>	<b>58.65</b>	<b>2,387,197</b>	<b>46.75</b>
<b>Oil</b>					
<b>(i) Public Undertakings</b>					
(a) Government	103	57,716	3.37	58.331	1.14
(b) Municipalities	7	9,892	0.58	16.316	0.32
(ii) Companies	192	81,188	4.74	125.084	2.45
<b>Total</b>	<b>302</b>	<b>148,796</b>	<b>8.69</b>	<b>199.731</b>	<b>3.91</b>

contd.....



Particulars of public utility power stations	No. of undertakings	Capacity As on 31.12.50 K.W.	Percentage of grand total	Generated. million kWh	Percentage of grand total
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Hydro

(i) Public-undertakings.					
(a) Government	14	306,323	17.89	1,387.538	27.17
(b) Municipalities	4	7,510	0.44	22.171	0.43
(ii) Companies	4	245,452	14.33	1,110.063	21.73
Total	22	559,285	32.66	2,519.772	49.34
Grand total	<u>389</u>	<u>1,712,515</u>	<u>100.00</u>	<u>5,106.700</u>	<u>100.00</u>

21. In addition to the public utility power stations described above, there are a number of industrial and railway installations having their own power plants. The total generating capacity of these plants was approximately 588,000 kW. in 1950. Including these stations the total electric generating capacity in the country in 1950 was approximately 2.3 million kw., of which 1.7 million kw. was in thermal stations (including oil burning plants) and about 500,000 kw. in hydro-electric plants.

22. Important particulars of major power projects in the country are shown in Table 3. In Bengal and Bihar, where the coalfields are located, most of the electricity generation is from coal, whereas in Bombay as well as in south India, where coal has to be transported over long distances, hydro-electric development predominates. Outside of these areas, electric

development consists generally of thermal stations supplying urban areas or particular industries. In the Punjab (I) and western U.P., however, there are two important hydro-electric stations - one at Jogindernagar and the other forming part of the Ganga electric grid. Table 4 shows for all states the installed capacity of power plants and the per capita generation of electricity. It will be seen that Bombay, Mysore and West Bengal are more developed than other parts of India, the most backward being Orissa and Assam.

23. It was mentioned earlier that electric supply undertakings were set up in the first instance for supplying the domestic and industrial needs of urban areas. This urban bias of the industry has persisted to a large extent. The two cities of Bombay and Calcutta alone consume about 40 percent of the total electricity generated in India. The following table shows the availability of electricity in 1950 to towns and villages in India:

Population range (1941-Census)	Total number of towns or villages	Number of towns or villages with public electricity supply	Percentage of towns or villages with public electricity supply to total
Over 100,000	49	49	100.00
100,000 to 50,000	88	88	100.00
50,000 to 20,000	277	240	86.64
20,000 to 10,000	607	260	42.83
10,000 to 5,000	2367	258	10.86
Below 5,000	559062	2792	0.50

It will be seen from the above that all towns with a population of 50,000 and over, and most of those with population above 20,000 are supplied with electricity. Rural electrification on the other hand, has made very little progress. Out of approximately 560,000 villages in the country, only about 3,000 or one in about 200 is served with electricity. This development moreover is confined mainly to Mysore, Madras and U.P. and is associated in each case with the development of Hydro-electric power.

24. Situated as India is geographically, with a tropical or sub-tropical climate with practically no rainfall over a large part of the year and uncertain rains during the monsoon months, successful cultivation is not possible in many parts of the country without the aid of irrigation. In the absence of irrigation facilities, large areas produce only a catch crop depending on rainfall alone, which as explained above, is often deficient and unevenly distributed from the point of view of agricultural requirements. It is not surprising, therefore, that the average yield per acre of cultivated area is very low. With the provision of irrigation facilities the yield per acre can be increased considerably. In some areas this increase may be of the order of 50 per cent but in areas of low and uncertain rainfall this increase may be 2 to 3 times the yield from unirrigated lands; also large areas of cultivable land, now barren and lying waste can be cultivated and put to productive use if irrigation facilities are provided. The quantity of water and the frequency of irrigation required to mature crops vary in different parts of the country. In some areas like parts of Rajasthan, nothing will grow without the artificial application of water. In others, like Assam, where rainfall is plentiful, little irrigation is necessary and the problem, generally speaking, is one of draining the land for cropping. Between these two limits, there is a wide range of variation in the nature and quantity of irrigation required to mature a crop. In some areas, irrigation works are required, as a stand-by, to be used once probably in two or three years during a drought and at others for some of the more valuable crops or only in the period just before the rains set in. There are large tracts, however, particularly in Rajasthan, Punjab, western U.P. and parts of the Deccan, where irrigation is necessary for cultivation and is required all the year round. Table 2 illustrates the varying extent of irrigation practised in different parts of the country.

25. Apart from the rainfall - its shortage and abnormal distribution - floods, hailstorms, frosts and other vagaries of the season also affect India's agriculture. Other causes that contribute to a low yield include uneconomic units of cultivation, lack of fertilizers or manure, the use of bad seed, etc. The pattern of cultivation that has developed under these conditions is generally of an uneconomic type and does not provide adequate employment for those engaged in agricultural pursuits. Over large areas of the country only one crop per year can be grown - during or after the monsoon rains. But where adequate irrigation facilities are available, the pattern of agriculture is different. Two crops can generally be grown and in places, even three. Also, it is not necessary for the cultivator to restrict himself to the particular crops that can be matured during the two or three favourable months of the year; he can look ahead and plan a scheme of cropping that will keep him busy all the year round. He has also the incentive to improve his method of cultivation - use improved seeds and manures and practise crop rotation etc., because he is assured of his efforts bringing results. The supply of irrigation can thus change the entire agricultural pattern of large parts of the country and lead to increased production from land and increased employment for the cultivator.

## The quantum of development necessary

26. Irrigation:- The population of India has been increasing very rapidly during the last few decades. Between 1901 and 1951, there has been an increase of over 120 millions - from 235.5 millions to 356.9 millions - in the population of the areas comprising the present Indian Union. Agricultural development has, however, been comparatively stagnant during this period, with only a small increase in cultivated area. The following table shows the quinquennial averages of areas cultivated and irrigated in the provinces of undivided India (excluding Burma) during the last half century:

Average for five years.	Total area cultivated.	Area irrigated by Govt. works.	Total area irrigated.
	(Million acres)	(Million acres)	(Million acres)
1896-1900	179.6	16.0	29.6
1901-1905	192.9	18.6	32.5
1906-1910	204.5	21.2	39.4
1911-1915	207.7	23.5	44.5
1916-1920	203.9	25.9	46.5
1921-1925	208.4	25.8	46.0
1926-1930	209.4	27.2	46.8
1931-1935	210.0	28.1	48.8
1936-1940	212.0	30.5	54.5
1941-1945	216.6	33.6	58.1

It will be seen that between 1906 and 1935, the cultivated area remained more or less constant at 205 - 210 million acres. The only increase in production during this period was due to the increase in irrigated area which meant assured crops and increased outturn per acre. Some new lands came under irrigation and lands which produced indifferent crops were given up. The total irrigated area increased from about 30 million acres to 58 million acres, or nearly doubled, during the half century 1896 to 1945. The area irrigated by government works increased somewhat more rapidly - from 16.0 million acres to about 34.0 million acres - during the same period. But the increase in production on account of new irrigation facilities was more than counter-balanced by the increase in population.

27. The partition of the country in 1947 made the

food problem worse for the Indian Union, as large parts of the highly developed canal irrigation acres were included in Western Pakistan. Of the total of 400,000 cusec of water-carried by the canals of undivided India, nearly half is carried by the canals now in Pakistan and of the total of 24 million acres of land irrigated by state-controlled canals in undivided India, a little more than half now lies in Pakistan. This has added to the seriousness of the food situation in the Indian Union. With 18% of the population of undivided India, Pakistan has 23% of the total area, 32% of the rice, 35% of the wheat and 25% of all the foodgrains of undivided India. It has been estimated that the territories comprising India depended, prior to the partition, for about one million tons of foodgrains annually on the areas now in Pakistan.

28. The food problem has been dealt with elsewhere; it is sufficient here to state that India can produce all that is needed to ensure progressively improving standards of nutrition for its increasing population.

- i) By utilising its water resources to the fullest extent practicable. The Planning Commission has calculated that it will be necessary to double the area under irrigation within the next 15 to 20 years if the food problem is to be solved.
- ii) Secondly and concurrently with this, by improving the standards of agricultural practice through the application of the results of scientific research to agriculture.

29. Power:- Cheap electric power is essential for the development of a country. In fact, modern life depends so largely on the use of electricity that the quantity of electricity used per capita in a country is an index of its material development and of the standard of living attained in it. Apart from its use in industrial undertakings, electricity has a remarkable diversity of application. Electricity can provide cheap power for pumping water for irrigation and for numerous operations in agriculture and in the home. Extensive use of electricity can bring about the much needed

change in rural life in India. It can not only improve methods of production in agriculture and encourage cottage and small scale industries but can also make life in rural areas much more attractive and thus help in arresting the influx of rural population into cities.

30. The use of electricity in India is very limited at present. The average per capita consumption of electricity is only 14 KWh per year (as compared with 1100 KWh in the United Kingdom, 2207 KWh in the United States of America and 3905 in Canada) and in a number of states the average is below one unit per year (see Table 4). Only five states have a per capita consumption higher than the average mentioned above for the country as a whole. Apart from this, as stated already in paragraph 23 above, the development of power in India is unbalanced as between urban and rural areas. About 3% of the country's population in six large towns get the benefits of 56% of the total public utility installations.

31. There are many areas where the need for more electricity is immediate. In these areas, the growth of plant capacity has not been able to keep pace with the growth of load since 1940. There is an acute shortage of power in the Bombay area, Delhi, parts of Uttar Pradesh, Madras and West Bengal. To meet the normal growth of load, which received an impetus during the years of the war, all available spare capacity was put under operation and in many installations there is no standby plant. During the years of war and after its end, it has not been possible to obtain additional plant or replacement. Several restrictions have had to be imposed on new connections and devices like staggering of holidays and of working hours have had to be adopted to meet the minimum demands of industry. The economic development of the areas concerned is thus under check.

Apart from the above many of the generating units have outgrown their useful life and need replacement. Of the total installed capacity of 1,700,000 KW of public utility steam plants, it has been estimated that over 100,000 KW would have been in service for more than 25 years and would have to be retired now or in the near future.

32. Electricity has a great scope in India in the development of agriculture and related activities. Since 1933, when state tube-well schemes were first taken up in Uttar Pradesh, there has been an increasing demand for electricity for tube-well

pumping. Further, as a part of the "Grow More Food Campaign", pumping units have been installed on rivers or wells for agricultural purposes. The supply of cheap electric power is essential for large scale development of tube-wells or lift irrigation from rivers. In 1948, about 35% of the electric energy generated by the Ganga Canal Grid in Uttar Pradesh (about 61 million KWh) was utilised for pumping of irrigation supplies with about 2,200 tube wells, owned and operated by the State. In Madras and Mysore, irrigation pumping is mostly done from open wells or tanks. In 1949 there were about 12,500 such consumers in Madras State alone, and they took about 11.2% of the energy sold by the public utilities. About 20,000 applications for further connections are stated to be on the waiting list because of the shortage of plant capacity. In Travancore-Cochin, electricity is in use on a large-scale, for dewatering of marshy lands. An idea of the growing importance of the use of electricity for agricultural purposes can be had from the following figures which show the trend in consumption of electricity for irrigation and agricultural dewatering in the Indian Union in recent years.

Year	Consumption in million KWh, for irrigation and agricultural dewatering.
1939	64
1945	93
1947	125
1949	150

There are also other agricultural operations for which electricity will be in demand as people are trained in its use - viz. processing of agricultural produce, cold storage, preservation and canning of fruit and farm produce, dairy farming, poultry breeding. Cottage industries can be developed on an economic basis with the provision of electricity to rural areas and by the use of electrically worked appliances or small units of machinery.

33. Other water uses:- Transport of goods by water is generally cheaper than transport by rail. Also, in



times of emergency, alternative means of transport are of great importance to the defence and security of the country. With the storage of flood waters by dams and their gradual release for purposes of hydro-electric generation, new possibilities have been opened up for the development of inland transport. In every river valley development the possibilities of inland navigation must be investigated and integrated with the overall development.

34. The damage which occurs every year on account of floods has been referred to earlier. Destruction of crops and dwelling houses and dislocation of communications by floods are a normal feature in certain riverine areas, specially in Assam, Bihar, Bengal, parts of Uttar Pradesh and Orissa. In southern and central India, tanks breach annually due to heavy and uncontrolled floods and are rendered unserviceable. The total loss to the country directly due to these floods and indirectly through loss in production has not been estimated but it is admittedly heavy. As already stated, flood control measures must be considered as a part of river valley development in case of each multi-purpose projects.

35. The problem of soil conservation which has received little active consideration in India until recently, has been dealt with in an earlier Chapter. Here it is only necessary to emphasise the importance of soil conservation in the development of water resources and in extending the useful life of reservoirs, made by the construction of high dams. Unless special measures are taken in the catchment area above these dams to reduce, by suitable soil conservation measures, the washing away of soil by rain water, the detritus carried by flowing water will be deposited in these reservoirs and their capacities seriously impaired. Such measures should form an integral part of every large irrigation project.

## Development under the plan

## Need for a national policy

36. It has been shown that for increasing the production of food and other agricultural produce, it is necessary that irrigation projects should be undertaken wherever there are facilities for such projects. The need for cheap power for tube-well and pump irrigation and for cottage and small scale industries have also been emphasised. Upto 1920, irrigation projects were sponsored by the Central Government. In that year came constitutional changes under which all irrigation and power developments became the responsibility of State Governments. Since 1945, however, the Central Government has been encouraging and actively assisting in such projects recognizing that, while the initiative of states in these fields should remain un-impaired, there should be a national policy in regard to them. The reasons for this can be easily stated.

In the first place, it is not in all parts of India that facilities exist for irrigation, and where these exist they should be fully developed in the interests of the food requirements of the nation as a whole. As the Irrigation Commission (1901-3) has said:-

"Every extension of irrigation increases the security of the food supply of the country in years of drought, and, in these days of cheap railway freights, the produce of irrigation can be carried to those parts in which it is most required. For these reasons we think that the programmes of future expenditure on irrigation works should provide for the construction of as many productive works as can be proposed, in whatever parts of the country they are situated, and without reference to the urgency of protection for the locality. Promising projects could be held in abeyance only when funds cannot be allotted for them without interrupting progress on irrigation works of any kind which have been actually commenced, or withholding money from works more urgently required for protective reasons; or when the success of the works depends upon colonization operations which it may be more convenient on general grounds to postpone."

When adequate establishment is not available for carrying out the works;

~~Recent experience has demonstrated that the food problem is one for India as a whole which can be solved only by All India measures.~~

Secondly, the works that are now in progress and those that remain to be taken up present more difficult engineering and other problems than those already completed. In most cases, the construction of high dams is necessary and technical questions of extreme complexity arise in their design. Modern mechanical methods have to be adopted in their execution. All this calls for the pooling of the best knowledge and resources available in the country and arrangements for training of technical staff on a large scale.

Thirdly, river valleys are not confined to state boundaries and development schemes of different States have to be coordinated and interrelated for the achievement of maximum results. Water stored in a reservoir in one state may have to irrigate areas in others and power generated in one state is consumed in other states. In such cases, agencies for joint investigation and management may have to be organized.

Fourthly, large projects call for financial outlays which are beyond the financial resources of states and which cannot be taken up unless Central assistance can be made available from year to year over a fairly long period on a carefully arranged programme.

37: As already stated natural waters have many uses for the community, their optimum development is therefore possible only if all such uses are coordinated. The use of stored waters for irrigation and their use for the development of power generally require different systems of escapages from the reservoir. Some of the difficulties on this account can be solved by suitable engineering works and technique, but there are others which make the two uses of water mutually exclusive to some extent and ultimately it is necessary to decide how far the use of water for one purpose should give way to its use for another in the larger interests of the community. The requirements of navigation are also generally different from those of irrigation; these have more in common with the requirements of power. Flood control is partially achieved when river water is used directly for irrigation; storage makes flood control more effective.

With suitable provisions in the design of dams, it would be possible, at small additional cost, to provide for adequate flood protection. The development of fisheries and of recreation facilities are other uses of natural waters which can be secured for the community at a moderate cost. It is necessary that in all new projects coordinated effort should be made to provide for the varied requirements of the community for irrigation, power generation, flood-control, navigation, fisheries development and recreation.

38. It has been stated in paragraph 28 above that the aim before the country should be the doubling of the area under irrigation in 15 to 20 years or in other words, to provide new irrigation facilities to 40 to 45 million acres. Similarly, there must be an increase in the present low per capita consumption of electricity in the country. An examination of the new irrigation and power projects, that are under construction, under investigation or only under consideration throughout the country, shows that it will cost about Rs 2,000 crores to construct all these projects which will add 40 to 45 million acres to the area now under irrigation and create an additional power generating capacity of about 7 million kW. We are convinced that it is only by the implementation of a programme of this magnitude and by intensive measures for improving the standard of agricultural practice and for the promotion of cottage and small scale industries in addition to large scale industries that an appreciable rise in the standard of living in the country can be achieved.

39. A large multi-purpose river valley project takes from two to five years for detailed investigation and preparation of plans, etc. and five to ten years for construction. The organisation of the technical and other personnel and the mechanical equipment needed for them must therefore be carefully devised. The most economical phasing of large projects and a programme of construction would be possible only if there is a long term plan carefully framed with accurate financial estimates and with due regard to the technical resources and equipment available.

#### Basis of the plan

40. During the last six years, there has been considerable activity in all parts of the country in new irrigation and power projects. A number of projects - ~~some multi-purpose and other only for~~

irrigation were sanctioned soon after the end of World War II. On some of these, works were started before the completion of detailed investigations and of economic studies necessary to obtain a correct appraisal of the technical and financial aspects of the projects. The total cost of irrigation and power schemes which were under construction in 1951 would on completion be Rs 765 crores; a sum of Rs 153 crores had already been spent on them upto 31st March, 1951. There can be no question that these projects must be completed as quickly as possible so that the expenditure already incurred on them may be put to productive use and the benefits particularly by way of additional food, may be secured quickly. This is an important consideration in the proposals formulated by us. Whatever views we may hold about the relative importance or merits of the projects under construction or these not yet started, the highest priority must be given to projects on which considerable sums of money have already been spent. We have however during the course of our discussions with the representatives of State Governments impressed upon them the vital importance of giving a high priority to projects or parts of projects which will provide additional food and have recommended that the programme of construction of some of the bigger multi-purpose projects should, in consequence, be suitably modified. After incorporating such changes as have been agreed upon, it appears that an expenditure of Rs 518 crores will have to be incurred on the schemes already in progress during the five-year period of the plan and of this a sum of Rs 206 crores will have to be spent in the first two years of the plan. As a large slice of the total developmental expenditure included in the Plan has to be set apart for the completion of irrigation and power projects already under construction, it has not been possible to include many new works of irrigation and power development in the Five-Year Plan. Particularly, during the first three years of the Plan, when the expenditure on projects already under construction would be relatively high, it is not possible to incur large expenditure on any new work. Thus the Five-Year Plan for irrigation and power aims mainly at the completion of the projects already under construction.

41. In the preparation of this plan, as already stated, projects likely to yield additional food at an early date, have been given preference over

others and the large multi-purpose projects have been phased with a view to the early completion of their irrigation aspects; the power generation is carefully regulated and taken up in stages as the demand arises. In our discussions with State Governments, we have laid great emphasis on proper planning for the development of load for every large generating unit. The pattern of power utilisation has to be laid down in advance and development of generating capacity coordinated with the development of load so that there is as little lag as possible between power generation and its utilisation.

42. As already stated it would not be correct to say of all the projects included in the plan that works were started after detailed technical investigation and careful assessment of the economic aspects. The inclusion of a project in the Plan does not, therefore, dispense with the need for periodical reviews of it at definite stages. A large project usually comprises a number of distinct units or groups of connected works; and, as technical and other investigation in regard to each such group is completed, it would be desirable to review the economic and financial aspects of the project as a whole and where necessary, to modify the scope of the project or portions of it. After a review of the Bhakra, the Damodar Valley and Hirakud projects, the programme of construction and the portions of the projects to be included in the first Five-Year Plan have been suitably revised.

43. As stated above, the yearly expenditure on works already under construction is high in the first three years and falls off from the fourth year. As a result, unless new works are taken up, it will not be possible to utilise to the full in the latter part of the plan, the technical and other resources built up over a number of years. To meet this situation and also the need that has been felt for including in the plan other urgent works, especially in backward areas, a few new projects have been selected work on which will be taken up in the latter part of the Plan. The expenditure on these projects during the period of this plan will be a small proportion of their total cost, but their inclusion in the plan, at this stage, will secure continuity of development from the first to the second Five-Year Plan.

## The plan.

44. Important particulars of all the irrigation and power projects included in the Five-year Plan, the cost and annual expenditure on each and the likely benefits are given in the Annexure C in Volume II of the Report. An abstract is shown in Table 5.

The projects already under construction are, on the basis of sanctioned estimates, expected to cost, on completion, Rs 765 crores. On these an expenditure of Rs 153 crores had been incurred upto the end of March 1951. During the Five-year period covered by the Plan, it was originally proposed to spend Rs 448 crores on these schemes. It is, however, understood that on account of increased cost of constructions, changes in the scope of some of the projects and for other reasons, it will be necessary to spend during the period of the Plan, an additional sum of Rs 50 crores on the multi-purpose projects and Rs 16 crores on the State Irrigation and Power Schemes listed in the appendices. In addition to the above, the plan provides a sum of Rs 3.6 crores for expenditure on Irrigation and Power projects in Jammu and Kashmir State. The projects under construction are calculated to irrigate an additional area of 8.5 million acres in the last year of the Plan and to generate 1.08 million kilowatts of additional power. After the completion and full development of these projects, the total addition to the area irrigated will be 16.9 million acres and to power 1.4-million-kilowatts.

45. The question of new projects to be included in the Plan has received our careful attention. The claims of large numbers of new projects, many of which have not been thoroughly investigated, have been pressed upon us by State Governments. After a careful consideration of the resources that can be made available, we have decided to include in the Plan the following five major irrigation and power projects:

Name of Project	Area served	Total estimated cost (Rs lakhs)	Ultimate benefits	
			Irrigation '000 acres	Power '000 kW installed
Kosi (Stage I)	Bihar & Nepal	66,00	2,620	40 also flood control

Name of Project	Area served	Total estimated cost (Rs-lakhs)	Ultimate benefits	
			Irrigation '000 acres	Power '000 kW installed
Koyna (Stage I)	Bombay	33,00	-	240
Krishna (scope not yet defined)	Madras & Hyderabad	Not available	Not available	
Chambal (Stage I)	Madhya Bharat & Rajasthan	33,75	1,200	80
Rihand	Uttar Pradesh	35,00	-	240

The total cost of these projects will be well over Rs 200 crores, out of which it is expected that it might be possible to spend Rs 40 crores on them during the period of the plan. The financial and technical responsibility of the Central Government and of the State Governments concerned with regard to these projects (and of the Government of Nepal) with regard to the Kosi Project) and the programme of their construction will be settled before work is commenced on any project.

46. The annual expenditure on and likely benefits from all projects, year by year, would be as follows:-

Year	Expenditure (Rs crores)	Additional irrigation (acres) (progressive)	Additional Power (kW) (Progressive)
1951-52	85	646,000	58,000
1952-53	121	1,890,000	239,000
1953-54	127	3,555,000	724,000
1954-55	107	5,749,000	875,000
1955-56	78	8,533,000	1,082,000
Ultimate:		16,942,000*	1,465,000*
New Scheme	40		
Five years total	558		

\* Excludes benefit from new schemes.



47. In addition, there are a large number of small schemes, construction of wells, renovation of tanks, improvement to small streams and rivulets, etc. which are classed as 'minor irrigation works' and have been included in Chapter VI under the programme for agricultural development. These minor irrigation works are estimated to cost Rs 47 crores during the period of the Plan. A large portion of expenditure on these schemes would be by way of subsidies, loans etc. to individuals or societies who will contribute similar or greater share of the expenditure on such schemes. These works are expected to bring an additional area of 7 million acres under irrigation by 1955-56. In addition, it is proposed to earmark another Rs 30 crores for minor and medium irrigation works, which will

The schemes included in the Five-year Plan are expected to utilise about 100 million acre-feet of water per annum in a normal year. This figure is only approximate and constitutes 7 per cent of the total utilizable water resources of the country.

48. In the field of power, apart from the schemes included in the Five-year Plan, undertaken by the State Governments, there are a few extension projects of private electricity undertakings which are expected to be executed during the period of the Plan and will add 176,000 KW of installed capacity. The more important of these are the proposed extensions of the Ahmedabad Electric Co., the Calcutta Electric Supply Corporation and the Tata's Power Installations.

#### Utilisation of power.

49. The following table shows region-wise, the expansion in power generation and anticipated loads during the period of the Five-year Plan. The three multi-purpose projects have been shown separately in the table. It will be seen that the total increase in generating capacity would be 1.08 million kW in the public sector, of which 338,000 kW or one third would be contributed by the three multi-purpose projects. The power benefits from these projects during this period represent however only the first stage of development, their ultimate capacity on full development being about one million kW.

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Additions anticipated by 1955-56			
in thousand kW			
-----	Installed	Firm	Anticipated
-----	capacity	power	load
-----	-----	-----	-----
1. Multipurpose projects:			
(i) Bhakra Nangal	96	72	69
(ii) Damodar Valley	194	144	132
(iii) Hirakud Dam	48	24	24
2. Madras, Mysore, Hyderabad and Travancore-Cochin	402	511*	639
3. Bombay area	83	358*	417
4. Bihar, Bengal & Madhya Pradesh	88	65	101
5. Uttar Pradesh	109	157*	146
6. Projects in other areas	62	66	66
-----			
Total	1082	1397	1594
-----			

As the need for irrigation is urgent, the projects have been so phased that full development of irrigation is achieved as soon as possible, and the development of power is taken up in stages according as demand grows. Production of power on a large scale much in advance of actual needs locks up capital and lowers returns on projects. Further additions of generating units will therefore, be made only as and when additional demands arise, but provision for installing additional units has to be made in the designs of dams and other works.

\* In the case of projects whose power is fed into an existing power system the firm power of the entire power system has been taken with the corresponding anticipated load on the system as a whole.

Projectwise details of installed capacity, firm-power, and anticipated load for the above table are given in annexure C Volume II.

50. The position regarding utilisation of the power generated may be briefly reviewed.

The multipurpose projects: In the Bhakra-Nangal Project, the load figures indicated in the above table are tentative pending the compilation of the results of a load survey which is in progress. These figures include a supply of about 20,000 kW to Delhi and also provide for electrification of 27 towns in Punjab, supply to 10 small Government-owned undertakings and 14 private licensees and to existing industries which at present generate their own power in relatively small, inefficient thermal units. Provision has also been made for bulk supply to PEPSSU, Rajasthan, Bilaspur and Himachal Pradesh. A load survey has been carried out in the Damodar Valley Project area. The present and prospective demands for power have been assessed on the basis of factual data, although there may be a time lag in the development of a part of the estimated demand as this includes conversion to electricity of installations employing about 136,000 HP. of steam and oil engines which are old and have to be replaced. In the Hirakud Project, the initial load of colliery and towns; supplies to two textile mills and to a cement factory at Rajgangpur; and rural loads in the delta area including small scale pumping installations for irrigation purposes. Negotiations are in progress for the setting up of an aluminium plant and a ferro-manganese plant in this area. These two will require about 35,000 kW of power.

Madras, Mysore, Hyderabad and Travancore-Cochin: The total addition to generating capacity in this region would be 402,000 kW of which 196,000 kW would be in Madras, 72,000 in Mysore, 53,000 in Hyderabad and 81,000 in Travancore-Cochin. In the case of Madras, the demands already in sight total 169,000 kW as numbers of applications for power connections from both industrial and agricultural users (mainly for irrigation pumping) are pending in the State. In Mysore, there would be an additional capacity of 72,000 kW in the period of the Plan but the load forecast as made by the State Governments shows that the demand will exceed available capacity by 1953-54;

as certain firm commitments have to be met like the three pig iron furnaces at Bhadravati, power supply to Madras and Bombay States, and power supply to about 2000 pumping sets in addition to the normal load growth. In Travancore-Cochin the available generating capacity will be taken up by 1955-56, when a total load of 84,500 kW is expected to be reached.

**Bombay Area:** In the Bombay industrial region there has been acute power shortage since 1948. The additions to generating capacity, totalling 108,000 kW, which are already in progress will be just sufficient to meet the demand up to the end of 1953. To meet the subsequent increases in demand for power, the Tata Power Co. have been recently permitted to build a 100,000 kW steam station at Trombay.

The other important power schemes in Bombay State are: The North and South Gujerat Grid and expansion of the Ahmedabad Electric Supply Co. The latter will meet the increased demand in Ahmedabad city and also supply 18,000 kW to the North Gujerat Grid. Power from the North Gujerat grids will be supplied to licensees in the towns of Gujerat and will also be available for industries and for irrigation pumping.

**Uttar Pradesh:** In U.P. the total additions to generating capacity would be 109,000 kW made up of installations at the new power stations of Sarda, Pathri, Mohammadpur and the Eastern Area Power Station (at Mau), and additions to the existing station at Kanpur. Part of the power from the Sarda power station will be consumed by tube-wells and industries like sugar factories and oil mills, and about 10,000 kW will be exported to the Ganga Canal Grid. This power along with the additions at Mohammadpur and Pathri will increase the power supply in the Grid by 40,000 kW. The increase will relieve the existing shortage of power in the area due to which restrictions like staggering of power to tubewells and for other uses have been in force. It will also meet the needs arising from the tube-well construction programme in the area. The 15,000 kW extension at Kanpur will meet additional demand that already exists. Power from the Eastern Area station will be utilised for tube-wells and for meeting the demand of the small towns in eastern U.P.

51. Additions to generating capacity in the private sector are expected to total about 176,000 kW in the period of the Plan. These will consist mainly of

extensions to the existing steam stations at Calcutta, Ahmedabad and Lucknow, and a new steam station at Trombay. They will meet the load growth in areas served by these power systems.

A rough estimate has been made below of consumption of electricity by different types of uses in 1950 and 1955 :

Type of use	Consumption of electricity in million kWh		Percentage increase in 1955 over 1950		
	1950	Percentage of total 1950	1955	Percentage of total 1955	
Domestic Light and power	525	13	860	13	64
Commercial Light and power	309	7	430	7	39
Industrial	2604	63	4400	63	58
Irrigation	162	4	332	5	105
Other purposes	558	13	752	12	35
Total	4158	100	6474	100	56

Note: Industries generate part of their power requirements in their own stations. The above figures indicate only their demands on public utilities.

Industries are the largest users of power (taking about two-thirds of the total) followed by domestic and commercial users. Irrigation takes up about 4 percent of the power consumed. Consumption for irrigation however is expected to more than double itself during this period. Industrial demands will increase by about 60 percent, the increases being due to increased production partly by fuller utilization of the existing capacity in industries like cotton textiles and sugar, and partly by additions to capacity in industries like iron and steel, heavy chemicals, fertilizers and agricultural machinery.

Policy and Administration.

52. At present irrigation and electricity projects are primarily a responsibility of State Governments with co-ordination provided by the Central Water and Power Commission. In several states, particularly those in which development projects have been under execution during the last 30 years, a high degree of technical, financial and administrative efficiency is obtained. In others, however, the existing organization is not at present capable of executing large projects. The Central Water and Power Commission is being built up to render such assistance to the State Governments as may be required in connection with the planning, design and construction of large irrigation and power projects. The implementation of a plan of the dimensions now set out, calls for such a central organization to :-

- (i) render effective assistance to such State Governments as apply for it in the planning of projects, preparation of detailed designs and specifications or in the execution of works;
- (ii) advise on the mechanical equipment needed and the best way of obtaining this; help in recruiting and training suitable staff for working the equipment; and arrange for the transfer of machinery and staff from one project to another as may be needed;
- (iii) arrange for the training of engineers, in the design and construction of dams and large power plants under construction;
- (iv) arrange for the most suitable employment of engineers trained in India and abroad on the construction and execution of large projects;
- (v) advice on the recruitment of foreign personnel when required and circulate reports made by foreign and Indian experts to those States in which these reports are likely to be useful; and
- (vi) in other ways enable State Governments to maintain high standards in the design, execution and operation of irrigation and power projects.

53. Practically, all the major rivers of India run through more than one state and the supplies in each river can certainly be used with advantage, in almost all cases, by more than one state. To get maximum results, therefore, co-ordination between the requirements of different states is essential. It has been the policy of the Government of India since 1866 that the waters of a river should be utilized to the best possible advantage, in the tracts commanded, irrespective of provincial or state boundaries. The Central Government under the Constitution, is charged with the responsibility of "regulation and development of inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest." The Central Government in consultation with State Governments is considering measures needed to ensure that activities of different states in the same river valley are co-ordinated and that such differences as arise are resolved without undue delay. Recently with a view to the development of the Krishna and Godavari waters, the Governments of Bombay, Madras, Mysore, Hyderabad and Madhya Pradesh, at a meeting convened by the Planning Commission, reached agreements regarding the utilization of the available waters of these two rivers.

54. States can also co-operate with mutual advantage in the development of power particularly from hydro-electric sources. Good sites for hydro-electric power do not exist in every state. Where suitable sites do exist large blocks of power can be produced, all of which cannot be utilized within the state in which the site is located. Co-operation between states for the development of power may be by their jointly developing a hydro-electric power source; by one state purchasing power in bulk from another or; by the inter-change of power between different power systems in adjoining states. There are examples of such inter-state co-operation. The Machkund hydro-electric station is being developed by Madras jointly with Orissa. The Bombay Government will be taking bulk power from the Jog hydro-electric power station in Mysore. The power lines of Travancore-Cochin are connected with the Madras Hydro-System and a

new agreement is being finalized between Madras and Mysore. Such co-operation is also possible in connection with large thermal plants. The Bokaro thermal station is being constructed jointly by Bihar and Bengal through the agency of the Damodar Valley Corporation. There are possibilities of co-operative utilization by Punjab, Pepsu, Rajasthan, Delhi and U.P. of the power to be developed at Bhakra and by Orissa, Madhya Pradesh and adjoining areas from Hirakud. Such arrangements are to the mutual advantage of participating states and the Central Water and Power Commission should assist in furthering such agreements wherever possible.

55. As soon as practicable, a comprehensive long range plan of inter-connecting the existing and new hydro-electric and thermal stations should be worked out for the country as a whole or for large regions in it and so far as possible each new power project should, subject to economic and technical considerations involved, form part of National Power Systems.

56. The supply of irrigation waters to areas previously undeveloped, or to those which had an indifferent or precarious type of cultivation before, creates new problems. The cultivation of areas hitherto barren creates problems of colonization, of land reform, new townships, new means of communication and transport. Different departments of the Central and State Governments have to co-operate effectively to secure rapid development. Similarly the creation of large blocks of electric power has to be accompanied by efforts to use the energy. For this, new industries have to be adjusted to the availability of cheap power. It is essential that in connection with every large irrigation and power project, State Governments should set up suitable machinery to secure full development as quickly and as effectively as possible.

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Economics and financing  
of irrigation projects.

57. Irrigation works are classified broadly as productive or unproductive. Projects the direct net revenues from which can pay the interest charges on the capital investment are regarded as productive and are financed from public loans. Those that do not comply with this condition are called unproductive and are financed from general revenues or special grants. Irrigation works constructed in recent years, and those that are now under construction or contemplation are much more expensive than those built in the past, partly on account of the comparatively high price level and partly on account of the more difficult and therefore costly means of making the supplies available, like high dams. For this reason and on account of the increased cost of maintenance and operation of these works, new projects can satisfy the productivity test only if the old revenue structure is suitably modified. It is, therefore, necessary to examine, in some detail, the revenue structure of irrigation projects and the directions in which it should be modified.

58. Charges for water supplies for irrigation from government canals and works are levied differently in different states. In general, such charges comprise one or more of the following elements:

(a) Water-rate: This is a charge dependent on the kind and extent of crops grown and is based on the quantity of water required by the crop and the advantage derived from the use of it by the cultivator. It has no relation to the cost of supplying the water.

(b) An increment in land revenue: This is based on the increased benefit derived annually by the landlord on account of provisions of irrigation supplies. It sometimes takes initially the form of water advantage rate or canal advantage rate and is merged with the land revenue at the settlement following the construction of a canal.

(c) ~~Betterment-levy:~~ This represents the government's share in the increase in the value of land that accrues as a result of the provision of irrigation facilities. This is levied only once when irrigation facilities are provided for the first time and the value of the land increases appreciably on this account. It may be recovered in a lump sum or by instalments spread over a number of years or in the form of land.

(d) Irrigation cess: In areas where irrigation supplies are not required in years or periods of favourable rainfall conditions and are in demand only when the rains fail or are delayed, an annual charge is levied for every acre of the area irrigable from a project whether water is actually taken for irrigation or not.

59. In some states such as Punjab, Pepsu and Rajasthan all irrigation supplies will be used when provided and there is therefore no necessity for levying any irrigation cess; the entire anticipated water-rate will be recovered every year. In areas where the whole of the irrigable area under a project is irrigated every year with more or less the same kind of crop (for example rice in large parts of southern India), the water-rate can be and is generally amalgamated with the land revenue. On the other hand, in northern India where the entire irrigable area cannot be irrigated every year for want of sufficient water supplies and where the nature of the crop grown varies from year to year, the water-rate has to be distinct from land revenue.

60. As the projects now under construction are considerably more costly than projects executed in the past and also the cost of maintenance and operation is higher than before, State Governments should re-examine the water-rates etc., which they recover from the cultivators for the supplies of irrigation waters. Where the demand for irrigation fluctuates from year to year and the available supplies are not always fully utilized, the levy of an irrigation cess is justified. Where water-rates were

determined many years ago and there has since been a considerable increase in the value of the crops produced, there is justification for an increase in these rates. In fact, it would be sound practice to fix water rates on a sliding scale as a definite function of the value, from time to time, of the out-turn from irrigated crops. Another possible source of income can be agricultural income-tax, the likely yields from which in the period of the plan have been included in the statement of resources.

61. Lands which are irrigated by major projects increase in value substantially and it is certainly equitable that the individuals who derive this "unearned" increment by the efforts of the community at large should be required to share this increment with the community. The price of land, which was originally dry land, increases in every case after the construction of an irrigation project on account of the availability of canal water and with it of assured crops. If the state obtains a share of this unearned increment from the persons who happen to own the land, the proceeds can be utilized in defraying a part of the capital cost of the projects and in this way projects which would otherwise be un-remunerative will become remunerative. Also, such amounts will be available to finance other projects.

62. Betterment fee, or a share in the unearned increase in land values, as a result of irrigation schemes has been levied at various times in the past in India and other countries. A betterment tax has been in vogue in Mysore from as far back as 1888. The contribution per acre is fixed from a third to a half of the difference between the local market values of an acre of dry land and of an acre of wet land. The nature of irrigation supplies, the quality of soil and the agricultural labour available are all taken into account in fixing the market value of wet land. Under the Irwin Canal System, the land owner executes an agreement to pay a contribution

of Rs 150 per acre either by instalments or in a lump sum, a rebate of 7 per cent being allowed in the latter case. A betterment levy was proposed to be levied in 1920 on the Sind Sagar Doab scheme but the construction of the project was postponed. When the project was taken up again as the new Thal Canal (now in West Punjab), it was decided to levy a betterment fee of Rs 30/- per acre.

63. The amount of betterment levy or inclusion fee has sometimes been determined, in the past, on considerations all of which were not relevant. Strictly speaking, betterment fee should not be based on the profits or increased profits from the land irrigated by a project. It may have some relation to the cost of the project but should be based mainly on the increase in the value of the land as a result of the facilities provided by the project. Betterment levy cannot, however, be uniform in all cases; all the factors that contribute to the increase in land values must be taken into consideration. These factors include soil classification, and nature of irrigation facilities - perennial, non-perennial etc. A Sub-Committee of the Bombay Cabinet proposed that a maximum of 50 per cent of the increase in value of the land should be recovered as a betterment levy, and this proposal has been accepted and embodied in the Bombay Act passed recently.

64. Another important point is the manner of recovery of the betterment levy. This may be effected in one of the following ways:-

- i) The total amount in rupees may be recovered in one lump sum.
- ii) The total sum to be recovered in cash may be spread over a number of years, depending on the economic condition of the land-owners and their ability to pay, or in lieu of cash, the levy may take the form of a share in the produce during the period over which the payment is spread. This may assist in overcoming procurement difficulties, so long as procurement remains.

- iii) As an alternative to (i) and (ii) and in lieu of cash recovery, sufficient land may be surrendered by the landowner to Government at the pre-project rates. Where there are large holdings, this is preferable to recovery in cash.

65. An important point to be considered in connection with new irrigation projects is the necessity of preventing speculation in land that occurs when it is decided to proceed with an irrigation project in any area. Different methods have been adopted to reduce speculation in irrigable land and to control land prices. One is to nationalise all land under the project or to purchase the land at the current pre-project rate and then sell it at increased prices after the project is completed. This was contemplated in the Sind Sagar project (Sind Sagar Act of 1902). Another method is to freeze all land coming under the command of the proposed irrigation project. An example of the latter is the anti-speculation law on the Columbia Project in the United States of America. This Act requires landowners to agree to sell holdings over a certain specified maximum area at a fair government appraised price. The Act does not deprive any landowner of his right to buy or sell freely at any price that is landowner's inherent right; only, unless the landowner contracts with the Government to comply with the provisions of the Act, water is not supplied to him. In presenting this Bill to the Senate Committee on Irrigation and Reclamation, President Roosevelt indicated that in his judgment "construction of the high dam should be dependent on the elimination of private profits, speculative or otherwise, which would result on the proposed action by the Federal Government." If state governments enact laws for levy of betterment contribution, these by themselves will have the effect of discouraging speculation. In special cases where other steps are needed, the states should announce them before individual projects are sanctioned.

Water is denied to holdings over this limit and to land over this limit which is sold for more than the fair government appraised price.

66. The Planning Commission has already recommended to state governments ~~the desirability~~ of taking steps to levy betterment fee on all new irrigation projects. This system is already in vogue in Mysore; Bombay, Hyderabad and Punjab have recently enacted legislation. The Government of Rajasthan have drafted a bill; Madras, Orissa, Uttar Pradesh, West Bengal and Travancore-Cochin have accepted the principle of the levy and are taking steps to promote necessary legislation. We recommend that all state governments who have not so far done this should take steps to promote necessary legislation for levy of betterment fee on all new irrigation projects. Power should be taken to levy betterment contribution in the form of land from the larger holdings. By this means it will be possible to obtain the lands needed for resettling persons whose holdings are submerged by reservoirs; for community use, namely village forests and grazing, markets, roads etc; for effecting improvements in the agricultural economy by bringing about consolidation of holdings, making uneconomic holdings into economic holdings, assigning lands to landless labourers; and in other ways. The people in the region should be actively associated with all steps taken for the formulation of schemes of this character and their implementation.

Economics and financing of  
power projects.

67. Except in Mysore, all electrical developments in the country upto 1932 were mainly the due to private enterprise. It was only in 1933 that state-owned hydro-electric installations were set up - one each in Madras and Punjab. Since then State Governments have taken increasing interest in the development of electricity as a state concern. The administration and financing of electricity undertakings by Government followed the usual Public Works Department methods and practice for productive public works. In building up tariffs for the sale of electricity from Government managed

schemes, apart from other considerations which are usually taken into account, the total revenue from a scheme has to be higher than the interest, depreciation and operation charges so that the scheme can qualify as a productive public work to be financed from public loans. This has presented no serious difficulty in the past and many government undertakings have generally proved productive.

68. The rate structure or tariff of an electric supply scheme is based on factors and conditions which are well-known. It has been accepted in principle that electric supply, being a public utility service, should be run on a non-profit basis and when it is privately managed and operated, the profits should be limited. The Electricity Supply Act (1948) lays down as a reasonable return by 5 per cent on the capital base for all licensees, not being a local authority. The average revenue as realised from different groups of consumers no less by all public electricity undertakings in India in the year 1949 were as follows:

	All-India average Annas per kWh
Residential and commercial	2.47
Large industries	0.65
Electric traction	0.56
Overall	0.96

69. It has been stated before that there is a large scope for the development of electric power in India. It does not follow from this that large blocks of power when produced would be utilised automatically without any effort on the part of the State. The pattern of power utilisation has to be laid down in advance and the load development has to be carefully

planned for every large generating unit. The development of power generating capacity should be co-ordinated with the development of load. If the lag between power generation and load building is long, interest charges on capital mount up and make the undertaking uneconomic. Load planning for any large power system is integrally related to the industrial and economic planning of the regions within a reasonable distance of the generating station. Carefully worked out schemes for building up the load must be planned and executed along with schemes of generation. Every state government should set up suitable machinery to secure full development of the load as quickly and effectively as possible.

70. The public utilities in India with the exception of a few have hitherto operated comparatively small blocks of power and they have not always followed an active sales promotion policy. The need for such a policy, particularly in areas where the people are not yet electricity minded, is obvious. Systematic propaganda, special campaigns for the development of load and concessions, and inducements to the people to set up new industries should be a regular feature of all State electricity undertakings in regions where large blocks of power are being produced. A special fund should be set up for this purpose.

#### Irrigation development (ways & means) fund.

71. In October, 1950, the Planning Commission suggested to state governments the creation of a non-lapsable Irrigation Development Fund. As has been stated previously, since 1866 all productive irrigation works have been financed from public loans raised for the purpose. This policy has been fully justified by the net direct revenue earned by the canals in undivided



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India, which after deducting cost of maintenance and operation represented about 8% of the outlay. Financing of irrigation projects by loans has however led to difficulties at certain periods. Projects could only be taken up when Government either had surplus funds or could easily raise loans in the market. Such periods generally correspond to periods of high prices. During periods of slump, when prices are low, Governments seldom have surplus funds for development works, and it is equally difficult for them to raise loans during such times. There is another important drawback. Large scale river valley projects involving the construction of high dams and long lengths of canal generally take from four to ten years to complete and it is difficult under such a system to guarantee sufficient funds from year to year to enable the works to be executed on the most economic basis. It happens, therefore, that sometimes projects are rushed through and taken up for construction without full investigation. At other times, after investigations have been completed, projects have to be shelved or postponed for want of finances. In view of these considerations, it is suggested that an Irrigation Development (Ways & Means) Fund should be created by each state government into which a definite sum of money could be paid every year, either from general revenues or from loans or savings and to which should be added loans and grants, if any, from the Central Government and the proceeds of betterment levy, increase of water rates etc. This fund would be non-lapsable and all expenditure on irrigation and power projects should be met from it. This procedure will enable every project to be taken up after full technical and other investigations and thus result in efficiency and economy. Similarly, once a project has been sanctioned, execution of works can be planned carefully and on the most efficient basis without the dislocation caused by the fear of grants lapsing and uncertainty as to availability of funds from year to year.

72. The amount to be paid annually into the proposed non-lapsable Irrigation Development (Ways and Means) Fund by each state will vary from state to state, but it is suggested for consideration that state governments set apart during the next fifteen years such annual sums for this state Fund as will enable them to complete their programmes of irrigation and connected power projects for this period. This proposal aims at improving the ways and means position only and is not meant to effect a change in the existing financial and accounting procedure relating to irrigation works. Their administrative accounts etc. will continue to be maintained in the same manner as before.

73. The Planning Commission has already addressed State Governments in this matter. A number of states, Bihar, Bombay, Madhya Pradesh, Madras, Uttar Pradesh, Mysore and Travancore-Cochin have accepted, in principle, the proposal to create a separate fund for irrigation and power development.

#### Economic use of available irrigation supplies

74. While efforts are being made, and will continue to be made to provide new irrigation facilities in all parts of the country, it is necessary to examine the possibilities of putting to better use the supplies available at present. The problem of optimum use of available irrigation supplies has two broad aspects:-

(i) Agricultural - This consists in determining the optimum quantities of water required, and the correct time of their application for growing a crop with a view to irrigating the maximum area and producing the maximum tonnage of crops with a given quantity of water; suitable crop rotation; improved agricultural methods with irrigation etc. A fair amount of research in this respect has been carried out in different parts of the country by Irrigation and Agriculture Departments of various states.

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The Ministry of Agriculture set up some time ago a Central Standing Advisory Committee for research on water requirements of crops on which there are irrigation engineers, officers of the Indian Council of Agricultural Research and of State Agriculture Departments and experts of the Meteorological Department. This Committee will study systematically such subjects as water requirements of crops in different parts of the country and allied problems like quality of waters, soil survey, rotation of crops etc., and communicate to all concerned the results of such studies.

(ii) Engineering:- This consists in conveying to the field, for purposes of irrigation, as large a proportion as possible of the supplies available at the head of a canal system, by minimising losses in the canal, in the distributaries, water course and in the field itself. On this aspect, little work appears to have been done to find out exactly what part of the supply let down at the head of a canal is actually applied to crops in the field. Some ad-hoc estimates of seepage and evaporation losses in canals, branches, distributaries and water-courses have been made by different officers at different times, but as they were not made on a uniform system evolved before-hand, the results may not be regarded as possessing the required degree of accuracy. From the results available, it appears that of the water let in at the head of a canal system, about 16% is lost in the canals and branches; about 6% in distributaries and about 23% in water courses, thus leaving only 55% to reach the field. Though these estimates are only approximate, it would be correct to say that if absorption losses in the canals, distributaries and water-courses are reduced, considerable additional areas can be provided with irrigation facilities from the water already available.

75. Absorption losses on canals, branches and distributaries can be reduced by lining them. There are, however, technical and practical difficulties in undertaking the lining of large canals and distributaries in operation; but it should be possible to arrange in due course for the

lining of such of the existing canals and distributaries as can be attended to. New canals present now such difficulties and many of them are being lined.

76. Absorption losses in water-courses are approximately 40% of the water actually applied to the field and it is estimated that nearly three-fourths of these losses can be prevented by lining them. The advantages of such lining should be examined carefully. As water-courses in most cases belong to the cultivators the funds for lining should come from them. With a suitable lining material, it should be possible to undertake this work, at least in some areas; if the cultivators agree to pay for the purpose a moderate cess. Apart from saving large quantities of water for additional irrigation this will secure to cultivators two other substantial benefits. It will reduce maintenance, and also make it possible for them to reclaim a portion of the land now under water courses as a lined water-course, generally takes less space than unlined channels. There are tanks in central and southern India below which there are no water-courses. Under such a system, there is wastage of water by absorption over the wide expanse on which irrigation waters flow from one field to another. It will lead to economy of water, if properly aligned water-courses can be constructed below such sluices or outlets where they do not exist.

77. Apart from the losses in irrigation channels, there is wastage of water in the field itself. It is well-known that the duty of irrigation water from a well is much more than that of canal water. The reason is that in a system of well irrigation the field to be irrigated is invariably divided into small compartments for purposes of irrigation and the absorption during the process of irrigation such small

compartments is comparatively low. On the other hand, water from a canal or a tank is generally let over a large field and considerable quantities are absorbed in the portion of the field already irrigated before water can reach the more distant parts of the field. It has been worked out, mathematically, that for alluvial soil, optimum conditions prevail when the size of the field in acres is from  $1/4$ th to  $1/5$ th of the discharge of the water-course in cusec. Steps should be taken to educate the cultivators on this subject. Distribution of water amongst the various cultivators in a chak (area irrigated from an outlet), is generally carried out by what is known as warabandi in northern India. There are two such systems one termed the "fixed system" in which each holding gets water for a definite period according to its size once a week, on the same day, at the same time, the other called the "follow-on system" in which each cultivator takes water in turn for a fixed period depending upon the area and location of his holding and then hands it over to the next on the roster. If warabandi can be framed so that starting from the outlet, water always flows onward, great saving in absorption losses will result.

78. The Planning Commission has already addressed the state governments on this subject. State governments, cultivators and all those connected with irrigation development should give thought to the suggestions made above, examine the economics of such proposals, and carry them out wherever possible.

Major and minor irrigation projects.

79. Questions are often raised about (i) the relative place assigned to major and minor irrigation schemes in the Plan, and (ii) the economics of such schemes. There can be no conflict between major and minor

schemes. There are parts of the country in which scope exists for large projects and there are others in which only smaller projects are possible. Each area should be served by the kind of schemes for which it offers facilities. Large and small projects are thus complementary and not competitive. The Five Year Plan includes eight irrigation projects (including multi-purpose projects) costing above Rs.5 crores each, sixteen costing between Rs.1 crore and five crores; twenty-one costing between Rs.1 crores and Rs.fifty lakhs; and twenty-seven schemes costing between Rs.50 lakhs and Rs.10 lakhs each. The area which will be irrigated in the five year period by these projects is expected to be about eight million acres while about 7 million acres are expected to be irrigated by minor irrigation projects and tube-well schemes included in the Plan.

80. The relative advantages and disadvantages of minor and major schemes may be briefly summarised as follows :

Minor schemes are advantageous in that

- (i) the initial outlay involved is small;
- (ii) they can be executed quickly and yield quick results;
- (iii) they generally require no special assistance by way of foreign personnel or equipment; and
- (iv) local resources can be easily mobilised for their execution.

The disadvantages, on the other hand are :

- (i) their high cost of maintenance;
- (ii) their relatively short life; and
- (iii) the limited 'protection' they give.

Owing to the operation of these causes, a fair proportion of such works are now in various stages of disrepair all over the country. Experience in

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India is that minor irrigation works can be maintained only if the beneficiaries undertake the obligation for this. At the same time where there are laws imposing such obligations it has not been found possible to enforce them strictly.

81. The advantages of major schemes are:

- (i) they are generally multi-purpose in nature, i.e., apart from irrigation they confer other benefits such as hydro-electric power, flood control, navigation, etc.
- (ii) they utilise surplus waters of the river system which are flowing waste at present and in fact they constitute the only way in which such surplus waters can be utilised;
- (iii) they give better protection in years of scarcity as there are large catchment areas.

The disadvantages are the initial high cost and the time they take for execution. The financial aspects vary from region to region.

In so far as the large multi-purpose projects in progress are concerned, their construction has not reached a stage at which final forecasts of financial yields can be made. It can however be stated that these projects can be financially justified only if the following conditions are strictly enforced:

- (i) There should be strict financial control and costs kept down as low as possible;
- (ii) Betterment contributions should be levied on the areas that will be irrigated;
- (iii) Water rates should be levied which would be appreciably higher than the rates in the older projects, and more in accordance with present price levels;
- (iv) Power generation should be regulated carefully and capital should not be sunk on electric plant much in advance of ascertained needs; and
- (v) Power should also be sold at economic rates.

Conditions for inclusion of new projects  
in future plans.

82. We consider it necessary to prescribe a procedure for determining what new projects should be taken up hereafter and in general for fixing the order of priority of various projects under consideration in different parts of the country. As has been stated earlier, the construction of new irrigation and power projects is a matter of national interest and it is necessary to ensure that no large project is undertaken without the State Government concerned satisfying itself that investigations on the project are sufficiently detailed, that the financial forecast is accurate and that funds are available for the execution of the project according to the most economical programme. Only in this manner can we avoid the situation that has arisen in the last few years, under which a number of projects have been simultaneously taken up in different States without careful project reports and financial and other estimates, or an assessment of their aggregate effects on the overall economy of the country.

83. There is no doubt that irrigation and electricity are subjects in the state field of activity and that the state governments must continue to exercise full initiative in regard to schemes of development. In view, however, of the existing financial position, and other limitations, it is necessary that the Central Government and state governments should act together in the implementation of such programmes. The first step in this direction was taken some time ago when the Government of India suggested to the state governments not to undertake any new commitment for capital expenditure and requested them to obtain the prior concurrence of the Central Government before taking up new projects costing over rupees one crore.

84. For determining the priority of irrigation and power projects inter se, the following broad principles must be observed:-

(1) A project for inclusion in a plan must have been investigated in sufficient detail as provided in the rules issued by the Government of India in 1929, in connection with the preparation of projects the



cost of which exceeded the then powers of sanction of provincial Governments (Rs. 50 lakhs). These rules are incorporated in the departmental codes of State Governments, some of whom have also issued additional detailed instructions. It is imperative that before a project is administratively approved by a state government, all preliminary investigations relating to the availability of water, the broad features of the design, the approximate cost, the availability and suitability of land for irrigation, the ability of the land owners and cultivators to pay the proposed betterment contributions and water charges etc. in the case of irrigation projects, and the probability of finding load for the power to be developed and the necessary machinery etc. for its utilisation in case of power projects, have all been properly carried out and detailed financial statements worked out in accordance with the standard forms prescribed for the purpose. Before according administrative sanction to any project, its economics must be carefully studied and examined by the State Government.

(2) Projects which will add to the food production in the country must receive priority over projects relating to other uses of river waters.

(3) Projects which are more remunerative in direct financial returns, in terms of cost of irrigation per acre or per unit of power generated and in total benefit to the community, and those which would yield quick results should be given preference.

(4) In any power project based on the use of coal, the possibility of using low grade coals, if available in the neighbourhood, must invariably be examined. Similarly the use of middlings from coal washeries etc. should be encouraged for the development of power. It is possible now to design furnances to use such low grade high-ash-content coals. These remarks also apply to extension to or replacements of existing power plants.

(5) Region-wise requirements of food and power must receive due consideration, and also the need of backward areas.

85. Having laid down the broad principles which should determine the priority of a project for inclusion in the Plan, we think that an appropriate body should be set up to advise on the relative

priority of different projects on an all-India basis after examining the projects and satisfying itself that the schemes have been prepared after detailed investigation, that the estimates are reasonably correct and that the financial forecasts are reliable. Only those schemes would be eligible for consideration which have been fully investigated and are ready for execution. This body should consist of :

- i) A chairman to be appointed by the Government of India.
- ii) Additional Secretary, Ministry of Irrigation and Power.
- iii) A representative of the Ministry of Finance.
- iv) President, Central Board of Irrigation and power.
- v) One engineer not in the service of any government in India.

The Chief Engineer of the state concerned will be co-opted as a member when a project prepared by him is being examined.

86. The procedure to be followed should be as follows :-

- 1) As soon as a project has been fully investigated and project report prepared, the state government concerned should send copies of the report and accompanying documents to the Committee.
  - ii) The Committee will have the scheme technically examined by the Central Water and Power Commission in the first instance to see whether:
    - a) all necessary investigations have been carried out
    - b) the estimates of expenditure are reasonably correct, and
    - c) the estimates of revenue are based on adequate data.

The Central Water and Power Commission will make its examination of each project in close consultation with the Chief Engineer in charge, and where necessary with officers of the Central Ministry concerned.

iii) A copy of the report of the Central Water and Power Commission should then be made available to the state government concerned who, if they like, may send a further note to the Committee.

iv) The Committee will then proceed to examine the scheme and will submit its report to the Government of India.

#### Hydrologic investigations.

87. During the next 15 to 20 years, a large number of irrigation and power projects have to be undertaken. Before work can be taken up on any such large project, it is necessary to collect detailed data about the availability of water and the manner in which available supplies vary from year to year and during different periods in the same year. This information, which for proper designs should be available for 30 to 50 years, has to be supplemented with rainfall data of the catchment area, the distribution of rainfall, its intensity, temperature, regeneration in the river etc. Unfortunately, there has been no systematic collection of basic hydrologic data for the rivers of India. State governments during the last 20 to 30 years have undertaken collection and study of data with reference to individual projects under operation or under consideration but no overall study of a river system or its catchment has been attempted. Lack of hydrologic data can lead to defective designs.

We, therefore, recommend that all state governments should carry out detailed hydrologic investigations for important river systems. The expenditure on these investigations is small when compared with the benefits likely to be achieved when the river or any part of it is developed. The Central Water and Power Commission should prepare necessary technical instructions for the collection of basic hydrologic data in consultation with the states and the state governments should set up arrangements for collecting such data.

## Rural electrification

88. It has been stated in paragraph 23 above that the development of electricity in India has so far been mainly urban, and hardly 10% of the country's population enjoy the benefits of electricity. Under the Plan, large blocks of power will become available for rural areas and state governments should take steps to see that villagers are enabled to utilize these to the best advantage.

Experience has shown that, given the necessary facilities, the use of electric power for agricultural operations would be popular. As electricity is extended to the villages, there is no doubt that farmers will use it more and more for agricultural operations other than pumping etc., and in the processing of agricultural produce. In this, they should receive assistance from government in the shape of loans to enable them to have their premises fitted with electricity and to buy electric appliances for work now done by animal or manual labour. A scheme similar to that introduced by the Rural Electric Administration of the U.S.A. will have to be introduced under which long term loans should be given to village co-operatives for rural electrification and development. Electricity will also assist cottage industries. It was estimated in 1942 that about 12,000 power looms were operating in the villages of undivided India of which more than half were in the then Bombay Presidency. The total number of handlooms in India in 1942 was estimated at 200 times the number of power looms. If power can be supplied over a small proportion of these their production would increase. Loans should be made available for such purposes as well.

89. There is a special advantage in the encouragement of agricultural load. It has been estimated that the utilisation of one kW of power in industry requires an investment of about Rs.3,000/-. On the other hand, the utilisation of 1 kW of electric power in

agriculture requires a much smaller capital investment of about Rs.1200/- per unit. Apart from this, most of the equipment required can be produced in the country and its operation does not require technical skill of a high order.

#### Public cooperation

90. We have elsewhere dwelt in detail on the need for arousing public enthusiasm for and securing public cooperation in the implementation on the Plan. Here it is proposed to refer more specifically to the special aspects of public cooperation in connection with the development of major irrigation and power projects. What is essential is that the people in every area should feel that the project included in the Plan is their own- intended for improvement of conditions in their area - and that they should make special sacrifices for getting it completed. The ways in which such public cooperation can be obtained vary from region to region and it should be the aim of state governments to see that this is secured in the largest measure possible. We have already referred to the levy of betterment contribution. Large schemes cannot be financed unless this principle is accepted and adequate levies are made towards the capital cost. It is estimated that under a suitable system between one-third and one-fourth of the capital cost of a project can be recouped by betterment levies. The levy of betterment contribution in the form of land from the larger holdings will also be useful. By this means, it will be possible to obtain lands needed for community use, for village forests and grazing, markets, etc., to bring about consolidation of holdings; to find lands for assignment to landless labourers and in other ways to effect improvement in the agricultural economy of the villages commanded by the project.

91. There is also another way in which the traditional methods of carrying out such projects can be improved. In framing estimates for works like a canal system, on which unskilled labour is employed, the rule should be to fix the rates on the basis that work is done by the villagers on the canals in their own villages, and not on the basis of work being let to contractors, large or small. Villagers should be organised in cooperatives for taking up such work. By this means, there will be appreciable reduction in the cost and the labour force in the villages will benefit by the payments made. The State Government and local leaders should devote their best efforts to the task of obtaining local co-operation in as many forms as possible in the execution of large projects. The Planning Commission held discussions on this subject with officers of the Punjab Government connected with the Bhakra - Nangal Project and a beginning has been made with the introduction of this system for the excavation of Bhakra canals. The Bombay and the Madras Governments have this system in operation on some of their projects. The Rajasthan and the Madhya Bharat Governments have agreed that this system will be adopted throughout the canal system of the Chambal Valley Project. Other states have also accepted the principle and the Planning Commission hopes that this will become a normal feature in all large projects.

92. In paragraph 74 above, we have given some suggestions for making the most economic use of available irrigation supplies. Most of these suggestions can be adopted only with a large measure of public cooperation and all efforts must be made to arouse public enthusiasm to use the water provided by the state irrigation works to maximum advantage.

93. It is not fully appreciated that private irrigation works have in the past made a substantial contribution to the development of irrigation in India. There is no doubt that large irrigation projects

should be executed by States but every effort should be made to encourage associations of landholders or village cooperatives to undertake small irrigation schemes, tanks, etc. for purposes of irrigation. Out of 50 million acres that are irrigated annually in India (see Table 2) about 13 million acres are irrigated by private wells and 2 million acres by private canals. In the chapters on Agricultural Development we have made our proposals for new developments in this field. There is, however, an important aspect which we would like to refer here. A fairly large proportion of these private irrigation works, which generally comprise village tanks and small canals are allowed to fall out of repair or dis-use for a variety of reasons among which are disputes among owners, and village factions. In recent years large sums of public money have been spent in different parts of the country in resuscitating these old abandoned private irrigation works. The Plan also provides for substantial assistance in this direction. It is important in the national interest that all private irrigation works which are now being constructed or resuscitated should continue to be maintained with a reasonable standard of efficiency. The cooperation of the people must be sought in this endeavour. The methods to be adopted for securing the continued efficiency of these private irrigation works must vary from one part of the country to another. We recommend that states should take effective steps in this matter, if need be by promoting legislation for this purpose in accordance with local conditions.

94. For the successful implementation of any power project, a large measure of public cooperation is in all cases necessary for building up the load for the utilisation of the power generated. Apart from this, in the case of some industries it is considered advisable and at times advantageous for the industry to have its own generating plant. It may be possible to integrate such power houses or in any case the surplus capacity of such power houses with the nearest public electric supply undertaking to the mutual advantage of both the industry and the electricity undertaking.

Table - 1

List of principal Irrigation Works of India  
(referred to in paragraph 13)

Name of State	name of Work	Year of completion	Total capital outlay (Rs. in lakhs)	Area irrigated (Thousand acre)	Percentage return on capital outlay
Bihar	Son Canals	1875	2,68	655	7.3
	Tribeni Canal	1914	82	114	3.1
Bombay	Nira left-bank Canal	1906	1,48	90	4.7
	Godavari Canals	1916	1,07	63	4.2
	Pravara Canals	1926	1,51	90	-
	Nira right-bank Canals	1938	4,12	89	1.8
Madhya Pradesh	Tandula Canals	1925	1,20	158	-
	Mahanadi Canals	1927	1,59	199	-
Madras	Cauvery delta system	1889	87	1,070	13.9
	Godavari delta system	1890	2,10	1,229	12.1
	Kurnool Cuddapah Canal	-	2,24	88	0.8
	Pennar river canals	1894	71	178	6.5
	Periyar system	1897	1,08	202	5.6
	Krishna delta system	1898	2,27	1,002	15.7
	Lower Coleroon anicut	1903	30	123	10.1
	Krishna East - Bank Canal Extensions	1913	59	100	7.8
	Cauvery - Mettur project	1934	6,46	232	1.7
Orissa	Orissa Canals	1895	2,72	233	-
Punjab(I)	Western Jumna Canal	1820	2,04	1,018	8.1
	Upper Bari Doab Canal	1879	-	783	20.9
	Sirhind Canal	1884	2,67	2,312	14.6
	Eastern Canal	1928	1,14	190	-
Uttar Pradesh	Eastern Jumna Canal	1831	66	446	63.2
	Ganga Canal	1856	4,66	1,620	25.2
	Agra Canal	1875	1,29	343	4.6
	Lower Ganga Canal	1880	4,67	1,251	8.6
	Betwa Canal	1893	11,24	221	1.0
	Ken Canal	1909	67	140	5.4
	Sarda Canal	1930	11,57	1,297	2.9
	Tube-wells		4,49	936	1.6
West Bengal	Damodar Canals	-	1,28	184	-
	Midnapore Canals	-	85	74	-
Hyderabad	Nizamsagar Canal	1940	1,72	275	-
Mysore	Krishnarajassagar Canals	1932	2,60	92	-



Table:2  
 AREA CULTIVATED AND IRRIGATED IN DIFFERENT STATES  
 OF INDIA  
 (referred to in paragraphs 13 and 15)

Figures in Col.3.13 are  
 in thousands of acres)

Sl.No.	Name of State	Gross area	Classified area	Culturable area	Sown area
1	2	3	4	5	6
<b>PART 'A' STATES</b>					
1.	Assam	54,404	33,400	24,109	6,192
2.	Bihar	45,011	44,330	31,338	22,607
3.	Bombay	71,318	58,059	34,735	34,473
4.	Madhya Pradesh	83,374	82,991	42,406	32,305
5.	Madras	81,785	80,796	52,108	35,796
6.	Orissa	38,487	18,053	10,980	7,451
7.	Punjab (I)	23,922	23,236	16,117	13,337
8.	Uttar Pradesh	72,581	71,428	52,605	39,780
9.	West Bengal	19,696	19,546	13,609	12,978
	Total:	490,578	431,832	278,607	204,919
<b>PART 'B' STATES</b>					
10.	Hyderabad	52,588	52,927	38,507	22,530
11.	Jammu & Kashmir	59,379	3,360	3,443	1,301
12.	Madhya Bharat	29,746	22,552	12,091	9,691
13.	Mysore	18,873	17,385	10,286	6,596
14.	PEPSU	6,450	6,491	5,772	3,844
15.	Rajasthan	83,332	20,669	7,541	9,450
16.	Saurashtra	13,729	1,397	7,200	1,013
17.	Travancore-Cochin	5,852	5,350	3,254	3,046
	Total:	269,949	130,131	88,094	58,471
<b>PART 'C' STATES</b>					
18.	Ajmer	1,547	1,561	868	388
19.	Bhopal	4,402	4,432	2,522	1,062
20.	Bilaspur	290	285	80	124
21.	Coorg	1,015	1,012	321	166
22.	Delhi	370	366	286	256
23.	Himachal Pradesh	6,689	2,305	398	-
24.	Kutch	10,703	4,974	-	245
25.	Manipur	5,582	-	-	-
26.	Tripura	2,580	2,634	351	472
27.	Vindhya Pradesh	15,106	1,610	-	520
28.	Sikkim	1,757	-	-	-
29.	Andaman and Nicobar Islands	2,012	-	-	-
	Total:	52,053	19,179	4,826	3,233
<b>Grand Total :</b>		<b>812,580</b>	<b>581,152</b>	<b>370,927</b>	<b>266,623</b>

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## AREA CULTIVATED AND IRRIGATED IN DIFFERENT STATES OF INDIA

(referred to in paragraphs 13 and 15)

(Figures in Col.3-15 are in thousand of acres)

Sl.No.	Name of State	Area Irrigated ( 1949-50 )				
		'By Govt. canals'	'By tanks'	'By Govt. works 7 + 8'	'By private canals'	'By wells'
		7	8	9	10	11
<b>PART 'A' STATES</b>						
1.	Assam	2	22	24	655	-
2.	Bihar	821	1,136	1,957	-	583
3.	Bombay	378	154	532	64	1,035
4.	Madhya Pradesh	269	1,140	1,409	-	206
5.	Madras	4,410	3,226	7,636	156	1,939
6.	Orissa	367	473	840	53	34
7.	Punjab (I)	3,636	7	3,643	337	1,845
8.	Uttar Pradesh	4,571**	12	4,583	**16	4,323
9.	West Bengal	279	1,035	1,314	304	16
	Total:	14,733	7,205	21,938	1,584	10,000
<b>PART 'B' STATES</b>						
10.	Hyderabad	173	834	1,007	13	418
11.	Jammu & Kashmir	97	5	102	516	8
12.	Madhya Bharat	135	36	171	-	220
13.	Mysore	262	611	873	3	28
14.	PEPSU	1,297*	-	1,297	24*	618*
15.	Rajasthan	631	70	701	11	672
16.	Saurashtra	3	-	3	-	00
17.	Travancore-Cochin	365	123	488	91	33
	Total:	2,963	1,679	4,642	658	2,174
<b>PART 'C' STATES</b>						
18.	Ajmer	-	16	16	-	99
19.	Bhopal	2	1	3	-	11
20.	Bilaspur	-	-	5	5	-
21.	Coorg	4	2	6	-	-
22.	Delhi	27	4	31	-	19
23.	Himachal Pradesh	-	-	-	-	-
24.	Kutch	-	9	9	-	60
25.	Manipur	-	-	-	-	-
26.	Tripura	-	-	-	-	-
27.	Vindhya Pradesh	37*	17*	54	-*	164*
28.	Sikkim	-	-	-	-	-
29.	Andaman and Nicobar Islands	-	-	-	-	-
	Total:	70	49	119	5	353
Grand Total:		17,766	8,933	26,699	2,247	12,427

\* Figures are for the year 1948-49

\*\* Figures are for the year 1950-51

XXVI from page  
 AREA CULTIVATED AND IRRIGATED IN DIFFERENT STATES OF INDIA  
 (referred to in paragraphs 13 and 15)  
 (Figures in Col.15 are in thousand of acres)

Table : 2

Sl. No.	Name of State	Area irrigated (1949-50)			Percentage of area	
		'By other sources'	'Grand Total'	'Sown to culturable'	'Irrigated to sown'	'Irrigated culturable'
		'12	'13	'14	'16	'16
<b>PART 'A' STATES</b>						
1.	Assam	403	1,082	26	17	4
2.	Bihar	1,740	4,280	72	19	14
3.	Bombay	129	1,760	99	5	5
4.	Madhya Pradesh	71	1,686	76	5	4
5.	Madras	320	10,070	69	28	19
6.	Orissa	678	1,605	68	22	15
7.	Punjab(I)	21	5,846	83	44	36
8.	Uttar Pradesh	1,882	10,803	76	27	21
9.	West Bengal	680	2,313	95	16	15
	Total	5,924	39,446	78	19	14
<b>PART 'B' STATES</b>						
10.	Hyderabad	50	1,488	58	7	4
11.	Jammu & Kashmir	75	701	38	54	20
12.	Madhya Bharat	11	462	80	5	4
13.	Mysore	198	1,159	64	18	11
14.	PEPSW	20*	1,959	84	40	32
15.	Rajasthan	89	1,473	125	16	20
16.	Saurashtra	4	67	14	7	1
17.	Travancore-Cochin	500	1,112	94	87	34
	Total:	947	8,421	66	15	10
<b>PART 'C' STATES</b>						
18.	Ajmer	1	116	42	30	13
19.	Bhopal	3	17	12	2	1
20.	Bilaspur	-	5	-	-	6
21.	Coorg	1	7	52	4	2
22.	Delhi	-	50	90	19	17
23.	Himachal Pradesh	135	135	-	-	38
24.	Kutch	-	69	-	34	-
25.	Manipur	-	-	-	-	-
26.	Tripura	-	-	-	-	-
27.	Vindhya Pradesh	**	219	-	42	-
28.	Sikkim	-	-	-	-	-
29.	Anadman and Nicobar Islands	-	-	-	-	-
	Total:	141	618	-	-	-
<b>Grand Total:</b>		<b>7,012</b>	<b>48,486</b>	<b>75</b>	<b>18</b>	<b>13</b>

\* Figures are for the year 1948-49

Table : 3  
 T - Thermal  
 H - Hydro

Major (Existing) Power Stations in India  
 (Public utilities only as on 31st December, 1951)

(Referred in paragraph 22)

State/Name of power system and year of commencement of supply	Installed capacity (thousand kWh.)	Trans- mission lines 33 kV & above (Circuit miles)	Operation Statistics.		
			Units gene- rated (mill- ion kWh)	Mxi- mum Demand (thou- sand kWh)	Annual load factor in per- cent.
BIHAR					
Sijua (Jherriah) Electric Supply Coy. Ltd. (1916)	18(T)		80	15	61
Patna Electric Supply Coy. (1929)	13(T) *		29	7	49
BOMBAY					
Ahmedabad Electricity Coy. Ltd. (1915)	97(T)		292	64	52
Kalyan (Chola) Power Station.	40(T)				
Tata hydro Electric Agencies (1915)	244(H)	502	1448	254	65
MADHYA PRADESH					
Jubbulpore Electric Coy. Ltd. (1927)	9(T)		21	5	48
MADRAS					
Madras City Electricity System (1909)	48(T)	47	130	28	52

Table :3(Contd.)

State Name of Power System & year of commencement of supply.	Ins- talled capa- city (Thousand k.W)	Trans- mission lines 33 KV & above (Circuit Miles	Operation Statistics		
			Units gene- rated (mill- ion kWh	Maximum Demand (thou- sand kW	Annual load factor in per- cent
MADRAS (Contd.)					
Fykara (1932)	39 (H)	1901	234	44	61
Mettur (1937)	40 (H)		221	46	55
Papanasam (1938)	23(H) 4 (T)		135	32	55
FUNJAB					
Jogindernagar (1933)	48 (H)	429	174	35	57
UTTAR PRADESH					
Allahabad Power Station (1916)	12 (T)		28	6	54
Lucknow Power Station (1917)	14 (T)		39	8	55
Kanpur Electric Supply Administration (1921)	64 (T)		188	36	60
Ganga Canal Grid (1926)	19 (H) 30 (T)		211	38	63
WEST BENGAL					
Calcutta Electric Supply (1899)	467 (T)	165	1032	246	48
Gourepore Electric Supply Co. Ltd. (1921)	53 (T)		77	23	38
Dishergarh Power Supply Co. Ltd. (1922)	16 (T)		58	9	71
HYDERABAD					
Hussain Sagar Station (1910)	22 (T)		47*	10*	53

\* Estimated

Table : 3 (contd.)

State Name of Power System & year of commencement of supply	Inst- alled capacity (Thousand kS)	Trans- mission lines 33 KV & above (Circuit Miles).	Operation Statistics		
			Units gene- rated (mill- kWh)	Maximum Demand (thousand kW)	Annual load factor in per- cent.

## MYSORE

Shimshapura	17)				
Sivasamudram (1902)	42)	(H) 1499	525	121	50
Jog (1948)	48)				

## TRAVANCORE-COCHIN

Pallivasal (1940)	28	(H)	152	28	61
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## DELHI

Delhi Power Station (1908)	43	(T)	140*	28*	57
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Estimated.

Table : 4

Per-Capita Use of Electricity in the States of India  
(referred to in paragraph 22)

Name of State	Population (millions) (1941 Census)	Total installed capacity (KW)	Capacity installed per 1000 of population (KW)	Units generated (million) (KW)	Kwh Generated per capita
1	2	3	4	5	6
Assam	9.689	3,362	0.247	5.777	0.633
Bihar	40.219	44,978	1.18	126,125	3,131
Bombay	35.944	416,185	11.579	1612.378	44,858
Madhya Pradesh	21.328	27,844	1.306	64,273	3.014
Madras	56.952	168,025	2.950	643.708	11.303
Orissa	14.644	4,616	0.315	5,693	0.389
Punjab (I)	12,639	61,377	4.856	178.127	14.003
Uttar Pradesh	63.254	183,841	2.911	510,671	8.073
West Bengal	24.787	522,294	21.071	1046,758	42.230
Hyderabad	18.653	21,073	1.129	46.470	2,491
Mysore	9.072	107,200	11.817	443.522	48.820
Madhya Bharat	7.942	13,688	1.723	29.298	3.689
Rajasthan	15.298	24,120	1.576	44.810	2.929
PEPSU	3.469	6,740	1.943	5.679	1.637
Saurashtra	4.136	21,893	5.291	35,818	8.660
Travancore-Cochin	9.265	34,586	3.732	147.305	15.899
Delhi	1.744	37,536	21.523	122.302	70.127
=====	=====	=====	=====	=====	=====

Table : 5

Irrigation and Power Projects in  
the Five Year Plan  
Abstract

	Expenditure proposed during 1951-56		Irrigation ('000 acres)	Power ('000 kW)	
	Irrigation	Power		By 1955-56	By 1955-56
<b>Multipurpose Projects</b>					
Bhakra-Nangal	77,50	1,361	3,604	96	144
Harike	10,62	-	-	-	-
Damodar Valley Projects	41,70	695	1,141	194	274
Hirakud	44,00	261	1,785	48	123
Additional funds for the above Projects	50,00				
New Schemes	40,00		(See paragraph 45)		
<b>Total:</b>	<b>263,82</b>	<b>2,217</b>	<b>6,530</b>	<b>338</b>	<b>541</b>
<b>Part 'A' States</b>					
Assam	2,00	83	2,83	218	5 75
Bihar	9,73	7,09	16,82	675	11 11
Bombay	22,69	10,43	33,12	474	83 84
Madhya Pradesh	3,08	6,00	9,08	114	73 73
Madras	34,08	50,24	84,32	435	196 307
Orissa	3,00	3,91	6,91	480	18 18
Punjab	3,26	38	3,64	666	108 -
Uttar Pradesh	19,11	14,10	33,21	1,361	109 124
West Bengal	15,37	76	16,13	917	4 4
<b>Total:</b>	<b>112,33</b>	<b>93,74</b>	<b>206,07</b>	<b>5,340</b>	<b>8,032</b>
<b>Part 'B' States</b>					
Hyderabad	24,79	3,21	28,00	306	53 53
Jammu & Kashmir	206	3,25	28,00	306	57 57
Madhya Bharat	3,28	2,28	5,56	83	15 18
Mysore	7,16	12,68	19,84	30	72 120
PEPSU	34	30	65	-	129
Rajasthan	5,04	41	5,45	243	11 11
Saurashtra	4,75	2,13	6,88	108	12 12
Travancore-Cochin	4,78	10,35	15,13	17	16 81
<b>Total</b>	<b>52,20</b>	<b>32,91</b>	<b>85,10</b>	<b>863</b>	<b>2,242</b>
<b>Part 'C' States</b>					
Ajmer	11		11		
Bhopal		28	28		
Coorg		25	25		
Himachal Pradesh	80	13	93	75	1 1
Kutch	91	23	114	38	38
Tripura		7	7		
Manipur		12	12		
Vindhya Pradesh		51	51		3 3
<b>Total</b>	<b>182</b>	<b>1539</b>	<b>341</b>	<b>113</b>	<b>4 4</b>
<b>Grand Total</b>			<b>55,841</b>	<b>8,533</b>	<b>16,942</b>



Insert para No.116.

Para 116, line 3, read "step" for "stop".

Para 127, line 16, read "2,069" for "2,068".

Para 133, sub-para (4) line 4, read "162" for "62".

#### Chapter-XXXV

Para 15, transfer from line 9 the words "and co-operative societies of industrial workers" to line 11 after the words "private employers of labour".

Para 15, line 12, after the words "cost of construction", add "including the cost of land".

Para 15, line 15, omit the words "of construction" after the words "balance of the cost".

Para 15, line 25, omit the words "i.e. the total cost less the subsidy of 25 per cent".

Para 22, line 17, substitute "51 per cent" for "11 per cent".

Para 24, line 39, substitute "37½%" for "25%".

Para 26, line 5, after "clearance of slums" add "and development of land".

Para 33, line 24 substitute "modicum" for "medium".

Para 49, line 11, substitute "reasonable return" for "return not exceeding 6½% of".

#### Chapter XXXIX

Para 3, line 7, for the word "industrial" read "industrial and commercial".

Para 5, lines 18-23, delete the sentence, "Moreover, owing to the low cost of labour .... reorganised and modernised".

Para 7, line 26 for words "in the expansion" read "in the contemplated expansion".