

GOVERNMENT OF INDIA
PLANNING COMMISSION

THE FIRST FIVE YEAR PLAN

Volume II

(Chapter XXVII to XXXIX)

CHAPTER XXVII

DEVELOPMENT OF MINERAL RESOURCES

Assessment of mineral resources

In the last four years, the Government have laid the foundation for mineral development by (i) the announcement of a mineral policy (ii) the expansion of the Geological Survey of India for implementing a programme of mineral exploration and development and (iii) the establishment of a Bureau of Mines for securing (coordinated) development with due regard to conservation of the country's mineral assets.

2. It should be made clear at the outset that though progress has been made in the survey of mineralised areas in recent years and the principal mineral regions have been ascertained, exploration of mineral resources has not been thorough or complete in most cases and present estimates are rough guesses. The Plan, therefore, provides for systematic detailed investigation and surveys by the Geological Survey of India, the Bureau of Mines and the National Laboratories for the quantitative and qualitative assessment of the country's reserves of important minerals.

3. The mineral wealth of India as at present known, though by no means inexhaustible, comprises an adequate range of useful products that are necessary for the industrial development of the country. An appraisal of the reserves shows that while in respect of minerals essential for basic industries - coal and iron - the reserves are ample, the country is deficient in a fairly long list of vital minerals like ores of copper, tin, lead, zinc, nickel, cobalt and in sulphur and most important of all, petroleum. The position with regard to aluminium ore, refractories, abrasives, limestone etc. may be considered as fairly adequate while in respect of titanium and thorium ores and of mica, the country has considerable reserves.

4. Until recently, mineral exploration and their utilisation in the country received little attention. Except for coal, iron ore and petroleum required for internal use, the majority of minerals were raised in India for purposes of bulk export without any dressing, processing and fabrication. These exports brought but a small return to the country. Nearly a 100

minerals are known to be produced or worked in India of which nearly 30 may be considered more important including several which although comparatively unimportant in quantity today, are capable of material development in future with the expansion of industries.

5. An idea of India's mineral resources, their adequacy, deficiency and present production is given below:

Minerals which are adequate for India's requirements

	Production		Exports	
	1950	1951	1950	1951
Bauxite '000 tons	64	67	-	-
Coal "	32,307	34,431	903	1,908
Ilmenite "	212	220	Entirely exported	
Iron ore "	2,971	3,657	30	300
Kyanite "	35	42		25
Sillimanite "	1	4		3
Magnesite "	53	117	16	46
Manganese ore "	883	1,284	808	952
Mica '000 cwts.	*	*	326	491

It will be seen from the above that coal, iron ore, manganese ore, mica, ilmenite and kyanite are produced in quantities of real importance to industry and other sectors of economy. Of these, mica, manganese ore, kyanite and ilmenite are wholly or largely exported.

The table below shows the position in respect of certain minerals in which India has fairly adequate supplies, though not in all cases sufficient to meet the requirements.

	Production		Exports	
	1950	1951	1950	1951
Barytes '000 tons	12	8	8	5
China clay "	53	55	-	-
Other clays "	277	291	-	-
Felspar "	1	3	-	-
Chromite "	17	16	4	9
Gold '000 oz.	197	226	-	-
Gypsum '000 tons	206	264	-	-
Salt "	2573	2,642	8	18

In respect of the following key minerals, India has to depend either wholly or in a large measure on foreign sources of supply because of poor resources:

*Production figures are incomplete

		Production		Imports	
		1950	1951	1950	1951
Copper	'000 tons	6.6	7.1	41.8	8.6
Graphite	"	1.5	1.6	0.8	0.7
Lead Ore (concentrates)	"	1.9	1.8	-	-
Lead (pig)	"	0.6	0.8	15.4	7.9
Petroleum (crude)	Mil.gals.	-	-	780.8	869.0
Petroleum products)		-	-	780.8	869.0
Mercury	Mil.lbs.	-	-	2.4	0.7
Sulphur	'000 cwts.	-	-	1138.0	770.1
Tin	"	-	-	95.4	59.2
Zinc	'000 tons	-	-	33.4	20.1

6. The estimated requirements of important minerals by industries by 1955-56, are indicated below:

Mineral raw materials required annually
by industries

		Present consumption	Estimated requirements in 1955-56
Coal	Million tons	10.0	14.0
Limestone	'000 "	5.3	8.9
Gypsum	'000 tons	97.0	870.0
Iron ore	'000 tons	2672.0	4000.0 (a)
Manganese Ore	'000 tons	70.0	100.0
Bauxite	'000 tons	26.0	60.0 (b)
Glass sand	'000 tons	108.0	184.0
Ilmenite	'000 tons	Nil	3.0
Monazite sands	'000 tons	Nil	1.5
Sulphur	'000 tons	42.5	82.0
Rock phosphate	'000 tons	35.0	108.0
Petroleum crude	'000 tons	Nil	1700.0 (c)
Pyrites	'000 tons	Nil	22.0

(a) When the expansion scheme of the existing steel manufacturers is complete, the demand for iron ore is expected to go upto 4.4 million tons which is expected to rise further to 5.5 million tons when the proposed Government Steel Factory of 600,000 tons capacity materialises.

(b) When the expansion programme of Indian Aluminium Co. is implemented, the demand for bauxite is expected to increase to 100,000 to 110,000 tons per annum.

(c) When the second refinery comes into full production and with the implementation of the third refinery, the demand for petroleum crude would rise to 4.2 million tons per annum.

Excepting the requirements of sulphur, petroleum and copper and other non-ferrous metals, India has the basic mineral and power resources needed for the industrial expansion envisaged.

7. The power resources in India comprise coal, oil and hydro-electricity. India's coal mining is centred mainly in Bihar and West Bengal. The total workable reserves of coal down to a depth of 1,000 ft. are estimated at 20,000 million tons, of which the good quality coal would amount to 5,000 million tons. The reserves of coking coal, however, are small amounting to only 2,000 million tons.

Very little petroleum is produced in India, Digboi, the only source at present yields about 60 million gallons annually which is about 7% of India's requirements. Indications of productive oil fields are also present in Tripura State Patharia R.F. (Assam) and in the Kangra district (Punjab).

As against relatively meagre resources of coal and oil, the hydro-electric resources of India are considerable, estimates varying from about 30 million horse-power to 40 million.

8. India possesses large quantities of high grade iron ore and may be classed as one of the countries which can reasonably expect a long continued development of heavy industry though, in proportion to the population, these reserves are lower than in the main ore regions of the world. Likewise there are large reserves of bauxite. India is also the world's main source of supply of mica, ilmenite and manazite.

9. It should be stated again that in most cases the reserves, though known to be large enough, are not known in sufficient detail, especially in regard to quality, for purposes of development. Moreover, the distribution is capricious in a territorial sense, some parts of the country being poor, others being comparatively rich.

Mineral policy

10. Amongst natural resources, minerals form a special category as they are "wasting assets"; once they are taken out of the ground and utilised, they are lost for ever. They should, therefore, be treated on a different footing from replenishable natural resources. Minerals figure in the export trade of

India and contribute to the earning of foreign exchange. They are exported, however, largely in the raw state.

11. As minerals form the basis of modern industry in peace and in war, it is necessary to have a rational policy as regards their working and utilisation. The keynote of this policy should be conservation and economic working. The essentials of such a policy of "co-ordinated, orderly and economic development" of the mineral resources are indicated in the following paragraphs.

(i) Exploration and development: In regard to almost every mineral, there is no reliable data of reserves. To ensure the efficient working of the known mineral deposits or those which may be found in future, it is necessary that all steps should be taken to ensure that the extent and value of the resources are determined so that the production programme may be organised on an economic basis and proper provision made in planning schemes for working. Concrete proposals for this purpose are made at the end of the chapter.

(ii) Proper conduct of mining operations: Though a mining industry has been in existence in this country for about half a century, only a comparatively small number of mines are being worked in an efficient manner under proper technical guidance. Many units are too small in size or too poorly financed for such working. Lack of a conservation policy is also responsible for the present condition of the industry. There is large wastage, especially in minerals of marginal grades, as these are either abandoned in the mines or thrown away on the mine dumps. Ways and means must be devised for the mining and recovery of these low grade materials. Ores which it is not possible to work economically under normal conditions should be left in the mines so that they may be extracted at a later date without serious loss. The mine dumps all over the country have to be carefully examined and sampled so that their valuable mineral content may be recovered by methods of beneficiation now available. It should be a rule that selective mining of high grade minerals alone should not be undertaken and that all grades should be worked and, wherever possible, blended to produce marketable grades.

To bring about a general improvement in methods of mining as well as in the recovery of economically workable resources, mining interests will have to employ properly qualified technical personnel for conducting mining operations. The Indian Bureau of Mines should assist in this direction through its inspectorate whose function will be to inspect every mining operation and advise the owner on proper methods of development and also to ensure that the advice given is implemented. The Indian Bureau of Mines should also be responsible for the collection of detailed information on the nature of mining operations carried on, the mechanical equipment in use, and of development programmes proposed by each unit.

(iii) Strategic considerations: The last war showed that valuable time and effort were wasted in conducting emergency exploratory work to develop resources of strategic minerals uneconomic to work in peace time and about the occurrences of which little information was available. The war also showed how difficult it was for the Government to resist pressure to investigate every potential source of supply however small. It is therefore necessary that particular attention should be paid to strategic minerals such as sulphur, ores of tungsten, tin, vanadium, etc. and the necessary preliminary information should be obtained so that production can be organised when required with the minimum of delay.

(iv) Leasing of mineral properties and regulation of mineral development: The Mines and Minerals (Regulation and Development) Act, 1948 (Act LIII of 1948) gives powers of regulation to the Central Government. Under this Act, the Central Government's concurrence is necessary for the issue of licences and leases for atomic energy minerals and rare minerals such as those containing uranium, thorium, vanadium, beryllium, titanium, wolfram, columbium etc., coal, gypsum, lead, zinc and copper ores. Two changes appear to be desirable in these rules in the national interests. In the first place, the Central Government's concurrence should be needed for issue of licences and leases of other important minerals, viz., iron ore, manganese ore, chromite, bauxite, and mica as these are important in the country's economy. Secondly, in the grant of mineral leases regard should be had to the size of mining properties in order to prevent the holding of very large areas by single interests and, also on the other hand, to ensure that the areas covered are not too small. The Central Government should lay down rules regarding economic units for different classes of minerals with due advertence to local conditions.

(v) Statistics of mineral industry: At present monthly, quarterly or annual returns of mineral production and export are available, but no data of the economics of the mining industry. There is provision under Act LIII of 1948 for the collection of detailed statistics in regard to the mining industry. The Bureau of Mines should be empowered to collect statistics relating to the present status and requirements of the mining industry, so that they can be studied in relation to development and planning. Statistics in regard to the mineral markets in India and abroad and the trends in international mineral trade should also be collected.

(vi) Mineral trade: Some of the important minerals of India, e.g., mica, manganese and chromite, are worked largely for export. It should be the policy as far as possible, to convert minerals into finished or at least semi-finished products for purposes of export.

(vii) Low grade ores: More preliminary information than is now available is necessary in regard to low grade ores which are not at present economic. A comprehensive assessment of all data available from the commercial standpoint, and further exploration and research into problems of mineral dressing and processing are needed so that new development can be encouraged if and when justified or detailed information about the conditions under which the working of low grade and marginal deposits would become economic can be made available for use at the appropriate time.

The Plan lays down a programme based on the above principles and arranged in order of priority.

12. An assessment of the reserves of some important minerals

12. An assessment of the reserves, in the light of present and future requirements and an indication of the future programme of surveys and investigation to be conducted and the policy to be adopted in respect of the following minerals viz., coal, iron, ore, manganese ore, chromite, non-ferrous metals, bauxite, magnesite, mica, gypsum and sulphur, is given below.

Coal

13. **Distribution:** The main coal producing areas in India lie in the north east in the States of Bihar and West Bengal which contribute nearly 82% of the total output. The other producing areas lie in Madhya Pradesh, Orissa, Hyderabad and Assam. In addition, there are coal deposits of the tertiary age in several places in Assam, Kashmir, Bikaner, Cutch and Madras.

14. **Reserves:** In 1932, Sir Cyril Fox estimated the reserves of workable coal (in seams of 4 ft. and over, with an ash content not in excess of 20% on a moisture free basis and occurring within 1,000 ft. of the surface) at 20,000 million tons. Of this, the good quality coal (averaging 16% ash on a moisture free basis and occurring within 2,000 ft. of the surface) would amount to about 5,000 million tons, the bulk of which - about 5,000 million tons, - is in the coalfields of Bihar and West Bengal. These estimates referred to Gondwana coals. In addition, the reserves of tertiary coal were estimated to be of the order of 2,500 million tons.

15. **Coking coal:** Committees appointed from time to time have stated that reserves of good quality coal are limited. The latest of these, the Committee on the Conservation of Metallurgical Coal (1949) has, on the basis of a resurvey, estimated the reserves of coking coal to be of the order of 2,000 million tons distributed as follows:

	Workable reserves		Quantity extractable			
	Sel. grade	Grade I & II	With stowing		Without stowing	
	Sel. grade	Grade I & II	Sel. grade	Grade I&II	Sel. grade	Grade I & II
Working areas	981.4	1017.3	751.3	824.1	385.0	503.7
Virgin areas	329.6	444.6	263.7	355.3	164.8	222.2
Total:	1311.0	1461.9	1014.0	1179.4	549.8	730.9

Expressed in another way:

	<u>Million tons</u>		<u>Beneficiated: million tons</u>
Selected A	500	Coking coals with 15 per cent ash or less	500
Selected B	750	Coking coal with 15- 17 per cent ash or less	600
Grade I & II	1500	Coking coal with over 17 per cent ash but which on beneficiation will yield coal roughly to the extent of 2/3	1000
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Total	2750		Total 2100
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The Committee adds:

"This is the 'in situ' value. Probably we can expect a recovery with modern mining methods of 75%, say 1600 million tons. To this, we may blend one-fourth of weakly coking coal making the overall figure for coal available for coking 2,000 million tons. This figure, however, may well be halved unless precautions (notably compulsory stowing) are taken in mining and unless steps are taken to use blends containing weakly coking coals and to wash the inferior grade of coking coal".

While the reserves of coking coal have been estimated recently by a special survey, the data regarding reserves of other grades of coal are not based on detailed estimates worked out from reliable surveys. It is necessary, therefore, that detailed surveys of coalfields should be undertaken in conjunction with drilling and prospecting. This has been provided for in the Plan.

16. Though, speaking generally, the coal reserves may be considered fairly adequate for the plans of industrialisation of the country, the position in regard to coking and semi-coking coal is clearly unsatisfactory. The future policy should, therefore, be one of strict enforcement of the conservation measures recommended by the Committee of 1949.

17. Production: During the last three decades, coal production has nearly doubled and reached a record figure of over 34 million tons in 1951. Practically, the whole of this (97 to 98%) comes from the Gondwana coalfields and 85% is contributed by the coalfields of the Damodar Valley. The production of coal in India since 1939 has been as follows:

	<u>Million tons</u>		<u>Million tons</u>
1939	27.79	1945	28.97
1940	29.38	1946	29.27
1941	29.46	1947	30.07
1942	29.43	1948	29.82
1943	25.51	1949	31.44
1944	26.12	1950	32.31
		1951	34.43

18. Consumption: The figures available indicate that for the year 1950, the consumption was distributed as follows:

	<u>Estimated consumption</u> (Tons)	<u>Percentage of total production</u>
Railways	10,030,000	31.1
Iron and steel and brass foundries including coke ovens, engineering works and re-rolling mills	4,406,000	13.6
Consumption at collieries and wastage	3,645,000	11.3
Brick and tile factories including lime, potteries, cement works and refractories	3,037,000	9.4
Steam electric utilities	2,249,000	6.9
Cotton and woollen mills	1,701,000	5.3
States (minor consumers)	1,450,000	4.5
Exports	1,000,000	3.1
Jute Mills)	577,000)	3.2
Paper Mills)	457,000)	
Bunker)	430,000)	2.2
Steamer service)	430,000)	
Balance available for consumption in other industries	3,034,000	9.4
Total production:	32,507,000	100.0

The railways are the largest consumers, taking nearly 31% of the total production. Of this, about 40% is coking and semi-coking coal. The colliery consumption which includes consumption in boilers, power plants in the mine premises and domestic coke for the staff is of the order of 11% of the total production. It is stated that owing to lack of control, the colliery labour take coal from wherever they can get it without regard for the quality and quantity taken. It would appear, therefore, that with proper control by the management, it should be possible to save coal and minimise waste.

Of the total production of metallurgical grade coal, the railways consume about 40%, the iron and steel industry about 21%, about 13% is used for bunker and export and the balance is consumed by miscellaneous industries. The use of metallurgical coking coal for purposes other than for production of iron and steel and coking is unnecessary and the quantity used for these purposes should be replaced by coal of other quality. The Railways are already taking steps to reduce the use of metallurgical coking coal as speedily as possible. The switchover from metallurgical to non-metallurgical coal will, however, have to be effected without dislocating the industry. The metallurgical coal committee (1949) considered that it should be possible to reduce output without serious dislocation to the industry in stages in a five year period reducing the consumption every year by about 10% of the previous year's figure and also by planning an increased production of steel during this period.

The 1949 Committee estimated that the consumption of coking coal in iron and steel making (and in the coke ovens) would rise from 3.7 million tons in 1949 to 8 million tons when the expansion programme of the steel companies and the setting up of two proposed steel plants were completed. This estimate of 8 million tons is now found to be optimistic. The expansion of the iron and steel industry envisaged in the plan and the proposed new pig iron plant will need an additional 1.8 million tons of coking coal by 1957-58, i.e. a total of 5.5 million tons leaving a surplus of this grade of coal not needed for essential purposes.

19. With these considerations in view and having regard to the need for conserving coking coals, the following programme was recommended in 1950 by the Planning Commission:-

(i) Production of metallurgical coking coal may be maintained at the present level but under no circumstances should new fields be developed. The closing of mines producing coking coal is recommended only in cases where they can be reopened without large capital outlay.

(ii) Stowing, blending and washing should be enforced by law. It is believed that enforcement of stowing will lead to reduction in output of coking coal.

(iii) Selective mining should be stopped effectively.

(iv) The replacement programme, i.e. for replacement of coking by other coals, should be taken up in two stages. As an initial step, the Selected 'A' & 'B' coking coal used in the railways and for other non-essential purposes should be replaced by non-metallurgical coal. When this programme has been completed, the replacement of the grades I & II coking and semi-coking coal should be taken up.

A programme for increased production of non-coking coal to replace selected 'A' & 'B' grade coal used for non-essential purposes will have to be drawn up by the Coal Board.

(v) So long as coking coal produced in the country is in excess of the quantities needed for the iron and steel industry and coking, such excess production may be exported to earn essential foreign exchange under special agreements negotiated with other countries.

In other words, the replacement programme for each year will be based on (a) the exports expected during the year, and (b) the demand for coking coal for essential purposes.

The working conditions of individual metallurgical coal producing collieries have to be examined technically for taking steps to conserve such coal.

20. Development Programme.

(i) Survey: Of the total of about 100 coalfields in India, only a few have been investigated to a depth of 1,000 to 2,000 ft. Though working collieries are found widely spread over all the coalfields, the full extent of the reserves of these fields are not known. It is, therefore, necessary to have all the fields geologically mapped and the resources estimated by the Geological Survey of India in collaboration with the Bureau of Mines and provision has been made in the Plan in this respect. It is also necessary that a comprehensive and detailed survey should be undertaken of working collieries in a manner similar to what was done in assessing the resources of coking coal in connection with the enquiry of the metallurgical coal committee. Such a survey will provide reliable estimates of the reserves available in working collieries and virgin areas. A physical and chemical survey of the nature and quality of coal seams in the various coal-fields should also be undertaken.

The Geological Survey of India and the Indian Bureau of Mines should undertake detailed mapping and investigation of the following fields:

- (i) Korba and Rewa
- (ii) Talcher
- (iii) Kanhan Valley
- (iv) Karanpura
- (v) Wardha and Godavari Valley

Collection of full data relating to the sand resources of the Damodar, Barakar and Ajay rivers for purposes of stowing.

Investigation of resources of other suitable stowing materials in and around the coalfields.

(ii) Classification of Coal: The Coal Grading Board set up on the recommendations of the Indian Coal Committee (1925) drew up a classification of Indian coals mainly for purposes of export. The Coal Commissioner in 1944 drew up a

revised classification applicable to all coals. A revised scientific classification should now be introduced based upon calorific value, ash content, moisture and coking property. The classification should aim mainly at fixing the types and grades suited for various purposes and thus depend upon uses to which the coal is to be put. This question should be referred to a Technical Committee of experts familiar with Indian coals and with scientific classification in other countries. So far, no international classification of coal is available, but the International Standards Organisation has constituted a Technical Committee to coordinate the various national standards and to evolve suitable forms of classification to facilitate the international exchange of information and a comparison on discussions of data relating to coal and its utilisation. Such a use classification will assist in controlling distribution and allocation of coal for different industries and also make it possible to buy and sell in accordance with specifications.

(iii) Appraisal of consumption: Though it is not possible to indicate precisely what the consumption will be by the end of the period of the Plan, a broad indication may be given of the order of increase in consumption by 1955-56. The additional demand is expected to be of the order of about 6 million tons - 4 million tons for the industrial development envisaged, 1 million tons for the railways and 1 million tons for additional thermal power generation and other miscellaneous purposes. Judging by recent trends in production, this additional demand can be met by the mining industry.

(iv) Re-organisation of transport: The Railways at present transport more than 90% of the coal produced in the country and there are no navigable waterways to carry coal cheaply to other parts of the country. Some coal is shipped from Calcutta by coastal steamers to coastal areas. But it has been found that the sea freights are substantially higher than railway freight. The use of coal by industries is now largely a matter of easy availability coupled with price. But beyond a short distance from the coalfield the pit's mouth price has no

influence on the demand as the freights equal or exceed the cost of coal and it becomes advantageous to the consumers to use the best grade he can procure. If the use of coal is to be rationalised, it would be necessary to supply suitable coals from the nearest coalfields. In recommending a programme for the replacement of coking coal used for non-essential purposes by non-coking coal, the Commission had two objects in view:

- (i) stepping up production of non-coking coal from existing collieries in Raniganj, Ramgarh and Karanpura coalfields; and
- (ii) stepping up production from outlying coalfields like those in Korea, Rewa, Hyderabad and Assam and developing the Korba coalfield in Madhya Pradesh with a view to rationalise production and distribution. The transport facilities required to develop these fields have been worked out and are estimated to amount to about Rs.850 lakhs.

The Working Party for the Coal Industry has made similar recommendations to ease the difficult supply position in South India, Western India and Cutch and North Bihar.

21. South Arcot Lignite: Preliminary investigations indicate the existence of fairly large reserves of lignite over an area of at least 23 sq. miles. To determine the workability of the deposits, a programme of exploratory quarrying has been drawn up and this will be taken up shortly. The large-scale development of the deposits will have to await the results of the exploratory operations.

22. Railway Collieries: A programme of development of some of the railway collieries has been drawn up. The programme includes mechanisation, sand stowing and opening up of new seams and new areas.

23. Labour: The coal mining industry employed in 1951 about 340,000 workers, an increase of 58% over that in 1941 (214,244). During the same

period, production registered an increase of 32% (from 25.89 million tons to 34 million tons). There has thus been a decline in the output per man year from about 127 tons in 1941 to a little over 100 tons in 1951. (The figures quoted above refer only to coalfields coming under the Indian Mines Act). Coal mining in India is mostly a manual operation and very little machinery is used. Output per man shift, which may be taken as an index of the efficiency of the worker, is low in India. The suggestions made in this respect by the Working Party for the Coal Industry, viz., mechanisation, proper lay out and planning of future mines, introduction of piece-rate system of payment and linking of bonus to the unit of production (instead of to attendance as at present) are being examined by Government.

24. Research: Except isolated studies by individual producers or consumers no organised research on problems connected with coal mining or utilisation has been undertaken in India so far. The Fuel Research Institute should undertake research on carbonisation and production of coke, design of coke ovens, washing and blending of coal and desulphurisation of coal. The programme of investigation is set out in detail in paragraph 69(1).

As laboratory research has to be supplemented by pilot and larger scale experiments for the results of research to be of an industrial value, the Fuel Research Institute should be adequately financed for these purposes. Provision has been made in the Plan for this.

25. Control and development of the Coal Industry: The Planning Commission in a special paper prepared for the Government invited attention to :

(i) the extreme urgency of conservation measures; and

(ii) the need for setting up a machinery which will bring about the adoption of a co-ordinated policy in regard to all questions relating to coal.

After a review of the whole position, the Planning Commission made the following recommendations:-

- (i) legislation for enforcement of stowing for conservation in addition to safety, washing and blending should be assigned the highest priority in the interest of conservation of national resources of high grade coking coal;
- (ii) a consolidated cess should be levied in place of the existing separate cesses, the yield of which should be allotted for safety and conservation measures, labour welfare, research and other purposes, according to requirements;
- (iii) a machinery - a Coal Board - should be set up which will examine all questions relating to coal from a comprehensive point of view and make recommendations to the Ministries concerned and thus assist in the evolution and execution of a co-ordinated policy.

These recommendations involve a single legislative measure for coal which would provide for the purposes indicated above.

It is also suggested that if practical, convenience required it, action might be taken in stages; firstly, legislation for enforcing conservation measures; secondly, setting up a Coal Board; and thirdly, legislation for the consolidation of the cesses.

20. Action taken by Government: Taking into consideration the recommendations of the Planning Commission, the Government of India promulgated the Coal Mines (Conservation and Safety) Ordinance, 1952, which has been subsequently passed by Parliament and issued as the Coal Mines (Conservation and Safety) Act, 1952. Under the Act, the Central Government will have the following powers:

- (i) to adopt measures for maintaining safety of coal mines or conservation of coal;
- (ii) to delegate powers to a Coal Board set up under section 4 for dealing with problems of the coal industry;
- (iii) to levy and collect excise duty on all coal and coke, raised or manufactured and despatched and an additional excise duty on all coking coal raised and despatched;

- (iv) to impose and collect import duty on all coal imported;
- (v) to constitute Advisory Committees to advise the Government in any matter connected with the administration of the Act;
- (vi) to frame rules for safety in coal mines; conservation of coal; levy and collection of excise duty, imposition and collection of import duty, constitution of the Coal Board and its functions; administration of the Coal Mines (Safety and Conservation) Funds, constitute Advisory Committees and committees of inquiry to inquire into references arising from out of an order passed under sub-section (3) of section 13 of the Act;
- (vii) to provide penalties for contravention of the provisions of this Act.

The Central Government will in each year pay to the Board a sum not exceeding the excise duty collected (the amount to be determined in such manner as may be prescribed). This amount will be credited to a fund called the Coal Mines (Safety and Conservation) Fund, which will be operated by the Board to meet among other things:

- (a) expenditure on the administration of the Board;
- (b) grant of stowing materials or other assistance for stowing operations;
- (c) prosecution of research work connected with safety in coalmines or conservation and utilisation of coal; and
- (d) grants to State Governments or research organisations etc. of money in aid of any scheme approved by the Central Government.

The Act repeals the Coal Mines Safety (Stowing) Act, 1939, and will take over the amount lying to the credit of the Coal Mines (Stowing) Fund as on the 8th January, 1952 and transfer it to the Coal Mines (Safety and Conservation) Fund.

In pursuance of section 4 of the Act, the Central Government have established a Coal Board consisting of a Chairman and three members and have prescribed the rates of excise duty leviable on coal and coke and the additional excise duty leviable on hard coke.

Iron ore

27. ~~Distribution:~~ India's resources of iron ore are of large dimensions. Ores of good quality occur in Singhbhum district of Bihar; Bonai and Mayurbhanj in Orissa; Chanda, Drug and Bastar districts of Madhya Pradesh; Salem, Tiruchirapalli and Bellary districts of Madras; Ratnagiri district of Bombay and the adjoining area of Goa; and in the Shimoga, Kadur and other districts of Mysore. There are smaller deposits in Almora district of the U.P.; PEPSU; Kurnul and Cudappah districts of Madras and the coalfields of West Bengal, while deposits of lower grade are scattered over different parts of the peninsula.

28. Reserves: The ores in most cases contain a high percentage of metallic iron (over 60%) and are generally low in phosphorus and sulphur. Reserves of good quality iron ore (containing over 60% iron) are estimated to be over 10,000 million tons, the bulk of which is concentrated in Bihar and Orissa. Except the Bihar and Orissa occurrences, the deposits are not situated close to supplies of coking coal.

The ore deposits particularly those of Bihar and Orissa have been investigated in a general way by the Geological Survey of India, but except in the case of a few of them - those worked by the steel companies - the investigations have not been sufficiently detailed to prove their quality and quantity. The present estimates are only in the nature of a broad indication of the magnitude of the reserves. A proper assessment of the quality and quantity of these deposits is necessary and it is suggested that the deposits in the following areas may be investigated in detail:

- (a) Bonai and Keonjhar (Orissa)
- (b) Drug and Chanda (Madhya Pradesh)
- (c) Bastar (Madhya Pradesh)
- (d) Ratnagiri, (Bombay)
- (e) Sandur (Madras)

29. Production, consumption and demand: The average annual production of iron ore during the past few years has been varying between two to three million tons, the chief producing regions being in the iron ore belt of Bihar and Orissa, and Mysore. Mysore's share in production has been varying between 40,000 and 60,000 tons and practically all the rest has come from Bihar and Orissa. These figures may be taken as an index of the present capacity of the two regions to utilise iron ore for the production of pig iron. Most of the ore is utilised by the three iron and steel plants at Tatanagar, Asansol (Hirapur) and Bhadravati, while a small quantity has been exported.

Production of iron ore,
pig iron and steel

		Iron ore (Figures in thousand tons)	Pig iron	Steel
1929-33	average	1779	1119	443
1931-38	"	2490	1495	667
1939-43	"	3063	1868	968
1944-48	"	2364	1450	964
1949		2809	1589	1012
1950		2965	1646	970
1951		3657	1802	1070

The average annual production of pig iron in India is of the order of 1½ to 2 million tons, and of steel about 1 million tons. Production does not meet the demand in full and the gap between production and demand is filled to some extent by imports from abroad. Both iron and steel have been in short supply in the war and post-war years:

Imports of iron and steel
Value in Rs(lakhs)

		Iron & Steel	Cutlery	Hardware	Machinery
1939-40 to					
1941-42	average	579.6	21.5	217.4	1287.5
1942-43 to					
1944-45	"	238.4	14.0	107.4	1187.9
1945-46 to					
1947-48	"	577.8	80.7	408.7	3573.1
1948-49*		1146.7	42.9	595.7	7674.3
1949-50*		1512.5	52.5	613.9	10919.4
1950-51*		1324.9	28.1	456.5	3282.6

* Figures inclusive of imports on Government Account.

The estimated demand (1955-56) for pig iron and steel is shown in the following table together with the present capacity and the schedule of expansion contemplated.

(Figures in thousand tons)

Present capacity	Estimated demand 1955-56	Additional capacity required	Additional capacity under consideration	Difference between columns 3 and 5
1	2	3	4	5
Pig iron:				
1,878	2,735	857	685	172
Steel				
1,050	2,500	1,450	320	1,130

The expansion of production of pig iron and steel envisaged above would involve expansion in the production of raw materials as shown below:

	Present requirements (figures in thousand tons)	Estimated requirements
Iron ore	2,675	4,000
Coke and Coal)	2,365	3,800
Manganese ore	70	100
Limestone	572	995

The increased production of the abovementioned raw materials would require provision of necessary transport facilities for assembling these raw materials and for the movement of manufactured products.

30. Exports: There has been a small export trade in iron ore, as indicated below :

Year	Tons
1940-41	13,300
1941-42	
to	Nil
1944-45	

1945-46	810
1946-47	20
1947-48	-
1948-49	-
1949-50	4,300
1950-51	84,513
1951-52	280,102

Export of iron ore has been fluctuating. In recent years, the export demand for iron ore has increased but limitations of transport have restricted the extent to which this demand can be met. The long-term policy is to expand pig iron production to meet internal demand as well as, if possible, for the export market, instead of permitting exports of ore.

Manganese Ore

31. Manganese is an important material in industry as the metallurgy of iron and steel is dependent upon it for smelting processes. India has fairly large deposits of manganese ore and is one of the chief producers of the mineral. Other important producers are U.S.S.R., Brazil, South Africa and the Gold Coast. Except USSR, none of the other great industrial countries possess manganese deposits of importance and deposits in India therefore assume special importance.

32. Distribution of deposits: The chief manganese ore deposits are concentrated in a few regions, viz., the districts of Chhindwara, Nagpur, Balaghat and Bhandara in Madhya Pradesh; Jhabua in Madhya Bharat; Bellary (Sandur) and Visakhapatnam districts in Madras, Shimoga in Mysore; Panchmahals and certain areas in Bihar and Orissa. Of these, the largest and the richest are those of Madhya Pradesh yielding ores which are generally high in manganese content.

/districts
of Southern
Bombay and
a few
scattered

33. Reserves:—The ore bearing region in Madhya Pradesh extends over a length of more than 100 miles from Bhandara through Balaghat and Nagpur to Chhindwara district. The ore bodies are often of large size, but their extension in depth is not

known. This lack of information is due to the comparatively small amount of underground mining that has been carried out and the almost complete lack of drilling to determine the depth. The ores are hard and fine grained and usually high in manganese content, which is over 49% in most of the ores from Bhandara and Balaghat districts. The phosphorous and iron contents are variable and the latter is usually high - rather too high for the ore to be used straight in blast furnaces for high grade ferro-manganese production. The deposits in Sandur, Mysore and southern Bombay are of low grade and of comparatively small magnitude. The Singhbhum deposits are of small size and irregular nature. Numerous small sized deposits occur in Gangpur, Keonjhar, Bonai, Kalahandi and Koraput areas in Orissa. The quality varies from high to low grade but they possess an advantage in their proximity to the iron and steel centres. Besides, these regions possess a certain amount of low phosphorous, low iron manganese ore and a certain quantity of ore rich in peroxide for use for chemical purposes.

There are no reliable estimates of reserves available for any of the deposits. One of the deposits in Madhya Pradesh worked by the Central Provinces Manganese Ore Co. has been proved to contain about 5 million tons of high grade ore. The deposits in Madhya Pradesh were estimated a few years ago to contain about 10 million tons of high grade ore and about 3 million tons of lower grades. On the whole, it may be assumed that the reserves of high grade ore are of the order of 15 to 20 million tons and that of lower grades will amount to about three times the above quantity, but these figures are only approximate.

34. Production: Mining of manganese began in 1891 and developed rapidly during the early years of the present century. Annual production for the last 40 years has averaged about 600,000 tons and exceeded the million ton mark in three years. Except for a small fraction of the total production consumed by the Tata Iron and Steel Co. almost the entire production is exported in the raw form. So far, about 30 million tons of ore - much of it high grade - have been exported. Figures of production and export of manganese during the last decade are given in the statement below.

Year	Production	Domestic consumption	Exports
1939-43 average	671,471	74,043	599,616
1944-48\ "	362,678	56,495	353,554
1949	645,825	79,264	613,907
1950	882,929	69,325	808,221
1951	1,283,929	88,867	952,000

35. Consumption: Domestic consumption is mostly confined to the steel industry which uses ore for production of ferro-manganese required for steel plants. The table above shows the consumption of manganese ore by the iron and steel industry. A certain amount of manganese ore is consumed in the glass industry and also in the manufacture of dry cells and in the chemical industry. Consumption of manganese ore in industries other than steel are not large.

Domestic consumption of manganese ore will go up during the next few years as a result of expansion envisaged in respect of iron and steel production and other industries. It is estimated that domestic requirements will go upto 100,000 tons by 1957-58. There would be no difficulty in meeting the expanded demand.

36. Export policy: As stated above, India occupies a position of importance as world supplier of this mineral. Taking into account the absence of definite information regarding the extent of reserves and in order to meet the requirements of an expanding iron and steel industry, a policy of strict conservation of reserves is called for. Export control was brought into force late in 1948 and ceiling limits were placed for both high and low grade varieties. Later, for special reasons, Government decided on a policy of export of high grade ores to the extent of 1 million tons per annum for a temporary period. This policy will be re-examined if it is found by detailed geological investigations that the reserves of high grade ore prove to be smaller than at present estimated.

37. Recommendations.

(i) Survey and appraisal of resources: As already pointed out, there are no reliable estimates available of India's resources of manganese ore. It is, therefore, necessary to institute an immediate investigation of all the deposits indicated below:

- (a) areas in Madhya Pradesh
- (b) Jamda, Rayagada and Kalahandi (Orissa)
- (c) Panch Mahals (Bombay)
- (d) Ratnagiri, Dharwar and North Kanara (Bombay)
- (e) Mysore
- (f) Visakhapatnam and Sandur (Madras)

(ii) Manufacture of ferre-manganese: The aim should be to convert the ore into ferro-manganese and manganese chemicals for purposes of export instead of exporting it in the raw condition. At present only a small percentage of the total production of manganese ore is converted into ferro-manganese for domestic consumption in the steel industry. The Tata Iron & Steel Co. produce ferro-manganese in the blast furnace for their own consumption. The average production of ferro-manganese during the last ten years is about 13,000 tons a year. Plans for setting up further ferro-manganese plants are under consideration.

(iii) Beneficiation: It is believed that India has abundant resources probably of the order of 70 to 80 million tons of low grade ore, i.e. those containing less than 42% manganese. There is only a restricted market for such ores. Investigations in regard to beneficiation of such ores should be undertaken by the Bureau of Mines in collaboration with the National Metallurgical Laboratory. For this, provision has been made in the Plan. Investigation should also be undertaken for the recovery of manganese ore in the dumps and effective measures undertaken to control and if possible, eliminate waste of ore in mining.

Chromite

38. Distribution and reserves:

Chromite is an important strategic mineral of which India has moderate supplies. The chief chromite deposits in India are situated in the Singhbhum district (including Seraikela) of Bihar; the Mysore and Hassan districts of the Mysore State; the Ratnagiri and Sawantwadi areas of

Bombay, the Krishna and Salem ~~districts of Madras~~ and the Keonjhar district of Orissa. There are also deposits near Dras in Ladakh, Kashmir State, but these are practically inaccessible. Those in Manipur (Assam) and the Andaman Islands will have to be investigated further before their economic importance can be ascertained.

No reliable estimates of reserves are available but the following figures may be given as general indications:

Mysore	135,000 tons
Bombay	67,000 tons
Orissa	200,000 tons (20' depth)
Salem (Madras)	200,000 tons (20' depth)
Krishna	Not known.

39. Production and export: The following table gives figures of production and export of chrome ore from India:

		Production (Tons)*	Export, (Tons)*
1939-43	average	47,524	41,901
1944-48	"	34,552	17,426
1949	"	19,416	6,382
1950	"	16,729	3,864
1951	"	15,802	8,838

*The figures include output from Baluchistan upto 1947.

It will be noticed that a major part of the production is being exported, practically all of it being high grade ore containing 46% and above of chromic oxide. Domestic consumption is mostly confined to the manufacture of refractory bricks (chromite bricks) while smaller quantities are used for the manufacture of chrome chemicals. There has been no attempt to manufacture ferro-chrome or chromium alloys except on a very small scale by Tatas.

Export of chromite which was unrestricted till 1948 was brought under control and a ceiling of 10,000 tons was prescribed. In view of the absence of definite information regarding the extent of the reserves, export of high grade ore has been totally banned since June 1951 and low grade ores are being licensed upto a maximum of 10,000 tons a year. Even this policy should be reviewed as soon as more definite information can be gathered about the reserves.

40. Recommendations:

A programme of detailed mapping (and if necessary, drilling) should be undertaken in the following chromite bearing areas:

- (a) Singhbhum (Bihar)
- (b) Baula Hills (Orissa)
- (c) Ratnagiri (Bombay)
- (d) Krishna (Madras)

As reserves of high grade ore available in the country are limited, the Bureau of Mines in conjunction with the National Metallurgical Laboratory should undertake research on the beneficiation of low grade chrome ores from various parts of India.

Non-ferrous metals

41. India's reserves of non-ferrous metals are inadequate with poor resources of copper, lead and zinc and practically no deposit of tin. The following table gives the annual production and consumption in 1950

	Production	Consumption	Percentage of deficiency	Value of imports Rs.lakhs
Copper	6,614	48,391	84%	900
Zinc	nil	33,400	100%	523
Lead	629	15,624	96%	206

The cost of imports of these three metals amounted in 1950 to Rs. 16 crores.

Copper

42. Distribution of reserves: The most important deposits of copper are :-

found in the Singhbhum copper belt (Singhbhum district, Bihar) about 80 miles in length. Other deposits are in Bhotang near Rangpo (Sikkim); Khetri in Jaipur and Daribo in Alwar (Rajasthan); Barafunda in Hazaribagh and Barukhi in the Santhal Pargana (Bihar); Belligudda in Chitaldrug (Mysore) and in Almora and Tehri-Garhwal (U.P.) There are also smaller deposits like those of Gani in Kurnool, Vinukonda in Guntur and Garimpenpenta in Nellore (Madras); Miwar and Sleemanbad in Jubbulpore and Karamsara in Balasat (Madya Pradesh); in Kangra in the Punjab and in Jammu & Kashmir. No estimates are available of the reserves of copper ore in the deposits mentioned above except in the case of Singhbhum.

There is only one copper producing agency in India, viz., Indian Copper Corporation Ltd., with its mines at Mosaboni in the Singhbhum copper belt of Bihar. Chalcopyrite is the chief copper ore worked here.

The following table gives the production of copper ore and copper metal from the Singhbhum deposits during the last ten years:

Production of copper ore and refined copper

Year	Copper ore		Refined copper (Tons)
	Quantity (Tons)	Value Rs. (lakhs)	
1939-43 average	373,244	59.9	6,236
1944-48	330,674	70.1	6,066
1949	329,303	110.5	6,390
1950	360,308	120.2	6,614
1951	369,057	194.0	7,083

Lead and zinc

43. Lead and zinc deposits occur sporadically in several places of which the more promising are those at Zawar in Mewar and Chauthka-Barwara in Jaipur district. Another lead-zinc deposit is in the Riasi district of Kashmir. Of these, the deposits at Zawar were opened up during the last war by the Geological survey of India and have since been leased to the Metal Corporation of India who began operation in 1945. The total production of

lead concentrates till 1950 amounted to nearly 6,500 tons. There has also been a small but intermittent production from the deposits in Jaipur, viz., 42 tons from 1945 to 1948 (inclusive). The Metal Corporation of India has recently been granted a loan by the Industrial Finance Corporation to develop the deposits and to make arrangements for stepping up production of lead.

No arrangements have yet been made to smelt and recover the zinc. A committee has recently been set up to examine the question of setting up a zinc spelter industry in the country. The largest use of zinc in the country is in the manufacture of galvanized iron sheets. As the yield from Zawar may be comparatively small, even when the deposits are fully developed, it would be desirable to investigate the possibility of replacing zinc and developing an alternative coating for steel sheets.

44. Recommendations

As the present production of copper barely amounts to 12 to 15 % of India's consumption, detailed geological and prospecting operations should be undertaken in the regions indicated below :

- (a) The Singhbhum copper belt (Bihar)
- (b) Khetri in Jaipur (Rajasthan)
- (c) Daribo (Alwar, Rajasthan)
- (d) Hazaribagh (Bihar)
- (e) Gani (Madras)
- (f) Almora and Tehri-Garhwal (U.P.)

Several small occurrences of lead-zinc ores have been noted in several places scattered over the country, and the possibility of some of them containing workable quantities should be investigated. Attention should also be paid to the reported occurrence of tin in the Hazaribagh district of Bihar.

Bauxite

45. Distribution and reserves:

Bauxite, the chief ore of aluminium, is

XXVII

fairly widely distributed in India. The most important occurrences are found in the States of Bombay, Madhya Bharat, Madhya Pradesh and Bihar. Some are also found in Orissa, Madras and Kashmir.

No reliable estimates of the reserves are available, though Sir Cyril Fox of the Geological Survey of India considered that the total reserves would be of the order of 250 million tons of all grades. Of this, high grade reserves would probably amount to 35 million tons distributed as follows :-

Madhya Pradesh	..	15.10	million tons
Eastern States (Orissa)	..	8.58	" "
Bihar	..	5.23	" "
Bombay	..	3.23	" "
Madras	..	2.00	" "
Kashmir	..	1.00	" "
Bhopal	..	.25	" "

46. Production and consumption

The following table shows the production of bauxite:

Year	Quantity (in tons)
1939-43 average	14,476
1944-48 "	15,035
1949	42,541
1950	64,399
1951	67,047

In the last two years, the domestic aluminium industry has been consuming annually about 20,000 tons of bauxite, which is less than 50% of the country's production. The greater part of the production is being used in the manufacture of alum, high alumina cement, refractories and in the refining of petroleum. Metallic aluminium was first produced in India in 1943 but from imported alumina. Since then two companies have been producing aluminium and the alumina required for its manufacture is now produced from Indian bauxite. The two companies used in 1951 a total of about 19,000 tons for this purpose. The output of metallic aluminium since 1943 is given below:

Year	Tons	Year	Tons
1943	1272	1948	3368
1944	1723	1949	3491
1945	2254	1950	3594
1946	3248	1951	3849
1947	3223		

The production meets only a part of the country's demand as will be seen from the fact that during the last three years, imports have averaged 10,000 tons valued at Rs. 2½ crores a year. The consumption indicated by these figures is probably an underestimate of the country's requirements. It is estimated that the demand in the next few years would be of the order of 15,000 to 20,000 tons per annum. Both the manufacturing units have schemes for expansion of their capacity by 3,000 tons and there are proposals for an additional reduction plant with a capacity of 10,000 tons to be located in Orissa. These expansions, when they take place, will mean a demand of 45,000 tons of bauxite by 1955-56; this can be easily met by the industry.

47. Recommendations: (i) The deposits should be carefully investigated so that reliable estimates of reserves can be made, and the characteristics of the ore from each large deposit determined.

(ii) The use of a bauxite for the manufacture of refractories and abrasives should be examined in the laboratory by the Bureau of Mines in collaboration with the Central Glass and Ceramic Research Institute.

Magnesite

48. Large deposits of magnesite, which is used in the manufacture of magnesium salts, metallic magnesium and refractory bricks are known to occur in a number of places in Salem (Madras); Hassan, Mysore (Mysore); Almora (U.P.); Coorg; Idar (Bombay); Dungarpur (Rajasthan); and Singhbhum (Bihar). Of these, the chief producing areas are Salem, Hassan and Mysore.

XXVII

The deposits in the Salem district have been estimated to contain over 90 million tons within a depth of 100 ft. from the surface. The Almora deposits are supposed to contain a minimum of 20 million tons. With regard to other deposits no information is available.

The output and export of magnesite during the last few years from Salem and Mysore are given in the following table:

Year	Output		Export	
	Qty(Tons)	Value(Rs.)	Qty(Tons)	Value(Rs.)
1939-43 average	42,885	3,26,958	11,435	9,49,913
1944-48 "	42,983	5,85,330	10,549	9,67,150
1949	90,564	15,53,456	37,099	24,84,012
1950	52,859	10,87,349	16,465	24,37,114
1951	117,071	17,78,134	46,409	43,94,533

Only a part of the output is used in the manufacture of refractory bricks for steel works and a considerable quantity is exported. There is scope for using magnesite in the manufacture of oxychloride cement and as a raw material for the manufacture of metallic magnesium. Research should also be undertaken with a view to utilizing the low grade magnesite and chromite rock for refractories instead of high grade magnesite now used for the purpose.

Mica

49: Mica is a mineral of strategic importance because of its perfect cleavage, flexibility, infusibility, high heat and electrical insulation and high dielectric strength, a combination of qualities not possessed by any other natural material. The chief demand for mica comes from the electrical industry, while in powder form after grinding to a suitable size, it is also used as a 'filler' in various industries.

India is one of the important sources of sheet (block) mica producing between 70 and 80 % of the total block mica output of the world. The splitting of mica is done by hand and has so far defied attempts at mechanisation on a commercial scale and India holds a dominant position in the "splittings" trade. The mica industry of the country depends largely on the export market, the domestic consumption being small.

Commercially, two varieties of mica are important - muscovite or potash mica and phlogopite or magnesian mica. Most of the deposits in India produce the muscovite variety; phlogopite is available in comparatively small quantities from a few places mainly in Travancore. Both the varieties are used for electrical insulation, the best qualities being used for high tension electrical work.

50. Distribution: The principal mica deposits are concentrated in three regions, viz., Bihar, Rajasthan (including Ajmer-Merwara) and Madras, while in recent years, its occurrence has been reported from other parts of India also. In Bihar, which is the largest producer, they are found in the districts of Hazaribagh, Gaya and Monghyr, forming what is called the "Bihar mica belt". This region is about 60 to 80 miles long and about 12 to 16 miles wide and produces the well-known "ruby" mica which is in great demand all over the world. Bihar produces about 60% of the Indian output. Sheet mica from this region is noted for its large size and flatness.

The deposits in Rajasthan occur in Ajmer-Merwara, Udaipur, Kishangarh, Jaipur and Tonk. Most of these deposits are still in an early stage of development and are likely to become more important when intensive prospecting and mining are undertaken. At present, Rajasthan is responsible for about 25% of the Indian production. Most of the production from Rajasthan is sent to Bihar to be split and marketed.

Mica deposits are found in Madras at several places, the most important being those of the Nellore district where there is a "mica belt" about 40 miles long and 5 to 10 miles wide. The greater portion of Madras production is of the variety known as "green" mica. Smaller deposits occur in Visakhapatnam, West Godavari, Salem, Nilgiri, Madura and Coimbatore districts and in the States of Travancore and Mysore.

On account of the irregular disposition of the mineral in the rock, it is not possible to indicate the size of the reserves of mica in any of the above mentioned regions. Most of the workings are either open cast quarries or shallow mines and the deepest mica mines in Bihar and

XXVII

Madras are stated to be only about 600 ft. deep. Judging by present indications, it can be safely stated that there are untapped reserves which will run for many decades at the present rate of production.

51. Production and export: Statistics of mica production are not quite satisfactory and export figures are always in excess of production figures. The reasons for this wide discrepancy between the production and export figures may be explained as due to:

- (1) export trade in stolen mica which does not appear in the returns of production;
- (2) export of mica recovered from dumps, scraps and waste which are not reported;
- & (3) sale of crude mica by small producers direct to dealers who do not submit any returns.

Since the bulk of the production is exported, export figures may be taken as a more reliable index of the output.

The annual value of the mica exports during the last decade was of the order of Rs. 1½ to 3 crores. This has gone up during the last two years as a result of large purchases by the Government of the USA for stockpiling purposes. The quantity and value of mica exported from India are given below :

	Blocks	Splittings	Total (including waste and scrap)
Average of) '000 Cwts 26.9		103.9	153.8
1940-41 to, Rs. (lakhs) 110.0		149.9	261.0
1946-47			
1947-48 ('000 Cwts 14.9		174.8	255.2
Rs. (lakhs) 128.0		433.5	565.1
1948-49 ('000 Cwts 12.1		200.1	340.2
Rs. (lakhs) 83.6		502.8	593.7
1949-50 ('000 Cwts 8.8		207.5	297.7
Rs. (lakhs) 95.2		584.0	684.5
1950-51 ('000 Cwts 20.6		238.6	383.4
Rs. (Lakhs) 177.4		773.7	958.5

It will be seen from the above table that splittings form the larger part of the export and have during the last two years contributed more than 80% of the value of exports. This increase in quantity and more especially in the value of exports has been occasioned by the stockpiling by the U.S.A. and cannot be taken as an index of the normal demand.

52. Mining: Mica mining is mostly a small scale operation and as indicated earlier, most of the workings are open cast quarries or shallow mines. Of a total of about 600 mica mining lessees, the majority are people with limited financial resources, who have to sell their mica to middlemen immediately after it is mined in order to obtain money to continue their mining operations. There has, therefore, been no incentive to adopt systematic mining operation or to employ qualified managers and this results in considerable wastage. Steps are being taken by the Ministry of Labour to make compulsory the appointment of qualified managers in mica mines also.

53. Grading and classifications: Mica is used in industry practically in its natural form except for trimming, splitting and cutting to shape. Mica splittings and their films are, however, made into sheets or applied to cloth with a suitable binder and pressed into suitable shapes, the former being known as micanite. The mica thus prepared is graded according to size and classified according to quality. While the measurement of electrical properties and grading of mica can be done mechanically, the quality classification is to a large extent a matter of judgment. Though the mica trade is conducted on the basis of samples, the personal factor involved in quality classification frequently leads to strong difference of opinion between the buyer and the seller. To obviate this, a system of international standards and machinery for arbitration would be needed and the Indian Standards Institution have drafted one such, which has to be approved by the International Standards Institution (since the mica industry is almost entirely dependent on export). It is expected that these standards will be finalised shortly at a meeting of the International Standards Organisation.

XXVII

54. Utilisation: No figures relating to consumption of mica in India are available; but on a rough guess it may be placed at about 7,000 lbs. a year. This is shared by railways, electric supply undertakings and iron and steel companies. The power projects under construction and those under contemplation will increase the demand for mica splittings and mica blocks if they lead to an extension of the manufacture of electrical machinery and equipment. Even this increased demand will, however, be a small fraction of the total production and there will be no difficulty in meeting it.

Large quantities of micanite or built-up mica are consumed in the electrical equipment industry, bulk of this ^{and the} has to be imported as domestic production is very negligible. The possibility of setting up an adequate micanite industry which would meet the country's requirements of this material remains to be investigated.

A large quantity of mica is thrown away as waste in the mining and trimming of mica and dumped near the mines and factories. It is possible to reclaim this by grinding it by the wet or dry process and then using the ground mica as a 'filler' in various industries. The possibilities of setting up a mica grinding industry should be explored.

55. Recommendations: (i) The mica-bearing areas in Bihar and Madras are fairly well-known, but no detailed geological maps have yet been made. Detailed geological work is likely to bring to light new occurrences particularly in Rajasthan.

(ii) The Bureau of Mines in collaboration with the National Physical Laboratory should undertake research for studying the properties of mica produced from different areas and also for the classification of mica on its electrical properties. Investigations may also be directed towards devising an economic method for the manufacture of micanite and for grinding mica.

(iii) The possibility of setting up of a Central Marketing Board for mica as recommended by the Mica Enquiry Committee (1945) should be explored. This will reduce complaints by foreign purchasers about the quality of mica shipments.

56. Gypsum ranks next to coal and iron as a mineral of great importance in the industrial economy of the country. Before the second world war, it was used mostly as a raw material in the production of cement and plaster of Paris. It has now gained in importance as a raw material in the manufacture of ammonium sulphate, an important fertiliser. It can be used as a source of sulphuric acid. With the setting up of a fertiliser factory at Sindri, increasing attention is being paid to deposits available in India.

57. Distribution: Gypsum deposits are known to exist in several parts of India. The more well-known-gypsum bearing regions are in Rajasthan and in South India, but smaller deposits occur also in Tehri-Garhwal, Himachal Pradesh and parts of Western India. The latter have not been fully explored yet.

With few exceptions, gypsum in India occurs mostly in thin beds, veins, lenses and as isolated clusters of crystals in various formations. Anhydrite, a common associate of gypsum, has not been noticed in the known gypsum deposits in India.

(i) Rajasthan: The most important deposits are in the Jodhpur, Bikaner and Jaisalmer divisions of the State. They vary in thickness from a few inches to 10 ft. and over. Reserves have been roughly estimated to exceed 40 million tons. Detailed investigations of the deposits are not yet over.

(ii) Madras: Gypsum in thin veins varying in thickness from a fraction of an inch to 6 or 7 inches and associated with clays occurs in the Tiruchirapalli district. The reserves of gypsum in the gypsum-bearing clays in this area have been estimated at 15.3 million tons to a depth of 50 ft. but the working of this gypsum is likely to be attended by a large percentage of loss. Thin beds of gypsum also occur in recent marine silts within a depth of 3 or 4 ft. in an area of over 100 sq. miles near Sulurpet, Nellore district. The total area may contain well over 1 million tons.

Gypsum in veins and thin beds and as crystals distributed in sedimentary strata is also found in Saurashtra and Kutch. The reserves are estimated at 6.4 million tons.

(iii) Northern India: Small deposits of gypsum as pockets and thin beds are also known to occur in the Dehra Dun, Nainital and Tehri-Garhwal regions of Uttar Pradesh. The reserves are estimated at about 200,000 tons. Among the other deposits are those in the Sirmur district of Himachal Pradesh, which is estimated to contain about 1 million tons, and small deposits in Bhutan, Kashmir and Rewa (Vindhya Pradesh) for which no estimates of the reserves are available.

The following table gives the reserves of gypsum in different parts of India. It should be noted that in most cases, the total workable depth or the lateral extent of the deposits has not been ascertained. In some deposits all the estimated reserves may not be economically available. The following estimates of reserves by the Geological Survey of India are only approximate:

Area	Reserves in Million tons
Rajasthan	
(a) Bikaner	20.0
(b) Jodhpur	16.0
(c) Jaisalmer	4.0
Kutch	2.0
Saurashtra	8.5
Madras	
(a) Tiruchirapalli	15.3
(b) Sullurpet (Nellore)	0.1
Northern India	
(a) U.P. hill ranges	0.2
(b) Sirmur (Himachal)	1.0
	67.1

58. Production and consumption of gypsum: The annual production from Indian deposits from 1939 to 1950 is given below:

1939-43 average	60,340
1944-48 "	65,082
1949	139,944
1950	206,366
1951	203,602

At present, the annual estimated consumption of gypsum is about 94,000 tons for cement manufacture

and about 2,000 to 3,000 tons for plaster of Paris. When the Sindri Fertiliser Factory comes into full production shortly, it is expected to require annually about 600,000 tons of gypsum. About 37,800 tons of gypsum are required for the manufacture of ammonium sulphate by Fertilisers and Chemicals, Ltd. The Travancore. In addition, increase in cement production envisaged in the Plan will also increase the demand for gypsum. The estimated demand for gypsum in 1955-56 is given in the table below :

(In thousand tons)

	1950-51	1951-52	1955-56
Cement	94	115	160
Fertilisers	11	12	690
Sulphuric acid	-	-	14
Total	105	127	870

It will be seen from the above that the demand for gypsum will increase considerably in the next few years. At present gypsum mining is entirely confined to small quarrying operations. But when the Sindri Fertiliser Factory comes into full-scale production, mining will have to be conducted on a larger scale and mechanisation may become necessary both in mining and transport.

59. Recommendations: (i) Search for gypsum in different parts of India will have to be continued. Systematic field investigation aided by drilling should be undertaken in the known gypsum areas of Rajasthan. This will have to be undertaken by the Geological Survey of India in association with other interested agencies. (ii) Attention will also have to be given to the possibility of recovering gypsum from salt pans.

Sulphur

60. Sulphur, a mineral of strategic importance, occurs in nature in the form of native sulphur and also in combination in the form of pyrites (iron sulphides) and other metallic sulphides and as sulphates, e.g. gypsum, anhydrite.

61. Distribution: Native sulphur in deposits of large size is unknown in India, though recently some occurrences have come to light in the hill ranges to the north of India and small deposits of native sulphur produced by bacterial action on sulphates derived from sea-water have been found in the coastal tract of Masulipatam, (Krishna

district of Madras) and also in the Barren Island. Deposits of pyrites are more widespread and are found in Kashmir, at Taradevi near Simla, at Amjor near Rohtas in Bihar, Karwar in Bombay and in the Chitaldrug area of Mysore. There are substantial quantities of pyrites associated with the gold deposits of Wynad in the Nilagiri district of Madras. Most of the copper deposits, e.g. in Bihar, Sikkim, Rajasthan etc. also occur in the form of copper pyrites. Some of the Indian coals, e.g. Assam coal and Rewa coal are high in sulphur. These coals may be considered as a source of sulphur if it can be economically recovered. The Fuel Research Institute is investigating this.

No detailed estimates are available of the quantities of sulphur and pyrites in the deposits mentioned above. Investigations are, however, in progress to assess the quantity and quality of pyrites available at Amjor and Karwar. Quantities of sulphur estimated to be of the order of 5,000 to 6,000 tons per year escape into the air in the roasting of copper ores at the Indian Copper Corporation's Works in Bihar. The question of recovery of the sulphur as such or its conversion into sulphuric acid is under consideration.

62. Consumption of sulphur: As there is no production of sulphur in India, the country's requirements have to be met by imports from abroad. The imports of sulphur during the last few years is given in the table below:

Year	Quantity (in tons)	Value (Rs. lakhs).
*		
1941	29,400	54.00
1945	9,900	16.88
1946	52,300	105.73
1947	29,800	44.32
1948	38,300	61.65
1949	41,000	70.00
1950	55,000	110.00
1951	38,507	121.48

It will be seen that during the last three years, the value of imports has averaged about Rs. 80 lakhs.

The present annual requirements of sulphur for all purposes is estimated at 65,000 tons, but actual consumption is limited by scarcity of supplies to 50,000 tons. The major consumer of sulphur is the sulphuric acid industry, whose output has increased from about 25,000 tons in 1939 to a little more than 100,000 tons in 1950. The demand for sulphuric acid will, it is

estimated, increase to about 215,000 tons by 1955-56. The requirements by 1955-56 of sulphur for sulphuric acid and for other purposes is estimated at about 85,000 tons.

63. Recommendations: (i) In view of the importance of sulphur and the absence in India of deposits of natural sulphur, it is necessary to undertake a thorough examination of the known sources and possible sources. The deposits at Amjor (Bihar), Taradevi (Simla), Chittaldrug (Mysore) and Polur (Madras) should be investigated in detail.

(ii) Wherever possible, use of native sulphur should be substituted by pyrites or other alternative raw materials.

(iii) The question of recovery of sulphur from the smelting works of the Indian Copper Corporation, the Metal Corporation of India and of other plants roasting metallic sulphides should also be pursued.

(iv) The question of using gypsum as a raw material for the manufacture of sulphuric acid should be considered to the extent possible.

(v) The Fuel Research Institute should conduct research into desulphurisation of coals of Assam and other high sulphur coals and into the commercial recovery of sulphur.

Programme of mineral development

64. In the foregoing sections an attempt has been made to set out the urgent work remaining to be done in respect of mineral development including exploration, estimation of reserves, improvement of mining, collection and organisation of statistics and research into the beneficiation and utilisation of minerals.

The Government organisations mainly concerned in the execution of this programme are:

- (i) The Geological Survey of India;
- (ii) The Indian Bureau of Mines; and
- (iii) National Laboratories like the Fuel Research Institute, the National Metallurgical Laboratory and the Central Glass and Ceramic Research Institute.

The Geological Survey of India

65. The Geological Survey of India is mainly concerned with geological mapping and mineral exploration, investigation of groundwater, examination of dam sites and other engineering aspects of geology. The execution of the programme of mineral development would need expansion of this organisation and this has been provided for.

India has obtained the services of three experts under the Point Four Programme. It will be desirable to make every effort to retain the specialists for a minimum period of three years so that full advantage may be taken of their experience in the training of junior officers.

66. Mention has been made in the sections dealing with different minerals of the investigations that have to be undertaken during the five year period. A number of investigations will have to proceed simultaneously to the extent possible with the personnel and resources at command.

The Indian Bureau of Mines

67. The duties of the Bureau of Mines include the inspection of mines for the improvement of mining methods and conservation of minerals, the proving and estimation of reserves by detailed prospecting and drilling, collection and dissemination of detailed statistics of the mineral industry, advising Government on all matters relating to development of minerals and grant of mineral concessions, undertaking research for the utilisation of low grade minerals, recovery of useful constituents and upgrading of minerals.

For the discharge of these functions the Bureau of Mines should be strengthened adequately for which provision has been made.

Programme of work for the Indian Bureau of Mines

68. In addition to inspection of mines for

XXVII

enforcing systematic working, ensuring conservation and adoption of suitable processes for upgrading of low grade ores, the Bureau of Mines will have to undertake during the five year period the following work:

(i) Drilling for coal, iron ore, manganese ore, chromite, bauxite, copper and lead and zinc in connection with the proving of resources in collaboration with the Geological Survey of India.

(ii) Collection of statistics and data on the present status and requirements of the mining industry, and specially of:

- a) production of different minerals by grades;
- b) stocks at the beginning of each year;
- c) distribution according to regions within the country and according to destination of export;
- d) cost of production for comparison of the economics of mining in different areas;
- e) mineral markets in India and abroad;
- f) trends in international mineral trade;
- g) consumption of minerals, both domestic and imported, in various industries;
- h) productivity of mining labour; and
- i) mineral tariffs and taxes and their effect on the mining industry.

The National Research Laboratories

69. Three National Laboratories, the Fuel Research Institute, the National Metallurgical Laboratory and the Central Glass and Ceramic Research Institute are closely connected with research on minerals and they have to undertake the following lines of research;

(i) The Fuel Research Institute

(a) Physical and chemical survey of all coal seams which are now being worked. This work is already under way and five regional coal survey stations have been established and funds have been allotted both for capital and recurring expenditure;

(b) coal washing and blending. The blending work is being done by the coal blending and coking sub-committee at Jamsheerpur with 50% contribution from the Council of Scientific and Industrial Research;

XXVII

- (c) production of coke from weakly coking coals;
- (d) low temperature carbonisation, hydrogenation and desulphurisation of Assam and other high sulphur coals;
- (e) Fischer-Tropsch synthesis and gasification of coals; and
- (f) briquetting methods.

Practically all this work has to be carried out on a semi pilot plant scale. It is suggested that the Fuel Research Institute should be financed adequately from the proposed consolidated cess on coal production.

(ii) The National Metallurgical Laboratory

- (a) Beneficiation of metallic ores (in collaboration with the Bureau of Mines). An ore-dressing section has already been organised and work is in progress;
- (b) manufacture of zirconium titanium, magnesium etc. and investigation of their alloys. (This work is already included in the Metallurgical Laboratory's programme).

(iii) The Central Glass and Ceramic Research Institute

- (a) Investigation of available raw materials for the manufacture of high grade and optical glasses and of refractories. Work on the availability of sands and clays of suitable quality is in progress;
- (b) investigation on the production and suitability of available raw materials in addition to the production of ceramic wares, glazes etc. This work is also in progress in collaboration with the Geological Survey of India; and
- (c) manufacture of alumina and zirconia refractories and insulators; the Institute has to be equipped for the testing of insulators.

Co-ordination of mineral
development and research

70. The Ministry of Natural Resources and Scientific Research have on the recommendations of the Planning Commission set up a Technical Coordination Committee (with representatives from all these organisations)

XXVII

/meet

to coordinate the work of these organisations. The Committee will meet from time to time to review the progress of these organisations and advise the Ministry to adopt their activities towards the achievement of the objects of the Five-Year Plan outlined above.

CHAPTER XXVIII

. Scientific and industrial research

The vital role of science in modern life is now generally recognised. Apart from the vast changes it has brought about, the development of a scientific temper in the people is considered important. In the planned economy of a country, science must necessarily play a specially important role. Improvements in techniques evolved as a result of scientific research bring about great increases in production in the different sectors of the economy. National resources are augmented by the substitution of cheap and abundant materials for those in scarce supply and by finding uses for materials which have remained unutilised. A balanced programme of research covering every sector of the economy is essential therefore for the development of a country. We have made our recommendations for research in agriculture, forestry, mineral development, etc. in the respective chapters which deal with these subjects. In this chapter we give a short account of the growth of institutions in other spheres of scientific research in recent years, their achievements and their programmes of work.

2. Prior to World War II, very little attention was given to the problem of scientific and industrial research in this country. A number of universities and institutes carried out research, mostly on fundamental aspects of science. Certain industries also had their own research organisations. However, industry depended, by and large, on foreign techniques and did not develop research programmes of its own. It was left to World War II and the emergence of India as a major supply centre for the armed forces in the East to focus attention on the importance of scientific and industrial research. A large number of products which had been imported into the country had to be manufactured to meet both civilian and military needs. Indian substitutes had to be found for imported materials and processes had to be developed which would use these materials in place of imported ones. In these circumstances the Government of India constituted the Board of Scientific and Industrial Research in 1940. The Council of Scientific and Industrial Research was formed in 1942. Much useful work was done under the auspices of these two bodies during the war. A number of problems, mostly related to military needs, were tackled and processes were developed for producing essential articles from indigenous materials. A notable example of work during wartime is the development of processes for the use of vegetable oils in the manufacture of lubricants. This helped in meeting the shortage of petroleum lubricants and also had the advantage of finding suitable uses for Indian oil seeds at a time when their demand had been reduced due to the closure of European markets.

3. Since independence there has been a greater emphasis on the provision of additional facilities for the promotion of scientific and industrial research. The most significant development in this sphere has been the establishment of a chain of national laboratories and research institutes in different parts of the country. These institutions are:

1. National Physical Laboratory, New Delhi.
2. National Chemical Laboratory, Poona.
3. National Metallurgical Laboratory, Jamshedpur.
4. Fuel Research Institute, Jaalgora.
5. Central Food Technological Research Institute, Mysore.
6. Central Drug Research Institute, Lucknow.
7. Central Glass & Ceramics Research Institute, Calcutta.
8. Central Road Research Institute, Delhi.
9. Central Building Research Institute, Roorkee.
10. Central Leather Research Institute, Madras.
11. Central Electro-chemical Research Institute, Karaikudi.

In the case of most of these institutions the process of establishment is nearly complete, but in some, like the Central Leather Research and Central Buildings Research Institutes, only nucleus units have been functioning so far. The Central Electro-chemical Research Institute has not started functioning yet. The Plan provides for the completion of buildings and the installation of the necessary equipment to enable the laboratories to function fully. In addition, the following three research institutes are proposed to be established during the period of the Plan:

1. Radio & Electronics Research Institute
2. Mechanical Engineering Research Institute, with special emphasis on the study of problems of cottage and small-scale industries; and
3. Central Salt Research Station.

4. The National Physical Laboratory in Delhi and the National Chemical Laboratory at Poona deal with general industrial problems and are responsible for investigations of the 'residuary' type - that is, investigations relating to industries for which no specialised institutions have been established. The remaining laboratories are specialised institutions

dealing with problems of specific industries. The main function of all these institutes is to look for new knowledge, fundamental or applied. They will examine existing industrial processes with the object of introducing improved techniques of manufacture and the production of standard materials wherever possible, at reduced costs. At the same time, they will evolve new processes and new products, preferably from indigenous raw materials, and assist in the starting of new industries in the country.

5. The establishment of national laboratories and research institutes has a special importance in a country like India where medium and small-scale producers contribute a considerable proportion of industrial production. These industries cannot afford to have research facilities of their own, as the larger producers can. The research institutions will bring the fruits of research within their reach, and enable them to reduce costs and improve the quality of their products. The establishment of these laboratories and institutes is thus complementary to the objective of promoting the development of small-scale and cottage industries. In addition to these major research institutes, it is desirable to direct attention, more specially, to the improvement of techniques in cottage industries. Such improvement may ultimately produce a far greater result all over the country than a limited number of large-scale industries.

6. Most of the laboratories and institutions have already begun work by undertaking assessment of resources, conducting tests and evolving standards, giving advice to the Government and to industry and developing useful processes. Laboratory investigations on a number of projects have been completed. Amongst these are the manufacture of calcium diphosphate, nicotine from tobacco waste, citric acid, calcium gluconate, vitamin 'C', electrolytic production of beryllium oxides, etc. Work on coal washing and coal blending has led to several useful applications. Possibilities of using Didwana salt-cake in the manufacture of certain types of glass have been established and compositions for the manufacture of railways signal glasses worked out. Investigations on improvements in the quality of salt have been completed and a study of the structure of bamboo has brought out the possibilities of bamboo as a raw material for production of newsprint.

7. In many cases, however, the laboratories are just merging from their formative stage. As mentioned above, for some of them only nucleus units have been functioning. But even where the establishment is nearly complete, initial difficulties of finding suitable personnel, getting proper equipment and organising appropriate research

programmes remain. As these difficulties are overcome and research programmes progress, the contributions of the laboratories and institutes will progressively increase in volume as well as in significance.

8. In the chapter on 'Mineral Development' we have indicated some lines of research work for the Fuel Research Institute, the National Metallurgical Laboratory and the Central Glass and Ceramics Research Institute. In the chapter on 'Industrial Development and Policy', we have mentioned some important measures for the effective utilisation of the by-products and waste products of certain industries. We have also drawn attention to the need for research into the development of new processes for the utilisation of local resources on a long-term basis. We have laid down certain targets and expansion programmes in the private and public sectors of industry. Laboratory investigations on some of the problems mentioned above have been undertaken by the national laboratories. Utilisation of lime sludge from Sindri, manufacture of di²calcium phosphate kotka phosphate and nitrophosphate fertilisers, and production of sulphur by microbiological reduction are cases in point. There are other items like production of caustic soda and sulphuric acid from sodium sulphate, sulphur from magnesium sulphate, manufacture of calcium lactate, para-amino-salicylic acid, new paints, varnishes and pigments, etc. in arranging the production of which research can substantially assist. We suggest that the Council of Scientific and Industrial Research should examine these targets in consultation with industry and arrive at a programme of research to assist in their achievement.

9. The national laboratories and research institutes are working in collaboration with the Indian Standards Institution in laying down standards for various raw materials and finished products within their respective fields. We consider this work to be of great importance. Specification of proper standards is essential for improving the quality of products especially of raw materials and semi-manufactured goods in which small-scale production prevails. Such standards, besides benefiting the domestic consumers, are of great value for the export trade. Lack of uniformity and adulterations (which are helped by

the absence of standard specifications) are the principal reasons for Indian products being rated low, and receiving low prices in foreign markets.

Programme of laboratories and Institutes

10. **The National Physical Laboratory:** This laboratory conducts research on both the fundamental and applied aspects of Physics. Among the investigations which have been undertaken at the laboratory, mention may be made of the development of various types of radio components, carbon products, scientific instruments and glass apparatus and inks. The indelible ink used for marking voters in the recent general elections was developed at the Laboratory, which also manufactured the entire quantity needed for election purposes. Investigations have also been undertaken on rare minerals and the use of solar energy. The Laboratory is also undertaking a number of projects in fundamental research. A scientific documentation centre has been set up in cooperation with UNESCO to provide facilities by way of translation and copying of scientific literature to scientific workers in all parts of the country.

11. **The National Chemical Laboratory:** This laboratory has carried out a number of investigations on processing of indigenous raw materials, extraction of new substances and finding new uses for materials in industry. Amongst these, mention may be made of the following: production of tobacco seed oil and extraction of nicotine from tobacco waste, development of Kamla seed oil (to replace Tung oil) for the paint and varnish industry and improvements in extraction of seed and castor seed oil; development of new methods of utilisation of chlorine, and research on the manufacture of phosphatic fertilisers. Fundamental research is being done in all branches of chemistry. The laboratory is devoting special attention to demonstration of products which can be manufactured on a small scale.

12. **The National Metallurgical Laboratory:** The Laboratory has been engaged on a number of investigations on beneficiation of ores. Reports of researches on iron-ore, ilmenite, low grade chrome-ore, pyrites and manganese-ores have been published. Further investigations are in progress on beneficiation of pyrites, chrome-ore, wolfram and other ores found in various parts of the country. The laboratory is also conducting investigations on alloy

steels, the production of certain classes of Refractories and other subjects of interest to the metallurgical industries.

13. The Fuel Research Institute: This institute has been engaged on a detailed physical and chemical survey of Indian coals. The work includes testing large numbers of samples of coals from various coal fields as well as detailed investigations of particular seams and fields. As an example of the latter may be mentioned the survey of the Bermo-seam from which the coal is being supplied to the Bokaro power station. A number of stations have been set up in different coal fields for the purpose of the survey. Research has also been conducted at the Institute on the blending and washability of Indian coals. The importance of this work in view of our limited resources of high-grade coal has been stressed in the chapter on Minerals. Investigations have also been conducted on the possibilities of manufacture of synthetic petroleum. Work on these subjects will be continued during the period of the Plan. Other subjects which are proposed to be taken up include desulphurisation of Assam coals and detailed work on various aspects of chemistry of Indian coals.

14. The Central Glass & Ceramics Research Institute: The object of the Institute is to assist in the rationalisation and improvement of Indian glass and ceramic industries. The Institute has started research on improving the quality of bottles and other glass containers and the development of containers which are not made in India at present. A process has also been developed for the manufacture of railways signal glasses. A survey of raw materials for the glass and ceramic industries is being carried out in cooperation with the Geological Survey of India. These research and survey programmes will be continued during the period of the Plan and work will be initiated on such subjects as beneficiation of raw materials and utilisation of waste materials like mica wastes, evolving substitutes for scarce materials like boron and selenium and manufacture of special types of glass which are not manufactured in the country so far.

15. The Central Drug Research Institute: The Institute has started research on Indian drugs with a view to isolating their active materials and developing economic processes for the isolation of these. It has compiled an Indian Pharmaceutical Codex, as a companion volume to the Indian Pharmacopoeial List and is undertaking a systematic survey of the medicinal plant resources of India. The

Institute will conduct experiments on improvement of medicinal plants so as to increase their active principle content and for their systematic cultivation. As India produces a great variety of herbs and drugs which are used in indigenous systems of medicines and a number of which are also exported in appreciable quantities, work at the Institute will make a significant contribution to the improvement of national health, as indigenous herbs and drugs are the principal medicines used by the vast majority of the people of this country.

16. The Central Food Technological Research Institute: A principal objective of the Institute is to assist in the solution of the food problem by technological as distinct from biological and agricultural methods. The Institute has undertaken a series of investigations on the nutritive value of various Indian foods, possibilities of substitution of cereals by processing and fortification of roots and tubers etc. The Institute is also conducting surveys on dietary habits, and dietary deficiencies. Technological problems of various food processing industries, utilisation of food and agricultural wastes, and problems relating to the storage of cereals and perishable foods are the other main lines of investigation. Attention is also being devoted to processing and preservation of fruits and vegetables with particular reference to preparation of new fruit products.

17. The Central Leather Research Institute: As mentioned above, only a nucleus unit of the Institute has been functioning so far. Investigations are being undertaken on the use of indigenous tanning materials and on the normal salting of kips in order to lay down standards and prevent undue weightage of kips for export. Other main lines of research at the institute will include improvements in production and use of indigenous tanning materials; development of substitutes for materials like wattle bark which are not produced in any significant quantity in the country, improvements of tanning processes and development of suitable leathers for specialised needs.

18. The Central Road Research Institute: Here also only a nucleus unit has been functioning so far and due to

difficulties of obtaining suitable equipment, it has been possible to undertake only a limited number of investigations. These include research on various types of road materials and soils and studies on improvement of alignment, layout and signalisation of roads. The Institute is devoting special attention to the problems of rural roads and rural transport. It is working in close cooperation with the Central Public Works Department, the Central Roads Organisation and the Public Works Departments of State Governments, so that the problems experienced in the field can be studied at the Institute and results obtained at the Institute can be applied to improving road building techniques.

19. The Central Building Research Institute: Research/building materials (including use of new materials) and on building techniques and practices is the main function of this Institute. It will place special emphasis on the study of problems connected with providing low-cost houses for lower and middle income groups, and for rural areas. Suitable designs for structures have to be evolved for such houses and the use of cheap and abundantly available materials has to be encouraged in place of comparatively scarce and expensive materials like steel. The Institute is still in the formative stage and only a nucleus unit has been functioning there so far.

20. The Central Electro-Chemical Research Institute: The main function of the Institute is to carry out investigations with a view to increasing the productive capacity and efficiency of electro-chemical industries and fostering new electro-chemical industries and utilising Indian raw materials. The Institute is expected to start functioning shortly.

21. Besides these laboratories and research institutes, the Council of Scientific and Industrial Research has made contributions towards the promotion of fundamental and applied research at a number of institutions and universities. Surveys of particular resources from time to time, arrangement of symposia and conferences and advice to industry on specific problems are important items in the programme of

XXVIII

scientific and industrial research. Deserving of special mention is the compilation and publication of 'Wealth of India', an encyclopaedic record of Indian raw materials and industrial products.

22. The Atomic Energy Commission (India) is sponsoring research in nuclear science and in subjects relating to the production and development of atomic energy for economic and industrial purposes. These projects are being worked out at the Commission's own laboratories and at other research institutes and university laboratories. One of the main objects of the Commission is to train workers in these fields for both research and its application on a large scale. In this the Commission has met with success and teams of selected workers are under instruction at the Tata Institute of Fundamental Research in various branches of nuclear physics, instrumentation, high vacuum work, design, etc. The Commission has set up a unit for producing radiation meters and other electronic instruments to meet the demand for such equipment for laboratory work and geological survey.

23. The financing of research has so far been mainly the responsibility of the Central Government. To a great extent this will have to continue, though State Governments, Universities, etc., will, no doubt, also further research. In the chapter on industrial development and policy we have referred to the need for initiative interest and on the part of industry in fostering industrial research. We hope that as industry becomes more and more research minded, it will begin to support research on a large scale. Already several prominent industrial concerns have made substantial contributions towards the cost of establishing national laboratories. The following industrial research associations have also been established by the industries concerned at their own cost, Government assisting with substantial contributions and offering special facilities such as allowance of contributions for research to be treated as a part of the normal business expenditure of an industrial

concern under Section 10(2)XIII of the Indian Income-tax Act.

1. The Ahmedabad Textile Industry's Research Association, Ahmedabad.
2. The Silk & Art Silk Mills Research Association, Bombay.
3. The South India Textile Industry's Research Association, Coimbatore.

24. The completion of pilot plants and laboratory investigations is only the first step in the application of a scheme for **utilitatian** purposes. Before the results are actually translated into commercial production, experimentation on a pilot plant is necessary in many cases with a view to obtaining **ttechnical** data for assessment of the likely form the ultimate production unit is to take and **gauge** possible difficulties that are likely to be met with. This step also provides preliminary data on the economic possibilities of the process. In the conditions under which industrial development has taken place in this country, this duty has to devolve upon the laboratories concerned. As the work of the laboratories develops and their activities gather momentum, their need for pilot plants will also expand. In the development programme for scientific research financial provision has been made for purchase of pilot plant equipment for most of the laboratories, as required.

25. For scientific research, to make its full contribution it is necessary that the results of laboratory work should be utilised in actual practice by being translated into commercial production. The importance of this subject was recognised in the establishment of the industrial Research Utilisation Committee (now Industrial Liaison Committee) in 1941. The results which have attended the efforts of this Committee are encouraging but much still remains to be done. The Council of Scientific and Industrial Research has devoted much attention to securing a better utilisation of the results of research and has come to the conclusion that even when pilot plant experiments have been completed, there may in several cases still be left a gap before commercil production can be undertaken. It would be necessary in such

XXVIII

cases to instal semi-commercial or prototype plants to demonstrate effectively the new processes and their economic possibilities. When this has been done, it will be possible to decide whether the industrial development of the research is to be taken up as a State-sponsored undertaking or it can be handed over to private industry for development on a commercial scale. For this purpose, the establishment of a National Research Development Corporation of India has been proposed and we think that this proposal should be accepted. If the Central Government decide upon such a corporation, funds could be provided. While institutions engaged in research have to develop and maintain contacts with industry so that the results obtained by them are applied in practice, it is at the same time the responsibility of managements in industry to be on the alert for new inventions and innovations in their field of work.

26. Promotion of scientific research on a large scale calls for an adequate supply of trained personnel. For manning the research institutes and also for running industries, a large number of scientists and technicians will be required. In the chapter on Education we described the steps proposed for meeting the shortage of higher technical and scientific manpower.

CHAPTER XXIX

INDUSTRIAL DEVELOPMENT AND POLICY

Industrialisation and economic development

We have emphasised in the previous chapters the need for a substantial and rapid improvement in agriculture in order to increase the supply of food-grains and raw materials needed in the country. The fact that at the present juncture it is necessary to give the highest priority to agricultural development including the building up of the necessary basic services like irrigation and power does not, however, mean that industrial development is in any sense less important. In the development of an underdeveloped economy there is really no conflict between agricultural and industrial development. Improvement in agriculture cannot proceed beyond a point unless the surplus working force on the land is progressively diverted to industries and services. Similarly, industrial development itself cannot advance sufficiently without a large increase in the supply of food necessary to maintain the population thus diverted and of the raw materials needed to enable industries to expand production. The fact that the productivity of labour in industry is much higher than in agriculture also points to the need for rapid industrial development. Moreover, in an underdeveloped country the surpluses created in the industrial sector are likely to be available for investment relatively more easily than surpluses in the agricultural sector. The pattern of industrialisation to be adopted, that is, the relative emphasis on capital goods industries and consumer goods industries and the degree of capital intensiveness in different lines of industry, has, of course, to be decided in the light of several technical, economic and social factors. But there is no doubt that over a period the desired rate of economic progress will necessitate a rapid diversification of the occupational structure through development of industry, together with trade and transport.

Indian industrial structure.

2. The relative backwardness of industrial development in India may be judged from the fact that in 1948-49 factory establishments accounted for only 6.6 per cent of total national income. The total labour force engaged in such establishments is about 2.4 million or 1.8 per cent of the working population in the country. While in the aggregate India's industrial output may look massive, per head of population

it is very much lower than the industrial output in advanced countries.

3. Prior to the first world war the only major industries which had developed substantially were cotton and jute textiles, for which the country had exceptional natural advantages. The industrial development since the twenties is associated with the adoption of a more progressive industrial and fiscal policy. Between 1922, when the policy of discriminating protection was adopted, and 1939 the production of cotton piece-goods in the country increased $2\frac{1}{2}$ times, that of paper production of steel ingots rose 8 times, that of paper went up $2\frac{1}{2}$ times and in the case of sugar, within a period of 4 years from 1932 to 1936 the country was able to produce its entire requirements. The growth of the cement industry which by 1935-36 produced about 95 per cent of the total consumption in the country at the time belongs to this period. The production of matches, glass, vanaspati, soap and several engineering industries also recorded large increases. Towards the close of the inter-war period, the manufacture of electrical equipment and goods was also initiated.

4. The second world war created conditions for the maximum utilisation of existing capacity in Indian industries. This was the major factor responsible for the increases in industrial production recorded. Conditions were, however, not favourable for the setting up of large scale equipment and plant for new industries. Several industries such as ferro alloys, non-ferrous metals like aluminium and antimony, diesel engines, pumps, bicycles and sewing machines, chemicals like soda ash, caustic soda, chlorine and superphosphate, and certain types of machine tools and simple machinery were started on a modest scale during this period, but the major impetus of the war was felt in the sector of medium and small-scale industries, such as light engineering, pharmaceuticals, medicines and drugs, cutlery, etc. In the immediate post-war years, there was considerable new investment activity leading to the establishment of industries like rayon, automobiles, ball and roller bearings, carding engines, ring frames and locomotives. Several new units were started and existing units expanded in industries like fertilizers, cement, sheet glass, and the manufacture of caustic soda and sulphuric acid. Industrial development during the war and the post-war period was influenced largely by the prevailing inflationary conditions and scarcities,

with the result that long-term factors such as the most advantageous location or scale of operation, the availability of raw materials, the size of the market and the adequacy of the financial and technical organisation for successful operation under competitive conditions did not receive the attention they deserved. In the established industries the need during the war period to work multiple shift and the difficulties in the way of securing imports for depreciation and replacement led to a large accumulation of arrears which it will take the country several years to make good.

5. The major emphasis in industrial development in India has been on consumer goods industries, while the development of basic capital goods industries has lagged behind. The output of consumer goods industries such as cotton textiles, sugar, soap, matches and salt may be said to be on the whole sufficient to meet the existing low level of demand in the country in the present stage of economic development. In the case of capital goods industries and industries manufacturing intermediate products, the available capacity in the country is in most cases inadequate even for present requirements. The production of iron and steel in the country is hardly 50 per cent of the existing volume of demand, and it is evident that in planning the development of a basic industry like iron and steel, account has to be taken not only of immediate requirements but also of the needs of the country over a fairly long period. A high rate of industrial advance cannot be achieved without increasing substantially the production of iron and steel and of industries like aluminium, ferro-alloys caustic soda and soda ash, fertilizers and petroleum products, for all of which demand at present is much in excess of domestic supply. In respect of the manufacture of plant and machinery required by the various industries, only a small beginning has so far been made with the textile machinery industry. The large developments in power generation now under way have to depend on generating equipment from abroad. In the manufacture of synthetic drugs and antibiotics and of dyestuffs and organic chemicals, only small beginnings have been made. The objective of industrial planning is to make good these deficiencies and lacunae as much as possible and to initiate development which will become the basis for the cumulative expansion of this sector.

National planning and the private sector.

6. The Commission's approach to the problem of development and the respective roles of the public and

the private sectors in securing such development have been set forth in an earlier chapter. The essentials of government policy in the sphere of industrial development have been stated in the Industrial Policy Resolution of April 1948. That Resolution lists certain industries like the manufacture of arms and ammunition, the production and control of atomic energy and the ownership and management of railway transport as being reserved exclusively for the Central Government. In the cases of certain other industries also such as coal, iron and steel, aircraft manufacture, ship-building, manufacture of telephone, telegraph and wireless apparatus and minerals oils, the State, including the Central and State Governments and other public authorities, will be responsible for further development except to the extent that it regards the cooperation of private enterprise necessary for the purpose. The rest of the industrial field is to be open to private enterprise, individual as well as cooperative, but the State will intervene whenever the progress of any industry under private enterprise is found to be unsatisfactory. Central regulation and control is envisaged for 18 specified industries of special importance from the points of view of the investment and technical skill involved. We believe that within the framework of this policy, it is possible to have a programme of industrial development which meets the country's present needs.

7. The distinction between the public and the private sector relates to the mode of operation rather than to the ultimate objective. Private enterprise operating in terms of legitimate profit expectations and the efficient use of available resources has an important part to play in developing the economy. The scope and need for development are so great that it is best for the public sector to develop those industries in which private enterprise is unable or unwilling to put up the resources required and run the risks involved, leaving the rest of the field free for private enterprise. In this matter of investment of the limited resources available to the public sector there should be complete coordination between the plans of the State Governments and of the Central Government. The nationalisation of existing enterprises, which means the acquisition by Government of existing productive assets has, in our view, only a low priority, especially as most of the purposes of such a transfer of ownership can be served by judicious regulation. In a planned economy, the justification of private enterprise is that within the framework of national policy it is capable of contributing to the fulfilment of the objectives defined in the plan. This means inevitably that it has to accept new obligations towards the worker, the investor and the consumer and has to maintain a high

standard of integrity and efficiency, The large volume of resources needed for all-round development of the economy can, in our judgement, be secured only if the public and the private sectors cooperate closely. Such cooperation is also necessary from the point of view of utilising to the best advantage the limited resources of initiative, technical skill and business experience available in the country.

8. Mention was made in the Draft Outline Report of the Industries (Development and Control) Bill, 1949 which was then under Government's consideration. The Industries (Development and Regulation) Act 1951 incorporates some of the suggestions made by the Commission in the Draft Outline Report. The principal object of this Act is to enable the Government to implement its policy for the development and regulation of industries along the lines stated above. The Act is to apply to 37 industries listed in the first schedule. These include: (a) consumer goods industries like cotton, and woollen textiles, vanaspati and vegetable oils, sugar, salt, pharmaceuticals and drugs, etc., (b) capital goods and producer goods industries like iron and steel, locomotives and rolling stock, non-ferrous metals and alloys, heavy machinery for industry, including ball and roller bearings, gear wheels, etc., and machinery tools; (c) industries producing fuel such as coal, power and industrial alcohol, motor and aviation fuel, and other oils; (d) industries producing machinery and equipment for the generation, transmission and distribution of electric energy, electric motors, batteries and electrical goods; (e) heavy chemicals including fertilisers; (f) automobiles including tractors, aircraft, ship-building and telephones, telegraph and wireless communication apparatus; and (g) various others, such as arms and ammunition, agricultural implements, mathematical and scientific instruments, small and hand tools, sewing and knitting machines, bicycles, hurricane lanterns, glass and ceramics. The important provisions of the Act are:-

- (i) All the existing industrial undertakings in the scheduled industries have to be registered with Government within a prescribed period;
- (ii) No new industrial unit can be established or substantial extensions to existing plants made without a licence from the Central Government;

- (iii) Government can order an investigation in respect of any scheduled industry or undertaking if, in its opinion, there has been or is likely to be an unjustifiable fall in the volume of production in the industry or undertaking or if there is a marked deterioration in quality or an increase in price for which there is no justification; a similar investigation can also be ordered in respect of any industrial undertaking being managed in a manner likely to cause serious injury or damage to consumers;
- (iv) In the event of an industry or undertaking not carrying out the directions issued after such an investigation, Government can take over its management.

9. For the purpose of advising the Government on matters concerning the development and regulation of the scheduled industries, the Act provides for the setting up of a Central Advisory Council representing owners, employees, consumers and certain other classes including primary producers. This council must be consulted in regard to the making of rules under the Act and the exercise by the Central Government of powers relating to the issue of directions to industrial undertakings or the taking over of the same as provided for under the Act. Such a Council has already been set up.

10. The major instrument envisaged under the Act for establishing the necessary liaison between the public and private sectors and for ensuring that private industry conforms more and more to the planned pattern of development is the institution of Development Councils. The question of the development and regulation of industries is not one merely of how the Government should exercise certain powers, but of the kind of machinery which can work from within each industry and help bring about a steady improvement in the standards of productivity, quality of service and management. Such a machinery should provide those interested in the industry that is, the employers, the employees and the public at large, a continuous opportunity to make a detailed study of the problems of the industry, including its various constituent units, and to implement a programme of development in conformity with the needs of the industry and the overall pattern laid down in the Plan. The Industries (Development and Regulation) Act empowers the Central Government to establish

Development Councils in scheduled industries. The functions which may be assigned in these Development Councils have been listed to the second schedule of the Act. The more important of these are:-

- (1) to recommend targets for production, to coordinate production programmes and to review progress from time to time;
- (2) to suggest norms of efficiency with a view to eliminating waste, obtaining maximum production, improving quality and reducing costs;
- (3) to recommend measures for securing fuller utilisation of installed capacity and for improving the working of the industry particularly of the less efficient units;
- (4) to assist in the distribution of controlled materials and to promote arrangements for obtaining materials for the country.
- (5) to promote or undertake scientific and industrial research and the collection and formulation of statistics;
- (6) to investigate possibilities of decentralising stages and processes of production with a view to encouraging the growth of allied small-scale and cottage industries;
- (7) to promote the training of persons engaged or proposing engagement in the industry in technical subjects and the retraining in alternative occupations of persons engaged in or retrenched from the industry;
- (8) to undertake enquiries for the purpose of tendering advice to the Government on matters referred to the Development Council.

These Development Councils will need adequate administrative and technical staff which will be provided by Government. This procedure will not only enable the Development Councils to function efficiently but will also assist Government in building up a cadre of trained officials conversant with the economic and administrative problems of various industries and capable, if need arose of undertaking managerial responsibilities. For meeting the expenditure involved, the Act provides for the levy of a cess on goods manufactured in any scheduled industry, the maximum rate of such a levy being annas two per cent of the value of the goods. The proceeds of this cess would be utilised to meet, besides the administrative expenses of the Development Council

expenditure for the promotion of scientific and industrial research pertaining to the industry, for improvements in the design and quality of the products of the industry and for providing facilities for the training of technicians and labour in the industry concerned. Development Councils along these lines are to be set up immediately for seven industries, namely, heavy chemicals (Acid) and fertilizers, heavy chemicals (alkali), paper including newsprint and paper board, leather and leather goods, bicycles and parts thereof, glass and ceramics, and internal combustion engines and power driven pumps. The question of setting up a Development Council for the textile industry is under Government's consideration. The establishment of Development Councils for other industries will have to be planned in the light of the experience gained with the Councils now being set up.

Industrial priorities in the Plan

11. In defining the priorities for industrial development within the period of the Plan, it is necessary to take into account the immediate objectives in view, the resources available and the broad framework of policy in regard to the operation of the public and private sectors outlined above. In view of the fact that an increase in agricultural production has been accorded the highest priority in the Plan, the resources available in the public sector for the expansion of industries are necessarily limited. The Plan provides for completion of the various industrial projects already under implementation by the Central Government or by the State Governments. In addition, the Central Government has a special responsibility for establishing certain defence industries so as to safeguard and develop the defence potential of the country. Defence industries such as arms and ammunition and explosives, military aircraft and control instruments are in a class by themselves and although they have inevitably a high priority, no more than a modest provision can be made for them at the present stage.

12. In the light of these considerations we suggest the following general order of priorities in the industrial field:-

- (1) fuller utilisation of existing capacity in producer goods industries like jute and plywood and consumer goods industries like cotton textiles, sugar, soap, vanaspati, paints and varnishes;
- (2) expansion of capacity in capital and producer goods industries like iron and steel, aluminium, cement, fertilisers, heavy chemicals, machine tools, etc.
- (3) completion of industrial units on which a part of the capital expenditure has already been incurred;

(4) establishment of new plants which would lend strength to the industrial structure by rectifying as far as resources permit the existing lacunae and drawbacks, e.g., manufacture of sulphur from gypsum, chemical pulp for rayon etc.

13. The emphasis on fuller utilisation of existing capacity must necessarily be a prime consideration in policy, for where such capacity exists increase in production can usually be secured at diminishing cost per unit. The increase in productivity per unit of resources already employed in such can make a vital contribution to the increase in total production so urgently needed at the present time. It is a matter of satisfaction from this point of view that considerable progress has been made in recent months in the direction of increasing the supply of raw materials for major industries with the result that significant improvement has been recorded in the index of industrial production in the country. In so far as failure to utilise existing capacity fully is due to factors other than the availability of raw materials a careful analysis will have to be made of the difficulties pertaining to each industry and the necessary steps to obviate them will have to be taken expeditiously.

14. Expansion of capacity in industries which produce capital goods and producer goods is necessary, firstly, in order to meet the additional demands on them on account of the development of agriculture, irrigation and electricity during the period of the Plan, and, secondly, for establishing a better balance in the industrial structure. Iron and steel are of basic importance to development whether in agriculture, industry, or in transport, and since they are also essential for defence, they have to be given the highest priority. This is now an accepted part of Government policy and a scheme has been worked out for the establishment of an integrated pig-iron-cum-steel plant in the near future. Capital goods industries like locomotives, machine-tools, textile machinery, heavy electrical machinery, etc. represent lines of development which must claim increasing attention immediately and in the years to come. Industries manufacturing agricultural implements, diesel engines, and pumps have a direct bearing on improvement of productivity in agriculture and there is scope for further development in this field. Among the producer goods industries, cement and fertilisers rank high in importance.

15. Since the end of the war, there has been, as mentioned earlier, considerable investment activity in the country, and at the commencement of the period of the Plan there were in the private as well as in the public sector several industrial units on which considerable capital expenditure had been incurred but which had not been completed. Early completion of such units is necessary in order that the country may get the benefit of these investments. The criteria which govern the commencement of a new industrial project must conform to the basic priorities in the Plan; but in regard to units which have already been taken in hand and on which considerable sums of money have been spent, a measure of relaxation of these criteria is justifiable.

16. In addition, special efforts are necessary for the establishment of new plants for industries like the manufacture of sulphur from gypsum, or pulp for rayon and newsprint, or for refining ores or scrap for non-ferrous metals like zinc, copper and tin. The importance of these industries lies in the fact that they make a direct contribution towards an increase in the supply of key materials in which there is a world shortage and for which the dependence of the country on imports makes the position of the indigenous industry particularly vulnerable.

17. It will be seen that in the scheme of priorities set out above, an increase in the supply of consumer goods, has, under present conditions, to come mainly from fuller utilisation of existing capacity. This means that the setting up of new plant and machinery for these industries has in the period of the Plan a low priority. By and large, the capacity of industries producing essential goods like cotton textiles, sugar, salt, matches and soap is adequate for present requirements. The emphasis of policy in regard to them must therefore be on increasing the efficiency of existing plants by renovation and modernisation and by securing a better balance in the plants. It might be necessary in special cases, such as the need for developing a backward area, to permit new capacity in these industries. Where such permission is given, undertakings organised on co-operative lines would naturally have special preference. In the case of consumer goods of secondary importance such as radio, bicycles, automobiles, electric fans, etc., the problem again is one of utilising existing capacity fully, of developing the units which have

already been set up or are under construction to at least the minimum economic size, and of promoting a progressive switch over of assembly plants to manufacturing.

18. It may be pointed out finally that the order of priorities stated above represents only in a general way the approach to be adopted to the problem of directing the flow of investment along various lines in the period of the Plan. In the nature of the case no statement of priorities can be all inclusive or final. It might be necessary, for example, even in fields where existing capacity is generally held to be adequate, to permit investment on projects based on new techniques which might bring down the cost of production and stimulate domestic demand or exports. In such cases, the availability of raw materials must be carefully assessed and the sanction for investment should be preceded by a careful examination of the various related aspects of the industry in question. The licensing procedure prescribed under the provisions of the Industries (Development and Regulation) Act should ensure an impartial consideration of all the issues involved in a substantial expansion of existing units or establishment of new ones. To a great extent, each concrete proposition for investment that comes up raises a variety of considerations and is likely to secure high priority on certain grounds and relatively low priority on other grounds so that the problem always is to decide as to the relative weights to be attached to various considerations. Nevertheless, the considerations and priorities set forth above would, we consider, ensure a balanced allocation of resources as between different industries, and it is in the light of these that investment decisions should be taken.

Development in the public sector.

19. Over the five year period, the total expenditure on the projects included in the Plans for the Central Government and for the States amountsto Rs. 94 crores*. The bulk of this expenditure -

*This is exclusive of the finance that might be allotted for industries out of the lumpsum provision of Rs. 50 crores for basic industries and transport referred to in Chapter IV. In the last years of the period of the Plan it is proposed to provide for a project for the manufacture of heavy electrical plant and equipment out of the lumpsum provision. (Continued on the next page).

about Rs. 83 crores - is in respect of projects directly under the Central Government. The projects under implementation by the State Governments are estimated to involve an expenditure of about Rs. 11 crores, of which Rs. 4.8 crores will be advanced by the Central Government as loans. The industrial plan in the public sector envisages in respect of certain projects the participation of private capital, indigenous as well as external. The estimated contribution of such private capital is about Rs. 20 crores.

20. The major new industrial project included in the Plan is the one for iron and steel estimated to cost Rs. 80 crores in all over a period of six years from the date of commencement. The expenditure projected upto 1955-56 is Rs. 30 crores of which Rs. 15 crores will be provided by Government and the remainder is to be secured through participation of indigenous and external capital. The estimated capacity of this project will be about 800,000 tons of pig iron while the steel capacity (in regard to which a firm decision will be taken) later) will be a minimum of 50,000 tons, with further additions if necessary in the light of the availability of pig iron supplies from the expanded capacity in the private sector in the next few years. By 1955-56, this project, it is expected, will be producing about 350,000 tons of pig iron. The completion of this project by 1958 as well as the projects for expansion in the private sector will raise the availability of pig iron and steel from domestic sources by about 100 per cent. The Sindri plant as completed in October, 1951 is capable of producing 350,000 tons of ammonium sulphate a year, and it is hoped that the corresponding monthly rate of output will be attained shortly. Another project at present under consideration is the expansion of the Sindri factory for the production of urea and ammonium nitrate. The all-steel coach factory which is a part of the plan for railways is expected to cost Rs. 4 crores and to produce 350 units per annum by 1957 on single

(continued from previous page)

This figure of Rs. 94 crores differs from the estimates of expenditure on industry in the public sector given in Chapter IV since it has been prepared on a different basis and certain items e.g. expenditure on small-scale and cottage industries and finance for the establishment of Industrial Finance Corporations and trading estates has not been included.

shift operation as against 50 units by 1955-56.

21. The Plan provides for the completion within the five-year period of all the industrial projects in hand in the public sector; in fact, most of these projects will be completed by 1953-54. The Chittaranjan Locomotive Factory, the total cost of which on completion will approximate to Rs.15.0 crores, (cost within the Plan period Rs.4.73 crores) has already commenced manufacturing some of the necessary components and it is expected that by 1957 the factory will be able to produce 120 locomotives a year without having to depend on imported components. This together with the output of 50 locomotives at TELSO will more or less meet the normal annual requirements of the railways. Work on the construction of the machine tool factory at Jalahalli in Mysore State has already commenced. The factory is estimated to cost Rs.9.83 crores, and by 1955-56 it will produce 1600 machine tools of the value of over Rs.4 crores per annum. This factory will specialise in the production of high precision machine tools and will thus provide the basis for the subsequent expansion of heavy as well as light engineering industries. The provision of over Rs.14 crores for ship-building includes the expenditure for the acquisition of the Vishakha-patnam yard and its development besides the loans and subsidy to be given to the shipping companies for purchase of ships built in the Yard. The Plan provides for the manufacture of engines and boilers in the workshop at the Yard and also for expansion of berths for the building of ships so as to enable the Hindustan Shipyard Limited to bring down the cost of ships constructed to the level of those built in the U.K. The operation of the Yard will enable coastal shipping in India to meet the bulk of its replacement requirements.

22. Details regarding expenditure and additional capacity for the projects in the public sector are given in appendix I. It will be seen that most of the projects in this sector relate to the manufacture of capital goods or of intermediate products which are of vital importance not only from the point of view of immediate needs but also in terms of future economic development. Their completion will correct to some extent the present lopsidedness of the industrial structure. The penicillin and D.D.T. factories which do not fall in the category mentioned above have a special

importance at this juncture from the point of view of improvement in public health. Among the projects of State Governments, mention must be made of the Madhya Pradesh newsprint project and the expansion of the Mysore Iron and Steel Works. The former will produce about one-third of the country's requirement of newsprint while the latter introduces for the first time the technique of electric smelting of iron ores.

23. The increasing participation of the Government in industrial development raises the question of the appropriate organisation for enterprises in the public sector. The criteria of successful operation for private or public enterprises are basically the same; the public must get the service of requisite quality at minimum cost, and the interests of the worker and the shareholder or the tax payer must be adequately safeguarded. Indeed, the standards of performance expected of public enterprises have to be more rigorous. It is, therefore, of the highest importance that industrial units in the public sector should be so organised as to secure the advantages of flexibility in operation generally characteristic of private enterprise with technical efficiency and responsiveness to public need short-term as well as long-term, which form the *raison d'être* of government initiative and management in this field.

24. The principal questions which arise in this connection and our approach to them have been indicated in an earlier chapter. The drawbacks of departmental management of public enterprises are well-known. Successful conduct of such enterprises requires a great deal of initiative and the power to take quick decisions on the part of the executives in charge, and these can hardly be secured if the enterprise is directly under a government department. On the other hand, the extent of autonomy which can be insisted upon for such enterprises at the present stage is a matter on which a definite judgment cannot be hazarded except in the light of further experience. Several of the industrial undertakings directly under the Central Government have already been organised as joint stock companies with boards of directors vested with powers of management in the same manner as in any undertaking

in the private sector. Recent enquiries into the working of industrial enterprises in some of the States reinforce the desirability of organising these enterprises as entities independent of day-to-day governmental control. We recommend, therefore, that industrial undertakings under State Governments should also be organised as joint stock companies and operated on business lines with the internal management entirely under the control of the board of directors. The main principle to be followed is that such enterprises should not be subject to governmental control in their day-to-day administration but should, nevertheless, be accountable to the public which is their ultimate owner as well as beneficiary. What organisational structure and administrative procedures will answer these requirements best has to be determined in the light of experience. For the immediate present, the problem is to see that the right conventions in these matters are evolved. To a great extent, this is a matter of securing the right personnel for the boards of directors, the top executives and the technicians.

Developments in the private sector.

25. While the emphasis of industrial expansion in the public sector during this five-year period is on initiating and promoting investment in certain basic lines and on completing the projects in hand, the initiative and responsibility for securing the necessary expansion over the bulk of the field of industry rest with private enterprise. The expansion programme in the private sector is set out in appendix II. For convenience of reference, we give a table* summarising the more important expansion programmes in this section:-

* Please see table on next page.

expansion programme in certain major lines in the private sector.

Unit	1950 - 51		1955 - 56	
	Rated Capacity	Production	Rated Capacity	Production
(1) Agricultural Machinery:				80,000 to
(a) Pumps, powder-driven	Numbers 33,460	34,310	69,400	85,000
(b) Diesel engines.	Numbers 6,320	5,540	34,920	50,000
(2) Aluminium	Tons 4,000	3,677	20,000	12,000
(3) Automobiles (Manufacturing only)	Numbers 30,000	4,077	30,000	30,000
(4) Bicycles	Numbers '000 120	99	530	530
(5) Cement	Tons '000 8,194	2,692	5,016	4,550
(6) Electric Transformers	KVA '000 370	179	485	450
(7) Fertiliser:				
(i) Ammonium sulphate	Tons 78,670	46,528	131,270	120,000
(ii) Superphosphate	" 123,460	58,051	192,855	164,000
(8) Glass Industry: Sheet glass	" 11,700	5,850	52,200	26,000
(9) Heavy Chemicals:				
(i) Caustic soda	Tons '000 19	11	37	33
(ii) Soda ash	" 54	45	86	78
(iii) Sulphuric acid	" 150	99	213	192
(10) Iron & Steel:				
(i) Pig Iron	Tons '000 1,850	1,572	2,700	1,950
(ii) Steel (Main Producers)	" 975	976	1,550	1,280
(11) Paper & Board	Tons '000 137	114	198	188
(12) Petroleum Refining:				
(i) Liquid Petroleum Products	Gals. Million N.A.	N.A.	N.A.	403
(ii) Bitumen	Tons N.A.	N.A.	N.A.	37,500
(13) Power Alcohol	Gals. Million 13	5	21	18
(14) Locomotives	Numbers -	-	50	50
(15) Rayon:				
(i) Rayon filament	Lbs. Million 4	-	18	18
(ii) Staple fibre	Bales '000 -	-	28	28

26. The total capital investment necessary for industrial expansion in the private sector is estimated at Rs.233 crores. *Some 80 per cent of this investment would be in respect of capital goods and producer goods industries. The major ones among those are: iron and steel, which is estimated to take up about Rs.43 crores; petroleum refineries, which will involve an expenditure of Rs.64 crores; cement, estimated to cost Rs.15.4 crores; aluminium, expected to take up Rs. 9 crores; fertilisers, heavy chemicals and power alcohol, estimated to cost about Rs.12 crores. Additional electric power generation in the private sector will involve an expenditure of Rs.16 crores in the five year period. In the consumer goods industries, although the emphasis is mainly on achieving increases in production through fuller utilisation of capacity already established, considerable investment is envisaged in certain new lines such as rayon, paper and drugs and pharmaceuticals. In the programme for the textile industry, moderate expansion of capacity for yarn, both cotton and woollen, is included. The development programme for vegetable oils relates mainly to the establishment of solvent extraction plants and the crushing of cotton seed.

27. In the formulation and assessment of the programmes in the private sector, it is necessary to keep in mind the fact that in an economy which is not completely centralised, government can influence but not determine the actual course of investment. Nevertheless, the programmes of development as now presented are in the nature of best judgments as to what is feasible and desirable. The Commission has worked out these programmes in close consultation with representatives of the industries concerned and of the Central Ministries as also with independent experts and technicians, and has tried to assess carefully the need and scope for expansion in various fields in conformity with the order of priorities set out in earlier paragraphs. The results of this detailed examination which covers 42 organised industries, are being published separately in a special volume devoted to this subject. The field of industry covers a wide variety of undertakings with large differences in financial resources, organisational set-up, scale of operations and background of experience. In many cases, the data necessary for arriving at an appropriate judgment of needs and possibilities are not satisfactory, and in some cases, the full facts regarding even the present position of the industry cannot easily be ascertained. Nevertheless, it has been possible in that volume to survey briefly the growth and present position of the major industries in the country and to work out broadly the lines along which expansions in

* This is exclusive of the estimated expenditure of Rs.150 crores on replacement and modernisation.

these may be expected to take place in the five year period. The industries thus studied cover between them about 80 per cent of the investment in the large and medium scale industries in the country. The studies brought together in that volume may have certain lacunae but it is hoped that those will be made good in the near future. In this connection we may point out that with the coming into force of the registration and licensing procedures laid down under the Industries (Development & Regulation) Act, a mass of valuable information pertaining to scheduled industries will become available and it is necessary that arrangements be made for systematic and expeditious analysis of the same.

28. We should like in this connection to mention the limitations of the estimates regarding annual rated capacity and of the level of demand presented in the volume outlining the programmes of development in the 42 industries studied. Rated capacity is a complex technical concept which should take into account the design of the plant the number of shifts per day in the case of plants adopting batch or discontinuous processes and the number of working days per annum. Rated capacity has also to take into account the balance between the different sections in a given unit, the age of the plant and its condition. There have been no expert technical surveys of rated capacity in various lines so that estimates of the divergence between rated capacity and actual production have to be used with caution. In view of the importance of a more precise assessment of the existing position and future possibilities in this regard, it is desirable to initiate surveys of rated capacity through competent and unbiased personnel. The limitations in regard to the estimates of demand arise from the difficulty of assessing with reasonable certainty the requirements of consumption in various lines particularly where there is uncertainty about the availability of competing commodities. Estimates of demand over a period of years can only be approximations stating broadly the requirements that might be expected to develop on the assumption that relative prices do not change violently. It is also to be borne in mind that given the requirements of consumption for a particular product, the extent to which it will be met from imports can be indicated only roughly. Estimates of current and future consumption have been taken wherever possible from the reports of the Tariff Board and official publications have been relied upon for estimating imports. In several cases,

however, imports of commodities like sulphur compounds, penicillin, D.D.T. and several engineering products are not shown separately in the official publications, and in some cases since figures are stated in terms of value it was difficult to get an idea of the categories and quantities imported. The demands of a planned economy will necessitate continuous improvement in the compilation of industrial statistics, and it will be necessary to ensure that regular data are available on a comprehensive basis and with the minimum time lag. Official data cannot however be adequate for all purposes, and certain types of data can only be compiled accurately by associations of commerce and industry in the country. Such associations play in countries like the U.K. a very useful role and it is customary for them not only to maintain such data up-to-date on the basis of information received regularly from members, but also to present from time to time a picture of the conditions prevailing in the business sector. The possibility of similar developments in this country deserves consideration by the various Chambers of Commerce and other associations of business and industry in this country.

Industrial Development, 1951-56: resume'

29. An examination of the pattern of investment in industries in the public and private sectors during the period of the Plan shows that about 26 per cent of the total is to go into the metallurgical industry (iron and steel and aluminium); 20 per cent into petroleum refining; 16 per cent into engineering industries and 8 per cent into the manufacture of heavy chemicals, fertilisers and pharmaceuticals. Relatively smaller investments are envisaged in other industries, the textile industries (cotton, jute, rayon and wool) accounting for about 6 per cent, cement for about 5 per cent, and paper, board and newsprint for about 4 per cent. As a result of these developments, appreciable increases in the production of producer and intermediate goods would be achieved. The considerable gap between actual production and annual rated capacity in 1955-56 in certain lines that is shown in the summary table in paragraph 25 above is explained by the fact that the expansion schemes of those industries would be completed somewhat after the completion of the period of the Plan and will not make a full contribution to production during 1955-56. The expansion of the iron and steel industry extending over a period of 5-6 years will be in an intermediate stage by 1955-56 and in the case of the aluminium industry, the manufacturing programme is divided into two definite stages, viz., electrolytic reduction of alumina into metal and manufacture of alumina from bauxite. The former is expected

to be completed towards the end of 1955 so as to keep step with the programme for the supply of power from the Hirakud power system which will commence operations at the same time. The second phase of the aluminium expansion scheme would be completed in the subsequent period. Until then, the manufacture of aluminium at Hirakud would be based on imported alumina. Investments in petroleum refineries will probably show full results in 1956-57 or the subsequent year. In the case of engineering industries manufacturing producer and capital goods, the Plan provides for a progressive changeover from assembling to manufacturing programmes, comprising within them the production of functional and other components of the commodities involved. The production of major producer and capital goods are expected to register increases as shown under:

1. Heavy Chemicals	'000 Tons	156.0
(Sulphuric acid, caustic soda and soda ash)		
2. Fertilisers.	'000 Tons	528.6
(Ammonium Sulphate and superphosphate).		
3. Iron and Steel	'000 Tons	
(a) Pig Iron (Available for foundaries)		310.0
(b) Steel		394.0
4. Aluminium	'000 Tons	8.3
5. Cement	'000 Tons	2,108.0
6. Locomotives	Numbers	150 (plus 50 boilers)
7. Diesel engines.	Numbers '000	44.5
8. Power-driven pumps	"	45.7 to 50.7
9. Carding engines.	Numbers	600
10. Spinning Ring-frames	"	440
11. Plain, semi and automatic looms "		4,100

30. In respect of consumer goods, substantial increases in production are expected in cloth, sugar, paper and paper board, soap and sheet glass. Production of cloth is scheduled to rise by 1872 million yards, of sugar by 340,000 tons, of salt by 429,000 tons, of paper and paper board by 86,000 tons, and of sheet glass by 20,150 tons over the level of 1950-51. The output of vegetable oils, which are an important constituent of a balanced diet, is to increase by about 182,000 tons. Considerable increases in production are expected in respect of durable consumer goods like bicycles and sewing machines. Larger supplies of anti-malarials (benzene hexachloride and D.D.T.), antibiotics (penicillin, aureomycine, etc.) and other synthetic drugs (sulpha compounds, anti T.B. drugs) from domestic sources will assist considerably the campaign against disease and the protection of health in the country. These developments in the pharmaceutical field together with the programmes for the manufacture of dyestuffs in the country which has been referred to in the Development Plan for Drugs and Pharmaceutical Industries will pave the way for the early establishment of coal-tar distillation and the synthetic organic chemicals industry.

Progress in the achievement of targets.

31. In the course of the last 18 months there has been a general increase in industrial production as a result of (a) the coming into operation of new industrial units which were under construction or in the early stages of production at the commencement of the period of the Plan, (b) the beneficial effects of replacements of plant and machinery carried out by some of the industrial establishments in the post-war period, (c) fuller utilisation of the installed capacity of some industries owing to raw materials becoming more available, (d) improvements in the application of import policies and their administration and (e) improvement in the transport facilities provided by the railways. A statement showing the total additional capacity and production envisaged by the end of the period of the Plan together with the achievement of some of the industries in 1951-52 is given as appendix III. This statement shows that the increase in capacity registered in 1951-52 in the more important industries when expressed as a percentage of the total expansion envisaged was: cement 30 per cent; spindle-age for yarn 46 per cent; nitrogenous fertilisers 87 per cent; phosphatic fertilisers 60 per cent; sulphuric acid 20 per cent; caustic soda 20 per cent. It must, however, be pointed out that in the important basic industries visualised in the Plan like iron and steel, petroleum refining, aluminium production, the investments so far made have been negligible when compared

with the investments to be made in future years. As regards the actual production in different sectors, the output of yarn and cloth by mills has shown a substantial increase particularly in the last six months and at the current rate of monthly production, the production of cloth by mills might nearly touch the target recommended in the Plan viz 4700 million yards. On the other hand, there has been no progress in the handloom sector, which emphasises the need for concentrating attention in coming years on measures which would enable this important sector of the textile industry to achieve its production target. Increases in production have also been recorded by the sugar, power alcohol, cement, paper, rayon, plywood and some of the engineering industries. On the other hand, in the manufacture of sulphuric acid, electric cables and wires and A.C.S.R. conductors, there has been no appreciable progress owing to difficulties in procuring raw materials and their high prices. It is expected that, broadly speaking, the upward trend in production will be maintained in 1952-53 since a large number of industrial projects included in the Plan are expected to be completed and to go into production during the year. Special efforts are necessary for assisting industries manufacturing sheet glass, diesel engines, etc., which have recorded a decline in production in the six months ending September, 1952, on account of accumulation of stocks in the country.

Controls and incentives for development.

32. The fulfilment of the targets set forth above, will depend, in the main, on the ability of the private sector to implement the programmes scheduled. A major factor relevant in this context is the availability of finance. The competing demands on the limited savings available in the country are so large that a major objective of policy during the period of the Plan must be to canalise the available capital into lines which have been accorded high priority. It is necessary for this purpose to control capital issues as also to regulate the uses to which the accumulated funds with industry are put. Control over capital issues has been in operation for several years, but it has played so far a somewhat negative role. The Plan now provides a scheme of priorities and a set of programmes which will make it possible to operate this control with a clearer perspective. With the enactment of the Industries (Development and Regulation) Act the establishment of new industrial units as well as the substantial additions to existing ones will require Government's permission. It will thus be possible to regulate the investment.

of available capital whether it flows through new capital issues or is found out of reserve funds. However, while a system of controls is effective for preventing what might be considered under given conditions undesirable or less desirable uses of the resources available, by itself it might not ensure the flow of capital into more preferred lines. To secure this result, a system of specific incentives might become necessary. For instance, in the case of projects involving heavy capital investment and the use of new techniques, it might be desirable to extend, after preliminary examination by the Tariff Commission, an advance assurance of protection. For the development of industries consuming minerals or of industries based on forest produce, long-term leases might be granted. Certain new industries might require the supply of power at concessional rates and others might need special Government assistance for securing the technical know-how through international organisations. Capital goods and certain raw materials might be allowed to be imported duty free or at concessional rates. In other words, there are various fiscal and other incentives which can be given by Government for promoting industrial development along particular lines and these have to be used with judgment according to the requirements of each case.

Financial requirements and sources.

33. The total investment necessary for financing the expansion plan in the public and the private sectors is estimated at Rs.327 crores, Rs.94 crores for the public sector and Rs.233 crores for the private sector. In addition, the expenditure on replacement of plant and machinery and modernisation in the various industries which have a large backlog of arrears of depreciation to make up may amount to about Rs.150 crores* during the five year period.

This is only a rough estimate based on certain preliminary studies undertaken in the Commission. So far as we are aware, no systemic enquiry has been undertaken so far in regard to the needs of the industry for replacement and modernisation. Only in regard to the Indian Textile Industry, the question of replacement and modernisation has been examined by the Working Party for the Cotton Textile Industry. In view of the limitation of resources and the high cost of machinery and capital goods, it might not be possible within the period of the Plan, to make up all the arrears of replacement and to carry through modernisation to the full extent.

XXIX

The aggregate requirements by way of finance for fixed capital thus work out at Rs. 477 crores. The industries would also require over the period of the Plan a considerable sum by way of working capital and for covering current depreciation. Rough estimates of the orders of magnitude involved and the sources of finance are given below :-

Estimated requirements and sources of Finance of Industries, 1951-56.

	Rs. Crores	
(i) Investment in the public sector	94	(i) Resources of the public sector invested directly.
(ii) Investment in the private sector on expansion, modernisation and replacement.	383	(ii) Foreign investment
(iii) Investment in working capital	150	(iii) Resources of domestic private industry:
(iv) Current depreciation expenditure not covered by normal income-tax allowances	80	(a) Savings of corporate enterprises in the industrial sector
		(b) New issues
		(c) Assistance from the public sector
		(d) Industrial Finance Corporations
		(e) Refunds of Excess Profits Tax deposits
		(f) Banks and other sources of short-term finance.
<u>Total:</u>	<u>707</u>	<u>Total:</u>

* Excludes provision for current depreciation covered by normal income-tax allowances.

31. The overall requirements for finance, it will be seen, thus amount to about Rs. 707 crores. The investment in the public sector i.e., Rs. 94 crores will be met out of its own resources supplemented by a measure of foreign investment and domestic private resources. The estimated foreign investment in industries is placed tentatively at Rs. 100 crores. In the private sector, the profits of corporate enterprises engaged in industries assessed to income-tax in 1950-51 were about Rs. 98 crores. Of this, after allowing for tax and dividend payments, about Rs. 31 crores is estimated to have been ploughed back. With the greater availabilities of raw materials and the higher level of production envisaged in the Plan, the undistributed profits of corporate enterprises are likely to go up. For the five year period, these savings have been estimated at Rs. 200 crores. Agreeed price increases in selected lines and restraint in dividend policies are essential elements in this programme of financing. The savings of corporate enterprises will be supplemented by new issues of the order of Rs. 90 crores, loans from Government and from Industrial Finance Corporations to the extent of about Rs. 25 crores, and refunds of excess profits tax deposits of the order of Rs. 60 crores.

35. According to the Census of Manufactures, the working capital employed in 29 groups of industries in 1949-50 was about Rs. 280 crores, Making allowance for the industries not covered by the Census, the total working capital employed in industries is likely to have been of the order of Rs. 370 crores. Roughly, 40 percent of this was financed by Schedule bank advances. In the period of the Plan, the working capital requirements may be assumed to go up in about the same proportion as output. On this basis, additional working capital requirements by the end of the Plan have been roughly placed at Rs. 150 crores per annum. These may be expected to be financed largely from banks and other sources such as private deposits on which industry has been relying.

36. The above estimates, it must be emphasized, are in the nature of approximations for illustrating in broad outline the pattern of finance we visualise in the industrial sector. Within the larger framework of increases in national income and savings visualised in the Plan, the targets indicated by these estimates

are capable of achievement. In practice, the availability of finance from time to time as well as the precise amounts required for items like working capital is subject to a variety of influences like trends in foreign trade, the mobility of funds within the money markets, the degree of activity in the speculative markets, and other factors which affect relative prices and the flow of funds. The adjustments necessary on this account are part of the wider problem of financial policy and management.

Foreign capital

37. In securing rapid industrial development under present conditions, foreign capital has an important part to play. A free flow of foreign capital should be welcome because it will ensure the supply of capital goods and of technical know-how. The Government's policy in this regard gives the following assurances to foreign capital:-

- (a) there will be no discrimination between foreign and Indian undertakings in the application of general industrial policy;
 - (b) reasonable facilities will be given for the remittance of profits and repatriation of capital, consistently with the foreign exchange position of the country;
- and (c) in the event of nationalisation fair and equitable compensation would be paid.

38. The availability of external capital is at present limited by the heavy demand of resources for domestic investment in surplus countries. There is also a tendency for investible funds to flow into certain limited regions and into extractive industries rather than into industries producing goods for local consumption. It has been estimated, for instance, that of the total flow of private capital from the United States in 1947-49 about 78 per cent went to underdeveloped countries but 90 per cent of this was directed to investment in extractive industries working for export to the advanced industrial countries. The rate of return to capital in some of the industrially advanced countries is higher than that obtainable in India. In view of all these considerations, it is of the highest importance to ensure to the foreign investor the prospects of a fairly

good return and the certainty of fair and equitable treatment. The conditions which should govern the investment of foreign capital in the country were stated in the Draft Outline Report and we should like to reiterate them here. In view of the fact that the investment of foreign capital necessitates the utilisation of indigenous resources and also that the best use of foreign capital is as a catalytic agent for drawing forth larger resources for domestic investment, it is desirable that such investment should be channelled into fields of high priority. The broad principle to be followed is that foreign investment should be permitted in spheres where new lines of production are to be developed or where special types of experience and technical skill are required or where the volume of domestic production is small in relation to demand and there is no reasonable expectation that the indigenous industry can expand at a sufficiently rapid pace. The system of joint enterprises under which a number of foreign concerns have established new industries in the country in collaboration with Indian industrialists appears to be suitable for securing the employment of equity capital. Agreements for such joint participation between foreign and Indian concerns should be subject to the approval of the Government. The share of national capital in joint enterprises, the facilities for the training of Indians, the disclosure of patented processes to Indian associates etc., are matters which have to be decided with due regard to the facts of each particular case.

39. The flow of equity capital from abroad has great advantages, but it will also be necessary at the same time to obtain fixed interest capital through official or quasi-official institutions such as the International Bank for Reconstruction and Development and the Export - Import Bank in the United States. The International Bank was recently invited to consider the financing of specific industrial schemes of high priority requiring a large amount of foreign exchange for purchasing machinery and equipment, and it is to be hoped that suitable assistance from the Bank will be forthcoming.

Additional demands for raw materials fuel and power

40. Agricultural raw materials: The Plan of industrial development will create additional demands for raw materials. For example, the consumption of cotton, in the textile industry would increase from 3.5 million bales to 4.9 million bales;

of jute from 4.45 million bales to 7 million bales; of oilseeds other than cotton seed from about 3.1 million tons to about 3.37 million tons; of sugarcane from about 11.4 million tons to 15.5 million tons. Expansion of production of paper and newsprint would increase the consumption of ~~cellulosic~~ raw materials from forests by about 80 per cent. Similarly, the production of matches and plywood would raise the requirements of timber in these industries by 21 per cent and 79.5 per cent, respectively. With the exception of cotton and jute, the demand for which would continue to be met partly by imports, despite the expansion of their production during the period of the Plan other raw materials would be made available from domestic sources of supply. The plans for the timber industries also visualise the exploitation of forests in the Andaman Islands.

41. Minerals: The principal minerals whose consumption is expected to increase as a result of industrial expansion are: limestone, gypsum, iron ore, sands, china clay, ilmenite, monozite sands, rock phosphate, sulphur and crude petroleum. By 1955-56, the consumption of the principal minerals is estimated to register the following order of increases; iron ore 50 percent; limestone 67 per cent; gypsum 797 percent; sulphur (imported) 93 percent; rock phosphate (imported) 209 percent; glass and other kinds of sands 70 percent; bauxite 130 percent. Consumption of crude petroleum will rise by 1.7 million tons.

42. By-products and waste products: Trends of industrialisation in the advanced countries have shown that there is considerable scope for the realisation of lower costs in industry through diversification of production and utilisation of by-products and waste products. Ordinarily this phase in industrial development is reached in a country's economic progress after a certain quantum of industrialisation is achieved as a result of which by-products and waste products are thrown out in industrial operations. With the perfection of newer processes and techniques, outlets have been found for converting waste into wealth. In the industrial plan will be found proposals which make a beginning with measures for utilisation of such resources, the most

important of which are:

- (1) increased production of power alcohol from molasses.
- (2) production of calcium lactate from molasses.
- (3) utilisation of calcium carbonate sludge from the Sindri fertiliser factory and the blast furnace slags of the iron industry for the manufacture of cement.
- (4) increased utilisation of bagasse in board making and for paper manufacture from mixtures of bagasse pulp with other types of pulps.
- (5) solvent extraction of oil cakes for recovery of residual oils present in them.
- (6) increased utilisation of spent lyes from soap factories for the manufacture of glycerine
- (7) recovery of sulphur dioxide from waste gases at the Indian Copper Corporation, Ghatsila.

43. Fuels (Coals): The consumption of coal in the country was of the order of 30 million tons in 1949 and 1950, and industries accounted for about 10.0 million tons out of this total. By 1955-56, additional consumption in the industrial sector is expected to be of the order of 4 million tons on the basis of production targets

XXIX

Coal has not hitherto been used in this country as a raw material for chemical industries, an outlet which has expanded considerably in countries where the Haber-Bosch process for ammonia synthesis, hydrogenation of coal for producing synthetic petrol and manufacture of synthetic methanol have been extensively developed. The Sindri fertiliser factory will be the first to make use of coal as a raw material of chemical industry in the country. The estimated increases (in percentages) in consumption of coal over the 1950-51 level in some of the important industries are shown below:-

Iron and steel	--- 20 to 25 per cent
Cement	--- 80 per cent
Heavy chemicals and fertilisers	--- 450 per cent
Paper	--- 100 per cent

44. Electric power: Electric power would also assist in industrial development during the period of the Plan. With the implementation of the industrial programme, the consumption of electricity would increase from an estimated figures of about 4,000 million Kw-hr in 1950 to about 6,500 million Kw-hr in 1955-56. The more important projects which would be consumers of power in considerable bulk are as under:-

Additional power requirements of major industrial projects by 1955-56

	KW
(1) Mysore Iron & Steel Works, Bhadravati.	50,000
(2) Aluminium smelter at Hirakud	25,000
(3) SCOB-IISCO expansion, Burn- pur, Hirapur	35,000
(4) Sindri Fertiliser Factory, Sindri	35,000
(5) Petroleum refineries	13,500
(6) Rayon factories	10,000
(7) New iron and steel project	10,000

45. The success in implementation of the industrial programme will depend, to a great extent, on the adoption of a liberal policy by the State Governments in regard to lease of sources of supply of raw materials, such as, forests for bamboo, sabai grass, etc. and mineral deposits, such as iron ore, limestone, manganese ore, etc. As regards timber for plywood, match and other industries, it is necessary to have a proper procedure of negotiated rates instead of the auction system as at present, if these industries are to carry out their plans for additional output. Similarly, industries consuming large quantities of power involve heavy financial investments for their development and unless the authorities in charge of power supply provide reasonable and firm rates and long range contracts for the supply of power, it would be difficult to facilitate the flow of investment into these industries. Timely decisions on these matters as well as the completion of power projects according to schedule are necessary for facilitating the programme of important industries consuming large power.

Research into development of new processes.

46. Development of industries through utilisation of local resources has to be planned on a long-term

XXIX

basis. During the period of the Plan, attention has been concentrated on achieving industrial expansion by using well-established manufacturing processes although they might involve an increasing dependence on imported raw materials, primary as well as manufactured; for instance, expansion of sulphuric acid industry would increase dependence on external supplies of sulphur. For facilitating industrial development by an increasing utilisation of domestic raw materials and by-products, it is necessary to have investigation and research into:

(a) processes for the production of substitute materials which can replace products whose manufacture is based on either imported materials or materials in short supply within the country. Investigations on the manufacture of dicalcium phosphate, Kotka phosphate, nitrophosphate in the field of fertilisers are cases in point. In this connection, research has also to be undertaken into various aspects of utilisation of these alternative materials such as field experiments on the efficacy of such fertilisers under different soil conditions.

(b) processes for production of the same material by using alternative raw materials and processes. Research investigations have been suggested into the possibility of production of caustic soda and sulphuric acid from sodium sulphate; of sulphur from magnesium sulphate and by bacterial processes; of paper pulp and newsprint from bagasse.

47. Research has played a valuable part in the United States and Germany in the field of substitutes and synthetics, and it should be possible so to direct industrial development that the economy will increasingly draw upon domestic raw materials through the establishment of industries based on new techniques and processes.

Measures for increasing industrial productivity

48. In planning for industrial development, it is necessary to emphasise the need for a continuous improvement in standards of productivity, that is,

for securing the maximum of output for a given amount of resources, Productivity is a function of several variables such as the size of the plant, the quality of the raw material used, the efficiency of the technical processes employed, the quality of the labour force and the efficiency of the management in the matter of coordinating to the best advantage the various factors of production utilised. As productivity improves, it becomes possible for the country with the amount of resources at its disposal to step up production continuously and thereby to secure an improvement in living standards. This is the very essence of technical progress. Since productivity is the resultant of all the factors which co-operate in production, it is not possible to allocate to each of these its specific share of responsibility for any gain or loss in productivity that might be observed. The customary measure of the productivity is the amount of total production divided by the number of workers employed and judged in terms of this measure, industrial productivity in India has gone down substantially since 1938 by about 20 to 30 per cent in certain lines. This means that the cost of production per unit in terms of real resources has increased. The strain on machinery and equipment during the war, the irregular supplies as well as inferior and non-uniform quality of raw materials, the setting up of a number of inefficient units under pressure of war time demands, and a measure of deterioration in the standards of management and of discipline among the workers - all these have contributed to this result. The subject of industrial productivity has received considerable attention in industrially advanced countries in recent times and it is desirable that productivity studies are undertaken in India along similar lines. The Development Councils to be established under the Industries (Development and Regulation) Act are expected to examine this problem and to recommend measures for increasing productivity in the industries within their purview. Simultaneously, efforts should be made to promote standardisation of raw materials, producer goods, and finished goods, so as to secure for manufacturers as well as for consumers a guarantee of quality in terms of nationally accepted standards. A beginning in this direction has been made by the Indian Standards Institution in cooperation with industry and independent technical experts. The techniques of quality control designed to bring about a reduction in the consumption of materials and an increase in operational

activities of the Council of Scientific and Industrial Research have been expanding steadily to cover a wide field. A great deal must, however, depend on the interest and initiative private industry shows in organising and promoting industrial research, not only from the point of view of increasing efficiency and reducing costs but also in the interest of overall national advance.

Location of industries.

49. Industrial development in India has been on an unplanned basis and it has been concentrated in a few select areas. Although there has been a trend towards wider dispersion of some industries like cotton textiles and cement, industrial development in some parts of the country has lagged behind seriously. The excessive concentration of industries brings in its train certain economic and social disadvantages and a wider diffusion of industry is desirable from this larger point of view. Further, if industrial development in the country proceeds rapidly and in a balanced manner, greater attention will have to be paid to the development of those States and regions which have remained backward. Under the Industries (Development and Regulation) Act, the Government has power to regulate industrial locations. The extent to which the industrial location in the country can be controlled within a short period is undoubtedly limited and industrial undertakings to operate profitably must have easy access to raw materials, to power and to markets. The tendency for industry to concentrate around certain areas where industrial development has already taken place is explained by the availability in these areas of a large number of "external" economies on account of the proximity of ancillary services and facilities for transport and communications. It is difficult, in the initial stages, to induce private industry to choose a new location where such facilities

inadequate. A considerable proportion of the industrial development envisaged in this five year period is by way of expansions of existing industrial units.) The question of the location of the new iron and steel plant is at present under consideration. The generation of electric power with the major multi-purpose projects envisaged under the Plan will open out large possibilities of industrial development in Punjab, Bihar and Orissa. There are large potentialities of industrial development in several other States, and it is desirable in order to secure a balanced regional development in the country, to give increasing preference to such areas in the matter of location of new industrial undertakings.

Industrial management,

50. For ensuring the industrial development of the country on sound lines, it is necessary, in addition to the various measures suggested in the course of this chapter, to make certain improvements in the present system of industrial management. A majority of the industries in the private sector are, at the present time, operated and managed through managing agents who are responsible for a large measure of the industrial development that has so far been achieved in the country. Though the managing agency system had certain advantages in the early days of industrial development, it has been subjected to severe criticism in recent years on account of widespread abuses having come to light in matters such as the purchase of raw materials, sale of finished products and inter-locking of financial transactions. Also a number of managing agency firms have failed to make improvements in their administrative set-up, factory management, purchases and sales organisation, system of accounting, etc.

51. The system is one of the matters which has received consideration from the Company Law Committee. They think that it can still play a useful role in present circumstances provided that measures are adopted to eradicate the evils mentioned above. They have made various recommendations in this regard as well as regarding other matters affecting the revision of the India Companies Act. These recommendations are at present under the Government's consideration, but we think that they should be generally acceptable. Industrial management in a planned economy has to satisfy more rigorous steps than under conditions of un-regulated private enterprise. In the last analysis, the responsibility of management is not merely to the shareholders but also to the public at large. It seems desirable

that the Central Government should set up at once an agency for ensuring a better administration of the company law as well as for the discharge of other related functions. The question whether this agency should be a statutory body might be considered after it has functioned for some time. It is hoped that with the reform in the company law suggested by the Committee, and with the establishment of the agency mentioned above, industrial management will conform more and more to the standards of a profession or a service, playing its legitimate part in the fostering of industrial development.

INDUSTRIAL PROJECTS IN INDIA

Projects	Investment upto 1st April 1951. Rs. lakhs.	Investment during 1951-56			Date of completion of the Project.	Additional capacity (per annum) by 1955-56.
		1951-52 (Rs. lakhs)	1952-53 (Rs. lakhs)	1951-56 (Total for 5 years) Rs. lakhs.		
1.	2.	3.	4.	5.	6.	7.
I. CENTRAL GOVERNMENT						
1. Iron & Steel Project.	-	-	50.0	30,00.0	1957-58	350,000 tons of pig iron by 1955-56.
2. Shipbuilding	150	231.6	282.0	14,08.0	1956-57	50,000 DWT
3. Machine Tool Factory	14.2	98.0	150.0	9,63.8	1952-54	1,600 Units.
4. Sindri Fertiliser Factory.	18,41.2	435.0	3,00.0	9,03.0	Oct. 1951	350,000 tons of ammonium sulphate.
5. Chittaranjan Locomotive Factory...	10,20.0	2,82.0	1,91.0	4,73.0	Manufacture has started	100 locomotives
6. Rly Coach Factory	-	6.5	120.0	4,00.0	1955	50 units
7. Penicillin Factory	4.4	17.7	60.0	2,06.6 **	1954	4.8 million mega units
8. National Instruments Factory	4.0	12.5	25.0	1,82.0	Production has started	Additional Rs. 61.1 lakhs worth of instruments.
9. Indian Telephone Industries.	1,20.0	65.0	33.0	1,30.0	Assembly has started	Rs. 2,00 lakhs worth of telephones and other articles.
10. Hindustan Cables Ltd.	0.3	23.1	70.0	1,29.7	1953-54	Rs. 100 lakhs worth of cables
11. Mandi Salt Works	-	-	10.0	1,00.0	1954	61,000 tons of salt.
12. Rare Earth Factory	26.0"	N.A	N.A	54.0	June 1952	800 tons of rare earth compounds and 202 tons of thorium compounds in terms of thorium nitrate.
13. D.D.T. Factory	-	-	5.0	39.1 /	1954	700 tons
14. Existing Salt Works	2.5	4.3	8.0	50.0	1955-56	about 262,000 tons of salt.
15. Housing Factory	93.7	9.8	2.0	11.8	1952-53	-
16. Other Projects. //	N.A	N.A	N.A	2,02.1	1955-56	-
Total :	3277.5	1187.5	1306.0	8253.1		

** Including Rs. 57.0 lakhs from WHO and UNICEF.

" Investment up to the end of 1951.

/ Including 350,000 U.S. Dollars from WHO and UNICEF

// Including, inter alia, Nasik Printing Press, Silver Refinery and New Mint (Alipore).

N.A. Not available.

A P P E N D I X I (continued)
Industrial Projects In The Public Sector

Projects	Investment upto 1st April 1951. (Rs.lakhs)	Investment during 1951-56			Year of completion of the project.	New or additional capacity(per annum) by 1955-55
		1951-52 (Rs.lakhs)	1952-53 (Rs.lakhs)	1955-56 (Rs.lakhs)		
1	2	3	4	5	6	7
II. STATE GOVERNMENT:						
1. Mysore Iron & Steel works.	2,16.0	40.0	125.0	283.0	1954-55	Additional 60,000 tons/finished steel. / of
2. U.P. Govt. Cement Factory.	1,52.8	126.2	85.7	280.5	1953-54	200,000 tons.
3. NEPA Mills	2,24.9	91.0	82.0	200.0	1954	30,000 tons of newsprint.
4. Sirsilk Ltd. %	3,81.0	85.7	N.A.	200.0	1953-54	16.5 million yds. of art silk.
5. Sirpur Paper Mills	2,03.0	60.0	-	60.0	1953-54	Additional 8,000 tons.
6. U.P. Precision Instruments Factory	14.1	11.6	11.0	50.2	Expansion	12,000 water meters. & 3,000 microscopes.
7. Bihar Govt. Superphosphats Factory.	1.3	24.0	17.1	41.1	1953-54	16,500 tons of Superphosphate.
8. Other Projects	N.A.	N.A.	N.A.	65.0	1955-56	-
Total:	1193.1	438.5	320.1	1129.8		
Grand Total:	4470.6	1626.0	1626.1	9382.9		

% Provision in the Hyderabad State Plan for this project amounts to Rs. 85.70 lakhs.

£ Including Rs.40.0 lakhs for the DDT Factory in the Bombay State Plan.

N.A. Not available.

APPENDIX II

Expansion programme in the private sector.

Industry	Unit	1950-51		1955-56		Capital Investment during 1951-56 (Rs. Lakhs)
		Rated Capacity	Production	Rated Capacity	Production	
1. Agricultural Machinery:						
(i) Pumps (Power-driven centrifugal)	Numbers	33,460	34,310	69,400	80,000	1,20
(ii) Diesel engines	"	6,320	5,540	34,920	50,000	
2. Aluminium	Tons	4,000	3,677	20,000	12,000	9,00 ⁽¹⁾
3. Automobile manufacturing only (2)	Numbers	30,000	4,077	30,000	30,000	3,00
4. Ball & Roller Bearing	Numbers	600	87	1,200	1,200	5,25*
5. Battery, Dry Cell	'000					
6. Battery, Storage	"	285,000	136,500	310,000	320,000	
7. Bicycle	"	120	101	530	530	
8. Cement	Tons '000	3,194	2,692 ⁽³⁾	5,016	4,550	15,40
9. Cotton Yarn & Textile:						
(i) Yarn	Lbs. million	1,669	1,179	1,722	1,640	9,00
(ii) Cloth (mill-made)	Yds. "	4,744	3,718	4,779	4,700	
(iii) Cloth (hand-loom)	" "	3,000	810 ⁽⁴⁾	3,000	1,700	

* Capital Investment also covers the other light engineering industries listed under serial Nos. 5-7, 10-14, 17, 19, 31 & 34.

(1) Covers only what is expected to be spent during the period of the Plan-5.

(2) Based on the programme of the two existing manufacturers.

(3) The actual production includes the output of the factory in the public sector.

(4) The rated capacity of handlooms is based on the number of handlooms in existence at present and availability of yarn at the rate of 20 lbs. of yarn per month.

APPENDIX II (continued)

Expansion programme in the private sector.

Industry	Unit	1950-51		1955-56		'Capital 'Invest- 'ment dur- 'ing 1951- '56. '(Rs.lakhs)
		Rated Capa- city	Produ- 'tion.	Rated Capa- city	Produc- 'tion.	
10. Electric Cable & Wire.						
A.C.S.R.Cables	Toss	2,500	1,674	5,000	5,000	
11. Electric Fan	Numbers'000	283	194	360	320	to 350
12. Electric Lamp:						
(i) G.S.L.	"	23,000	15,000	32,500	30,000	
(ii) Miniature lamps	"	900	N.A.	27,500	16,000	
13. Electric Motor	H.P.'000	150	99	300	320	
14. Electric Transformer	KV'000	370	179	485	450	
15. Fertiliser:						
(i) Ammonium sulphate	Tons	78,670	46,304	131,270	120,000	} 2, 10
(ii) Super- phosphate	Tons	123,460	55,089	192,855	164,000	
16. Glass & Glassware:						
(i) Sheet glass	Tons	11,700	5,850	52,200	26,000	} 2, 20
(ii) Blownware & pressedware	Tons	201,550	86,100	237,800	137,500 to 112,500	
(iii) Bangles	Tons	35,000	16,000	35,000	16,000	
17. Grinding Wheel	Tons	360	231	840	750	to 800
18. Heavy Chemical:						
(i) Sulphuric acid.	Tons'000	150	99	213	192	} 7, 30
(ii) Soda ash	Tons'000	54	45	86	78	
(iii) Caustic soda	Tons'000	10	11	37	33	
19. Hurricane Lantern	Numbers'000	4,260	3,240	4,510	6,000	
20. Iron & Steel:						
(i) Pig iron	Tons'000	1,850	1,572	2,700	1,950	} 43,00
(ii) Finished steel (main producers only)	Tons'000	975	976	1,550	1,280	

(5) Including the output of the Mysore Iron & Steel Works.

(6) The rated capacity will be achieved when the expansion of projects are completed, i.e., by 1957-58.

APPENDIX II (Continued)

Expansion programme in the private sector.

Industry	Unit	1950-51		1955-56		Capital Investment during 1951-56. (Rs. Lakhs)
		Rated Capacity	Production	Rated Capacity	Production	
21. Jute Manufactures	Tons '000	1,200	892	1,200	1,200	
22. Machine Tool (Graded)	Numbers	3,000	1,101	3,000	3,000	20
23. Match	Gross Boxes '000	35,300	29,100	38,300	35,300	50
24. Paint & Varnish (Organised Industry only):						50
(i) Ready-mixed paint, varnish etc.	Tons '000	65	29	70	60	
(ii) Pigment (Titanium di-oxide)	Tons	-	-	1,800	1,800	
(iii) Nitrocellulose lacquers	Gals '000	-	-	350	300	
(iv) Aluminium paste & powder	Tons	-	-	750	750	
25. Paper & Board:						
(i) Paper & paper board	Tons '000	137	114	198	188	5,35
(ii) Strawboard and other boards.	Tons '000	48	22	58	53	
26. Petroleum Refining (in terms of input of crude oil)	Tons '000	250	-	2,000	-	64,00
(i) Liquid petroleum products	Gals. million	N.A.	N.A.	N.A.	403	(9)
(ii) Bitumen	Tons	N.A.	N.A.	N.A.	37,500	(9)
27. Pharmaceuticals:						
(i) Benzene hexachloride	Tons	-	-	500	500	
(ii) Sulpha drugs	Lbs '000	-	-	400	400	
(iii) Para-amine salicylic acid	Tons	-	-	48	48	3,50
(iv) Calcium lactate	Tons	-	-	50	50	

(7) The estimated figure relates to the calendar year 1950.

(8) The rated capacity will reach 3.15 million tons, in terms of input of crude oil, by 1956-57, when the two new refineries are expected to be in full operation.

(9) Exclusive of the existing capacity.

APPENDIX - II (Continued)

EXPANSION PROGRAMME IN THE PRIVATE SECTOR

Industry	Unit	1950-51		1955-56		Capital Investment during 1951-56. (Rs. lakhs)
		Rated Capacity	Production	Rated Capacity	Production	
28. Plywood:						
Tea chest	Sq.ft'000	138,840	147,940	180,000	100,000	60
				to 190,000		
29. Power Alcohol:						1,20(1)
(i) Power alcohol	Gals. million	13	5	21	18	
(ii) Commercial spirit	Gals. million	3	N.A.	3	2	
30. Railway Rolling Stock:						
(i) Locomotives	Numbers	N.A.	N.A.	50 (plus 50 boilers)	50 (plus 50 boilers)	2,50
(ii) Underframes	"	N.A.	N.A.	400	400	
31. Radio Receiver	Numbers	77	49	380	350	
32. Rayon (including cellulosic raw materials):						15,10
(i) Rayon filament	lbs. million	4	1	18	18	
(ii) Staple fibre	Bales'000	-	-	28	28	
(iii) Cotton linter	Lbs. million	-	-	5	5	
(iv) Chemical pulp	Tons	-	-	11,500	N	
33. Salt	Tons'000	2,270	1,920	4,026	2,186	N.A.
34. Sewing Machine	Numbers	37,500	32,965	91,500	91,500	
35. Soap (including glycerine)						60
Soap	Tons'000	265	106	280	200	
36. Sugar	Tons'000	1,540	1,160	1,550	1,500	10

(10) Includes expenditure for creating facilities for petrol-alcohol mixture.

(11) Construction will be just completed, so that the actual production is assumed to be negligible.

(12) Figures relating to the rated capacity (i.e. potential production capacity) and actual production of salt in the private sector have been estimated, except for the industry's total capacity of 4.026 million tons by 1955-56 (including the capacity in the public sector) which was estimated by the Salt Experts Committee.

(13) Figure relates to the sugar season 1950-51.

Increase in the total production capacity of certain major industries

Industry	Unit	1951-52		Proposed		Actual production during April-September	
		Additional Capacity	Additional Production	Additional Capacity	Additional Production	1951	1952
1	2	3	4	5	6	7	8
1. Agricultural Machinery:							
i) Pumps(power-driven, centrifugal)	Numbers	35,940	45,687 to 50,687	9,340 3,600	11,587	19,200	12,900
ii) Diesel engines	Numbers	28,600	44,462	-	1,725	3,316	1,671
2. Aluminium	Tons	16,000	8,323	-	328	1,881	2,140
3. Battery, dry Cell.	Numbers in millions	25	183	-	8	76.2	57.1
4. Battery, storage	Numbers in '000	93	200	93	10	114.3	77.1
5. Bicycles	Numbers in '000	410	429	-	19	42.7	96.7
6. Cement	Numbers in '000	2,026	2,108	596	596	1580.3	1727.1
7. Cotton Yarn & Textiles.							
i) Yarn: Spindleage	Numbers in '000	350	-	159	506		
or : capacity for yarn.	Lbs. million	52	431	24	156	650	727
ii) Mill Cloth:Loomage	Numbers in '000	-	-	1	-		
or :Capacity for cloth	Yds. in millions	35	982	24	408	2,026	2,364
iii) Handloom Cloth	Yds. in millions	N.A.	890	N.A.	114	N.A.	N.A.
8. Electric Transformer	KVA'000	115	241	-	23	99.8	97.9
9. Fertilisers							
i) Ammonium sulphate	Tons	402,600	403,696	350,000	20,029	21,300	98,817
ii) Superphosphate	Tons	85,895	124,911	50,395	8,690	27,700	24,184
10. Glass & Glassware:							
i) Sheet glass	Tons	40,500	20,100	-	(-)600	1,645	381
ii) Blownware and pressedware	Tons	36,250	51,400 to 56,400	6,500	23,600	41,707	40,210
11. Heavy Chemical:							
i) Sulphuric acid	Tons'000	70	101	39	4	51.0	47.7
ii) Caustic soda	Tons	18,400	21,624	3,854	4,520	7,100	8,314
12. Iron and Steel.							
i) Pig iron	Tons'000	1,757	1,261	-	166	904	874
ii) Finished steel	Tons'000	635	394	-	55	518	526
13. Jute manufactures	Tons'000	-	308	-	88	438	466
14. Match	Gross boxes'000	3,000	6,200	-	2,800	14,655	15,300
15. Paper & paper board	Tons'000	74	86	5	21	66.1	68.2
16. Plywood: Tea Chest	Sq. ft. '000	51,200	54,100	21,500	23,200	23,890	37,658
17. Power Alcohol	Bulk Gals'000	8,250	15,284	-	1,694	2,020	3,710
18. Radio Receiver	Numbers'000	303	301	76	26	35.6	38.2
19. Rayon: Rayon-filament	Lbs. million	5.34	53,534	6	19	2.21	23.9
20. Sewing machines	Numbers	54,000	53,534	-	15	23,671	21,022
21. Soap	Tons'000	15	9	7	9	33.9	40.5
22. ...	Tons'000	10	3	-	25	27.2	28.0

CHAPTER XXX

FOREIGN TRADE AND COMMERCIAL POLICY

Commercial policy in the widest sense of the term covers a variety of problems. For instance, the pros and cons of multilateralism, the principles to be applied in protecting domestic industries, the relative advantages of quotas, bilateral trade agreements, and bulk purchasing can all in one way or another be considered as coming within the purview of commercial policy. The scope of this chapter is however more limited. It is intended to bring out the likely effects of the Plan on the structure of foreign trade and the considerations that will have to be borne in mind in framing import and export programmes in the period of the Plan.

Role of commercial policy in planning.

2. Commercial policy thus defined has to serve the following ends in the context of planning:

- (a) It must help to fulfil the production and consumption targets in the Plan;
- (b) the accent of policy throughout must be on maintaining a high level of exports;
- (c) the deficits in balance of payments must be kept within the foreign exchange resources at the disposal of the country in any given period;
- (d) the composition of exports as well as of imports must, as far as possible, fit in with the fiscal and price policies which have to be followed for the implementation of the Plan; and
- (e) there must be, to the extent practicable a measure of continuity in policy so that trade relations with other countries in respect of exports and imports and the plans of domestic industry and trade are not frequently

disturbed.

3. Conditions of foreign trade, as is well-known, are apt to change frequently and sometimes violently. Precise year by year targets for exports and imports over the period of the Plan would therefore serve little purpose. There is also the additional factor that the timing and magnitude of external assistance which might be available cannot be precisely foreseen. The five guiding principles mentioned above will, however, in any given set of circumstance, indicate broadly the appropriate policy which has to be followed. For instance, if foreign exchange resources are limited and are barely sufficient for the imports essential for the implementation of the Plan, imports of less essential commodities will have to be restricted and measures taken to promote exports to the extent necessary. Such exports should not involve any significant diversion of resources from production in important lines. A deterioration in foreign exchange resources must preferably be met by decreased domestic outlay on consumer goods which are either imported or can be exported without detriment, rather than by a reduction in planned investment. A great part of the revenue of the Government from import duties is derived from imports of "non-essential" goods. If these have to be restricted, alternative ways of diverting the savings thus effected into the public sector have to be devised. It is also possible that the commodities for which there is a ready market abroad may be those which are essential internally for the implementation of the development programme. Regulation of foreign trade aimed at cutting down imports and promoting exports will therefore have to keep these factors also in view. If, on the other hand, the foreign exchange resources of the country are supplemented from other sources, it will be necessary to ensure that the additional imports permitted are such as most effectively support the development programme; this would no doubt mean concentrating to a great extent on imports of producer goods (including raw materials) but consumer goods (particularly foodgrains) will also be required to meet inflationary pressures generated by the programme. In periods of relatively easy foreign exchange supplies the need for export promotion will be less evident, but it will be necessary to have the long range objectives of commercial policy in view and to refrain from measures which endanger the market for the country's exports in the future.

are

4. These matters in which there must necessarily be a measure of flexibility in policy. It is however necessary to adhere to the broad principles indicated above and to adapt policy to the changes in the volume, composition and direction of foreign trade anticipated in the period of the Plan. There have also been a number of changes in India's foreign trade in the last decade or so which are perhaps as relevant to obtaining a perspective of the problem as the changes that are likely to be brought out as a result of the Plan itself. The following paragraphs are therefore devoted to a general analysis of these changes so as to bring out the considerations in the light of which commercial policy will have to be framed in the period of the Plan.

Determinants of policy: pre-war and post-war.

5. Before the war, India was a net debtor country and had to have a surplus of a fairly large order in its trade account in order to meet the servicing charges on the sterling debt. This was therefore the key to its commercial policy. In the pattern of international balance of payments, India was among the group of countries which were not dollar earners and made over these earnings to the metropolitan countries of Europe in payment for the deficits which they had with them. It was a member of the sterling area, one of the main objectives of which was to expand trade within the area while preserving the stability of sterling as an international currency; under the conditions that prevailed in the thirties, this meant that a certain measure of discrimination in trade

was unavoidable. In so far as the discriminatory principle was implicit in arrangements like Imperial Preference, it was an important factor which also affected commercial policy.

6. By the end of the war, almost the entire external debt of the Government was repaid and balances of the order of Rs. 1600 crores had been built up in sterling. This obviated the necessity for having a surplus on trade account. The manitude of the external reserves accumulated during the war opened up in fact the prospect of being able to finance fairly large deficits in balance of payments. But the post-war difficulties of the United Kingdom placed a limit on the rate at which the sterling balances could be drawn upon. The distinction between soft and hard currencies, and India's added interest as a 'creditor' country in the stability of sterling, also necessitated the continuance of discriminatory practices in trade with the dollar area.

7. Since the sterling balances were largely the result of restricted consumption and investment and not a reflection of any permanent improvement in productivity in the economy, the problem of balancing trade at the end of the war was in a sense more difficult than before it. The financing of the war had increased money incomes but consumption had been kept down by scarcities and price rises. In industry and transport there had been not only little net addition to capital equipment during the war but even normal depreciation requirements had to be postponed. On the conclusion of the war the economy was in a starved condition, and it was necessary to provide for imports on a large scale to make good the results of war-time austerity and depletion of capital, not to mention the needs of development.

8. Even apart from the pressure of pent-up demands, the import requirements were larger and exportable surpluses smaller at the end of the war. This was on account of the increase in population in the interval and the partition of the country which enlarged the country's deficit in food and raw materials. Changes necessitated by wartime requirements in the pattern of production also aggravated the difficulty. These changes were responsible for a sharp contraction in the exportable surpluses of staple commodities like raw cotton and raw jute. Oil-seeds and pig iron were also required in large quantities to meet increased domestic industrial needs. The decline in the exports of these commodities was to some extent counter-balanced by increased exports of primary products like spices and mica and of semi-manufactures such as vegetable oil, but the volume of exports in 1946-47 was still only about two-thirds of the prewar level.

9. Partition affected most the exports of jute, cotton, and hides. In the new set-up, large scale imports of these were essential for some of the largest established industries in India. But the commodities that could be exported to Pakistan in exchange were mainly processed materials like cotton textiles, sugar, and matches which, until Partition, were receiving some protection against foreign competition in the areas which now constitute Pakistan. Partition therefore not only resulted in increased reliance on imported raw materials but made more difficult the problem of export promotion.

Effects of the war and the partition on pattern of trade

10. The changes brought about by the war and the Partition in the pattern of India's foreign trade will be evident from the following table, which shows for selected years the percentage shares in exports and imports of three main groups of commodities:-

	EXPORTS			IMPORTS		
	Food, Drink and Tobacco	Raw Mate- rials	Manu- factur- ed Ar- ticles	Food Drink and Tobacco	Raw mate- rials	Manu- factur- ed Ar- ticles.
Pre-war (1938-39)	24.0	35.0	29.3	15.8	21.8	60.9
Post-war (1946-47)	19.5	31.0	48.0	33.8	19.9	44.4
Post-Parti- tion. (1948-49)	21.0	23.5	55.1	24.3	30.7	44.3

11. The increase in the exports of manufactured articles, it will be noted, is more apparent than real; it is explained mainly by the relative increase in their importance consequent on the sharp decline in the exports of raw materials. In absolute terms, the volume of exported manufactures was only about six per cent higher in 1948-49 than a decade earlier, and even this improvement was mainly on account of the increase in exports of cotton manufactures through reduced per capita domestic consumption. The apparent reduction in the imports of manufactured articles is also relative. It will be seen from the following indices of export and import quantities that there were significant changes in the volume of trade only in respect of raw materials and of imported food:-

	EXPORTS			IMPORTS		
	Food Drink and Tobacco	Raw Mat- erials	Manu- factur- ed Ar- ticles	Food Drink and Tobacco	Raw Mate- rials	Manu- factur- ed Ar- ticles
Pre-war (1938-39)	100.0	100.0	100.0	100.0	100.0	100.0
Post-war (1947-48)	83.7	41.7	92.5	138.6	116.9	72.0
Post-Par- tition (1948-49)	95.7	30.6	106.4	145.9	142.8	105.0

12. Within the category of manufactures, there was a significant increase in imports of machinery. This was not very pronounced in the early post-war years on account of the difficult supply position

abroad; a time-lag was also inevitable between placing of orders and delivery in the case of heavy capital equipment. The process of meeting current requirements and overtaking past arrears could be said to have begun only in 1947-48. By 1949-50, the value of imported machinery had risen to about Rs. 103 crores from the pre-war level of about Rs. 19 crores but the lag-in arrears to be made up was still large.

Shifts in the composition and
direction of trade.

13. There were two further developments in this period which are significant from the point of view of commercial policy; one relating to the composition of exports and the other to the direction of trade. In 1938-39 jute manufactures, cotton manufactures and tea accounted for only about 35 per cent of the total value of India's exports. Of the rest, raw cotton, raw jute, oilseeds, hides and skins, metals and ores and raw wool contributed as much as 40 per cent. In the following decade this distribution became much more uneven. By 1948-49, the share of jute and cotton manufactures and tea had risen to over 56 per cent, while the contribution of the latter group fell to less than 15 per cent. The increased dependence on a few commodities not only introduced an element of instability in export prospects but was bound to weaken the country's position in regard to larger questions of policy.

14. Secondly, before the war, over half of India's foreign trade was with countries which now constitute the sterling area; only about ten per cent on average was with the dollar area, while the rest was distributed between a number of countries in Europe, the Middle East and the Far East which did not fall in either of these groups. In the following ten years, the share of the sterling area (excluding Pakistan) became somewhat smaller. Trade with Germany and Japan also declined sharply. The result, as will be evident from the table below, was to increase the share of the dollar area to about a quarter of the country's total foreign trade.

	1938-39		1948-49	
	Exports	Imports	Exports	Imports
Sterling area (excluding Pakistan)	53	58	48	47
Other soft and medium currency countries	18	15	20	25
Head currency countries				
Dollar area*	12	7	28	24
Others xy	17	20	4	4
Total	100	100	100	100

15. On the side of exports there was no significant compositional change in the trade with the dollar area, except that a few commodities like cashewnuts, manganese ore, and spices assumed greater importance as dollar earners. But the pattern of imports changed considerably in this period, mainly on account of the greater dependence on this area for supplies of food-grains and developmental commodities. These changes are reflected in the trade between India and the United States.

	(Rs. crores)	
	1938-39	1948-49
Exports to the United States		
Fruits and vegetables	1.1	4.5
Spices	-	1.3
Tea	0.5	3.8
Raw hides and skins	1.5	2.6
Jute manufactures	6.9	33.9
Metallic ores	0.2	4.1
Others	4.1	19.8
	<u>14.3</u>	<u>70.0</u>
Imports from the United States		
Grain, pulses and flour	-	15.8
Mineral oils	0.9	10.3
Machinery	2.1	20.1
Metals	0.5	10.6
Vehicles	1.7	12.7
Others	4.6	44.7
	<u>9.8</u>	<u>104.2</u>

* Dollar area here covers the whole continent of North, Central and South America and adjacent islands (excluding Brazil, Chile, Uruguay, Peru and European possessions) together with the Philippines.

Ø/ Other hard currency countries, as defined here, include Belgium and its possessions, Portugal and its possessions, Germany and Japan.

The impact of the Plan on volume of foreign trade.

16. In formulating the commercial policy during the period of the Plan, these changes in the last few years in the volume, composition and direction of foreign trade have to be kept in mind. The contraction in the volume of exports, the increased dependence on imports of food and raw material, the lag in replacements of machinery and capital equipment, the excessive reliance on a few markets partly on account of insufficient diversification of exports, and the imbalance in the trade with the dollar area, will all tend to restrict in the initial stages the scope for making any radical changes in policy. To an extent the Plan itself is designed to meet some of these problems. The higher production of agricultural raw materials like jute and cotton provided for in the Plan will reduce the dependence on imports relatively to the level of domestic production of manufactured products like jute and cotton textiles, and increase the exportable surpluses of the latter. The arrears in capital expenditure accumulated during the war will also by and large, have been made up in the course of the five years. The recovery of Germany and Japan, and the possibility of developing greater trade relations with countries like Czechoslovakia and Sweden which can export capital goods, will help to diversify trade and partly correct the existing imbalance with the hard currency of countries. It is also to be expected that as new lines of manufacturing industries develop in India, the trend already noticeable in recent years for exports of sewing machines, batteries, textile machinery, electric fans, bicycles, etc., to countries in South-East Asia will also be strengthened.

17. As outlined earlier, the Plan aims at increasing percapita consumption levels by about 7 percent over the period for a population which will be growing at the rate of about $1\frac{1}{2}$ per cent per annum. It also envisages raising the level of investment expenditure per annum in the economy by well over 50 per cent. The higher domestic requirements which these targets imply are bound to make themselves felt in increased demand for imports as well as in reduced surpluses of consumer goods and raw materials. Similarly, while the demand for capital goods on account of arrears in depreciation may fall off, it will be more than made up by the greater requirements of new developmental projects.

18. There would, in other words, be two forces at work as far as foreign trade is concerned, a one tending to lessen the pressure on foreign exchange and the other tending to increase it. Both effects would follow from the Plan, the first from the production targets and the second from the consumption and investment targets. To the foreign exchange implications of

these factors, and the manner in which they are related to the need for supplementary external resources, reference has already been made in Chapter III.

19. Any assessment of the effect of a programme of development on foreign trade must necessarily be related to the consumption, production and investment targets in the programme. As pointed out in Chapter III, we have for this purpose proceeded in the first instance on the assumption of a developmental outlay by the Government of the order of Rs. 1700 crores (i.e., an outlay which could be more or less met from the budgetary resources of the State Governments, some deficit financing, and the external assistance already received). The effect on exportable surpluses and on import requirements of the further outlay necessary in order to reach the target of Rs. 2009 crores in the Plan is left for being taken into account at a later stage. On this basis, it has been estimated that the volume of India's exports is likely to increase by nearly 30 per cent by 1955-56 as compared to 1948-49 and by over 10 per cent as compared to 1950-51 (which was a boom year for exports). The volume of imports for 1955-56 will on the other hand be about 18 per cent more than in 1950-51 (when imports were on a somewhat smaller scale than usual on account of international conditions) but only 3 per cent more than in 1948-49 when the Open General Licence for imports was in full operation. The relatively smaller increase envisaged in the case of imports is a measure of the rigorous import controls on consumer goods that have been assumed in the estimates.

Changes in composition of trade in the Plan period.

20. The increase in exports is expected to take place mainly in cotton piecegoods, jute yarns and manufactures, manganese ore, oils, coal and coke, black pepper, tobacco, coir manufactures and woollen manufactures. The estimates in respect of these are

XXX

as follows

	<u>1948-49</u>	<u>Annual rate of exports by the end of the Plan</u>
Cotton piecegoods (million yds)	341	1000
Jute Yarns and manufactures (thousand tons)	929	1000
Manganese ore (thousand tons)	309	1000
Oil (million gallons)	15.5	41.4
Coal and coke (thousand tons)	1137	3000
Black pepper (thousand cwts)	141	300
Tobacco (million lbs)	56	96
Coir manufactures (thousand cwts)	869	1700
Woolen manufactures (million lbs)	8.3	16.0

In addition, there are a number of newly-developing lines of exports which are expected to show significant progress in this five-year period e.g., sewing machines, textile machinery, electric fans, bicycles, storage batteries, small machine tools, dry cells, soap, chemicals, cement, and paper and paper boards. To encourage this diversification of exports, particularly of manufactured articles, it would be desirable to simplify and extend as far as possible the system of granting rebates of import duty on raw materials used in manufactures.

21. Exports may remain at about the same level as in ~~1948-49~~ in the case of some commodities like tea, cotton waste, mica and lac, either as a result of production remaining constant or internal requirements increasing. In a few instances, where the increases in internal demand for manufacturing purposes or for direct consumption are likely to outstrip internal availabilities in the initial stages, exports may fall lower than in 1948-49 though even here the tendency by and large would be for the exportable surpluses to fall heavily in the initial stages and to become large as the Plan progresses.

	<u>1948-49</u>	<u>Annual rate of exports by the end of the Plan</u>
Oilseeds (thousand tons)	104.0	50.0
Artificial silk piecegoods (million yards)	24.0	10.0

To a great extent, the declines under these would also be made up by increased exports of the manufactured products or by decreased import requirements.

22. The effect of the Plan ~~of the Plan~~ on imports is more difficult to specify commodity-wise. The volume of imports at each stage in the implementation of the Plan as well as at the end of the five years would depend to a great extent on the degree of control exercised over them, which in turn would be determined by the availability of foreign exchange. It is difficult, in particular, 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 foodgrains would have to be imported every year in the period of the Plan. As indicated in an earlier chapter, shortage of foreign exchange resources seems at present ~~likely~~ to be a serious bottleneck if a development programme in the public sector of the order of Rs. 2069 crores is to be implemented without supplementary external resources. In this eventuality, imports will have to be restricted to commodities with the highest priority and this is likely to have its repercussions on the economy. If, on the other hand, additional foreign exchange resources became available in the period of the Plan, it would be possible to have larger imports.

23. If producer goods are defined so as to include unprocessed and partly processed raw materials as well as manufactures and semi-manufactures used in production, they have in recent years constituted about two-third of total imports into India. The Plan will on the whole tend to reduce the dependence on imported agricultural raw materials. Imports of raw jute, in particular, are expected to fall from the level of 42 lakh bales in 1948-49 to around 9 lakh bales per annum by the end of 1955-56. But imports of processed raw materials will have to be stepped up considerably for meeting the production targets in the Plan. In spite of the development of petroleum refining and of the power alcohol industry in this period, imports of oil, for instance may have to be maintained at a high rate upto 1955-56 when domestic production of mineral oil will help to reduce these to a considerable extent. The development of the rayon industry, envisaged in the Plan would need about 15,000 tons of rayon grade pulp to be imported every year. The fertilisers industry would also require imports of rock phosphate of the order of 108,000 tons per annum by 1955-56,

petroleum refining would similarly require imports of crude petroleum to the extent of 1.7 million tons. The only significant exception is likely to be staple fibre, in whose case the expected development of production by over 11 million lbs would reduce considerably the dependence on imports by the end of the Plan.

24. The effect of the Plan on imports of manufactures and semi-manufactures (including intermediate products) used for production would by and large be the same as on imports of processed raw materials. Imports of locomotives for replacement purposes are likely to be completely eliminated. In a few cases where the projected expansion in domestic production is likely to exceed the increase in domestic requirements, imports may tend to fall e.g., in respect of fertilisers, aluminium, cement, and artificial silk yarn. But in all others, and particularly in the case of capital equipment, heavy durables and metals (iron and steel, copper, zinc and tin) there will be significant increases in the level of imports.

Outlook for the future.

25. The broad pattern of foreign trade that is likely to emerge as a result of the Plan is thus clear. It hardly needs stressing that if external resources are not forthcoming to supplement the normal foreign exchange earnings of the country and the agreed releases from the sterling balances, the balancing of external accounts will be placed under strain in the period of the Plan. This will inevitably have its repercussions on commercial policy and, in fact, on every aspect of the economy. If on the other hand, supplementary external resources become available, responsibility of another kind will be placed on the conduct of commercial policy. By appropriate adjustments in exports and imports, it will be the function of commercial policy to ensure the most effective utilisation of such resources without adversely affecting either the domestic industries or the country's export prospects in the future.

26. The markets for India's exports, and the sources of its imports would depend to a great extent on price movements abroad as well as on the availabilities of the commodities themselves. It is clear that efforts will have to be made to increase the volume of exports not only to the dollar area but also to other countries which are in a position to supply the imports required for the implementation of the Plan. The objective of commercial policy must be to maximise, in step with other countries,

the volume of world trade. As long as conditions are not favourable for multilateral trading to achieve this, the objective will have to be pursued as best as is possible by mutual agreement between groups of countries for expanding the volume of trade between them, and commercial policy in the period of the Plan will have to be adjusted accordingly.

27. It will be seen from what has been said above that apart from the possibility of having to maintain and enter into bilateral or zonal agreements, it would be necessary also in the period of the Plan to have a close regulation of imports and exports. While continuity of policy is essential in the administration of import and export controls, it cannot be gainsaid that without controls in a vital sector like foreign trade the country will not be able to utilise to the maximum advantage the resources available to it for development.

CHAPTER XXXI

TRANSPORT AND COMMUNICATIONS

Introduction

The pattern of the transport system in the country will undergo substantial changes as the various agricultural and industrial programmes included in the Five-Year Plan are progressively implemented. For instance, the increasing output of foodgrains within the country and the manufacture of fertilisers at Sindri will imply diminishing movement of these commodities from the ports and at the same time a growing demand for the internal transport requirement. On the other hand, the new cement factory at Rajganpur which commenced production early in 1952 and the expansion of the Andhra Cement Company at Vijayawada will reduce the demand on the transportation system by expanding production in the vicinity of the consuming centres. Generally, however, the cumulative effect of the Plan will be to increase the overall demand for transportation facilities. To cope with the problem, the probable points of increasing demand for transportation facilities should be known in order either to provide the necessary facilities or to relieve the strain on the system by diverting traffic elsewhere.

2. Broadly speaking, the plans for railway and maritime transport, envisaged in this chapter, have as the primary objective the rehabilitation of assets which has been postponed for a long time due to various factors. Auxiliary facilities for aerial and maritime transport have also been taken into account. The potentialities of rivers for the development of inland water transport are yet not fully appreciated but the establishment of the Ganga Water Transport Board for developing navigation on the river Ganga shows a realisation of a new transport facility.

I. RAILWAYS

3. The Indian railway system is the largest nationalised undertaking in the country. It is one of the few railway systems in the world with a net earning power adequate to meet all fixed charges and provide substantial sums for development

and reserves. The principal reason for this is to be found in the high levels of both passengers and goods traffic in recent years and the rationalisation of the structure of rates and fares carried out in 1948.

4. The most serious problem facing the railways today is the task of rehabilitation and provisions of adequate equipment. During the last twenty years, railways assets have been put to intensive and extensive use with little opportunity for rehabilitation. In the thirties the Indian railways were caught in the world-wide economic depression and their earnings were insufficient even to meet the interest liabilities to general revenues. Maintenance was slowed down or deferred from year to year, while renewals and replacements had to be limited to the minimum permitted by the requirements of mere safety in operation. The railways were just emerging from the depression in 1937, and were attempting to overtake the arrears of maintenance and replacements, when the second world war intervened in 1939 and interrupted this process.

5. In the first phase of the war, the Indian railways, despite the shortage, had to release wagons, locomotives and track materials for the Middle East. Over 8% of the metre gauge locomotives, 15% of metre gauge wagons, 4,000 miles of track, and 4 million sleepers were released for use overseas and in India on military projects. For this purpose, the railways were obliged to dismantle as many as 26 branch lines. In the second phase of the war, India became the base for the offensive against Japan and a large number of railway workshops had to be diverted to the manufacture of munitions and other items required for war. In these circumstances, abnormal arrears of renewals and replacements accumulated, and internal facilities for rehabilitation were appreciably curtailed or incapacitated by the mobilisation and intensive utilisation of workshop equipment in connection with the requirements of the war.

6. As soon as the hostilities ended, new problems came up in the wake of Partition. The division of the North Western Railway deprived the Indian portion of the majority of workshops and maintenance and repair facilities. Similarly the division of the Bengal Assam Railway left the Assam Railway without any workshop of a link with rest of the railway system. The loss of the port of Karachi led to the diversion of traffic to Bombay causing a great deal of congestion and creating a transport bottle-neck in the Bombay port.

This necessitated the development of a major port at Kandla and the construction of the Kandla-Deesa rail link.

7. Thus, the problem of rehabilitation and replacement created by the post-1930 economic depression, neglected by the conditions of the war years, and accentuated by the special features of Partition has become the major concern of the railways.

Magnitude of the rehabilitation programme

8. The magnitude of the problem of rehabilitation may be judged from the abnormal proportion of the overaged stock. From detailed figures summarised below it will be observed that the arrears of renewals already accumulated by March 31, 1951, amounted to 1,050 locomotives, 5,514 coaching vehicles, and 21,418 wagons, against the normal figures of average annual renewals of 190 locomotives, 650 coaching vehicles and 5,000 wagons. For an overall picture of the position during 1951-56, it is necessary to add to these figures the numbers which will become overaged during this period. The total stock which will have reached the normal age for replacement by March 31, 1956, is, therefore, 2,092 locomotives, 8,535 coaches and 47,533 wagons.

Rolling stock requirements for renewals 1951-56

	<u>Loco-</u> <u>motives</u>	<u>Coaching</u> <u>vehicles</u>	<u>Goods</u> <u>wagons</u>
Number on line on Class I railways on March 31, 1951	8,209	19,193	199,094
Estimated average annual renewals.	190	650	5,000
Number requiring replacement on March 31, 1952, being over 40 years of economic life in the case of locomotives and wagons and 30 years in the case of coaching vehicles.	1,050	5,514	21,418
Stock overaged and replaced but retained in service on Mar. 31, 1951.	1,604	1,381	25,838
Number expected to become overage between March 31, 1951 and March 31, 1956.	1,042	3,021	26,115

9. What has been stated in the previous paragraphs refers only to the mobile equipment. The state of the immobile equipment has been a subject of no less concern. The condition of the track has also deteriorated during the last two decades, during which renewals were carried out only to the minimum extent required for safety in operation, leaving considerable rehabilitation of the track for completion in future. Speed restrictions have had to be continued on hundreds of miles of main lines as track renewals could not be carried out. The primary task of the railways is thus to overtake this heavy accumulation of arrears at as early a date as possible.

Demands on the railway system

10. The importance and urgency of rehabilitation has to be considered from yet another point of view. The capacity of railways to handle traffic, adversely affected by the factors just referred to, was strained even further by the unprecedented increase in the volume of traffic. The remarkable increase in the demand for rail transportation in recent years is borne out especially by the statistics of passenger traffic. The passenger miles on Class I railways increased from 17,780 millions in 1938-39 to 39,720 millions in 1950-51. During the same period, the freight carried increased from 21,786 million ton miles to 26,581 million ton miles. It has been possible to move increased traffic of these dimensions only by resorting to measures which would not be approved under normal conditions. Shortage of power and rolling stock has been sought to be met by retaining in service overaged and even replaced equipment which would normally have been scrapped. The replaced stock retained in service amounted on March 31, 1951, to 1,604 locomotives, 1,381 coaching vehicles, and 25,838 wagons. Until additions are obtained, this level of replaced stock in service will have to be maintained. Overcrowding in passenger trains has had to be allowed to continue to cope with the vastly increased traffic. As regards goods traffic, operation of goods specials, increased loading, sacrificing speeds, and other expedients have been resorted to in order to move the traffic. If the problem had been only a temporary phenomenon, these steps might have served the purpose and might have been discontinued when the needs disappeared.

But it has now become necessary to provide as a permanent measure for a definitive increase in the levels of traffic. The figures quoted above relating to goods traffic refer only to the tonnage actually moved by the railways and not what they could have moved if the capacity and power were available. Passenger traffic has possibly reached the peak for the time being, but an increase of 10% over the present levels of freight traffic is anticipated by the end of the period of the Plan.

11. The rehabilitation programme of the railways has thus to take into account the two separate problems of deteriorated assets and the needs of the increased traffic.

Future programme

12. Before proceeding to consider the future programme, it is necessary to refer briefly to what has been achieved during the four years following Partition. The locomotives and rolling stock placed on the line during 1946-47 to 1950-51 are shown in the following table. It will be seen that the effort during the post-Partition period has fallen short of the needs of the situation:

New rolling stock placed on the line (Units)

	<u>1946-47</u>	<u>1947-48</u>	<u>1948-49</u>	<u>1949-50</u>	<u>1950-51</u>
Loco- motives	518	28	104	412	293
Coaching vehicles	120	156	238	337	479
Goods wagons	14,580	5,424	2,522	1,443	3,106

13. Apart from the question of finance required for the procurement of rolling stock there is also the question of manufacturing capacity both in this country and abroad. Shortages in steel and other essential materials and priorities of national requirements render the supply position in other countries often extremely difficult. Domestic manufacturing capacity is limited and will have to be increased considerably if the shortages are to be made good by it within the next few years.

Manufacture and import of railway equipment

14. With a view to eliminating dependence on external sources of supply, the Central Government have set up a workshop for the construction of locomotives at Chitranjan at an estimated cost of about Rs. 15 crores. The eventual production target for these works is 120 locomotives and 50 spare boilers per annum, but during the initial stages, i.e. period of the Plan, it is expected that 268 locomotives will be manufactured. Government have also extended financial assistance to the Tata Locomotive Engineering Company by participating in its capital structure to the extent of Rs. 2 crores. About 170 locomotives are expected to be supplied by this firm during the period of the Plan.

15. The position regarding coaching stock has already been explained. Improvement in affording substantial relief to overcrowding and eventually eliminating overcrowding is dependent on obtaining sufficient coaches. Every effort is being made to utilise fully the internal resources, but domestic capacity is limited. In 1948-49 the indigenous production of coaching vehicles was only 238; in 1949-50, 337; and in 1950-51, 479. The estimated output of indigenous production during the period of the Plan is 4,380.

16. To supplement indigenous production, the Central Government have taken in hand the establishment of a coach building factory at Perambur at a cost of Rs. 4 crores with an annual single-shift production capacity of 300 to 350 all-steel integral type coaches.

17. Domestic capacity for production of wagons is only slightly better in comparison. The 1948-49 indigenous production came to 2520 wagons; in 1949-50, 1095 wagons and in 1950-51, 2924 wagons. The estimate of indigenous production during the period of the Plan is 30,000 wagons.

18. It will thus be seen that the output from indigenous sources for the manufacture of railway coaches and wagons falls substantially short of the present requirements for rehabilitating railways. In order to make good the deficiencies, imports will be necessary.

19. The import programme of the railways during the period of the Plan includes 641 locomotives, 1294 coaching vehicles and 19,143 goods wagons. The programme is limited by the funds available. The actual requirement of new locomotives from abroad, in view of the low capacity of internal production, is considerably more than the figure shown here. The programme also includes requirements of spare boilers, cranes and marine stock at an estimated cost of Rs.1.7 crores per annum.

20.

Rehabilitation of track

20. The deteriorated condition of the track has already been referred to. The magnitude of the problem will be evident from the fact that at present speeds have been restricted over about 3000 miles of track on account of its weak condition. It is proposed to deal with 400 to 500 miles of track every year, and it is hoped that the restrictions on the main trunk routes will be removed within the period of the Plan.

21. As far as track renewals are concerned, the maximum use is at present made of the indigenous capacity for the production of track materials, and it is not proposed to import any rails or sleepers from abroad. During 1949-50, Class I railways purchased 2.3 million wooden sleepers at a cost of Rs. 3.90 crores. In addition, over 8 lakhs of cast iron and over 6 lakhs of steel sleepers were also purchased. It is anticipated that the purchase during the period of the Plan will be of the same order. In view of short supplies and rising prices, it is necessary to effect economies in the use of timber. The possibility of using half round sleepers for some metre and narrow gauge lines is being examined. Further, treatment of timber to prolong the life of sleepers should be adopted more extensively. The Railway Plan provides for the creation of two new depots for creosoting of timber at Clutterbuckganj and Coimbatore in addition to those already in existence at Dhilwan in the Punjab and Narkatia in Assam.

22. While rehabilitation is indeed the primary task, there are also problems arising from the obligations of the railway system as a public utility concern. The urgent problem of removing

overcrowding has already been referred to. In view of the enormous increase in the volume of passenger traffic, perceptible relief to overcrowding can come only with more coaching stock becoming available and permitting the operation of more passenger services.

Railway development under the Five Year Plan.

23. For many years there has been considerable demand for improved amenities at railway stations as well as in trains. The inconveniences and difficulties of passenger travelling by the third class have been ventilated in Parliament and outside. Measures to improve the comforts and conveniences in travel, particularly in the lower classes, are now actively in hand. In accordance with this policy a bulk provision of Rs. 3 crores is being made each year for passenger amenity schemes.

24. There is also the problem of coping with the increase in goods traffic. The volume of goods traffic has been steadily increasing from year to year, reflecting the effects of the progressive industrialisation of the country and the development of major projects. A significant example of the effect on rail transport of a new project is afforded by the Sindri fertiliser factory for which the railways have daily to move over a thousand tons of gypsum, a full train load, from the quarries in Bikaner to the site of the factory in Bihar. The distribution of the finished product throughout the country also calls for additional transportation. The opening of the Kandla port during the period of the Plan affords yet another instance. The linking up of that port with the hinterland will mean greater movement of transport from the new areas which await considerable development. Production has been on the increase in the many fields of industry, such as coal, sugar and jute and accessory raw materials required by these and other industries. All these represents a substantial increase in transportation required for the haulage of raw materials to the factory sites and of the manufactured products to the centres of consumption or ports for export. The execution of other major development projects will similarly impose heavy additional demands on the transport system. The assessment of what the impact of development programmes would be on the transport

economy of the country in general, and the railways in particular, is a continuous one and this aspect should receive close attention.

Financing the Railway Plan.

25. In order to overtake the accumulated arrears of maintenance and rehabilitation and to provide for an immediate programme of development for meeting the minimum obligations of the railways as a public utility concern, it is considered that the Railway Plan for the Five-Year period should provide for an average expenditure of not less than Rs. 80 crores a year or Rs. 400 crores in the aggregate. The bulk of the proposed allotment of Rs. 80 crores a year will be taken up by rehabilitation. This will enable the railways to handle more efficiently passenger and goods traffic at around present levels. The provision in the Plan for new lines is about Rs. 20 crores. The increase in industrial activity in the country as a result of the Plan will make increasing demands on the railway system. In the case of certain expansion schemes, such as for iron and steel or for mineral development, the expenditure needed for providing the necessary railway facilities will have to be treated as part of the expenditure on the project concerned. It is not possible at this stage to estimate precisely the requirements of the railways in respect of all the additional demands that might be made on them but it is intended that out of the lumpsum provision of Rs. 50 crores in the Plan for further expansion of basic industries and transport, the railways will get the necessary allocation.

26. Of the total expenditure on the Railway Plan of Rs. 400 crores, the contribution from the Central revenues will be Rs. 80 crores, the balance of Rs. 320 crores being raised by the railways from their own resources. Stated on an annual basis, the means that as against a contribution of Rs. 16 crores a year from the Central revenues, the railways are required to find from their current revenues, on an average, Rs. 64 crores a year. This, on the present estimates, would appear to be a reasonable target. There are, however, pressing demands on the railways for improvement of passenger amenities and reduction in overcrowding which are likely to result in considerable increase in the working expenses. The policy of the railways during the period of the Plan should be to keep down the working expenses to the lowest level compatible with efficiency and reason-

able standard of service in order that the necessary surplus for financing the development programme becomes available. The programme in hand represents, in the judgment of the Ministry of Railways, the minimum that must be seen through, so that if there is an unavoidable shortfall in the resources, it may become necessary to draw further on the reserve funds.

27. The expenditure of the railways during the period of the Plan, according to the present calculations, is to be phased as shown in the table appended to this chapter.

2. SHIPPING

28. The importance of shipping in a country with a long coast line and a large maritime trade can be easily appreciated. A mercantile marine is a second line of defence in times of crisis. It serves not only as an auxiliary force but also as a training ground for the navy, besides being indispensable for the carriage of essential supplies from overseas in times of war. In view of the importance of shipping under national flag, the coastal trade of the country was reserved in 1950 for Indian vessels in response to a public demand which had been made for the past 25 years. The Central Government have undertaken the major share of the responsibility for the training of the personnel for the merchant navy. They have also taken over the shipyard at Visakhapatnam in order to foster shipbuilding.

29. The Shipping Policy Committee (1947) had recommended that the target for Indian shipping for the subsequent five to seven years should be a total of 2 million tons and had suggested the lines on which this was to be done by Indian Shipping in the various near and distant trades. This target has not been achieved although the total Indian-owned tonnage, which was 125,000 G.R.T. before the war and 100,000 G.R.T. in 1946, increased to 362,150 G.R.T. by the end of 1950. Including the Moghul Line tonnage, the total Indian registered tonnage is 417,257 G.R.T. Early in 1951, there were 73 ships with a gross registered tonnage of 217,202 on the Indian coast and 24 Indian-owned ships of a total gross registered tonnage of 173,505 in the overseas trades. Some minor ships, though registered, are not active. More than half the coastal fleet is over 20 years of age.

30. An expansion of tonnage is necessary, firstly, to implement the policy of coastal reservation, and, secondly; to ensure fuller participation in the overseas trade. The shipping companies, however, are in need of financial assistance because of the condition of the investment market during the last three years; and the fact that these companies, most of which were started recently, have not been able to build up any significant reserves. Taking into account the financial resources available, a programme of development is formulated which aims at increasing the total gross registered tonnage in the coastal and overseas trades to about 600,000 by the end of the period of the Plan. Some assistance may be forthcoming from the International Bank for Reconstruction and Development for the acquisition of additional tonnage, especially in view of the importance of carrying foodgrains, but whether this materialises or not, it is essential that the programme of expansion indicated below is implemented.

Coastal shipping.

31. In order to assist the shipping companies in replacing obsolete tonnage operating on the coast, the Central Government have provided funds for construction of ships at the Visakhapatnam shipyard. A total of 100,000 G.R.T. is expected to become available from this shipyard during the period of the Plan. Out of this, about 60,000 G.R.T. will be utilised for replacement of obsolete tonnage and the balance for providing additional tonnage mainly for the coastal trade. Ships from the Visakhapatnam shipyard will be sold to the shipping companies at reasonable prices. The difference, if any, between the cost of construction and the sale-price will constitute the subsidy to the ship-building industry. The expansion of tonnage is thus linked with the development of the shipyard at Visakhapatnam so that its capacity is fully utilised.

32. In order to make coastal reservation effective, the total tonnage required is estimated at 300,000/ the requirement of near trades, e.g. India-Pakistan, India-Burma, and India-Ceylon. The output of the Visakhapatnam shipyard will help in replacing part of the existing tonnage engaged on the coastal trade and also in supplementing it. A provision of Rs 4.0 crores as loans to the shipping companies has

400,000 G.R.T.
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also
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been made in the Plan. The shipping companies themselves may be expected to raise a sum of Rs 2.0 crores. It is hoped, therefore, that with an amount of Rs 6.0 crores a substantial portion of the necessary additional tonnage will be acquired. However, in view of the prevailing high prices, nearly 50 to 75% of the additional tonnage will have to be second-hand.

Overseas shipping.

33. • Additional tonnage will have to be acquired to enable Indian shipping companies, engaged in overseas trades, to participate more effectively in certain routes (India-U.K./Europe, India-U.S.A., India-Australia) in which they operate today and in order that they may participate in others, such as, India-Far East-Japan routes. In some of these routes they have commitments with the shipping conferences as to the tonnage to be added by a certain date. In consultation with the representatives of the shipping companies and the Ministry of Transport, the minimum requirement of additional shipping for overseas trade has been placed at about 100,000 d.w.t., excluding 60,000 d.w.t. required by the Eastern Shipping Corporation for which a sum of Rs. 4.4 crores to cover Government's contribution has been provided. The additional tonnage for overseas trade will be acquired from the loan of Rs. 6.5 crores provided by Government and supplemented by an amount of Rs. 2.2 crores to be advanced by the shipping companies.

Rate of interest on loans.

34. The shipping companies have urged that the ability to utilise loans provided in the Plan is dependent on the rate of interest charged. This is more so in the case of the companies engaged in overseas trade who have to face keener competition than those engaged in coastal trade, which is sheltered on account of coastal reservation. We agree that there is justification for a lower differential rate of interest on loans for purchase of tonnage for overseas routes. Such rates may involve an element of subsidy to shipping and it may be necessary to have the standard costs examined.

Fiscal concessions.

35. The shipping companies have suggested that the following concessions should be allowed to enable them to raise the necessary finance for replacing obsolete tonnage and acquiring additional tonnage according to the programme:-

- (a) Profit on sale of old ships may be exempted from taxation on condition that the entire sale proceeds are utilized for replacing the vessels.
- (b) Depreciation allowances admissible for taxation purposes should be related to original cost or replacement cost, whichever is higher.
- (c) The shipping companies should be entitled to seek assistance from the Industrial Finance Corporation.

The fiscal concessions envisaged at (a) and (b) are of a general character. A uniform policy has to be followed in regard to all industries in such matters. The suggestion at (a) may, however, be examined in view of the high cost of the main asset of this particular industry, namely a ship. As regards the third suggestion, legislation to enable the Industrial Finance Corporation to assist the shipping industry is under consideration.

Programme of acquisition of tonnage.

36. Additions to Indian tonnage during 1951-52 consisted of a total of 18 ships of an aggregate G.R.T. of about 57000, which includes, besides three ships built at the Vishakhapatnam shipyard, one large ship built in the United Kingdom for the Scindias, one each purchased second-hand by the Bharat Lines and the New Dhodera Steamship Company with the aid of Government loans, two new diesel ships built in Japan for the Great Eastern Shipping Company, two second-hand ships purchased by the Scindias from the United Kingdom and eight small ships purchased second-hand by various small companies. As against these additions, three Indian ships of an aggregate G.R.T. of 14,000 were sold to foreign buyers and one ship of about 1,000 G.R.T. was lost so that the net increase came to 42,000 G.R.T.

The following table shows the programme for the acquisition of shipping tonnage during the period of the Plan:

	Additional Tonnage G.R.T.	Financial Investment	
		Total (Rs crores)	Foreign exchange (Rs crores)
<u>Coastal Trade</u>			
(i) Tonnage from Visakhapatnam shipyard.	100,000*	9.0	Nil
(ii) Additional tonnage	65,000	6.0	6.0
<u>Overseas Trade</u>			
(i) Additional tonnage (100,000 d.w.t.)	70,000	8.7	8.7
(ii) Ships for the Eastern Shipping Corporation.	40,000	6.0	6.0

38. At the end of the Five-Year period, the tonnage in the coastal trade would be about 315,000 G.R.T. and in the overseas trade 283,000 G.R.T. totalling about 600,000 G.R.T.

39. Since the Central Government will be extending financial assistance to shipping companies in order to expand their tonnage, a continuous watch will have to be maintained with a view to ensuring that the coastal rates of freight and passenger fares are reasonable, that the companies make adequate provision for purposes of replacement and renovation and that the management is efficient and progressive.

Nature and quantum of expansion based on foreign assistance.

40. The provision made for shipping will not meet all the requirements in the coming years, e.g. replacement of all overaged passenger ships, the nucleus of a tanker fleet in connection with the projected oil refineries and the acquisition of a certain volume of tramp shipping, which is of considerable value in importing foodgrains and in similar duties in times of difficulty. These requirements should be borne in mind in diverting unutilized amounts from the funds earmarked as loans

60,000 G.R.T. would be for replacement of over-aged ships.

to the shipping companies as well as any additional amount that may become available through foreign aid. This does not mean the shipping industry will be relieved entirely of their share of 25% or 33-1/3%, as the case may be, of the cost of meeting these requirements. In the case of tankers however Government may have to meet the entire cost themselves.

Sailing vessels.

41. According to the Sailing Vessels Committee's Report published in 1949, sailing vessels continue to carry a substantial volume of cargo. The Committee has estimated that 150,000 tons of shipping under sail consisting of about 2600 vessels carry about a million to a million and a half tons of cargo every year. Taking the average cost of these vessels at Rs 250/- a ton, the capital outlay on sailing vessels is estimated at Rs. 4 crores. These vessels employ about 40,000 men, namely, 2500 masters, 2500 mates and about 35,000 seamen.

42. It is certain that there will be scope for sailing vessels on the Indian coast for some years to come. Having regard to the volume of cargo carried by sailing vessels every year, the capital invested and the number of seamen employed, it is desirable to place the sailing vessels industry on a sound footing. The need is not so much to embark upon large-scale expansion of tonnage under sail as to reorganise the industry on a rational basis in order to increase the effectiveness of the existing tonnage. It is necessary that uniform rules and regulations should be prescribed for the registration of sailing vessels and for the tonnage measurement of such vessels. Steps should be taken for the assignment of free board for sailing vessels according to some simple formula. It is also desirable that life-saving appliances and safety standards applicable to sailing vessels should be improved. Coastal traffic under sail should be reserved for vessels of Indian registry. The procedure for lodging protests involving loss of life or cargo or damage to cargo by jettisoning or otherwise requires to be tightened up and an effective method of investigating such cases should be introduced. Encouragement should be given to the fitting of sailing vessels with auxiliary engines. Personnel employed on sailing vessels should be required to undergo suitable tests to ensure a minimum standard of proficiency. Such personnel should also be included in the welfare schemes for other seamen. Port and

XXX

repair facilities for sailing vessels should also be improved.

43. To give effect to these suggestions, the services of a full-time officer and adequate staff will be required. A special organisation under the Director General of Shipping has been set up for recently for the purpose.

Co-ordination of shipping with other transport agencies

44. Movements of goods between port and port are effected by both railways and coastal ships. Country crafts compete to a certain extent with ships in the coastal trade. Although competition between these agencies of transport may not be serious at present owing to bottlenecks in the railway system and insufficiency of coastal shipping, possibilities of keen rivalry exist when conditions are normal. Measures such as reservation of transport of certain commodities to sailing vessels and co-ordination of traffic between railways and coastal ships may have to be taken in future for utilising the various transport services to the best possible advantage.

Technical training.

45. The importance of technical training for securing the necessary pool of officers, engineers and crew for Indian shipping has been recognised in the plan which provides for an expenditure of Rs.1.10 lakhs for training schemes for marine engineers, and merchant navy ratings.

Lighthouse development.

46. Lighthouses are important ancillary facilities provided for shipping. Though Partition has brought about a shrinkage of the coastline under the charge of the Central Lighthouse Department, the subsequent Federal Financial Integration has acted in the contrary direction and increased its responsibilities. At present, there are 120 lighthouses along a coast of 4160 miles (including Andaman Islands) under the direct charge of this Department. In addition, there are lighthouses called "local" Lighthouses maintained

and administered by port authorities or the State Governments concerned. The total number of lighthouses now exceeds 1700. It has been decided that all these aids to navigation should be brought on to a Central Register and gradually taken over by the Centre as the Constitution has classified this subject as a Union responsibility.

47. Many of these lighthouses, particularly in the former Princely States, require immediate improvement and a plan estimated to cost Rs.1.00 crores has been formulated. Over the next five to seven years, the Lighthouse Department visualises a development expenditure of about Rs.2.5 to 3.0 crores. This excludes the requirements of Andaman and Nicobar Islands where aids to navigation are reported to be hardly existent and for which plans have yet to be drawn up.

48. A sum of Rs.2.00 crores is estimated to be required during the period of the Plan for the projects mentioned above as well as for the purchase of one out of two light-house tenders required for catering to the needs of the East and the West Coasts. The ready availability of tending facilities is indispensable since stores, provision and personnel have to be carried to lighthouses situated in the sea which also require attendance of working parties for repairs and other services. For enabling the Lighthouse Department to implement this programme, a loan of Rs.0.80 crores has been provided for in the Five-Year Plan. The balance of Rs.1.2 crores will be secured partly from the General Reserve Fund and the Depreciation Reserve Fund partly by increasing the levy of light dues progressively to three annas first and subsequently to four annas, per ton. Amendment of the Indian Lighthouse Act, 1927 will be necessary and should be undertaken for enabling the Lighthouse Department to increase the rate of light dues from two annas per ton which is the maximum permissible at present.

3. FORTS AND HARBOURS

Ports in India's national economy.

49. Ports are the gateways of foreign trade and

commerce of a country and they serve its maritime transport and play a vital part in the national economy. After Partition, India's foreign trade is carried on through the five major ports of Calcutta, Bombay, Madras, Cochin and Visakhapatnam. The loss of Karachi threw an additional strain on the Bombay port to which a part of the traffic previously handled by the Karachi port had been diverted. The present capacity of the five major ports to handle cargo is about 20 million tons per annum excluding petroleum, country-craft and bunkers. As against this capacity, they handled about 20 million tons during 1949-50 including petroleum and country-craft traffic which shows that there is at present no reserve capacity for coping with a possible expansion of trade in future. Even now the capacity is not sufficient to meet the demands of peak traffic.

Need for port development:

50. Further expenditure has to be incurred on port development during the period of the Plan owing to the following reasons:

(i) There is need for rectifying the consequences of Partition and providing a natural outlet for traffic previously catered for by Karachi. It is mainly for this reason that the development of Kandla as a major port was recommended by the West Coast Major Port Development Committee. The recommendation was accepted by the Central Government and the project taken up for implementation in 1949. The port will cater to the vast hinterland of the Punjab, North-Western and Central India more economically than Bombay through a reduction of about 200 miles in transportation. Uptil the 31st March, 1951, a sum of Rs. 0.90 crores had been spent on this project. This scheme has also significance from the viewpoint of rehabilitation of displaced persons from Sind.

(ii) A large part of the equipment of ports was intensively used during the war and is now antiquated and obsolete. The dock systems in the ports also need to be modernised. Postponement of renovation and modernisation of these ports would result in slow turnround of ships and economic loss to the country.

(iii) The Central Government have undertaken to provide port facilities for the petroleum refineries proposed to be set up at Trombay (Bombay) by the Standard Vacuum Oil Company and the Burnah-Shell Oil Company. As the refineries are expected to go into production before 1955, it is necessary to give a high priority for the provision of oil discharge facilities.

Capital expenditure for modernisation and development during the period of the Plan.

51. In consultation with the port authorities the Ministry of Transport have worked out a programme of rehabilitation, modernisation, and expansion of the five existing major ports at an estimated cost of Rs. 29.27 crores, consisting of schemes considered eligible for assistance from the Central Government. This estimate is exclusive of an expenditure of Rs. 12.05 crores on the Kandla port and of Rs. 8 crores on the creation of port facilities for the oil refineries and of alternative facilities for the existing establishment on the Butcher Island. If all these projects are taken up, the development expenditure on ports during the period of the Plan will come to about Rs. 54.22 crores. This includes an amount of Rs. 4.90 crores spent in 1951-52 by the port authorities.

Programme of various ports.

52. The development of Kandla as a major port will increase the trade handled at this port from about 122,000 tons during 1951 to about 850,000 tons per annum from 1956. The major items in the programme for the Calcutta port are restoration of the Garden Reach Jetty, purchase of wagons, locomotives and a heavy-lift crane for handling heavy machinery and construction of two manual coal berths and one mechanical ore berth. The important part of the programme for the Bombay port relates to modernisation of the Princes' and Victoria docks, reconstruction of transit sheds therein and installation of electric cranes at the Alexandra docks. Provision has also been made in the plans of the

equipment imported for use on the river valley projects and

Bombay, Madras and Calcutta ports for housing of labour. The programme for the Madras port envisages, apart from other less important projects, a wet-dock scheme costing Rs. 2.97 crores during the period of the Plan and two all-weather berths for petroleum oil at a cost of Rs. 0.72 crores. The plan for the Cochin port provides, among other schemes, for the construction of new berths for general cargo at a cost of Rs. 1.6 crores. Developments at the Butcher Island include the construction of pier and approach trestle, and five pipe lines.

Financing of the port development projects

53. The administration of major ports is carried on by different agencies. Whereas the Bombay, Calcutta and Madras ports are administered by statutory port trusts, Cochin and Visakhapatnam ports are administered by the Central Government in the Ministry of Transport and the Ministry of Railways respectively. All the major ports are non-profit making, self-financing undertakings with funds of their own which do not enter into the accounts of the Central Government. An examination of the reserves at the disposal of the different port authorities shows that they represent only a small fraction of the total finance which is essential for the modernisation and development of the ports. It is possible to augment the resources of the ports to a certain extent by raising port charges but the policy of raising additional finance by this method will have to vary with different ports depending upon the surcharges already in force and the scope for further increase. There is a limit to this method because any excessive enhancement of rates on basic materials and foodgrains will tend to increase costs of industrial production and the price of commodities to consumers. It is also not possible to increase the incidence of port charges beyond a certain point in respect of commodities exported as that would react adversely on the volume of exports. Finance for development of ports will, therefore, have to be found :-

- (i) by drawing on the existing reserves of ports;
- (ii) by increasing port charges to the extent possible; and
- (iii) by direct central assistance in the form of loans.

54. Excluding the Kandla Port Development Project which will be financed wholly by the Central Government, a sum of Rs. 42.17 crores will be required for expenditure on all the projects of the port authorities. It has been estimated that the maximum that can be raised by them by the first two methods is Rs. 15.5 crores, including the expenditure already incurred in 1951-52. If all the projects now contemplated are to be taken up, assistance will have to be given to the ports to the extent of Rs. 26.67 crores. So far the ports have been depending on loans, raised from the public or granted by Government for their large-capital works. The quantum of Government assistance will be reduced to the extent that the port authorities can raise loans in the open market as in the past. It has, however, been pointed out that this source is restricted because there is a limit beyond which the port authorities cannot increase charges for services rendered in order to enable them to pay interest on loans.

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55. The Plan provides for an advance of Rs. 12.00 crores by the Central Government to the port authorities during the Five Year period. In addition, the Central Government will also accept the liability for the creation of port facilities connected with the oil refinery projects at a total cost of Rs. 8 crores. The port authorities have suggested that the loans should be interest-free for a period of 12 years at the end of which they should be repayable in instalments together with interest at a reasonable rate. In the broader public interest, the development schemes of ports will have to be financed and for this purpose loans will have to be advanced to the port authorities. Whether ordinary terms can apply to such loans should be carefully examined by the Ministry of Transport at an early date. If the examination shows that there is a case for assistance in the form proposed, it should be made available.

4. CIVIL AVIATION

Progress of civil aviation in India

56. India is favourably situated for the development of air transport, both internal and international. In the internal field, with her vast distances and good flying conditions during the greater part of the year, there is considerable scope for this mode of transport. Almost all the important administrative, industrial

and commercial centres of the country are at present connected by air. The night air services which connect the four principal cities form an important part of the airline net-work and fill a long-felt need. There is, however, room for more intensive operation on the existing main routes as well as extension to less important towns. In the international field, India occupies geographically an important position in the world air routes between the East and the West. This throws upon the Government of this country the obligation to maintain ground services of prescribed standards for the use of the international air services. International services are also being operated by India both to the West and the East. Further, civil air transport can play a vital role in emergencies, as was evidenced in the evacuation after Partition and in West Bengal and Assam in 1949-50, as well as in relief and other operations in Assam after the earthquake and floods. Finally, the defence aspect of civil aviation should not be lost sight of. All v civil aviation equipment, personnel and organisation constitute in effect a reserve for the defence services, which can be mobilised quickly and made available during an emergency. For these reasons the future plans of development have to take into account the growing needs of civil aviation. Roughly, the capital expenditure on civil aviation development till the end of 1950-51 was of the order of Rs. 10 crores. The expenditure was for provision of aerodrome organisation, including runway, hangars, passenger buildings, lighting, etc.; communication organisation which included radio aids for air navigation; inspection organisation which related to the supervision and check of airworthiness of aircrafts and other technical equipment and competence of personnel; and training organisation which included the Civil Aviation Training Centre at Allahabad.

57. As part of their post-war plans of development, the Central Government had drawn up a plan for developing, controlling and regulating air transport. The main features of this plan were:-

- (a) the development and operation of air transport services would be left to private commercial organisations;
- (b) the operation of scheduled air services would be subject to licensing by a body called the Air Transport Licensing Board to be set up for the purpose;
- (c) all the main air services in India should be operated by about four companies; and

- (d) Government might give financial assistance to the operating companies in specific cases.

58. At the end of the war, many companies were floated for the operation of air services. The war-time boom in air traffic had created an impression that commercial air transport operation was a very profitable enterprise, especially as war surplus stocks made available certain types of air-craft at very low prices. These conditions gave an impetus to the floatation of aviation companies and a number of applications were made to the Air Transport Licensing Board for licenses for the operation of internal air services. By the end of 1949 nine companies had been granted such licences. It soon became apparent, however, that the financial condition of most of the companies was not reassuring. The Central Government appointed a committee—the Air Transport Inquiry Committee—to investigate the financial condition of the companies and to make recommendations for putting the air transport industry on a firm basis and for developing commercial air transport on sound lines. From the report of this Committee, it is evident that the financial position of the industry as a whole is far from satisfactory and that the main reason for this is that the number of operating units is larger than that required to conduct the available volume of air transport business on an economic basis. The Committee has made recommendations for improving the existing position and Government are taking steps to give effect to many of them.

59. The development plan for civil aviation projects during the next five years, excluding operation of air transport industry discussed below may be considered in two stages, namely, for the first two years of 1951-52 and 1952-53, and for the next three years of 1953-54 to 1955-56. For the first two years, the amount of capital expenditure allotted is Rs. 1.85 crores per annum. This is made up of about Rs. 1.5 crores per annum for work and the rest for equipment. For the second period of three years, the total allotment made is about Rs. 9.67 crores. The expenditure will have to be properly phased during the period, the amount to be spent during the last year being in the neighbourhood of Rs. 4.00 crores. About 70 per cent of the allotment is in respect of work, the remaining being for several items of technical equipment.

Aviation Policy

60. Of late important aspects of the air transport industry have been examined by Government. For arriving at more precise estimates of replacement requirements, the selection of the aircraft that should replace the Dakota and the Viking, and the methods of financing the purchase of aircrafts, the Director-General of Civil Aviation, Ministry of Communications, held a conference with the representatives of the airline operators in January, 1952. It was agreed at the conference that for operations on semi-international and trunk routes, the Dakota should be replaced by a more modern type of aircraft. Such replacement of the Dakota on the main routes was considered necessary to enable the airtransport industry to compete on even terms with foreign air lines operating on these routes. Further, this step would keep the country in touch with the latest development in aircraft design in other parts of the world and also give the necessary training in the servicing and overhaul of new types of aircraft to the technicians in the country. Various factors involved in the question of expansion of air fleet vis-a-vis the development of the Hindustan Aircraft have also been considered. It has been found that the expansion programme of civil aviation should be dealt with, for the period of the Plan, independently of the programme of development of the Hindustan Aircraft although eventually these two programmes will have to be co-ordinated.

61. The requirement of new aircraft before the close of the period of the Plan is estimated at 20 valued at Rs. 10.0 crores as under :-

	(Rs. crores)
2 aircrafts for the Air India International's Western Services and 3 aircrafts for the Bharat Airways Eastern Services.	4.5
15 aircrafts for shorter services and major trunk routes in India	6.0
	10.5

The airline operators represented that they would require assistance by way of loan from Government equivalent to two-thirds of the total amount, viz., Rs. 7.0 crores at a concessional rate of interest for acquiring such aircraft.

62. Enquiries have shown that under the present conditions of traffic load and intensity of operations the existing air transport companies cannot work on an economic basis. With the introduction of the more modern aircrafts mentioned above which will be larger and faster and also more costly, economic operations will be possible only if the existing companies merge into a single unit. A single organisation in charge of internal as well as external operations can handle all the existing traffic with a smaller number of aircraft and also save in overheads and in other directions. Under a single organisation for example, the requirements of additional aircraft for internal as well as external services will be about 13 instead of 20 mentioned above. The agency for operating the services should be a statutory corporation in which the shareholders of the existing companies may be allowed to participate pro-rata, if they wish to do so in exchange for their present holdings the value of which should be determined on an equitable basis. The Central Government's share in the corporation should be large enough to ensure control over the industry.

63. The Plan provides for a sum of Rs. 9.5 crores for the purchase of 13 aircrafts, three of which would be of the type required for long-distance international air services, and (b) for the payment of such compensation as may be found necessary for acquiring the assets of the existing companies. If the existing air companies agree to take up shares in the new corporation in exchange for their present holdings, the amount needed will be of the order of Rs. 6.5 crores.

5. ROADS

64. Roads are a service for all forms of development, whether of agriculture, trade, or industry. In the development of roads, a national conception is necessary not only because of their strategic importance but also because of the need for co-ordination between different types of roads. This was recognised in the Nagpur Plan which emphasized that the schemes developed by the Centre and the States should be based on the consideration of the road system of India as an integral whole; and that development should be balanced as between different categories of roads and should proceed in a planned sequence, having regard to the requirements of traffic

65. Taking the area of the country and the population into consideration, the total mileage of roads in existence at present is admittedly short of requirement. After the advent of the railways, development of roads did not receive adequate attention until the constitution of the Central Road Fund in 1929. Since then, the achievements have been significant. According to the report of the Motor Vehicle Taxation Enquiry Committee (1950) no fewer than 382 new bridges and causeways had been built and 1250 miles of modern surface roads, 1500 miles of fair weather roads and 2200 miles of road reconditioning completed upto the time of their enquiry. The assurance of a continuous supply of funds under this scheme has been an important factor contributing to the progress made. Nevertheless, owing to the expansion of motor transport that has taken place during the last 30 years and developments in the field of industry and trade, the road system in existence is not adequate and there is need for substantial road development being undertaken in future years. The modern motor transport requires roads with easier curves, wider formations, stronger crusts and smoother surfaces, which are not necessary for other community uses of roads. The number of motor vehicles on the road is steadily increasing and the weight and range of transport vehicles is appreciably greater than it used to be.

66. The Nagpur Report on the Post-War Road Development of 1943 (the Nagpur Plan) visualised the development in a period of ten years of a total mileage of hard-surface roads from about 66,400 miles to 122,000 miles; of low type roads from about 112,000 to 207,500 miles and the improvement of existing roads, wherever necessary, so that the road system would cater for anticipated traffic needs for the next 20 years. The objective underlying the Nagpur Plan was that no village in a well-developed agricultural area should remain more than 5 miles from a main road, while in a non-agricultural area no village should remain more than 20 miles from a main road. It was a fundamental of this programme that no road should be considered by itself, but as a part of a network and that no road surface should be of a higher standard than was required to carry the existing traffic or traffic anticipated in the immediate future.

67. The expenditure contemplated in the Nagpur Plan was of the order of Rs. 372 crores of which Rs. 66.5 crores related to national highways and Rs. 305.5 crores to other roads at a price level 50 per cent over pre-war costs; but taking a level of 200 per cent over the pre-war cost as an estimate nearer to present day price levels, the expenditure target for the programme contemplated will be Rs. 744 crores of which Rs. 133 crores will be for national highways and Rs. 611 crores for other roads.

68. Owing, however, to shortage of materials, scarcity of trained men, and above all to financial stringency, the programme visualised under the Nagpur Plan had to be spread over a longer period of years. As a result, an expenditure of Rs. 27.1 crores incurred in the States during the 3 years ending the 31st March 1950, represents only about 5 per cent of the Nagpur Plan target figure. An expenditure of Rs. 9.3 crores on national highways in the five year ending in March 1952 shows somewhat better progress at 15½ per cent of the corresponding target figure.

Priorities under the Five-Year Plan

69. Priority in the development of roads has to be determined in relation to plans of development in other spheres in the light of national and local resources and needs. Roads which assist production, and especially agricultural production, should have a high priority in existing conditions. This has been recognised by some of the States, such as Uttar Pradesh, where development of roads forms a part of the schemes of rural reconstruction. It is evident that such roads as are feeders to railways or which relieve congestion at certain junctions and help to open up the country, have to be given preference. Priorities within the State have to be determined by the State itself. And it is evident that such priorities would tend to differ in different States. In West Bengal, for instance, owing to the partition of the State, construction of roads has a particularly high priority. Many of the previous roads were from east to west while now they have to connect north and south, without which certain "pockets" cannot be easily reached and surplus products cannot be made available to other parts of the State.

National highways.

70. The Nagpur Plan recommended the classification of roads according to their functions. Thus, roads were divided into National Highways, State Highways, Major and Minor District Roads, and Village Roads. National Highways are "main highways serving predominantly national, as distinct from State, purposes, running through the length and breadth of India, which together form a system connecting (by routes as direct as practicable) major ports, foreign highways, capitals of States and including highways required for strategic movements for the defence of India." Subject to certain conditions embodied in the National Highway Scheme, the Central Government assumed financial liability with effect from the 1st April 1947 for the development and maintenance of a provisional system of national highways limited to a length of about 13,400 miles.

71. This mileage originally included (in 1947-48) approximately 1600 miles of "missing" road-links and about 120 "missing" bridges over very large rivers in addition, to many other bridges, large and small. In the last five years, 160 miles of new roads and seventeen very large bridges with numerous smaller bridges have been constructed and 1315 miles of road have been improved. There are at present under construction about 320 miles of new roads and eighteen large bridges. The Five-Year Plan provides for the completion of the work in hand and the taking up for construction of 450 miles of new roads and 43 very large bridges besides a large number of smaller bridges. In addition, about 2200 miles of roads are to be improved. Of this programme about two-thirds will be completed by 1955-56 and the rest will be in progress. Many of the existing bridges are not capable of carrying heavy loads and require reconstruction. This work, however, will be taken up (except as mentioned in para 73(3) below) only after all the "missing" road links are built and the unbridged rivers spanned.

72. A sum of Rs. 27.00 crores over a period of five years has been provided in the Central Government's plan for the development of national highways including the probable expenditure on the road element in the proposed rail-cum-road bridge during this period. A separate provision of Rs. 4.24 crores has also been made in the Central sector for the devel-

opment of certain selected roads (other than national highways) for which financial liability has already been accepted by the Centre. Further a sum of Rs. 21.15 lakhs has been provided for the Central Road Research Institute where investigations of interest for road development in different regions of the country is to be carried out.

73. The priorities for the National Highways five-year development programme have been fixed on the following basis:-

- (1) Completion of all capital works already sanctioned and in progress.
- (2) Provision of new bridges and missing road links, as far as possible, along the "arterial" national highways. (The arterial national highways are those that connect the main population centres plus a few whose development has been given priority as a result of Partition).
- (3) Urgent replacement or strengthening of existing dangerous bridges and improving sections of existing roads that are uneconomical to maintain or dangerous to traffic.

With the funds provided in the Plan, it will not be possible to close all the gaps even in the arterial national highways - this work together with the development of the remaining national highways will have to be left for future plans.

State roads.

74. These are linked with national highways and along with them constitute a single road system. Their programme is determined by the State themselves though the Roads Organisation at the Centre is consulted. Construction of State Roads is at present financed from State revenues, which are supplemented by the allocations and grants from the Central Road Fund. According to

the schemes envisaged by the State Governments, the mileage of metalled roads will increase from 10,007 miles in 1950-51 to 12,453 miles by 1955-56 in the Part 'A' States and from 7,588 miles to 8,129 miles in the Part 'B' States. During the same period the mileage of unmetalled roads will be reduced from 2,199 to 757 miles in the Part 'A' States and 526 to 206 miles in the Part 'B' States.

75. The Road development plans of the Part 'C' States are being framed with a view to providing for the construction of as many new roads as possible for opening up areas which are at present inaccessible while improvement and reorientation of the existing roads to meet the changed administrative requirements and the economic development of the areas is also being given due emphasis.

76. The total provision for road development in the plans of the States is Rs.73.54 crores, out of which the Part 'A' States account for Rs.50.59 crores, and the Part 'B' States for Rs.16.68 crores, the balance being accounted for by the Part 'C' States.

Village roads.

77. As regards village roads, the broad aim should be to connect the more important villages with marketing centres and district headquarters. The absence of a sufficient mileage of village roads is a serious drawback in the system of communications. The State Governments should pay special attention to the construction and maintenance of these roads and for this purpose enlist the cooperation of villagers. In certain States, village roads are, in fact, being developed with the active cooperation of the villagers themselves who contribute a portion of the cost of construction by way of free labour, free gift of land or money, the balance being contributed by the State Government or district boards. As a token of the Central Government's interest in the development of village roads, the Roads Organisation have formulated a 'model scheme' for village road development on a cooperative basis and has made an initial offer of a grant of

Rs.15 lakhs from the Central Road Fund Reserve as a contribution towards specific projects. There is considerable scope for development of village roads on cooperative basis by mobilising the local population for executing local projects.

78. The programme described above is exclusive of likely road development under the community development projects. Tentatively it has been estimated that 16,000 to 17,000 miles of kutchra roads will be constructed in the village units falling under those projects.

Finance for road development in the Five-Year Plan.

79. As already explained above, the principal difficulty in the development of roads in recent years has been the paucity of finance. The Motor Vehicle Taxation Enquiry Committee, 1950, have suggested certain measures for augmenting the resources for road development which should be considered by the Central and State Governments. The importance of continuity in the supply of funds with a view to avoiding wasteful expenditure and pursuing even modest programmes without interruption needs to be recognised by the Central and State Governments.

80. ~~The bulk of the finance for road development~~ will go towards acquisition of land, purchase of materials, and payment of labour. The foreign exchange requirement for the purchase of machinery has already been considerably reduced with the manufacture of steam and diesel road rollers in the country. The Tata Locomotive and Engineering Company have, upto the end of February 1952, manufactured and supplied 830 steam rollers against an order for 950 units. Similarly, Messrs. Jessop and Company of Calcutta have manufactured and supplied all the 475 diesel road rollers ordered from them. At present, considerable foreign exchange is being spent for importing asphalt for black topping of roads. Imports fluctuated between 47,110 tons and 79,363 tons per annum between 1948-49 and 1950-51.

With the establishment of petroleum refineries during the period of the Plan, asphaltic bitumen will be available from domestic sources from 1955-56 and this will result in a further saving of foreign exchange.

6. ROAD TRANSPORT

81. The beginnings of commercial motor transport in India can be traced to about the year 1920 when the opportunity for its development was created by the military vehicles rendered surplus after World War I. There was a rate-cutting competition among the private bus operators inter se and between road and rail transport agencies. By 1930 the large diversion of passengers from railways to roads resulted in considerable loss of railway revenues. The question of rail-road competition was examined in subsequent years and with the coming into force of the Motor Vehicles Act in 1939, a beginning was made in the direction of creating fair conditions of competition and controlling the acceptance in 1946 of the policy of encouraging the formation of transport undertakings on tripartite basis, viz., private operators, the State Governments and railways. The next significant development was the formation of statutory transport corporations by certain State Governments under the Road Transport Corporation Act 1948, subsequently replaced by the revised Act of 1950.

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82. At present there are in the country approximately 47,575 operators of whom 25 own a fleet exceeding 100; another 50 exceeding 50 vehicles but not exceeding 100; and less than 1500 operators, a fleet exceeding 5 but not exceeding 50 vehicles. There are more than 46,000 small operators each owning 5 vehicles or less. State-operated services exist in varying scales in Assam, Bihar, Bombay, Madhya Pradesh, Madras, Orissa, Punjab Uttar Pradesh, West Bengal, Hyderabad, Madhya Bharat, Mysore, Rajasthan, Saurashtra, Travancore-Cochin, Kutch, Himachel Pradesh, Manipur, Bilaspur and Delhi. The pattern of management varies. In Orissa and Madhya Pradesh the undertakings are managed by joint-stock companies. In Kutch, a non-statutory authority manages the services. In Bilaspur, Bombay and Delhi there are statutory bodies. In the other States, operation is undertaken departmentally. In Bihar, Hyderabad, Kutch and Mysore it has been decided to set up statutory corporations under the Road Trans-

port Corporations Act, 1950. The railways have participated financially in the undertakings in Bombay, Madhya Pradesh and Orissa with a total contribution of Rs. 2.586 crores towards capital outlay; the State Governments' contribution being Rs. 4.7 crores.

∠Punjab

83. State participation in public road transport is intended to achieve greater efficiency and economy in operation and management which a large number of small operators functioning separately will not be able to do. Only large organisations with adequate financial resources can provide the workshop and other facilities which are essential for rendering efficient service and realising the economies resulting from large-scale operation. The benefit of such economies can be passed on to the consumer as well as the transport worker if commercial road transport is under public ownership. While participation by the State Government in road motor transport services is thus advantageous to the public, the displacement of private operators creates certain problems. Partly in recognition of this situation, the State Governments are generally pursuing a policy of nationalising road transport in gradual stages within the resources available. Certain State Governments have also made provision in their schemes for financial participation by private operators at their option. It is desirable for the existing private operators' units to amalgamate, wherever possible, into big, viable units to enable them to achieve better returns and maintain better standards of operation.

84. The programme of commercial road transport in the private sector is not available. As regards the public sector, the investment on public road transport services (capital at charge) as in June 1950 in all the States was nearly 12.0 crores and at present it stands at Rs. 17.13 crores. This investment is made up of contributions of the State Governments, railways and private operators.

85. In the Five-Year Plan, the investments of the State Governments on road transport between 1951 and 1956 is envisaged at Rs. 8.97 crores. The investment of the Part A States on road transport services which was Rs. 8.33 crores in June 1950, is expected to increase by Rs. 5.62 crores by the end of the period of the Plan. Whereas, Assam, Orissa, West Bengal, Bombay and Uttar Pradesh are the States in which developments are envisaged, substantial expansions

would be effected only in the last three States. The expenditure on road transport in these three States during the period of the Plan will be as much as 91% of the total. Developments in the Part B States are restricted to Travancore-Cochin, Saurashtra and Rajasthan; and in the Part C States to Bilaspur, Manipur, Himachal Pradesh and Delhi. The expenditure in the Part B States is estimated at Rs. 0.96 crores out of which Saurashtra will spend Rs. 0.53 crores and Travancore-Cochin, Rs. 0.42 crores; out of Rs. 2.39 crores allotted for road transport in the Part C States, the Delhi Transport Authority will be spending Rs. 2.16 crores during the period of the plan. About a third of the investment by the Delhi Transport Authority will be incurred on tramways.

86. The railways, as already explained above, participate in the public road transport undertakings brought into existence by the State Governments. The present investment of the Central Government in the public transport services in various State is estimated at Rs. 3.53 crores as against Rs. 1.55 crores at the beginning of the period of the Plan. It is envisaged that the Ministry of Railways will participate in road transport programmes of the State Governments but it is difficult to forecast at this stage what their investment on such undertakings during the period of the Plan will be. It is expected that the resources necessary for the participation of the railways in State transport undertakings will be found from the funds provided for the Railway Plan.

87. Investment on road transport in the public sector will be directed inter alia, to: (i) purchase of about 2,000 transport vehicles and (ii) establishment by the bigger units like State road transport services of Bombay, Uttar Pradesh & Delhi of up-to-date workshops for maintenance, repair and overhaul of the transport fleet owned by them. Facilities for training operatives are also envisaged. Two points of importance arise in connection with the purchase of transport vehicles, viz., (i) standardisation of vehicles used by the State transport services and coordination of programme of replacement and expansion of transport fleet with the development of the indigenous automobile industry and (ii) use of diesel versus petrol driven vehicles. These two issues have been referred by the Central Government to the Tariff Commission in connection with the investigation into the claim for protection for the

indigenous automobile industry. State transport services should reorient their programmes in accordance with the recommendations that may be made by the Tariff Commission. As regards the agency for running the State transport services, we are of the opinion that whenever road transport services are run by the State, a corporation should be formed for the purpose as that would provide the necessary autonomy and would lead to more efficient administration. The ground has been cleared for the formation of State transport corporations by the Road Transport Corporation Act 1950, passed by Parliament.

7. COMMUNICATIONS

The state of the communication services.

88. The communication services in India, which comprise postal, telegraph, telephone and wireless communications, are provided by the Posts and Telegraphs Department, which next to the railways, is the largest department of the Central Government. The Department is responsible not only for the communication services for the general public but also for such specialised sections as the commercial community, the press, the railways, the canal administrations, and the defence services. It is primarily a public utility Department but is run on a commercial basis so as not to be a burden on the general revenues.

89. The postal and telegraph facilities have been in existence in India for a little over a century. The growth has been slow and steady but, having regard to the size of the country, development has lagged behind the actual requirement. The demand for these services during the last few years has become very acute. The Department has been hard put to run the services with reasonable efficiency for the following reasons:-

- (a) deterioration in equipment due to both excessive pressure and normal wear and tear during the war years and difficulty of replacement;
- (b) deterioration in the quality of the personnel;
- (c) heavy growth of traffic in all branches which has more than doubled itself during the last decade; and
- (d) consequences of Partition, which caused considerable dislocation.

90. ~~Development in various sectors, private and public~~ under the Five-Year Plan will throw an additional burden on the Department which will be called upon to provide communication services to an ever-increasing extent. The requirements of the communication system which include postal facilities, provision of adequate office building for posts and telegraphs offices, telecommunication development particularly in telephones, and modernising the posts and telegraphs workshops will have to be provided for.

Development plans.

91. One of the main pre-occupations of the Department is to extend communication facilities in the rural areas. During the last five years considerable progress has been achieved in this direction. About 35,000 new post offices were opened. The aim is to have a post office in every village with a population of 2000 or over. The Department expects to achieve this target by the end of 1953. But in a country predominantly consisting of villages, rural facilities will have to be further improved and the programme will have to be continued. At the same time demand for increasing postal facilities in the urban areas will have to be met. To increase the efficiency in working there is a programme of introducing mechanised devices on the lines of what obtains in some of the more advanced countries of the West.

92. Shortage of accommodation in the postal and telegraphs offices and the consequent congestion has become so serious that unless concerted measures are taken quickly the efficiency of the Department will go down rapidly. It has already been stated that the traffic has more than doubled itself during the last decade, while practically no new construction has taken place (a) to accommodate the additional operative staff engaged in handling the increased traffic, and (b) to meet the requirement of the public in the shape of larger counters, etc. A large proportion of post offices is accommodated in rented buildings. In view of the considerable urbanisation that has taken place during and after the last war, it has become difficult even to rent buildings to accommodate these offices. Existing rented buildings have proved inadequate for meeting the situation and in many cases landlords are eager to terminate the tenancy. Further, the interest of the services requires that the bulk of the operational staff should live near their place of duty. This makes it necessary for the Department to provide residential accommodation for them. The

Department is thus faced with a large building programme both in shape of posts and telegraphs offices as well as quarters for its staff. T

93. The present telegraph network in India is comparatively meagre taking into account the \angle extension of tele-communication services to a larger number of centres. Modern mechanised methods in the handling and transmission of telegraphs traffic are being introduced. They will greatly improve the efficiency of the services and also result in economy in running its expenditure. The most insistent demand for development is in the fields of telephones. India is very backward in this regard; it is even more backward than for instance, China. The number of telephone lines in the whole of India is less than that in one city of Australia, viz. Sidney. There are long waiting lists in every city, big and small, for telephone connections. The development programme under the Five-Year Plan which will expand the economic activity all over the country will further swell these waiting lists. From the financial point of view the return on capital investment on the development of telephone facilities is substantial. For instance, at the end of the financial year of 1950-51 the capital investment in telephone and telegraph services amounted to about Rs. forty eight crores and the net profit in that year in the two branches, after deducting interest on capital as well as depreciation and other working expenses, was Rs. 4.61 crores which works out to a return of 9.6%. If the interest charges at 2.3% were added, the yield on capital invested amounted to 11.9%. The yield on the capital devoted to telephone development is proportionately greater since a smaller amount of money is committed to "no profit" schemes like providing strategic lines, railway circuit, communications to inaccessible places, etc.

\angle extensive area involved. The development Plan provides for the

94. The posts and telegraphs workshops in Bombay and Calcutta are located in the centre of the respective cities and their working in such a location is not conducive to economic production. They do not afford room for expansion which will become necessary almost immediately to meet the increasing demands of the Department. It will, therefore, be necessary to shift these workshops to more suitable localities as well as to modernise them so as to improve their efficiency.

95. The Plan provides an allotment of Rs 50 crores for the development of the communication services including postal, telegraph, telephones and wireless communications.

The railway plan for 1951-56 (in crores of rupees)

	1951-52 approximate actuals.	1952-53 (Budget)	1953-56	Five years' total
Rehabilitation and additions				
Track	8.51	44.36	42.00	64.87
Bridges	0.85	1.15	3.60	5.60
Other structural and engineering works	7.89	8.52	27.00	43.41
Collieries	0.06	0.39	1.00	1.45
Ports	0.09	0.18	0.77	1.04
Rolling stock and machinery	36.91	42.55	128.50	207.96
Labour welfare - staff quarters and welfare works	4.55	4.54	15.00	24.09
Restorations	0.52	1.14	4.00	5.66
New lines				
Special projects				
Major bridges				
Electrification of track	6.55	5.97	16.00	28.52
Conversion of narrow gauge to metre or broad gauge				
Passenger amenities	2.47	3.00	9.53	15.00
Miscellaneous items including probable savings	2.47	2.70	2.63	2.40
Total :	70.87	79.10	250.03	400.00

CHAPTER XXXII

HEALTH

Health is fundamental to national progress in any sphere. In terms of resources for economic development, nothing can be considered of higher importance than the health of the people which is a measure of their energy and capacity as well as of the potential of man-hours for productive work in relation to the total number of persons maintained by the nation. For the efficiency of industry and of agriculture, the health of the worker is an essential consideration.

2. Health is a positive state of well being in which the harmonious development of physical and mental capacities of the individual lead to the enjoyment of a rich and full life. It is not a negative state of mere absence of disease. Health further implies complete adjustment of the individual to his total environment, physical and social. Health involves primarily the application of medical science for the benefit of the individual and of society. But many other factors, social, economic and educational have an intimate bearing on the health of the community. Health is thus a vital part of a concurrent and integrated programme of development of all aspects of community life.

State of public health.

3. Statistics of positive health are difficult to obtain. Information in regard to morbidity is available only to a limited extent. We have, therefore, to rely mainly on mortality statistics in assessing the state of public health. Compared with other countries, the expectation of life at birth in India is low as the following statement would indicate:

XXXII

Country	Death rate per million (1950)	Infantile mortality per 1000 live births	Expectation of life at birth.		Year.
			Males	Females	
United States of America	9.6	29	Negros		
			47.55	49.51	1920-21
			52.26	55.56	1939-41
			57.90	61.90	47
			Whites		
			59.12	62.67	1929-31
England & Wales	11.6	30	62.81	67.29	1939-41
			65.20	70.50	47
			51.50	55.35	1910-12
			55.62	59.58	1920-22
India	16.5	127	58.74	62.88	1930-32
			66.39	71.15	48
			23.63	23.96	1891-1901
			22.59	23.31	1901-1911
			26.91	26.56	1921-1930

There are no data after 1931 for India, but a recent estimate based on data relating to 1941 places the expectation of life for males and females at 32.09 and 31.37 respectively. Statistics relating to the expectation of life indicate a low level of health in the country because they express in terms of the average length of life the cumulative effect of the specific mortality rates at different ages in respect of the two sexes. The level of health as indicated by the death rate and the infantile mortality rate is low. The specially vulnerable groups in any community are children and women at the reproductive age groups and old people. Nearly 40 per cent of the total deaths are among children under 10 years of age and of the mortality in this age group half takes place within the first year of life. The percentage for England and Wales in every age group is very much smaller.

Deaths at specific age periods shown as percentage of total deaths at all ages : child mortality.

Country	Under 1 year.	Percent- age of total	1-5 years	Percent- age of total	5 - 10 years.
(1)	(2)	(3)	(4)	(5)	(6)
India 1949	8,30,270	20.5	6,39,616	15.8	2,28,265
England & Wales 1949	23,882	4.7	4,641	0.9	2,045
			Percentage of total (7)	Total deaths of all ages. (8)	
			India, 1949	5.6	40,44,425
			England & Wales, 1949	0.4	5,09,973

Maternal mortality is estimated to be 20 per thousand live-births which is a very high figure. About 2 lakhs maternal deaths occur annually. The morbidity resulting from causes associated with child bearing would run to about 20 times this figure or 4 millions. The average annual number of deaths in India during 1940-49 from epidemic diseases and certain groups of causes is shown below:-

	Mean : 1940-49	Percentage of total deaths
Cholera	2,02,857	3.5
Smallpox	71,008	1.2
Plague	25,375	0.4
Fevers	33,13,146	57.5
Dysentery and diarrhoea	2,27,850	4.0
Respiratory diseases	4,15,345	7.2
All other causes	15,08,446	26.2
Total:	67,64,027	100.0

Epidemic diseases together account for 5.1 per cent of the total mortality. India continues to be the largest reservoir of these epidemic diseases. More than half the deaths are recorded under fevers by the reporting agency which has no means of proper diagnosis of the cause of death. Respiratory diseases are numerically the next important group. There is a large prevalence of bowel disorders and parasitic infections. It is estimated that 100 million people suffer from malaria and the annual mortality is estimated at about 1 million. It is similarly estimated that about 2.5 million active cases of tuberculosis exist and about 500,000 deaths take place every year. The present low state of public health is reflected in the wide prevalence of disease and the high rate of mortality in the community as a whole and in particular among vulnerable groups, such as children and women in their reproductive age period. A large part of this represents preventable mortality.

4. The output of the industrial worker in India is low compared with that of the worker in other countries. The productive capacity of the agricultural worker is comparatively low. The loss caused by morbidity in working time is enormous. To this must be added the expenditure to the individual and to the State in the provision of medical care.

Causes of low state of health.

5. The causes of this low state of health are many. The lack of hygienic environment conducive to healthful living and low resistance which is primarily due to lack of adequate diet and poor nutrition, and lack of proper housing, safe water-supply, proper removal of human wastes, and the lack of medical care, curative and preventive are some of the more important factors, besides lack of general and health education and low economic status. There are serious impediments to rapid progress. The country's financial resources are limited, trained personnel are lacking and the whole programme of health development is bound up with a broader programme of social improvement.

Personnel

6. One of the serious difficulties to be overcome is the shortage of personnel. This is

clearly brought out in the following tables:-

The proportion of medical personnel to population.***

Medical Personnel	India	United Kingdom
1 Doctor	6,300*	1,000
1 Nurse	43,000	300
1 Health visitor	4,00,000	4,710
1 Midwife	60,000	618
1 Dentist	3,00,000	2,700
1 Pharmacist	40,00,000	to 3 doctors.

(* = 75 per cent of doctors are in urban areas and their distribution in rural areas is very sparse).

Increased training facilities for all these types of personnel are a matter of vital importance. In many areas the use of sub-professional auxiliary personnel is clearly indicated as an approach to a solution of the problem. It is of the greatest importance that the work of sub-professional personnel should be guided and supervised by qualified persons.

Physical facilities.

7. "Curative medicine of an effective scientific type must rest on good hospital facilities as its basis and preventive medicine must depend in a large measure on out-patient services for the ambulant case and on centres for health promotion through individual instruction in the principles of personal hygiene"*@. The number of medical institutions at present available is far too small to provide a reasonable standard of medical service to the people, particularly in the rural areas. While there is a considerable disparity between the States in the ratio of institutions to population in respect of both urban and rural areas, the average for the country is one institution for 24,000 urban population and one for 50,000 rural population in 1949.

***Report of the Health Survey & Development Committee
 *@ Winslow C.E.A. -- The Cost of Sickness and the Price of Health.

The ratio of bed accommodation available in these institutions is one bed for 3,135 of the population or 0.32 bed per thousand in 1949. "More hospital facilities are needed but the hospital services which do exist need to be developed in the most economical manner (consonant with high standards), intramural care needs to be correlated with clinical and home care, effective integration with the public health programme as a whole must be secured and hospitals must become health centres in the full sense of the term".**

Priorities.

8. In the circumstances, a programme with the following priorities may form the basis of the plan:-

- (i) Provision of water-supply and sanitation,
- (ii) Control of malaria,
- (iii) Preventive health care of the rural population through health units and mobile units,
- (iv) Health services for mothers and children,
- (v) Education and training, and health education,
- (vi) Self-sufficiency in drugs and equipment.
- (vii) Family planning and population control.

Organisation and administration.

9. The pattern of development has been suggested by the Health Survey and Development Committee. It is to consist of peripheral primary health units catering to both preventive and curative care of the people with secondary health units and district units providing better and more complete facilities and supervision. The development of the primary and secondary health units is of the greatest importance in providing broad-based health services to the community. Such centres are proposed in connection with the community development projects contemplated under the T.C.A. programme. They provide water supply and sanitary improvements personal health services, particularly for mothers and children, and health education to the public so that they may participate in the programme of development. A progressive spread of these institutions on a countrywide scale in a given number of years would go a long way in meeting the health needs of our rural population. In addition, it is necessary to convert some of the existing dispensaries into primary health units by

** Winslow C.E.A.-- The Cost of Sickness and the Price of Health.

the addition of necessary bed accommodation and preventive health staff. A definite number of such dispensaries may be converted each year according to a well-laid programme. Mobile dispensaries will have to be associated with these rural health units in order to take medical care to the population. The mobile dispensaries can also be utilised for carrying specialist services to the rural population.

10. Though health is largely the responsibility of the States, the Central Government are responsible, among other subjects, for higher education and research. The Central Government have also the overall function of the development of health services in the country as a whole. In order to develop the closest co-operation between the Centre and the States a Central Health Council has been constituted with the Central Minister of Health as chairman and the Ministers of Health of the States as members. Measures have to be devised to meet the needs of certain States for trained and experienced personnel for teaching, research and administration. There is an insistent demand for ensuring adequate health services for the vast rural population of the country.

Medical and Public Health Programmes.

11. The provision for the medical and public health plans of the Central and State Governments amounts to Rs.99.55 crores of which the Centre's share is about 17.87 crores. Medical and public health measures being primarily States' subjects, Central Government have limited their activities to higher education and research and aiding the State Governments in specific schemes such as control of malaria on a national scale. The following table gives the distribution of expenditure on medical and public health schemes in the plan:-

	Rupees in lakhs:		
	Medical	Public health	Total
Central Government	555.23	1222.20	1787.43
Part 'A' States	3394.30	2956.00	6350.30
Part 'B' States	580.70	657.40	1238.10
Jammu & Kashmir	46.00	82.20	128.20
Part 'C' States	222.50	228.00	450.50
Total :	4203.73	5145.80	9945.53

The total amount of Rs. 97.76 crores shown above is not all that will be spent for medical and public health measures in the country. Local authorities in all the States are executing medical and public health programmes. International agencies like the W.H.O. and U.N.I.C.E.F. are taking part in the development of medical and public health schemes in various parts of the country.

The total expenditure of the Central Govt. during 1950-51 was nearly Rs. 1 crore of which Rs. 7.5 lakhs has been reckoned as development expenditure. Though a number of schemes have been formulated in the past only very few of them and that too on a very modest scale could be taken up by the Central Government. This development expenditure of Rs. 7.5 lakhs is expected to be increased to an annual average of Rs. 3.57 crores during the next five years. The bulk of the plan is accounted for by (1) the All India Medical Institute, a central institution for higher research and post-graduate studies, estimated to cost Rs. 3.59 crores and (2) the National Malaria Scheme estimated to cost Rs. 10 crores. Though the malaria scheme is a Central scheme the beneficiaries will be the States.

In the medical plans of the States, Rs. 35.69 crores will be on Revenue account and Rs. 6.72 crores on Capital account. Of the amount of Rs. 42.41 crores to be spent on medical schemes, Rs. 33 crores will be on schemes in progress. But in the public health programme of the total expenditure of Rs. 39.23 crores Rs. 17 crores will be on schemes in progress, the balance on new schemes. This is mainly because a number of new items of water supply and drainage works is being undertaken in various States under the plan.

12. The following table gives the proportion of the increase contemplated under the plan on medical and public health expenditure in the States over that in 1950-51.

Rupees in lakhs:

States	Develop- ment expendi- ture 1950-51.	Medical	Percen- tage of increase	Public health
		Average annual expendi- ture in the plan		Develop- ment ex- pendi- ture 1950-51
1.	2.	3.	4.	5.
Part 'A'	525.31	673.84	28.3	316.57
Part 'B'	78.66	116.29	47.8	51.48
Part 'C'	1.48	40.54	2650.0	1.12

States	Public health	
	Average annual expenditure in the plan	Percent- age of in- crease.
	6.	7.
Part 'A'	586.15	85.2
Part 'B'	132.17	156.7
Part 'C'	45.60	3970.0

The proportion of increase for both medical and public health for Part 'A' States comparatively appears low because the level of development expenditure in 1950-51 had already increased very considerably in the period 1946-47 to 1950-51 on account of the undertaking of post-war reconstruction schemes. Perhaps the small proportion for medical schemes in the case of Part 'B' States is also attributable to the level already attained in 1950-51 on account of the operation of the post-war reconstruction plans in States like Hyderabad, Mysore, Travancore & Cochin, Gwalior and Jaipur. The proportion appears phenomenal in the case of Part 'C' States because such services on a large scale are almost new fields of effort.

The comparatively larger proportion of increase contemplated under public health measures in all the States over that for Medical programmes indicates the greater importance attached to public health measures by the State authorities. This shift in emphasis is in the right direction.

13. The following table indicates the expenditure on various categories of medical schemes undertaken by both the Central and State Governments as compared with the position obtaining in 1950-51:-

	Rupees in lakhs:		
	1950-51	5 years' total	Annual average.
Administration	3.2	62.2	12.5
Education and training	235.2	1891.7	378.4
Hospitals and dispensaries	331.3	2461.7	492.4
Other schemes	43.3	322.1	64.5
	613.0	4737.7	947.8

Out of the total expenditure contemplated, more than 50 per cent will be on hospitals and dispensaries and nearly 40 per cent of the total provision will be for medical education and training. It will be seen from the Table above that the proportion of the distribution of the total expenditure under the Plan amongst the various categories of schemes will be almost the same as that obtaining in 1950-51 as a majority of the schemes in the States' sector continue from 1950-51 onwards.

Schemes for medical education and training relate, in addition to the Central All India Medical Institute, to the completion of the new medical colleges in Assam, at Pooana, Ahmedabad and Baroda in Bombay, at Guntur and Madura in Madras, in Madhya Pradesh, West Bengal and Travancore-Cochin; expansion of existing medical schools and colleges, provision of training for auxiliary medical personnel like nurses, midwives, compounders, etc. The execution of the schemes is expected to increase the total number of personnel trained annually in the country during the period 1951-52 to 1955-56, as follows:-

Number trained	During 1950 - 51	Ending 1955- 56	Percentage of increase
Doctors	2504	2782	11.1
Compounders D.C.P.S	894	1621	81.3
Nurses	2212	3000	35.6
Midwives	1407	1932	37.3
Vaidis and Hakims	914	1117	22.2

Schemes regarding hospitals and dispensaries relate to the construction of a few new hospitals and dispensaries, expansion of existing ones

With increase in the number of beds, provincialisation of hospitals and dispensaries hitherto under non-government agencies and provision of mobile dispensaries for rural areas. The increase in the number of hospitals and dispensaries and the number of beds in them is anticipated to be as follows :-

	During 1950-51	By 1955-56	Percentage of increase.
Number of hospitals	2014	2062	2.4
" " dispensaries (urban)	1358	1695	24.8
" " dispensaries (rural)	5229	5840	11.6
" " beds in Hospitals	106478	117222	10.1
" " beds in dispen- saries (urban)	2013	2233	11.4
" " beds in dispen- saries (rural)	5066	5582	10.2

Other schemes under the head relate to the opening of a number of T.B. clinics and sanatoria in almost all the States, opening of leprosy clinics and hospitals in a majority of States where the disease is prevalent and provision for the prevention and treatment of venereal diseases.

14. The following table gives the expenditure of different categories of public health schemes undertaken by the Central and State Governments as compared with such expenditure in 1950-51:-

	Rupees in lakhs:		
	1950-51	5 years' total	Annual Average
Administration	15.6	210.8	42.2
Education	1.0	131.4	26.3
Water supply and drainage	270.5	2349.4	469.9
Anti-malaria	45.4	1702.5	340.5
Other schemes	35.5	644.3	128.9
	268.0	5038.4	1007.8

It will be seen that water supply and drainage and anti-malaria schemes account for the bulk of the expenditure. The development expenditure in 1950-51 will be increased three times every year in the plan period. The rate of annual expenditure

on water supply and drainage will be increased by more than 60 per cent and the rate of expenditure on anti-malaria operations will be increased by more than 400 per cent.

Under public health education, provision has been made in certain States for training of medical graduates in public health, training of health visitors, sanitary inspectors, etc. The number of sanitary inspectors trained annually is expected to be increased from 346 in 1950-51 to 450 by the end of 1955-56.

Water supply and drainage works under the public health plan comprise mostly of measures for improving drinking water supply, the provision for urban and rural being Rs. 12.12 and Rs. 11.37 crores respectively. Madras and Bombay account for a major share of the programme!

Anti-malaria operations comprise of expansion of the Central Malaria Institute, large-scale spraying of D.D.T. and distribution of anti-malaria drugs by the State Governments. The State Governments' activities would be augmented by large supplies of D.D.T. produced by the Central Government through their D.D.T. plants to be established shortly and also through the supplies of D.D.T. and anti-malarials from the United States of America under the Technical Co-operation Agreement.

Other schemes under the head relate to the establishment of primary health centres in some of the States, establishment of maternity and child welfare centres, the most important being the Central Government's scheme for child health care at Calcutta, provision for nutrition research in certain States like Madras, Bombay, Uttar Pradesh and Assam. The Central Government are providing for a number of mobile health units in the rural areas of several Part 'C' States.

.Environmental hygiene.

15. The provision of an environment conducive to healthful living is an essential requirement for the maintenance of public health. In countries where water supplies and waste disposal have been attended to cholera, typhoid fever and dysentery have almost disappeared and rare cases occur due to personal contact or food handling by healthy carriers. These measures have also their effect on the infant mortality

rate and the intestinal parasitic infection rate. In India these problems largely remain to be solved.

Water supply.

16. The provision of safe and adequate water supply is a basic requirement and should receive the highest priority. Though the provision of protected water supplies was started in India about the same time as in England and U.S.A., the progress made has been little. Only 6 per cent of the total number of towns in India have protected water supplies which serve 6.15 per cent of the total population or 48.5 per cent of the urban population. The position of the water supplies has deteriorated considerably in the larger towns. In the rural areas and small urban areas, the water supply continues to be unsatisfactory. The Environmental Hygiene Committee proposed a five-year plan based on certain priorities like water scarcity, cholera endemicity, pilgrim centres, intensive development projects, etc. The scheme as suggested by the Committee would cost about Rs. 16.77 crores per annum.

17. The introduction of protected water supply alone will not be sufficient for achieving healthful living. It is also essential to adopt measures for the hygienic collection and disposal of community wastes. Only 23 cities out of 48 having a population of over 1 lakh have sewerage systems. There are 12 other towns which are partially seweraged. About 3 per cent of the total population is now served by sewerage systems. A five-year programme has been suggested by the Environmental Hygiene Committee. The total outlay required for this programme may be about Rs. 15 lakhs in five years.

18. While it has not been possible to make a provision on this scale in the plan, it would be seen that a substantial effort is being made by the States. Among Part 'A' States Bombay, Madras, West Bengal and Bihar among Part 'B' States Rajasthan, Madhya Bharat, Mysore and Travancore-Cochin and among Part 'C' States Bhopal, Vindhya Pradesh, Himachal Pradesh and Manipur have devoted considerable sums for water supply and drainage improvements. The five-year programme of water supply and drainage works of the States amounts to Rs. 23.49 crores.

Out of the total provision, Rs. 12.12 crores is for urban water supply and drainage and Rs. 11.37 crores for rural water supply. States have, as in the case of Madras, set up Commissions to determine priorities of water supply and drainage schemes over a long term and have made their five-year plans to fit in with such programmes. Governments help the local authorities to take up the schemes in the order of priority giving grants-in-aid and loans.

19. In rural areas, States aim at providing simple types of safe water supply for almost all villages within a certain period. In Madras, for example, a special fund with an initial contribution of Rs. one crore for the development of rural water supply has been constituted. The fund is supplemented by a grant of Rs. 15 lakhs annually. In the five year plan of the Central Government there is a provision of Rs. 30.00 crores for local development loans for assisting local authorities. About Rs. 10.00 crores out of this may be assumed to be available for water supplies. Contribution by the people by way of voluntary labour or money will enable the provision to go a long way in the improvement of water supplies.

20. Just as in the case of rural water supplies, rural sanitation requires a special emphasis. Hardly 5 per cent of the houses have latrines. Simple types of latrines which require no special servicing have been found suitable. The state Governments can offer technical service and some inducement like supply of water seal squatting slabs on a subsidised basis. The aim is to provide latrines in each houses and only an absolute minimum in the way of public sanitary conveniences. The education of the individual in sanitary habits is deemed far more important.

21. A large part of the investment in water supplies and sewage systems will go towards the provision of pipes and the stepping up of production of materials required is one of the important considerations to be kept in mind.

22. For the implementation of the programme, it is essential to organise public health engineering services on a strong and sound basis in order to design, execute and maintain water supply and drainage works. All part 'A' States except Assam have a public health engineering organisation. Most of the part 'B' States also have a public health engineering

set up, while part 'C' States have none. The services of a public health engineering consultant have been obtained from the United States of America for a period of one year by the Central Health Ministry.

•Nutrition.

23. Nutrition is perhaps the most important single factor in the maintenance of health and resistance to disease. The state of nutrition has a direct bearing on the productive capacity of an individual. Several studies carried out in different parts of the world give a direct correlation between calorie consumption and accomplishment of workers. There is reason to believe that both under-nutrition and malnutrition exist widely in the country.

24. The quantity of cereals available in 1951 was about 13.55 oz. per adult per day taking into account the internal production, imports and offtake from carry-over of stocks. The availability of gram and pulses was about 2.1 oz. per adult per day. Thus the availability of cereals as well as pulses was below the nutritional standards of 14 oz. and 3 oz. respectively. The plan aims at the production of 7.6 million tons of foodgrains (cereals and pulses) with a view to make internal production self-sufficient in 1955-56. A satisfactory diet should include, in addition to cereals, adequate quantities of other foods such as pulses, milk, vegetables, fruits, meat, fish and eggs. The quantity of milk available has been estimated at about 5 oz. per adult per day, a quantity much below that necessary for adequate nutrition. The availability of fruits is about 1.5 oz. per day per adult, and vegetables about 1.3 oz. per adult per day, while the requirement is 3 oz. and 10 oz. respectively. They are very short of the requirement. Sugar at the rate of 1.6 oz. per adult per day is available while about 2 oz. are required. At the present level of production, there will be a shortage of about 2.2 million tons in the production of sugar, about 0.7 million tons of which would be made up in the plan period. The availability of vegetable oil and ghee is of the order of not more than 1 oz. while 2 oz. is actual requirement. As regards fish, roughly 0.3 oz. is available per adult per day whereas the requirement is 2 oz. The production of eggs, meat and fish is grossly inadequate and it is common knowledge that the intake of these

foods by the majority of the population in most parts of the country is small or negligible. The existing food production data show clearly that the total food supply is insufficient in quantity and that the diet of the population as a whole is defective in quality, since the protective foods which are needed to supplement the staple cereal grains are not produced in adequate amounts.

25. The results of diet surveys in India from 1935 to 1948 have been recently published. The conclusions reached are: "The Average diet of an Indian is lopsided primarily because of its extremely high cereal content. The other noticeable feature is that the diet lacks in adequate amounts of protective foods leading to inadequacy and very often to total lack of proteins of good quality. Inadequacy of minerals and most of the important vitamins in more or less varying degrees is the other important feature. It has not been sufficiently realised that the inadequacy of B group of vitamins is of the most serious import in view of the large intake of carbohydrates. Intake of vitamins A and C also is often inadequate". These surveys have led to the following observations - "It appears that two-thirds of the families did not consume any fruits and nuts at all. About one-third of the families did not consume sugar and jaggery or meat, fish or flesh foods, and a quarter of the family groups did not consume milk and milk products or leafy vegetables. Again, amongst the groups of families consuming particular food-stuffs, the intake of leafy vegetables, other vegetables, ghee and vegetable oil, and pulses was below the desired or recommended level. Only in about one-fifth of the groups of families surveyed was the intake of pulses and other vegetables up to the recommended level. Though any generalisation on the data presented is not desirable for reasons more than one, yet it may be stated that in about four-fifths of the families surveyed the intake of protective foods was either nil or below standard".

26. The bulk of the population cannot afford to purchase a satisfactory diet. In terms of average income it would hardly be possible for more than 30 per cent of the population to feed themselves on an adequate scale.

27. A joint committee of the Indian Councils of Medical and Agricultural Research have suggested an integrated plan of human and animal nutrition in relation to agricultural production. They

indicated the target requirements in 1956 as in the following table:-

Target requirement for 300 million adult units.

Foodstuffs.	Daily requirement oz.	Annual requirement in million tons.
Cereal	14	43
Pulses	3	9
Green leafy vegetables	4	12
Root vegetables	3	8
Other vegetables	3	9
Fruits	3	9
Milk	10	31
Sugar and Jaggery	2	6
Vegetable oil, ghee	2	6
Fish and meat	3	9
Egg	1 No.	109,500 million eggs.

They took into account the food requirements of the animal population for the production of milk, meat, for work animals, for the follower stock, and for maintenance. Large gaps were found between the requirements and the available supplies. As it was found that the deficiencies could not be made up, a modified plan has been suggested on the basis of utilising maximum potentialities of cultivable acreage, scientific methods of increased crop production and a modified target of human requirements. The modification in the daily requirements suggested are:-

	Daily requirement (Oz.)	
	Recommended.	Attainable.
Milk	10	(a) 10 oz. + what exists today, for 20 per cent of the population (i.e. vulnerable group). (b) What exists today for the rest of the population.
Vegetable oil and ghee	2	1½
Meat	1	1 (for 55 per cent of population only)
Fish) Egg)		Not considered.

28. There is no doubt that malnutrition occupies a very prominent position in the causation of high infantile, maternal and general mortality rates in India. Specific food deficiency diseases are in themselves a serious public health problem. In addition to well-recognised deficiency disease, there are numerous other diseases in the causation of which nutritional factors are concerned. The general effect of malnutrition in lowering resistance to microbic and parasitic diseases must also be emphasised. Numerous investigations among school children in India have shown that a large percentage of children are in a poor state of nutrition with consequent impairment of physical and mental growth. Again in the adult population the ill-effects of malnutrition are widely evident in the aspect of low level of general health and reduced capacity for work. On the other hand, the striking improvement in the condition of Army recruits which takes place after a few months of abundant and satisfactory feeding is highly significant.

29. The creation of a nutritional section in the State public health departments is an essential first step in organising work. The prevention of deficiency diseases is an important responsibility of public health nutrition sections. It is the responsibility of public health departments to supervise through their maternity and child welfare services, feeding of mothers and infants. The development on a wide scale of school feeding schemes is strongly recommended. In all institutions where large-scale catering is done, the appointment of dietitians would be an important step. The education of specialised nutrition workers, workers in food trades and of the general public is very important.

The bulk of the provision under this head is from Bombay and Madras. The provision by the States is Rs. 11.9 lakhs.

30. The development and manufacture of synthetic vitamins in India is recommended. Similarly, improvements in the shark liver oil industry should be taken on hand and the possibility of manufacturing carotene preparations of high vitamin A activity from cheap and abundant vegetable resources should be investigated. The possibility of developing the production of food yeast is under examination. The processing of milk and fruits is of course of particular importance.

31. The widespread malpractices which affect the purity of food articles available in the market are an aspect of the food problem which should be attended to with vigour

and a sense of urgency. The noxious substances which are often used as adulterants are doing insidious harm to the health of the people, and the evil appears to be growing. This must be tackled on the footing of a principal priority both by the administration, armed with adequate powers and the organised force of public opinion and social action. The Central Government have introduced a bill on the subject in the Parliament.

Malaria

It has been estimated that

32. Malaria is the most important public health problem in India and its control should, therefore, be assigned topmost priority in any national planning about a million deaths are caused in India every year by malaria among the 100 million people who suffer from this disease. The economic loss is estimated at several hundred crores of rupees every year. Vast fertile areas remain fallow and natural resources remain unexploited largely due to the ravages of malaria. Aggregation of labour in irrigation, hydro-electric and industrial projects is attended with severe outbreaks of malaria. Special steps are not taken for its control.

33. The use of D.D.T. as a residual insecticide has brought about far-reaching changes in the technique of the control of malaria, and malaria has been successfully controlled with dividends several times the expenditure involved. The various Central and State projects and the Demonstration Projects of the W.H.O. and U.N.I.C.E.F. have tackled only a fraction of the countrywide problem. It has not been possible to extend protection to the entire population in malarious areas due to lack of adequate finance, staff, equipment and supplies. So far only about 30 million out of the 200 million population exposed to malaria have benefitted by the existing malaria control schemes. A comprehensive project for the nationwide control of malaria is now put forward.

34. The full malaria plan envisages a continuing programme consisting of co-ordination of all malaria control activities into the malaria control programme under the overall administration of the Ministry of Health, strengthening of the existing malaria control programme in the several States and establishment of malaria control programmes in the remaining States, providing malaria engineering consultation and other services to appropriate central or State authorities concerned with development.

of irrigation, hydro-electric and other projects, extending training facilities, and expanding the staff and facilities of the Malaria Institute of India to provide overall consultation and assistance to the States. The operational programme is based on the use of insecticidal residual spraying measures applied in rural areas protecting 200 million people and treatment with anti-malaria drugs. These operations are to be carried out by 125 field malaria control teams organised and directed by the State Directorates of health services. The plan includes the construction of a D.D.T. plant to supplement the one already programmed by the Government of India with the W.H.O. and U.N.I.C.E.F. assistance, in order to ensure sufficient supply of D.D.T. at reduced costs to meet the needs of the country. Financing of the project is to be the joint responsibility of the Central and State Governments. The amount of money spent annually by the State Governments on malaria control is approximately Rs. 1.5 crores. There is a vast disparity from State to State in the provision of funds for the control of this disease. The total provision made in the five year plan is Rs. 17.04 crores. Madras, Bombay, Uttar Pradesh, Bengal and Mysore account for the bulk of the expenditure. The plan now proposed for nation-wide malaria control would involve a commitment of Rs. 15 crores over a period of 3½ years. This would be followed by a maintenance programme, the cost of which would be on a much lower level. The local expenditure by States for the total period would amount roughly to Rs. 5.00 crores but the scheme involves an expenditure of Rs. 10.00 crores from the Central Government, including aid from T.C.A. It is expected that that with the supply of D.D.T. and equipment during the programme period, the States would be in a position steadily to expand their anti-malaria activities and would be further able to supplement the expenditure from the increased resources which the immense improvements in the economy of the country would provide, as a result of the introduction of the nationwide malaria control programme.

Filariasis.

35. The disease is widely prevalent in India particularly in some of the coastal regions, with

high humidity and moderately heavy rainfall. It also occurs, with a patchy distribution, in the moist and humid Gangetic valley and Bengal Basin, in the foothills of the eastern districts of Uttar Pradesh and Bihar, as also in parts of the Deccan plateau and Southern India. It is difficult to state the number of cases of Filarial infections in India, but it has been estimated that there are about 157 million infections in Asia, of which the quota for India may run into many millions. The predominant type of infection is caused by *W. Bancrofti*. In the case of the latter infection, the larvae of the vector mosquito breed in association with aquatic plants and therefore the control measures would differ from those called for in the case of the other infections. In the case of *Bancrofti* infections, the long-term control measure is the provision of efficient drainage. As a short-term measure D.D.T. spraying is indicated. The measures, therefore, can be carried out by the same organisation which is meant to tackle the malaria problem on a nationwide scale.

Less commonly, the infection is caused by *W. Malayi*.

Tuberculosis.

36. Tuberculosis is a major public health problem, next in importance only to malaria. While accurate data are not available, it is estimated that about 5,00,000 deaths occur every year and about 2½ million people suffer from active disease. It is estimated that about 900 to 1000 million man-days are lost. The economic loss is therefore incalculable. Besides, it causes a mass of human misery. Measures needed to combat tuberculosis may be classified as general and special. Measures directed towards the improvement of the standard of living come under general measures. These include improvement of nutrition, housing, sanitation--each involving very large-scale commitments. Under the special measures may be mentioned the provision of isolation and treatment of the sufferer and introduction of preventive measures. It is an extremely difficult problem to provide either the institutions or the staff needed on the standards obtaining in other countries. A minimum programme in the order of priorities would be:-

- (1) B.C.G. vaccination;
- (2) Clinics and domiciliary services;
- (3) Training and demonstration centres;

- (4) Beds for isolation and treatment;
- (5) After-care.

37. Emphasis has to be laid on preventive measure as these will yield the best return for the limited resources now available. Carefully tested experience in many countries over a period of 20 years shows that B.C.G. vaccination is an effective and safe preventive measure. The States should make this programme a part of their public health services. The Government of India have entered into an agreement with the U.N.I.C.E.F. and the W.H.O. to carry out a countrywide B.C.G. programme. It is estimated that if a mass B.C.G. campaign is worked out on the lines indicated, it would be possible in a period of about 15 to 20 years to reduce the mortality from tuberculosis to a fifth of its present level and the bed accommodation necessary for the isolation of cases could similarly be cut down to about a fifth of the total requirements. For expenditure involved therefore, B.C.G. vaccination would give a very high return and considerable saving in the other control measures.

38. Among the institutions, we accord the highest priority to the clinics. The clinics will have to undertake preventive, diagnostic and curative functions. The clinics must have some beds at their disposal and also an adequate staff of doctors and health visitors to provide domiciliary services. Although it would be advisable to have one clinic for 1,00,000 of the population the effort in the next five years may be directed to the establishment of the clinics as special departments of teaching hospitals, district hospitals and other general hospitals, where X-ray and laboratory facilities exist.

39. The establishment of a certain number of model tuberculosis centres which will serve the purpose of teaching and demonstration is regarded as important because of shortage of personnel for manning tuberculosis services. Each centre should consist of a clinic with attached beds and the clinic should provide fully comprehensive laboratory services and facilities for epidemiological investigation by mass radiography etc. in co-operation with X-ray

departments. It is advisable to locate these centres in association with medical college hospitals. Three such centres are being established with international aid in Delhi, Trivandrum and Patna. It is suggested that similar centres may be established in Calcutta, Bombay, Madras, Punjab, Uttar Pradesh, Madhya Pradesh, Hyderabad, Mysore, Madhya Bharat, etc.

40. The bed accommodation should be in the form of simply designed and cheaply constructed institutions. Priority of admission should be given to those for whom domiciliary isolation or treatment is impossible. Non-official organisations should be encouraged to establish and run tuberculosis institutions and Governments should give them building and maintenance grants provided these institutions are run on non-profit basis.

41. Voluntary organisations should be stimulated to set up, with State aid, after-care colonies at suitable places in association with tuberculosis institutions.

42. For the proper development of tuberculosis control programmes, a special T.B. Adviser should be employed in each State.

43. It is estimated that reasonable programme on the lines set out above would cost about Rs.8.00 crores. Available resources limit the scope of the programme. However, the Centre and the States have made substantial provision and have shown considerable progress in their schemes. West Bengal has the highest provision followed by Bihar, Madhya Pradesh and Bombay. Among Part 'B' States Saurashtra has the highest provision and Mysore and Hyderabad come next. Among the Part 'C' States Delhi has a considerable T.B. programme. The schemes, generally are concerned with the provision of sanatoria, hospitals and clinics, increase in the bed-strength and B.C.G. vaccination teams. Compared with 1950-51, the plan envisages an approximate increase by 1955-56, as shown in the following table:-

	1950-51		1955-56	
	Number of Institutions	Number of Beds	Number of Institutions	Number of Beds
Sanatoria	37	4161	46	5656
Hospitals	48	3077	50	4814
Clinics	127	2323	180	2562

The number of B.C.G. Teams are expected to increase from 73 in 1950-51 to 137 in 1955-56, and for the plan period the number would be maintained. The schemes, as put up by the States, would amount to Rs. 3.80 crores and the central schemes to Rs. 51.43 lakhs.

Venereal diseases.

44. The incidence of venereal diseases in India is unknown, though a rough survey made some years ago indicated a high incidence. Sufficient data now exist to suggest that in the large cities of India, particularly Bombay, Calcutta and Madras, venereal disease prevalence is high reaching 5 to 7 per cent of the population for syphilis alone. The problem in rural areas is not defined but the hill tracts extending from Kashmir to Assam (Especially Kashmir, Kulu, Himachal Pradesh and Assam) appear to have an alarmingly high prevalence of syphilis. The importance of venereal disease from the point of view of producing sickness and incapacitation cannot be overemphasised. The measures for the control of these diseases are: (1) the provision of medical care--preventive and curative; and (2) social measures to discourage promiscuity and to control prostitution. The measures would include free and efficient treatment case finding and follow-up services, adequate diagnostic facilities, education and training of personnel and lastly the education of the people in regard to the spread and control of these diseases.

45. The creation of the post of a Provincial V.D. Control Officer with suitable assistance on the establishment of each Director of Health

Services is necessary to plan the campaign against these diseases as part of the health administration. West Bengal and Himachal Pradesh have a full-time V.D. Control Officer on the staff of the Directorate of Health Services. In Madras, the State Government have nominated the Lecturer in Venereology, General Hospital as consultant with the right of inspection of existing facilities in the State.

46. V.D. clinics with requisite staff should form part of the general health facilities provided in a district hospital. For the purpose of case finding and follow-up, it is essential to employ nurses, health visitors and social workers in connection with the V.D. clinics. For the period of the plan, it is proposed that each State should provide such clinics in the district hospitals. For the treatment of patients necessary provision should be made for the purchase of anti-biotics in adequate quantity. The importation of penicillin in bulk and the projected penicillin plant are intended to answer this purpose.

47. Diagnostic facilities should be provided in the public health laboratories at the State headquarters, and in the regional and district laboratories. Such facilities should be made available free of charge not only to institutions but to all private practitioners. It is considered necessary to set up an advisory body to assist in ensuring comparable seriological performance in the main laboratories of the country. The Indian Council of Medical Research may serve this function. It is also essential to provide standard antigen to State institutions as well as to private laboratories to maintain a high standard of technical performance. The Government of India have sanctioned an antigen production unit in collaboration with the W.H.O. and the U.N.I.C.E.F. The cost of the project is Rs. 72,000/- for the production unit and Rs. 28,000/- for the staff or a total of about Rs. 1 lakh.

48. The proposed extension of treatment facilities will be possible only when sufficient number of doctors and other personnel have the necessary special training for the purpose. Such training.

should also be made available to private practitioners. These facilities may be organised as follows:-

(1) Training facilities in venereal diseases will be available in the upgraded V.D. department, General hospital, Madras. The Government of India have concluded an agreement with the W.H.O. for the upgrading of the V.D. Department of the Madras Medical College.

(2) Improvement in existing facilities may be considered at the following places where teaching and training activities are undertaking:-

(a) Bombay--J.J. Hospital--Venereal diseases department and Pathology department, Grant Medical College.

(b) Delhi -- In connection with the All Indian Medical Institute.

(c) Calcutta-- There is a combined scheme of the Government of India and the Government of West Bengal to utilise the existing resources of the V.D. department of the Medical College Hospital, the rural and urban health centre facilities of the All India Institute of Hygiene and public health, Calcutta, the clinics of the Government of West Bengal under their Director of Social Hygiene and Serologist to the Government of India, Calcutta. The whole scheme is expected to cost Rs. 1.03 lakhs.

These training centres will train V.D. control officers who will take charge of the State V.D. programmes.

49. Education including sex education and provisions legal and institutional for the control of immoral traffic are important measures.

50. The V.D. schemes in the States and the Centre included in the five-year plan amount to Rs. 1.03 crores and Rs. 5.79 lakhs respectively. West Bengal is practically the only State with a comprehensive V.D. control scheme costing Rs. 84.30 lakhs.

51. Yaws is a non-venereal disease closely related to syphilis and amenable to the same treatment. It is known that Yaws is fairly widely prevalent in certain tracts of India, particularly among the tribal population in Madhya Pradesh, Madras, Hyderabad and Orissa States. A plan of operation has been agreed to by the State Governments and is awaiting the approval of the Government of India and the signing of an agreement with the W.H.O.

Leprosy.

52. It is estimated that the number of cases of leprosy in the country is probably at least one million. About one-fourth of a million may be lepromatous cases. The highly endemic areas of Orissa and of Madras and Travancore-Cochin. There is moderate incidence of the disease in the Himalayan foothills and Central India. The incidence of leprosy is remarkably small in the rest of the country. In highly endemic areas, the incidence may range from 2 to 5 per cent of the population.

leprosy in India are certain parts of West Bengal,

53. The existing anti-leprosy work is being carried out largely by voluntary organisations. The mission to lepers is the largest agency engaged in anti-leprosy work. Lately, State Governments and even local authorities have started the establishment of in-patient accommodation for leprosy. The total accommodation available is about 14,000 beds for the whole country. The Hind Kusht Niwaran Sangh

has actively helped in carrying out anti-leprosy work. The Gandhi Memorial Trust has established a Leprosy Committee and taken up work in earnest. They have set apart a sum of Rs 95 lakhs for combating the disease.

54. As a first step, it is necessary to carry out investigation of leprosy as a public health problem in local areas. Secondly, in these areas in which the prevalence of the disease is shown to be high, curative and preventive measure have to be organised and thirdly, there should be stimulation of voluntary effort and education of the public to secure their co-operation. To promote these objectives, special training at the under-graduate and post-graduate stages of medical education and facilities for leprosy research will have to be provided. The creation of a Central Leprosy Institute for post-graduate training and research has been included in the plan. It is essential that, as a preliminary step towards organising anti-leprosy work on sound lines, a leprosy organisation should be created at the headquarters of each State in which the disease is a definite public health problem. Provision for the isolation and treatment of all infectious cases is not possible with our present resources and efforts should be directed towards the provision of reasonable bed accommodation in institutions in heavily endemic areas for leprosy. Such accommodation is needed for the treatment of infective patients and for the remedial treatment of crippling and deformities. In considering any additional accommodation the recent advances in the treatment of leprosy have to be taken into consideration. The introduction of sulphone drugs in the treatment of leprosy marks a distinct advance. It is possible with this treatment to have a comparatively quicker turnover and to continue treatment in the out-patient departments. We have to depend for the solution of the problem mostly on the organisation of clinics, from which treatment and preventive care of

leprosy patients and their contacts has to be carried out. Children are much more susceptible to leprosy than others and every effort should be made during home visits by the doctors and others to impress this fact on the people and to secure that children are safeguarded. The clinics should be established in hospitals in areas in which the incidence of the disease is high. Attempts at group isolation of the rural colony type by voluntary efforts may be encouraged and voluntary efforts should be supported by definite provision of grants-in-aid. The scheme of the States and the Centre would amount to Rs. 1.0174 crores. West Bengal, Bombay, Madhya Pradesh and Bihar among Part 'A' States, Hyderabad and Mysore among Part 'B' States, Vindhya Pradesh and North-east Frontier Agencies among part 'C' States account for the bulk of the provision. The provision of Rs. 15 lakhs by the Centre relates to the Central Leprosy Institute.

Cancer.

55. The incidence of malignant disease is much the same in India as in Western Europe and North America. The annual death rate from cancer in most countries varies from 100 to 150 per 1,00,000 living persons of either sex. 2,00,000 per year is a conservative estimate of cancer deaths in India. The death rate from cancer may probably go up in future with an increase in the proportion of population in older age groups. While the rate of incidence in various countries may show small differences, the incidence in various parts of the body is markedly different in different peoples. There is a greater frequency of oral cancer in Indians. Cancer of exposed portions of the skins is less common than in the fair skinned people. Cancer of cervix uteri is much less common in certain communities in whom breast cancer is more common.

56. Early diagnosis and prompt treatment based on the knowledge at present at our disposal will definitely result in many cures. The detection of the early stages of the disease can be achieved by education of the public and better cancer

education for the general medical profession. For the better understanding of the disease--the phenomenon of abnormal growth--its initiation, etiology, pathology, further development and treatment, persistent research appears to be the only solution. Cancer education and cancer research require considerable organisation and financial as well as moral support from the Government and the public.

57. Cancer education for the lay-public may be organised jointly by the Indian Cancer Society, Indian Cancer Research Centre and Cancer hospitals in the country. An efficient social service should be established where a group of trained social workers would work under the direction of an experienced research worker from the research centre. Efficient means of spreading knowledge about cancer to the public may be by the use of the radio, the film and the press, and by work in co-operation with existing organisations for social services, women's societies, etc. Under cancer education for the medical profession, better attention should be paid to cancer education of under-graduate medical students; refresher courses should be given to members of the medical profession of some standing and for well established scientists interested in cancer research. Another step would be to train fresh graduates who like to devote time to training in some phase of cancer work. A few traineeships should be made available for this purpose.

58. Cancer research may be divided broadly into (i) fundamental research in the laboratories, and (ii) applied or clinical research in the clinics. Integration of these two activities is very important. Clinical research would include the diagnosis of cancer, the treatment and cure of cancer, and clinical investigation on cancer patients. Fundamental research includes: (a) the biological and biochemical study of cancer cells, and (b) the etiology of cancer. Research on the above lines is in progress at

Research Centre which is financed by the Central Government. However, for a proper carrying out of all the items enumerated, the research centre would require further financial help. At present the annual budget of this research centre is only Rs. 1,40,000/-. No national research institute in India can be expected to advance our knowledge and serve the whole country on a budget so small as that available to the Cancer Research Centre. The annual recurring grant to the Indian Cancer Research Centre would require to be increased by about Rs. 1.5 lakhs. The institute would also require a non-recurring grant for purchasing essential apparatus and equipment. This equipment may cost about Rs. 2 lakhs in all.

59. The different States could play a very important role by organising their activities in association with their health services. The training of the personnel can be undertaken at the Tata Memorial Hospital with a small subsidy for scholarships to the trainees, partly from the Central and partly from the State Governments. The Tata Memorial Hospital and the Chittaranjan Hospital at Calcutta are the only two special institutions for cancer. The women's Indian Association at Madras has been making vigorous attempts to start a cancer hospital in Madras and some assistance (Rs. 1,00,000/-) to them would appear desirable. The All India Cancer Association would also need some assistance (Rs. 50,000/-) to carry out its publicity work.

Mental diseases.

60. Although little information is available regarding the incidence of mental ill-health in the country, there is no doubt that mental disorder and mental deficiency is prevalent on a wide scale. The numbers of persons suffering from varying degrees of mental disorder who may not

may not require hospitalization but should receive treatment and of those suffering from mental deficiency are likely to run into several millions. The existing provision for the medical care of such persons is altogether inadequate and unsatisfactory. Each State health administration, through its mental health organisation, should attempt collection of information. It is estimated that hospital accommodation should be available for 800,000 mental patients but the existing provision is a little over 10,000 beds for the country as a whole. Radical improvements are required in the existing mental hospitals in order to make them conform to modern standards. Provision should also be made for all the methods of diagnosis and treatment. Apart from such remodelling of mental hospitals, the Central Government are upgrading two mental institutions, viz., one in Bangalore and the other at Ranchi. The establishment of an All India Institute of Mental Health in association with the Bangalore Mental Hospital will involve an expenditure during the five-year period of Rs. 9.7 lakhs non-recurring and Rs. 3.365 lakhs recurring. This expenditure is to be shared between the Central Government and the State Government of Mysore. There are hardly any psychiatric clinics. A beginning should be made in special and teaching hospitals and later extended to district hospitals. There are no facilities for training in psychological medicine in the country. It is necessary that a certain number of selected medical men with some experience of work in mental hospitals in India should be sent abroad for training.

61. The provision made by the various States and the Centre for mental hospitals is indicated below :-

State	Schemes	Expenditure 1951-56 Rupees in lakhs.
Mysore	Mental Hospital, Bangalore	5.00
Saurashtra	Training in psychiatry	0.04
Ranchi	Mental Hospital, Ranchi	4.00
Total:		9.04

Maternity and child health

62. Maternity and Child health is a service that is kept in the forefront in the planning of health programmes. The protection of the health of the expectant mother and her child is of the utmost importance for building a sound and healthy nation. The maternal mortality of our country is very high and is estimated at 20 per thousand live births. Maternal morbidity is also very high being nearly 20 times the mortality. The infant mortality rate is of the order of 127 per thousand live births. The corresponding rates in progressive countries are very low and have been achieved by concentrated effort on the improvement of the health of the mother and child.

63. The lack of trained personnel like women doctors, health visitors, midwives, dais, etc. and of institutional facilities for training them add to the handicaps to provide an efficient service. The growth of maternity and child health work has been mainly through voluntary efforts and Governments and local authorities have taken it up only recently. Maternal and child health services should form an integral part of the general health services. Many of the States have developed the service in varying degrees, Madras, Uttar Pradesh, Bombay and West Bengal leading. It is essential to have on the staff of each Director of Health Services a specially trained woman medical officer. At present it is understood that only 9 States have got such organisation at the head-quarters of the States. In a very few States, women doctors are employed in both urban and rural areas. The pattern of organisation for urban and rural areas may be considered separately.

64. While it is desirable to develop community centres which can cater to the needs of all members of a family and the whole community, such a development may not be possible except gradually. We have, therefore, to develop the ordinary type of maternity and child health centres. An adequate number of such centres properly equipped and staffed should be provided in all the urban health organisations. One centre with a minimum staff of one health visitor, 2 midwives, a peon and a part-time sweeper to serve a population of 10,000 is recommended. In addition, there should be a woman doctor preferably with post-graduate training in maternity and child health to be in charge of these centres. There is ordinarily overcrowding in practically all the maternity hospitals and the number of maternity beds should be increased to double its present strength in order to accommodate more delivery cases and to give post-natal care for a longer period. 10 per cent of the maternity beds should be reserved for ante-natal cases. It is also essential to reserve for children at least 10 percent of the beds where there is no separate children's hospital with adequate number of beds. Ante-natal and post-natal clinics should form an essential feature of all hospitals with maternity beds. Provision should be made for day nurseries to look after infants and children of working mothers with the help of voluntary organisations or under the provisions of the Indian Factories Act. Private nursing homes established by doctors should be licensed.

65. In rural areas the present trend is to provide integrated curative and preventive health services and to organise them on the basis of health centres of different grades. There should be a unit for 10,000 to 12,000 population for efficient service. This will yield a total of 300 to 400 births a year. The maternity and child health staff in such a centre should be two midwives. A number of such primary centres would come under a higher unit for the Thana or Taluka. Here the staff

for maternity and child health work should be a woman doctor and 2 health visitors. Their main functions would be training of dais, supervision of midwives and dais, care of maternity cases needing hospitalisation and conducting the clinics in the different peripheral units. One of the important activities of health units in intensive development areas like the community projects is the provision of adequate maternity and child health services, both in the primary centres and at the headquarters of the project area in the secondary centres.

66. All doctors engaged in maternity and child health work should have training in this branch of preventive medicine for a period of at least three months, and must have done a house job in an obstetrics department for at least six months. The practical training should cover both rural and urban fields. The period of field training will vary according to the total period the course covers. The department of maternity and child health of the All India Institute of Hygiene and Public Health in Calcutta is to be expanded as Centre for post-graduate training for maternity and child health doctors and for public health nurses with the aid of the U.N.I.C.E.F. Rural and urban training fields for nurses and midwives in the Delhi area and pediatric training centres in Madras, Bombay and Patna (Hyderabad is also under consideration) are being developed by Government with W.H.O. and U.N.I.C.E.F. assistance.

67. Voluntary organisations have played an important role in the past. They were responsible for starting the training of dais, midwives and health visitors. Voluntary bodies have also been responsible for the establishment and maintenance of a large number of maternity and child health centres. But the responsibility for providing such services rests upon the Government. The activities of the voluntary bodies should supplement the functions of Government. Government should have power of supervision and control to ensure that health activities of voluntary organisations are maintained at a satisfactory level and they should extend the fullest support to these organisations. The provision made by the various States for maternity and child health

work is Rs. 1.36 crores and by the Centre Rs. 53.48 lakhs

.Health education.

68. All progress in public health depends ultimately on the willing assent and co-operation of the people and their active participation in measures intended for individual and community health protection. Considering how much illness is the result of ignorance of simple hygienic laws or indifference to their application in practice, no single measure is productive of greater returns in proportion to outlay than health education.

69. To be effective, health education should be addressed to the different sections of the public in a manner suitable to each. Women and children constitute the most important section. Educating the woman is educating the whole family. The formation of healthy habits in growing children in their formative years is most important. No agency is better equipped to reach this class and carry the message of health than the maternal and child health staff - the woman doctor, the public health nurse or health visitor, the midwife or the dai. The extension of this service on the widest scale is therefore of the greatest benefit. The school-going population is a large and important section. The most important thing in the primary schools is not so much the academic instruction but the inculcation of health habits. These cannot be fostered without minimum hygienic facilities in the school premises. The instruction in hygiene is graded to suit the class of pupil in the higher standards and project methods may be adopted. It is important to include the subject in teachers training. Publicity may be addressed to the adult population in places of work, recreation or at home. Part of the educative work is intended for the professional class and those engaged in health work. They should be kept informed of what is happening in all progressive communities.

70. It is of the greatest importance that not only all available modern methods of publicity should be adopted but that they should be as attractive as possible and intelligible to the large section that are not literate. Audio-visual aids, the radio, the cinema, and the press should be extensively utilised. Television would come into use in due course. Gramophone records, cinema films, film strips, lantern slides, picture posters, leaflets, book marks, picture cards, should be produced and spread widely to the public in any attempt at effective publicity. The material prepared for imparting health knowledge to the people should draw upon all available sources, including the traditional practices and Ayurvedic texts. Nature cure can furnish useful help for the maintenance and improvement of health and vitality. The testing and standardization of this scattered knowledge offers an important field for research. The provision of health museums in the centre and in the States is an extremely important measure. These could produce useful publicity material as well as educate and entertain the public. The organisation of health exhibitions on all occasions when large congregations of people take place is very useful. Theatricals and variety entertainments can form part of interesting publicity campaigns.

71. To organise the work, it is essential to have health publicity bureaus in the centre as well as the States. They should be properly staffed and equipped. It is of importance that they should have the aid of a good library service as well as a museum and units for the production of the requisite educational aids and materials. Health publicity should form an integral part of the district health organisations' work. Full advantage should also be taken of voluntary effort in this work. Several States have excellent organisations. The Centre has a scheme which includes in its scope the establishment of a health publicity bureau and facilities for the production of health educational material (film strip production unit and printing unit) at an estimated cost of Rs. 15 lakhs.

Medical education, medical
research and medical relief.

72. Medical education, medical research and

Medical Relief are intimately inter-connected. It is generally accepted that the quality of medical relief is vastly improved by the presence of a teaching hospital and college in any area and again the quality of medical education improves greatly in an atmosphere of medical research. It is, therefore, obvious that the planning of these activities should be taken up together. Pointed attention has been drawn to the extreme shortage of all types of health personnel like doctors, dentists, nurses, health visitors, pharmacists etc. Top priority has, therefore, to be given to the training of health personnel in order to develop a reasonable health service in the country.

73. There are at present 30 medical colleges training candidates for the M.B.B.S. degree. There are also 4 medical schools for the training of licentiates. It is expected that these would be upgraded into colleges. Only one uniform minimum standard of training and qualifications prescribed by the Indian Medical Council should be adopted throughout the country. All the medical colleges provide for the admission of 2,500 students annually and nearly 1600 qualified doctors pass out a year. It is suggested that the training facilities should be extended so that at the end of 5 years there may be provision for 4,000 admissions in the medical colleges. New medical colleges should be established where large hospitals exist to minimise the cost.

74. There is considerable dearth of teaching personnel even in the existing medical colleges, particularly in non-clinical subjects. These posts should be made more attractive. It is suggested that whole-time teaching units may be established in medicine, surgery and midwifery. The officer in charge of a whole-time unit will devote all his time to the organisation of teaching and research work in his subject. It is understood that the Indian Medical Council is contemplating the introduction of a system of compulsory internship in the medical course leading to the degree of M.B.B.S. It is recommended that certain selected hospitals in the States may be upgraded so that they can be utilised for this purpose. Throughout the course of instruction in the medical colleges, it is necessary that emphasis should be laid on the importance of preventive and social aspects of medicine and rural health. For this purpose the following steps would be necessary:-

1. Strengthening the preventive and social medicine departments in the medical colleges;

2. The provision of urban and rural health units to give the students experience of these aspects.
3. A definite period of internship in the health units.

Although most of the universities with medical facilities have instituted post-graduate degrees and diplomas, existing facilities are neither adequate nor of the required standard. The establishment of an All India Medical Institute is for providing adequate facilities in this field. It is at the same time considered necessary to upgrade certain departments of existing medical colleges and institutions for post-graduate teaching and research. For standardising and co-ordinating post-graduate medical training Government of India have instituted an All India Council of post-graduate medical education.

75. Practically all the teaching hospitals in the country impart training in nursing. A college of nursing for the purpose of giving training of the University standard has been opened in Delhi. There is a similar college in Vellore. Public health nursing is specially included in the instruction imparted in the B.Sc. course in the two nursing colleges. The department of maternity and child health of the All India Institute of Hygiene and Public Health in Calcutta will also be a centre for the training of public health nurses. It should be possible to train a larger number of nurses than is done at present even in the existing teaching institutions. The deficiency can be overcome if a larger number of probationers are admitted to the training schools attached to the teaching hospitals. The number should at least be doubled. Larger number of sister tutors should be employed not only in the teaching hospitals but also in other hospitals where probationer nurses are trained. Increased facilities for the training of auxiliary nurses will greatly help in building up the personnel required. The community projects that are to be started immediately will call for a large number of personnel of this type. The expansion of maternal and child health services in the rest of the areas outside the community projects, even on a modest scale, would require very considerable numbers. The usual courses of training will take up a considerable time, and short-term courses would therefore appear to be the only solution. Besides,

persons with requisite, preliminary educational qualifications may not be coming up in sufficient numbers to meet the demand, and the auxiliary courses where the preliminary educational qualification required is less than for the normal courses would facilitate recruitment of sufficient number of candidates. It may not be possible for the Government alone to deal with the question fully. Non-governmental agencies may therefore be invited to take up this work and adequate assistance given to them for running these short-term courses. In view of the urgency of finding personnel for various development schemes, the training of ancillary personnel of this type should receive very high priority. A beginning has been made by a voluntary organisation in Madras with the aid of the public, the State and the Central Government. This type of activity may be taken up by other States.

76. There are training schools for health visitors in Delhi, Lucknow, Calcutta, Madras, Poona, Bombay, Bagpur, Hyderabad, etc. The conditions of training vary greatly in these institutions. In the training of health visitors and in the training of public health nurses provision should be made for instruction in subjects such as, tuberculosis etc. The opinion is gaining ground that as far as possible in future health visitors should be trained public health nurses.

77. The training facilities for midwives have to be considerably expanded. Each of the existing institutions with maternity beds can take in larger numbers of trainees. The training of auxiliary midwives would be a contribution to the solution of this question. Domiciliary midwifery should form an important part of the training of midwives. The training of indigenous dais has also been attempted in certain States. Under proper supervision the local trained dais may turn out satisfactory.

78. Facilities should also be provided for the training of medical social workers.

79. Public health engineering is a very important aspect of public health. It has not received due consideration so far in teaching centres in India. The All India Institute of

Hygiene and Public Health has been giving training to qualified engineers in sanitary engineering as a post-graduate course. The course in this institutions trains the candidates for the degree of Master of Engineering in public health given by the Calcutta University. Similar facilities should be provided in other States as well.

80. The bulk of the health personnel in a State is composed of qualified sanitary inspectors. There is need for standardizing this course. There is an obvious need for the training of a larger number of Sanitary Inspectors.

81. There should be a specific allocation of funds both from the Central revenues and from the State revenues for medical research in the country. This money should be spent in the research institutes and medical colleges. The various departments in the medical colleges should be encouraged to take up research work in addition to their routine teaching duties. Adequate staff should be provided for this purpose. The creation of full-time units in medicine, surgery and midwifery will facilitate research work in those departments. Necessary technical assistance and equipment should be provided in non-clinical departments, to participate in such programmes. Both for purposes of teaching and research in medicine, an up-to-date library with sufficient number of journals and books is imperative. The history of medicine should be taught and a chair should be instituted in every university with a medical faculty. The research institutes, Central and State, will be concerned in the carrying out of researches in special subjects and investigations into the social and environmental factors affecting health and disease. We suggest the provision of improved laboratory services in the different States, through the creation of regional laboratories to be linked locally with other organisations in connection with the health programmes and for technical direction with the central laboratory at the headquarters of the State. The Indian Council of Medical Research initiates programmes of research in several fields on urgent problems facing the country. It also creates a nucleus of trained research workers. The recruitment, training and utilization of research workers has been a problem

of some importance in this country. Fellowships are offered by various international bodies, by Governments of several countries, as well as the Government of India and the Indian Council of Medical Research and a well-considered plan is necessary in order to take the fullest advantage of the scheme. It should consider the requirements of:-

- (1) Teaching institutions;
- (2) The research institutions maintained by the Central and State Governments;
- (3) Research units and research schemes of the Indian Council of Medical Research.

The fellows should be ultimately assured of absorption in the services. There should be a survey of such needs and a tabulation of the programme of fellowships for a definite period. There should also be a follow-up to ensure that the fellows are employed for the purpose for which they are trained. The Central Government have provided Rs. 57.05 lakhs for research.

82. The Central Government have provided for the establishment of an All India Medical Institute, including a dental college; upgrading the existing departments of medical colleges, Lady Hardinge Medical College, College of Nursing, establishment of departments of social and preventive medicine in certain medical colleges, increased training facilities for nurses, etc. Nursing home and training centre for auxiliary nurses and midwives at Madras and Lady Reading Health School. Central expenditure is Rs. 5.13 crores on medical and Rs. 86.99 lakhs on public health education and training. The States have included schemes under education and training to the extent of Rs. 13.79 crores (medical) and Rs. 44.53 lakhs (public health).

83. The States have a programme of improved medical relief by the expansion of existing institutions and the provision of new institutions.

The provincialisation of existing dispensaries, provincialisation and improvement of the thana or taluk hospitals, the expansion of district hospitals and of teaching hospitals at the headquarters of the State or other important centres constitute the components of this expansion programme. The greatest emphasis should be on rural health and the development of primary health units. The programmes of the States amount to Rs. 24.10 crores and of the Centre Rs. 52.2 lakhs

•Indigenous systems of medicine.

84. A great deal of uncertainty exists about the position and the future course of development of indigenous systems, homoeopathy and nature cure. It is desirable that this should be cleared up as early as possible. The controversy with regard to the truth and merits of any particular technique of cure or approach to the problems of health and disease can only be settled on the touchstone of research. Scientifically conducted investigations will, in course of time, decide the value and validity of the different techniques and those which can justify their existence will necessarily become branches of an integrated system of medicine. In the five-year plan a provision of Rs. 37.5 lakhs has been made for research into indigenous and other systems. Government of India have sanctioned a central institute for research in indigenous systems of medicine at Jamnagar. It is considered necessary, however, to promote research at more than one such centre, particularly at places where plenty of clinical material and high standard of professional talent are available. Provision has to be made specially for a comparative clinical study of different techniques. A nucleus for this purpose already exists in Bombay and has the support of eminent representatives of the various systems. Steps should be taken to strengthen and expand this institution. Besides assessment of the area of utility of these systems, there is a large scope for research in order to improve and enlarge their special contribution to medical science, to define, interpret and standardise the content of their

theory and practice and to bring them in line with modern scientific advances. Research into all aspects of indigenous systems including drugs, principles and practices should be fostered not only in institutions devoted to the study of indigenous systems but also in modern modern medical institutions.

85. It is essential to make adequate arrangements for a systematic investigation into Indian medical herbs, from the point of view of identification, nomenclature, the area in which they are available and those localities in which individual herbs can be grown to the best advantage. It is recommended that, following this study, museums should be established centrally and regionally so as to enable students and practitioners of Ayurveda and other systems of indigenous medicine and Homoeopathy, to have access to all the information regarding these herbs. Early action is also needed regarding the collection, standardisation, storage and distribution of Indian medical herbs. Studies regarding these should be undertaken jointly by the Central Institute for Ayurvedic Research and by the Central Drugs Research Institute at Lucknow. Central agencies co-ordination and direction of research which should be mainly in the hands of experts of the systems concerned.

will have to be created for the purpose of

86. Professional training for the practice of the indigenous systems is an important matter for consideration. The present approach to the education in Ayurveda has not produced satisfactory results. There is no uniform basis for the curricula adopted in different institutions. There is much room also for improving the quality of the teaching staff and the terms of its employment. The introduction of honorary teaching may help to draw the best elements in Ayurveda for assisting the educational work. A curriculum drawn up for the purpose has to be designed primarily to enable the student to attain full proficiency in the practice of the particular system. But he cannot afford to ignore the body of medical knowledge which has grown up under the impetus of scientific methods. As has been

well expressed, 'it is not necessary that he should be able to apply these technical procedures himself at all times, particularly **in surgical specialities**, but it is essential that he should have the knowledge which will enable him to recognise the need for calling in the aid of these specialities in the interests of his patients'. The details of the curriculum which can satisfy both these conditions will have to be worked out with the help of the results of research and experience. It is evident that the Ayurvedic portion of the curriculum has to be considerably strengthened and enlarged under the direction of experts in this field. The minimum qualification for admission should include the equipment needed for acquiring a mastery of Ayurveda in addition to a knowledge of the basic sciences as the essential foundation of medical education. Early steps will have to be taken for upgrading of selected institutions. At least one of them should be fully equipped for high level research as well as education of the requisite standard. The consensus of opinion seems to be in favour of a full course extending over a period of five years. There is also demand for a three years junior diploma course to meet the immediate needs of the country. This, however, needs examination in view of a large body of opinion in favour of a single course of training. Besides the State Medical Boards appointed for the purpose of regulating registration and practice in these systems, which should also deal with the standards of education, with supervision over instruction and with professional conduct in the respective systems, Central Councils may be necessary. Rs. 95.23 lakhs have been provided for education and training in indigenous systems of medicine, and Rs. 1.06 crores, for hospitals and dispensaries as well as other schemes of indigenous medicine by the States. Uttar Pradesh and Hyderabad have provided the maximum for hospitals and dispensaries. Bihar, Madhya Pradesh, Saurashtra, and Travancore-Cochin devote considerable amounts for education and training, and account for the bulk of the expenditure of the States.

87. With regard to Homeopathy, the proposals

of the representatives of the profession appear to be reasonable and are, in the main, as follow --

- (1) A Central Council of Homoeopathic Medicine may be formed.
- (2) Suitable colleges among the existing ones may be upgraded and standardised, and the question of starting new institutions may also be considered.
- (3) The course in the colleges may be common during first two years and students will then learn homoeopathic philosophy, materia medica and therapeutics and allied subjects in 3 years.
- (4) Facilities for homoeopathic research may be provided.
- (5) A central homoeopathic drug manufactory and laboratory for standardisation of drugs may be opened at Lucknow.

88. The significance of what goes by the name of naturopathy can be better appreciated if it is considered as a way of life rather than a system of treatment in the narrow sense. Its emphasis on positive health, conservation of vitality, self-help in matters of health and its advocacy of simple ways of using the varied forces of nature are elements of its special outlook. Many of its techniques have become assimilated in the general practice of medicine and it has much common ground with what has come to be known as physical medicine. Nature cure is being practised in India both as a basic system embodying the simple approach made popular by Mahatma Gandhi and as a modern system, for which it is claimed that it is based on the fundamental curative principles which are inherent within the human personality. In dealing with the question of nature cure, we have to reckon with several viewpoints. It is contended that nature cure does not exist as an independent system. On the other hand, there is a school of thought which regards nature cure as self-sufficient, but so simple that it requires no

elaborate provision for training or treatment. The practitioners of the modern system of nature cure insist, however, that it is a wide and vast field and it is necessary to create at least one central teaching institution in which the existing knowledge of the subject is standardized, research is carried on and instruction imparted to students. It appears, therefore, that these and several other aspects of the question require further enquiry. Immediate action in respect of nature cure may take the following lines:-

1. Nature cure should be included in the scope of research and steps should be taken for rstandardising the knowledge on the subject.
2. The possibility of including the teaching of physical medicine in the All India Medical Institute should be explored and facilities provided for education in such treatment as confirmed by research and experience.

Facilities should be provided for the wide dissemination of the principles of nature cure, as confirmed by research and experience.

Drugs and medical requisites.

89. The supply of therapeutic substances and medical appliances ranks very high among the priorities in the national health plan. The carrying out of medical and health programmes will be made impossible without adequate supplies of drugs and appliances. It should be possible adequately

to provide for these essential needs through a combination of private enterprise suitably assisted where necessary, and production by the State where this is found to be in public interest. The final responsibility should rest with the Government for seeing that the essential needs of the country in respect of important medical requisites are met satisfactorily in regard to quality, quantity and price.

90. Under the Drugs Act of 1940 the responsibility of the Centre is to regulate the standard of drugs imported into the country and the establishment of the Central Drugs Laboratory and also to correlate the work of administering the Act in the States, the States being responsible for control over manufacture, sale and distribution of drugs. The implementation of the Act has reached various stages in the States. Bombay, Uttar Pradesh, Madras and West Bengal have shown greater progress than others. The provisions of the Drugs Act have been extended to Part 'B' and Part 'C' States. All the States should effectively implement the provisions of the Drugs Act by the employment of an adequate number of qualified Drug Inspectors and the establishment of well-equipped laboratories staffed by qualified analysts. Black marketing in drugs is checked by test purchases and regular collection of information on the supply position of essential drugs from the States. Government also propose to enhance penalties for manufacturing and selling spurious and sub-standard drugs. Such offences will be made cognisable.

91. This country has long been recognised as a rich storehouse of vegetable material medica.

Though indigenous drugs have been in extensive use, there has been no co-ordinated effort in research and standardisation of these drugs. It is necessary to lay down standards as regards quality and active principles. Then they should be processed in a form suitable for administration. Remedies suitable for adoption in the pharmacopoeia should be discovered. In order to achieve these objectives, the Indian Council of Agricultural Research has established a medicinal plants committee to develop the cultivation of important medicinal plants at suitable centres. Uttar Pradesh and Kashmir are also taking steps in this direction. The Ministry of Health has established a pharmacognosy section of the Central Drugs Research Laboratory for the identification of indigenous drugs, and for detecting adulteration of crude drugs in the market. Samples of fifty commonly used drugs collected from markets all over India have been investigated in the drugs research laboratory in Kashmir and found to be spurious imitations of the genuine commodities. As a preliminary to the control of these drugs, their pharmacognostic and chemical standards should be established. The Council of Scientific and Industrial Research has established a Drug Research Institute at Lucknow. This Institute will investigate many of the commonly used indigenous drugs to work out their active principles and work out standards of potency and purity. The need for a national pharmacopoeia has been a long-felt want. The Government of India established a committee for the preparation of the pharmacopoeia. The pharmacopoeia will contain monographs not only on modern synthetic and other drugs but also on all vegetable drugs of indigenous origin. So far nearly a thousand draft monographs have been prepared.

92. Homoeopathic medicines are not prepared according to well-known pharmacopoeial methods. Moreover, these drugs are used in such diluted

forms that they cannot be tested or standardised by any known chemical process. The only precaution that could be taken is to allow the manufacture and preparation in bonded laboratories under the supervision of qualified Homoeopaths.

93. The Pharmacy Act has been enforced in all Part 'A' States. Steps are being taken to enforce it in Part 'B' and Part 'C' States. Registration tribunals have been constituted by the State Governments and registration of pharmacists is under way. Education regulations prescribing the minimum standards for pharmacists have been prepared. The Pharmacy Act should be effectively implemented in all States.

94. Private enterprise in drug manufacture in India started just after the world War I, though a beginning was made nearly 50 years ago. At the beginning of world war II, owing to restriction on imports, the full resources of the country had to be developed. The Government of India gave all help to the manufacturing industry. Today India is self-sufficient in regard to all the chemical preparations, most of sera and vaccines, liver extracts, alkaloids like morphine, codeine, strychnine etc. India is also self-sufficient in regard to the production of santonine, belladonna, digitalis and hyoscyamus preparations. India has made little or no progress in regard to production of basic chemicals required for the manufacture of synthetic remedies and chemo-therapeutic compounds largely used in the country. A few synthetic drugs are produced in small quantities e.g. P.A.S., Novitron, Luminal (Phenobarbitone) Para acetyl amino benzaldehyde thio semi carbazone etc., which meets only a fraction of the demand. India imports essential drugs and raw materials valued at over Rs. 10 crores annually. Among them are principally penicillin, streptomycin and other antibiotics, sulpha drugs, gland products, vitamins, anti-leprosy drugs and insecticides. These are the most important items and if steps are taken to implement the production of the basic chemicals and raw materials required for these and for the production of the finished products; the import of drugs will be considerably curtailed and India will be fairly on the way to self-sufficiency. We may now consider the produc-

tion of those drugs to which a high priority should be assigned.

95. West Bengal and Madras produce about 1,00,000 lbs. of quinine per year. The production should be expanded to 1,50,000 lbs. to make up the gap between production and consumption. Government have appointed a special Cinchona Committee for the purpose of investigating the problems of Cinchona industry. Their report is expected shortly. Any enterprise proposing to produce synthetic anti-malarial drugs in the country should be given all facilities. The production of D.D.T at rate comparable to foreign prices to the extent of about 5 or 6 thousand tons should be the target for the plan period. There is a proposal under way for the setting up of a D.D.T. factory, with the assistance of W.H.O. and U.N.I.C.E.F., for the production of 700 tons with capacity for expansion upto 1,400 tons. The setting up of another plant of the same capacity is essential to meet the requirements of a national malaria control programme and the target of production indicated. This is proposed under T.C.A. programme.

96. Very nearly 35 per cent of the total value of imported drugs is in the form of antibiotics consisting of penicillin and streptomycin. The estimated consumption of penicillin is 8 million mega units per annum, which is wholly imported. The Indian Penicillin Committee have started a bottling plant at the Haffkine Institute, Bombay, where penicillin is imported in bulk. Government of India have entered into an agreement with the U.N.I.C.E.F. to set up a factory for the manufacture of penicillin and other antibiotics. The total cost of the project is estimated at Rs. 200 lakhs. The plant will be located at Pimpri near Poona. The production of penicillin at the rate of 4,00,000 mega units per month is expected by the end of 1954. Provision has also been made for the development of an important centre of research and training in the antibiotic field. Certain commercial firms are also engaged in importing penicillin in bulk and bottling it.

97. Sulpha drugs should have a high place in the

priorities for self-sufficiency. The volume of their requirements is very large. Private enterprise is entering the field for the production of sulpho drugs.

98. Diaminodiphenyl sulphone is being manufactured by some Indian firms. It is claimed that a process has been evolved by which the cost of production would be considerably reduced. The basic materials required for the preparation of this drug are said to be all available in India.

99. Among the glandular products, insulin takes rank as one of the most important, as it is necessary for the treatment of diabetes. It is now wholly imported. It is understood that an Indian firm has under consideration a project for manufacturing insulin with foreign technical assistance.

100. The need for the development of industries for the production of vitamins, food yeast, shark liver oil has been stressed in the section on nutrition. There is a need for a co-ordinated programme of development of the pharmaceutical industry. Production of hospital equipment, surgical instruments and dressings, glass containers should receive attention and necessary aid.

Vital Statistics

101. Vital statistics constitute the foundation on which all constructive work in the

field of public health must be built. Preventive and curative work can be organised on a sound basis only on accurate knowledge of mortality and morbidity statistics. The application of modern statistical methods to health administration is of supreme importance. It is necessary both for ensuring the collection of data on sound lines and a study and interpretation of the recorded statistics. Investigation of socio-economic factors in relation to community health and disease, the survey of health problems and the evaluation of the measures taken require the application of statistical methods. An adequate statistical service is required for the collection and compilation of vital and population statistics and the census.

102. The collection and compilation of vital statistical data are defective in completeness and accuracy. The agency for the collection of vital statistics in municipalities is a part of the municipal public health department. As regards rural areas the agency varies in different States. The recorded vital statistics are passed on through a series of officers to the Director of Public Health and compilation of the data is carried out at different stage of transmission, in most cases. The collection and compilation of vital statistics is now to be a function of the Registrar General and Census Commissioner. The Registrar General has reviewed the recommendations of the Bhore Committee and the Vital Statistics Committee and has proposed a scheme. The scheme consists of an annual review of population records and annual census of sample house-holds. The data collected by these two operations and those yielded by the normal registration of births and deaths are to be centrally compiled, tabulated and studied and on the basis of such studies population reports are to be prepared and published every year. The organisation required for this purpose would consist of a central office of the census of India under a Registrar General and ex-officio Census Commissioner, Branch Offices of the Census of India each under a Superintendent of Census Operations and Agencies of each State Government

viz., a Director of Population Records for each State with necessary office staff and an organisation in each district consisting of chief Registration Officers, Registration Supervisors, Registrars and Additional Registrars, all appointed on an ex-officio basis. House-to-house visits and enquiries are proposed to be organised annually in order to effect 'Rotational Revision of the National Register' and the 'Annual Census of Sample Households'. The expenditure incurred is to be shared equally between the Centre and the State concerned. The total cost of the entire scheme can be limited to Rs. 30 lakhs per annum.

103. Though the Registrar General is to be in charge of the vital statistical organisation, the health organisations have an important role to play, particularly through health personnel at district and local levels in providing accurate data of births and causes of deaths, and in introducing the use of more exact terminology in reporting them. The health directorates at the Centre as well as in the States have got a distinct need for a statistical organisation to carry out certain types of statistical studies and investigations having a direct bearing on essential health problems with which they are concerned, besides the study and analysis of recorded statistics in medical institutions of various types and of health departments.

104. The application of statistical methodology to problems of health administration is a highly specialised scientific discipline and requires the services of highly qualified and well-trained statisticians. There is, therefore, a need for organising facilities for statistical training in universities not only in the theory of statistics but also in applied statistics in various specialised fields. So far as health statistics go, there is provision in the All India Institute of Hygiene for such training. There is clearly a need for developing similar provision in other centres like the All India Medical Institute. The satisfactory fulfilment of the functions of the Bureau of Health Statistics in the Directorates of Health Services would need modern mechanical aids. A provision of Rs. 9.25 lakhs for the purpose is made in the plan. Experimental pilot studies for the improvement of vital and health statistical data will be taken up along with population studies for which provision is made.

•Family planning

105. The recent increase in the population of India and the pressure exercised on the limited resources of the country have brought to the forefront the urgency of the problem of family planning and population control. The application of medical knowledge and social care has lowered the death-rate, while the birth-rate remains fairly constant. This has led to the rapid increase in the growth of population. While a lowering of the birth rate may occur as a result of improvements in the standards of living, such improvements are not likely to materialise if there is a concurrent increase of population. It is, therefore, apparent that population control can be achieved only by the reduction of the birth-rate to the extent necessary to stabilize the population at a level consistent with the requirements of national economy. This can be secured only by the realization of the need for family limitation on a wide scale by the people. The main appeal for family planning is based on considerations of the health and welfare of the family. Family limitation or spacing of the children is necessary and desirable in order to secure better health for the mother and better care and upbringing of children. Measures directed to this end should, therefore, form part of the public health programme.

106. A programme for family limitation and population control should :-

- (a) obtain an accurate picture of the factors contributing to the rapid population increase in India;
- (b) discover suitable techniques of family planning and devise methods by which knowledge of these techniques can be widely disseminated; and
- (c) make advice, on family planning, an integral part of the service of Government hospitals and public health agencies.

The programme would include:-

- (1) The provision, in Government hospitals and health centres, of advice on methods of

family planning for married persons who require such advice: It seems to be a matter beyond dispute that medical officers working at hospitals and health centres like maternity and child welfare clinics should give advice to women regarding family planning when such advice is necessary for health reasons. If a doctor feels that a woman patient cannot undergo again the strain of pregnancy and parturition without danger to health, it is obviously the duty of the doctor to give such advice as is necessary to enable the person to prevent conception. In such a case advice based on the rhythm method may not suffice. What is required here is to ensure that as far as may be possible conception is definitely prevented. In these circumstances the doctor would be justified in suggesting chemical and/or mechanical means of contraception. The giving of advice on birth control by chemical and mechanical means has been a procedure allowed by the Ministry of Health in U.K. in respect of medical organisations maintained by the local authorities in that country.

(2) Field experiments on different methods of family planning for the purpose of determining their suitability, acceptability and effectiveness in different sections of the population: If it can be demonstrated that our people, particularly those living in rural areas, can be educated to accept the rhythm method and use it as a practical method of limiting family growth, Governmental support should be extended to the propagation of this method. From the point of view of avoiding enormous expenditure as well as that of securing the ethical values that community life would gain by the self-imposed restraint which the rhythm method involves, it would seem desirable to try out this method fully and thus ascertain its practicability. Whether the rhythm method is capable of wide application in the community with adequate results or not, actual experimentation alone can tell. Research and experiments need not however be confined to a single method. But this should be given opportunity to demonstrate its value. There are numerous voluntary agencies which appear to be keen on propagating the spread of information regarding

the use of contraceptive of a chemical and mechanical nature. Their activities will naturally continue.

(3) Development of suitable procedures to educate the people rapidly on family planning methods: Quick and inexpensive means of educating the public in matters relating to family size will have to be evolved, if large-scale reduction in the national birth-rate is to be obtained. Scientific techniques are available to assess the effect of mass educational campaigns. These techniques should be used to evolve educational programmes suitable for the different economical and social sections of the population.

(4) Collection, from representative sections of the population, of information on reproductive performances, and on attitudes and motivations affecting the size of the family: The reproductive pattern in any population is largely determined by social and cultural factors which may differ from one area to another. A thorough investigation of the differences in attitudes and motivations towards family size only would give us an understanding of the problem. A knowledge of the factors responsible for producing such differences is equally important. Research along these lines is necessary if we are to understand the particular sentiments and aspirations to which programmes of family limitation in various sections of the population should appeal.

(5) Study of the inter-relationships between economic, social and population changes: The information obtained by such studies will form the necessary background for the formulation of a national population policy and the development of appropriate measures for population control based on factual information.

(6) Collecting and studying information about different methods of family planning (based on scientifically tested experience in India and abroad) and making such information available to professional workers.

(7) Research into medical and technical aspects of human reproduction.

A provision of Rs. 65 lakhs is made in the Plan for this purpose.

107. It is considered that the problems of population and family planning may be divided into those relating:- (1) to policy and approach and (2) to research and programmes. Two committees have accordingly been constituted. It would also appear necessary to set up after a period a population commission to assess the population problem, consider different views held on the subject of population control, appraise the results and experimental studies and recommend measures in the field of family limitation to be adopted by the Government and the people.

CHAPTER XXXIII

• E D U C A T I O N

1. GENERAL

Education is of basic importance in the planned development of a nation. For the specific tasks which the nation sets itself through the Plan, the educational machinery will have to be geared so as to make available in all fields the knowhow and skills which may be needed to secure at a given rate personnel of suitable quality in required numbers and proportions. The educational system has also an intimate bearing on the attainment of the general objectives of the Plan ~~inasmuch~~ as it largely determines the quality of the manpower and the social climate of the country.

2. In a democratic set up, the role of education becomes crucial, since it can function effectively only if there is an intelligent participation of the masses in the affairs of the country. The success of planning in a democracy depends also on the growth of the spirit of cooperation, the sense of disciplined citizenship and the degree to which it becomes possible to evoke public enthusiasm and build up local leadership. It is essential for the successful implementation of the Plan that the educational programme helps to train the people to place responsibilities before rights and to keep the self-regarding outlook and the force of the acquisitive instinct within* legitimate bounds. Adequate satisfaction of cultural needs is a vital element in the growth of the nation. The system of education, should, therefore, stimulate the growth of the creative faculties, increase the capacity for enjoyment and develop a spirit of critical appreciation of arts, literature and other creative activities.

3. The lines of future reorganisation have become clear in many directions as a result of the deliberations of various committees and commissions set up in recent years and the pioneering work of private institutions. The Planning Commission has been mainly concerned with viewing education as a part of the total national effort, establishing and strengthening its links with other aspects of national life and assigning priorities for the various educational programmes awaiting implementation.

Assessment of the present position:

E D U C A T I O N

4. An analysis of the existing situation reveals the following features that need special attention:-

(1) Considering the size of ~~the~~ population, the overall provision of educational facilities is very inadequate. They are provided for only 40.0* per cent of the children of the age-group 6-11 and 10.9* per cent of those of the age group 11-17 and 10.9* per cent of persons of the age group 17-23. The directive of the constitution, however, requires that free and compulsory education should be provided for all children up to the age of 14 within ten years of the commencement of the Constitution. This will necessitate expansion of facilities at higher levels also as more and more students pass out of primary schools. The literacy percentage of our population is 17.2* per cent which is only a very rough measure of the huge task lying ahead in the field of social education. Similarly facilities for technical education need to be considerably expanded to meet the needs of the country adequately.

(2) The overall structure of the educational system is defective in many ways. ~~One of the~~ defects is that it is top-heavy. Although the provision at the secondary stage is properly proportioned to that at the primary stage that at the university stage is larger than the base structure can profitably support. This is revealed also by the distribution of educational expenditure among the various stages. In 1949-50, for example, primary schools only accounted for 34.4 per cent of the total educational expenditure whereas a sound and properly proportioned system of education requires that the major share of this expenditure should be incurred on primary education. The emphasis on primary (or basic) education needs to be very considerably increased during the period of the Plan, which would necessitate a corresponding increase in secondary education during the next stage of our development, though some expansion would be inevitably required even during the present period to cope with the increased demand for teachers for the large number of primary (or basic) schools that would come into being. In view of the decision of the Government to adopt the basic pattern at the primary stage of education, the need of teachers for these schools will require expansion of facilities on post-basic lines, at the secondary stage. Otherwise, however, both

* Figures are provisional

both in the field of secondary and university education, the general problem is one of consolidation rather than expansion. Except in certain fields like Agricultural and Technical High Schools at the secondary stage and Public Administration, Social Service Administration, Business and Industrial Administration, etc., at the university stage - where provision is non-existent or insufficient. Another reason is that the recent expansion in these fields has not always been on a sound basis with adequate provision of teachers, equipment, etc., which has unduly lowered standards.

There are grave disparities between different States in the matter of provision of educational facilities. The expenditure on education vis-a-vis its total revenues and population also varies in different States. The internal distribution of expenditure should be so arranged and Central grants should be so dispensed that at least serious inequalities between states tend to disappear.

Educational facilities are not properly distributed between urban and rural areas. Whereas 82.8 per cent of the population live in rural areas the percentage of the total number of pupils in recognised primary, middle and high schools that were studying in rural areas in 1949-50, was 60, 67 and 26 respectively. The respective percentages in 1937-38 were 82, 72 and 28. At the university level facilities are practically non-existent in the rural areas. Expenditure on recognised educational institutions in rural areas fell from 36 per cent of the total expenditure in 1937-38 to 30 per cent in 1949-50 although the total expenditure on education in rural areas had considerably increased.

There is lack of balance between provision of facilities for different sections of society. The problem of backward tribes and scheduled castes is dealt with under Social Welfare. Of special concern in this regard is the neglect of women's education. Whereas women constitute nearly half the population the girl pupils in the primary, middle, and high school stages in 1949-50 were only 28, 18 and 13 per cent of the total number of pupils studying in these stages. In universities and colleges* for the same years girls were only 10.4 per cent of the total number of

* Includes students of Intermediate Colleges under the Boards of Secondary and Intermediate Education.

students. At the primary stage most of the States have not found it feasible to have separate schools for girls and the only remedy lies in propaganda among parents to remove their prejudice against co-education at this stage. Co-education at the middle and high school stages may not be feasible in the present stage of our society, and emphasis would need to be laid on the development of middle and high schools for girls. Girl students should also be encouraged to take to higher studies by free-ships and scholarships.

The various stages of the educational system are not clearly and rationally marked out. The duration and standards of the primary and secondary stages vary considerably in different States. The relationship of basic education with ordinary primary education and that of post-basic education with existing secondary education has not been clearly defined. Again, while most of the students finish their educational career at the close of the primary stage in the first instance and then at the end of the secondary stage, none of these stages is complete by itself. The proper definition and integration of the different stages and branches of the educational system is an urgent necessity.

(3) Another disturbing feature of the situation is the large wastage that occurs in various forms at different stages of education. At the primary stage quite a large number of pupils discontinue their studies even before obtaining a state of permanent literacy. Of the ~~total~~ number of students entering schools in 1945-46 only 40.0 percent reached class IV in 1948-49. The expenditure on the remaining 60.0 per cent was largely wasted. The experiment of compulsion which is generally regarded as the only remedy for improving the position has not made much progress. In 1948-49 only 115 lakhs (nearly) pupils were under compulsion and most of the States expressed their inability to enforce it. The problem of 'stagnation', where a pupil spends a number of years in the same class, is also serious. There is, moreover, incomplete utilisation of existing facilities as is shown by unsatisfactory results of a large number of students. This wastage is largely due to the poor quality of teaching as well as faulty methods of education. Another form of wastage is the unplanned growth of educational institutions.

The absence of adequate facilities for technical and vocational education results in a much larger number of students going in for general education than is justified by the requirements of the country for the tastes and aptitudes of the pupils. The undue emphasis on the academic and theoretical aspects of education retards the development of the practical sense, initiative and resourcefulness among large numbers of students. One result of this is that educated people tend to depend too much on employment by government or commercial concerns, which can absorb only a limited number. This also leads to undue strain on the resources of the universities as the students on the completion of secondary education tend to drift to the universities in the absence of any other alternative. Education should, therefore, be given a more practical bias from the very beginning and at the post-secondary stage there should be greater adjustment between the needs of the country and the output of educational institutions.

(4) The position in regard to teachers is highly unsatisfactory. A very large percentage of them are untrained. In 1949-50 the percentage of untrained teachers was 41.4 per cent in primary schools and 46.4 per cent in secondary schools. For purposes of educational reorganisation most of the trained teachers will also require considerable retraining. Expansion of training facilities, therefore, deserves very high priority.

Another feature of the situation is the dearth of women teachers, who are especially suited for balwadis (including Pre-Schools and Day Nurseries) and primary schools. To make up this shortage, facilities for part-time work in schools should be provided for married women who cannot devote their whole time to the profession. Destitute women should also be trained as teachers.

The scales of pay and conditions of service of teachers are generally very unsatisfactory and are a major cause of low standards of teaching.

(5) The high cost of education, especially at the university level, prevents many an intelligent students from proceeding to higher studies. The provision of free-ships and scholarships needs to be considerably increased. It should be a principle

of state policy than none who has the capacity to profit by higher education should be debarred from getting it. Since the limited economic resources of the State will place limitations on the implementation of this principle facilities for part-time work by students to meet the expenses of their education should be developed as much as possible.

(6) The undue stress on examinations and memory work in the present system of education is not conducive to the development of originality or a spirit of research. Lack of facilities also prevents institutions from building up the physical and mental health of the students. There has also been a general neglect of the study of our own culture with the result that the educated classes are often divided by a gulf from the mass of the people. The system should also help in building up the cultural and political identity. Graded textbooks for the purpose of building up civic loyalties and creating understanding of democratic citizenship should be prepared. The meaning of planned development and the Five-Year Plan should also be universally taught in our educational institutions and included in social education.

country's

of education

5. Some attempts have been made to remodel the system in such a way as to suit our needs better. At the primary level the basic pattern has been accepted and a beginning has been made in the matter of opening new basic schools and converting some of the existing primary schools into basic ones. Some attempts have also been made to make secondary education more broad-based and practical. But by and large teaching continues on the old lines and practically the entire task of remodelling the system still remains to be done.

6. Summing up, the needs of the present situation are:-

- (1) Reorientation of the educational system and integration of its different stages and branches,
- (2) Expansion in various fields, especially, in those of basic and social education, remodelling secondary educational and technical and vocational education.

- (3) Consolidation of existing secondary and university education and the devising of a system of higher education suited to the needs of the rural areas.
- (4) Expansion of facilities for women's education, especially in the basic schools; rural areas; and in their pay-scales and conditions of service.
- (5) Training of teachers, especially women teachers and teachers for basic schools; and improvement in their pay-scales and conditions of service.
- (6) Helping backward states by giving preferential treatment to them in the matter of grants, and thereby attempt to provide equality of opportunity all over the country as far as possible.

Resources

7. In the context of our needs, our resources are inadequate. The Committee on the Ways and Means of Financing Educational Development in India estimates that a national system of education providing education for 100 per cent of the children of the age-group 6-14, secondary education for 20 per cent of those coming out of the first stage, university education for 10 per cent of those passing out of high schools, technical education on a modest scale and other minor items - when it comes into full operation, will require an annual expenditure of nearly Rs.400 crores. In addition Rs.200* crores nearly will be necessary to train 27@ lakhs of teachers that will be required and Rs.272 crores for buildings. The total number of teachers in 1949-50 was about 7 lakhs, most of whom require retraining to fit in the schemes of educational reorganisation. No authoritative assessment exists of our existing resources in buildings but it is common knowledge that most of the buildings, at least of the primary schools,

* For basic and high schools only. For basic teachers and teachers of junior departments of high schools Rs.325 per year per trainee and for teachers of senior departments of high schools Rs.400 per year per trainee has been assumed. The training period has been taken as 2 years.

@ For basic and high schools only.

are very inadequate for the purpose for which they are used. In spite of considerable increase in the provision for education in recent years the total educational expenditure in 1949-50 was only Rs.100* crores (nearly).

8. The Five Year Plan makes a provision of Rs.155.86 crores (34.02 crores for the Centre and Rs.121.84 crores for the States) for educational development or of Rs.031.13 crores per annum. This average indicates an increase of 59 per cent over the development expenditure in 1950-51, which was Rs.19.55 crores, for the Centre as well as the States. The inadequacy of this provision is all too obvious. It is also obvious that the gap between needs and resources available or likely to be available cannot be covered from State finances alone. And yet it has to be recognised that the provision of a certain minimum of education to all her citizens within a reasonably short period of time is an essential pre-requisite next only to food, for the successful implementation of development programmes and survival of democracy in India. It is extremely urgent, therefore, that all other possible sources of help should be discovered and fully utilized.

9. In the context of our present conditions a larger share of responsibility for social services will have to be borne by the people themselves. In the case of education there is evidence that the people are keen to contribute in cash, kind, labour or land for creating the necessary services. It should be a major aim of the Central and State Governments and non-official organisations to explore this avenue and harness this urge in the people through a judicious use of their influence; by providing technical aid and grants; and by stimulating a spirit of emulation among local communities. The schools should become a focus of the joint endeavour of the community and the hub of its social, cultural and economic life. This approach can take different forms from putting up a building, supplying furniture and equipment, making contribution in cash or kind at the time of the harvest or labour in the off-season to taking up responsibility for running the schools as their own. It is possible to visualise the village community as not merely supplying adequate land but also digging wells, supplying bullocks, seeds, manure, implements and labour for cultivating this land and thus creating resources for the school and the social, cultural and other activities of the community that would grow round the school. The village community has experience of this mutual aid activity for their own farming needs. The administration of such

* Figures are provisional

cooperative effort will not, therefore, involve any specialised organisation. This will give opportunity to the constructive workers, the members of the Bharat Sevak Samaj and Panchayats and will introduce a succession of activities so essential for creating and maintaining interest, confidence and initiative in the local community. It will give the administrator, with his influence, organisational capacity and experience scope for constructive leadership amidst the routine of his work. In this context, the productive aspect of Basic and Social education also assumes special importance.

Priorities

10. The paucity of our immediate resources makes it imperative that our programme be selected according to a careful system of priorities, so that the most urgent demands may be met and the most effective use made of the money spent. In view, however, of the varying needs and resources of different parts of the country and the differences in their general and educational development, these priorities can be indicated only in broad outlines. The importance of the educational programme in the general plan of development lies in the fact that it is only through a properly organised educational approach that the personnel of the requisite calibre at various levels required for the implementation of the national Plan can be trained and made available. This requires, firstly, the improvement and strengthening of existing institutions and secondly, the expansion of facilities on a considerable scale as and when resources become available.

11. The various stages of education are, however, so closely interlinked that it is not possible to lay down any strict order of priorities amongst them, so far at any rate as the improvement of the existing facilities is concerned. Better primary or basic education depends on better teachers who can only be supplied if standards of secondary education are greatly improved and this in turn depends on the

provision of better teachers who are educated in the universities and are prepared for their profession in the training colleges. That is why, it is necessary to ensure that there is a general advance and improvement on all fronts.

12. Subject to these remarks, however, it may be stated that side by side with the consolidation and improvement of existing facilities, high priority should be given to experiments and research in improved educational methods; to the training of teachers; to the preparation of literature for teachers, children and adults; to providing adequate facilities for basic and social education; and to developing to the fullest possible extent the facilities for technical and vocational education at lower levels as well as for training high grade technicians in certain selected fields. In the field of university education, high priority should be given to the improvement of standards and the development of post-graduate work and research.

13 In the context of the remarks made above, the Commission is of the view that in the educational development envisaged, a serious attempt should be made to achieve the following broad targets in the various sectors, subject to such modifications as may be required to suit local conditions:-

(1) At the conclusion of the Five Year Plan, educational facilities should be provided for at least 60 per cent of all the children of school-going age within the age-group of 6 to 11, and these should develop as early as possible so as to bring children up to the age of 14 into schools in order to cover the age-group of 6-14 which should be regarded as an integral whole for the purpose of providing basic education. The percentage of girls of school-going age (6-11) attending schools should go up from 23.3 per cent in 1950-51 to 40 per cent in 1955-56.

(2) At the secondary stage*, the target should be to bring 15% of the children of the relevant age-group into educational institutions. The percentage of girls of this age-group attending

* The 1950-51 provision for the age-group 11-17 was roughly 11 per cent

schools should go up to 10 per cent.

(3) In the field of social education, we should envisage that at least 30 per cent of the people (and 10 per cent of women) within the age group of 14 to 40 receive the benefit of social education in the wider sense of the word.

No targets have been laid down for university education as the problem here is mostly one of consolidation rather than expansion. It is, moreover, not possible to determine quantitatively progress in higher education with the same ease as in the case of earlier stages.

We estimate that with State resources alone the country will be able to provide schooling facilities for 55.7 per cent of the children of the age-group 11-17. The gap between these figures *stated earlier will be bridged by the development and utilisation of local resources and the productive capacity of students by the introduction of crafts in schools.

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Agencies

Role of the

14. Central Government: Educational programmes are carried out by the Central Government, the State Governments, local bodies and private agencies. According to the Constitution, education is mostly the concern of the States. The Central Government has special responsibility in certain fields which have been clearly defined in list I of the Seventh Schedule and shares responsibility with the State Governments in certain other fields also enumerated therein. It has, however, been implicitly recognised that the Centre has an over-all responsibility for helping, coordinating and guiding the work of the States so that national policies can be evolved and satisfactorily worked out. In view of the shortage of funds, the Centre has so far not been able to do much in this direction. In spite of the substantial improvement which the Plan makes in this respect the total resources available with the Centre still remain very inadequate and call for the utmost care in their disposal in order to obtain the maximum results. Except for helping especially backward states, we feel, that in the field of pre-university education, it

VI

would be very difficult at present for the Centre to undertake responsibility for expansion. It should confine itself to helping on a contributory basis those States/who/are willing to cooperate in certain activities having an all-India significance like research in techniques, training of especially selected personnel, production of literature, conducting pilot experiments, etc. Similarly in other fields, where the Constitution does not lay down a definite responsibility on the Centre, the grants should be pinned down to specific schemes, and an adequate machinery set up to see that the grants are really spent for the purpose for which they are meant. At the university level the setting up of a University Grants Commission has been recommended. The work of guiding and coordinating technical education in the country is performed by the All-India Council for Technical Education. Similarly it is necessary to have an expert body at the Centre to guide and coordinate work in the States in regard to basic, social and secondary education, especially at this stage when much pioneering work remains to be done. This body should also frequently assess the work done in different States and publicize the results. In this way sound foundations would be laid for the expansion programme when more funds become available. Another very important activity not especially mentioned in the Constitution but which the Centre has to engage in is the promotion of the Federal language.

15. Role of local bodies: The question of the relationship between State Governments and local bodies arises mostly in the field of primary education. A recent committee of the Central Advisory Board of Education has examined the problems connected with this relationship and its recommendations are under consideration by the various State Governments. In order to secure maximum local help and co-operation and

to build education closely round the life of the people, progressive decentralisation in the administration of education at lower levels should be effected as conditions become more and more favourable. Care should, however, be taken to ensure broad uniformity of educational policy and efficient and impartial administration.

16. Role of private agencies: Private agencies have always an important role to play in a democracy. In India where till recently they have had the major share of responsibility for welfare activities, they occupy a special place. Private agencies are generally able to manage things more cheaply than the government for they are able to appeal more effectively to the idealism of workers and are comparatively free from red tape. In view of these considerations and the fact that mobilisation of the efforts of the entire nation is necessary to meet the situation in regard to education, for which private agencies to develop their capacity fully and function effectively. Both the Central and State Governments have schemes for helping private agencies.

are especially fitted, it should be a priority task in the plan to help private agencies

2. PRE-SCHOOL EDUCATION

17. The highly impressionable, plastic and educationally potent period of a child's life preceding the age of six, when compulsion begins, has been neglected in India although it is all the more important in this country in view of the extremely depressing condition of the home in most cases. The existing schools are mostly concentrated in the towns and cater for the children of the richer classes while the need of the rural areas and of industrial labour, which is very much greater, is almost completely neglected.

18. In view of the shortage of funds Government can accept only limited responsibility in this field confined to research in evolving methods suited to our needs, training of teachers, helping private agencies who take up this work in

the rural areas by grants-in-aid and running a few model balwadis in each State. In the Labour area it should be the responsibility of industry to make provision for such schools. In other areas the major burden of organising and running balwadis should be borne by local bodies. Where resources do not allow the opening of full-time institutions, day nurseries working for a few hours in mornings and evenings should be organised by voluntary workers. Where buildings are not available seasonal open-air nurseries may be organised.

3. PRIMARY (INCLUDING BASIC) EDUCATION

19. The provision of free and compulsory primary education, is the first necessary step towards establishing equality of opportunity for every citizen. At this stage we deal with the entire future human resources of the country and if it is properly handled a way can be found for the full development and the most effective use of these resources.

20. Basic education: A most important development in the field of education in recent years has been the acceptance of basic education by the country as the pattern for the education of children of the age-group 6-14. Work in this direction, however, has only just begun. It has, moreover, varied to such an extent in the matter of approach and quality in different places that it is impossible to get an idea of the work done from statistics alone. This confusion should, however, disappear after the clear lead given by the Central Advisory Board of Education in their meeting of March, 1952, where they clearly enunciated: "A system of education cannot be considered as basic education in the real sense unless (a) it provides an integrated course including both the junior and the senior stages, and (b) it places adequate emphasis on craft work in both its educational and productive aspects". The broad framework of basic education has been worked out and given inspiring expression at some places. But it has to be recognised that many of its details remain to be worked out and we are far from having fully developed the potentialities of basic education.

21. The foremost task in the field of basic education is the improvement of technique and the development of methods, by which it can be passed on to the vast majority of teachers of rather low educational qualifications and average ability. To this end

at least one group of model basic institutions should be opened in each of the Part 'A' and 'B' States and in Delhi among part 'C' States. Each group should consist of a number of pre-basic and basic schools, a post-basic school, a teachers' training school and a teachers' training college. These institutions should be located near each other. One of their important tasks will be to develop a spirit of self-help and cooperation in the school community as well as to work for an all-round reconstruction of the community around. In addition a few experimental basic schools should also be opened in urban areas to discover necessary modifications of the basic system, as it has been worked out in the rural areas, to make it suitable for urban areas as well.

its pro-
ductive
aspect

22. Our experience of basic education hitherto is very limited. Even so, as the recent inquiry conducted in regard to \angle by the Ministry of Education shows that, wherever the scheme has been worked out with faith in this aspect it has yielded encouraging results in spite of serious handicaps. The stage has arrived for a thorough investigation of the obstacles in the way of the full development of the productive capacity of basic education, as far as that can be done without sacrificing educational interests, and a determined effort to remove them. Any success in this direction would help in the spread of free and universal basic education for the people.

23. States have hitherto tried to run mostly basic schools of five classes which are truncated units not only economically but also educationally. We would recommend that all states should run, wherever conditions permit, eight-year full-fledged basic schools instead of five-year schools. The experience of Bihar indicates that hardly any additional recurring expenditure would be involved in adding the three senior classes.

24. Insufficient attendance seriously affects the productivity of most basic schools. The remedy does not lie merely in compulsion. The positive approach to the question is to improve the economic condition of the villager. The burden on him of supporting the child, should be lightened by providing it free lunch, wherever possible, and by organising voluntary work outside school hours to enable pupils to produce essential consumable or marketable articles. Holidays should be so timed that labour of children is available to their parents in the busy season. The practical aspect of basic education and its capacity to serve the community should be fully developed to convince the villagers of its utility and win for it their loyalty. The teachers should also be taught in training colleges how to handle more than one class at a time. Perhaps the most important aspect of the question is the improvement of the quality of teachers.

25. Non-provision of adequate land, initial equipment and other capital expenditure are other serious handicaps. Most of the schools have no land while others have an insufficient amount of it. Land, however, is necessary to develop agriculture-centred basic schools and to introduce kitchen gardening in other schools. The report of the Ministry of Education on the productive aspect of basic education, referred to earlier, estimates that the total amount required for basic schools for all the children of the age-group 6-14 and training schools for training the necessary number of teachers for them will be 31,46,460 acres which is only 0.99 per cent of the total cultivated area in India. Difficulties of procuring land have to be faced at the local level. We would suggest the following measures to solve it:

- (i) Basic schools should be opened or existing primary schools converted into basic schools preferably in those places where the local inhabitants are prepared to donate at least five acres of land and the local community or the State provide initial equipment and other capital expenditure. The experience of Bihar, where basic education has been given a comparatively fair trial over some period, proves that gifts of land for basic schools can be easily secured. The social education programmes of State Governments can prepare ground for such donations.

- (ii) Wherever Government land is available or where Government comes into possession of land, say by the abolition of Zamindari, basic institutions should have a prior claim.
- (iii) All government demonstration farms should be used for training the staff of basic institutions.
- (iv) Wherever the consolidation of holdings is undertaken, the needs of the local school for land should be taken into consideration in determining the extent of land to be reserved for the common needs of the village.
- (v) Government should simplify procedure for the transfer of land and provide the schools with necessary facilities and interdepartmental cooperation to improve greatly the land offered.
- (vi) Where land is not obtainable under any condition it may be rented.
- (vii) Collective labour under the supervision of teachers, as has been tried in the basic school at Vedchhi*, for example, may also provide a way out of the difficulty of getting land.

Requisitioning of land should not be resorted to except under very exceptional circumstances as it creates strained relations between the school and those who are dispossessed in the surrounding area.

26. It has however, to be recognised that very little experience exists as to the problem of agriculture-centred basic schools. It is very necessary, therefore, to take up forthwith a few agriculture-centred schools as an object of special study by qualified people so that they can provide guidance for the rest.

* Distt. Surat. (Gujerat).

27. The disposal of the products of basic schools is not properly attended to. It is too often forgotten that indifferent craft work is not only bad economics but also bad education. Arrangements should be made to carry out all the craft processes so that finished products are turned out from basic schools, either singly or a number of schools cooperating together. Quality and taste should be properly attended to and every attempt should be made to eliminate waste. Articles produced should be generally for consumption by the community of students and teachers and the local community and if production is properly planned and the community spirit is developed there should be no unsold surplus. When, however, this adjustment is not perfect the services of the general machinery that may be set up for the disposal of cottage industry products should be available to these schools.

28. In view of the central place which the personality of the teacher occupies in the basic system, the selection and training of the large number of basic teachers required is one of the most baffling problems in spreading basic education. The methods of selection should be so devised as to give due weight to personal traits in the teacher like the love of children and rural areas, self-help, initiative, resourcefulness, etc., which constitute really the key to his success as a basic teacher.

29. In view of the heavy cost that will be involved in training the large number of teachers required, it is highly important to develop the productive capacity of training schools to the fullest extent possible, consistent with educational interests. That will also provide pupil-teachers valuable lessons in self-help and resourcefulness. In view of the results obtained by some of the basic schools there are good prospects of achieving a fair amount of success in this field in basic training schools and colleges.

30. The training of the large number of teachers required within a reasonably short period of time is a colossal task which will need the closest cooperation of the Central Government, the State Governments and non-official bodies. Besides the services of basic education experts the programme will require services of allied departments like Agriculture, Animal Husbandry, Cooperation, etc., whose fullest cooperation should, therefore, be ensured.

31. The training programmes, should be split up into two parts, both proceeding side by side: one concentrating on quality, which can grow only slowly, and the other on those basic skills and knowledge like organised community living, craft work, etc., which can be imparted 'en masse' in regional camps. The teachers trained by the latter method should continue to be trained on the job by guiding literature, by peripatetic teachers being posted in their midst for short periods, by holding short refresher courses, etc. To get the best out of the teachers favourable atmosphere should be provided by giving a short course in basic education to all the officers of the department so that they can guide the teachers with sympathy and understanding.

32. Buildings should be of the simplest possible type and as far as possible built out of local material and the free labour of the people. Government should help with technical advice for which the P.W.Ds. should experiment with cheap designs that can be constructed with locally available material. The response of the public in the matter of school buildings in many places shows what can be done by public cooperation. The procedure of giving building grants should, however, be so simplified that grants which are meant to stimulate public effort are not so long delayed as to damp it.

33. The precise nature of the administrative machinery will be determined by each State according to the conditions prevailing there. In view of the past experience as well as the nature of basic general education, however, we would recommend certain general considerations which we feel should be kept in view. Basic education being a new experiment it is essential in the initial stages to create a strong nucleus by having a separate unit for it within the education department.

XXXIII

Secondly, basic education should have the co-operation of all departments whose work is vitally related to basic institutions. The extent of the responsibility of each department in this regard should be carefully worked out. Attempts should be made to locate the headquarters, temporary or permanent, of the officers of the various departments at basic institutions, wherever possible. Thirdly, basic education, being a programme of community action, non-officials should be associated at different levels and local committees should have the largest powers possible, consistent with efficiency and broad uniformity of policy.

34. Improvement and conversion/existing primary schools and opening of new ones: As regards the question of ordinary primary education we feel that in view of the poor return from it, the tendency to open new primary schools should not be encouraged and, as far as possible, resources should be concentrated on basic education and the improvement and remodelling of existing primary schools on basic lines as far as that is possible with the personnel available. Even where new primary schools have to be opened for any special reasons, the curricular content should generally be the same as for basic schools and the earliest opportunity should thereafter be taken to convert these schools into full-fledged basic schools. As an immediate step craft teachers should be trained on a large scale and craft introduced in as many schools as possible. The conversion programme, as well as the programme of opening new basic schools, should be so conducted that other primary schools in the vicinity are also brought near the basic pattern. This is necessary not only to eliminate unhealthy rivalry between basic and ordinary primary schools but also to promote the development of an integrated system of education. It should, moreover, be preceded by the education of the public in regard to the value of basic education. The question of improvement of the pay-scales and conditions of service, , will be dealt with in a subsequent section. The question of the improvement of buildings of

ordinary primary schools has to be tackled in the same way as indicated in para 32.

35. Although State resources should be concentrated largely on basic education the people should be encouraged to provide themselves with whatever education they can with the co-operation of voluntary agencies. Students can make a substantial contribution if their efforts are properly mobilised. Again, properly directed Children's Clubs should be formed to impart some of the essentials of education to children for whom regular school education cannot be provided.

4. SECONDARY EDUCATION.

36. The Government of India has set up a Commission to go into the whole question of secondary education. We have, therefore, confined our remarks only to a few of the important and wider considerations which should be kept in mind in formulating its pattern.

Objectives.

37. In the first place, secondary education must be closely related to the psychological needs of the adolescents for whom it is being designed. Secondly, it should be vitally related to the existing socio-economic situation as well as its future set up, as contemplated in our Constitution and our accepted schemes for social and economic reconstruction. One of the main criticisms against the existing system is that it does not equip the youth adequately for the life around them and even less for the re-moulding of that life on a new basis. This involves, incidentally, the question of giving secondary education a vocational bias, which is not only necessary from the economical but also from the wider educational point of view. At present, the secondary school is mainly academic and it does not provide sufficient scope for young men and women with varying aptitudes, particularly for those with a marked practical bent of mind. Thirdly, it should grow from the education that is being given at the mass level, or, in other words, it should be closely integrated with basic education and its essential underlying principles. The child should not feel that, on passing from a basic school to a secondary school, there is a violent break in the methods of teaching and the organisation of the curriculum as well as the general lines of his work and activity. As in the case of a large majority of students secondary education is to mark the completion of a definite stage after which the pupil should be able to

to enter into various walks of life and fill the role of what may be called leadership at the intermediate level, which is so important for the successful functioning of democracy, the planning of this stage of education must take this important fact into account. This implies the provision of suitable types of multi-lateral schools or unilateral schools offering parallel courses and the building up of personnel for vocational guidance who should be able to direct the pupils along channels best suited to their aptitudes. It would also imply a considerable raising of the standards of education, so that the youths trained in high schools who enter the various vocations and the professions are able to deal competently with the type of work and the problems that they encounter. The intellectual standards attained should be high enough, on the one hand, to make the majority who enter life after their secondary stage into efficient workers and, on the other, to enable the minority that is to proceed to the colleges and the universities to profit from the instruction that it receives at these institutions. These brief remarks would show that the secondary education is expected to fulfil a number of important needs in our national life. Its planning, therefore, requires all the care and the attention that can be given to it, so that it may be able to play its proper role.

Finance

38. Regarding finance capital expenditure should be provided partly by the State and partly by the local people. In the rural areas, the local people should help by providing land, free labour in the construction of buildings, etc. Simple living based on self-help should considerably reduce living expenditure in hostels. Economic activities like agriculture, cottage industries, small scale industries, etc. should be encouraged and to helped / recover at least a part of the recurring expenditure.

Relationship of Post-Basic and Secondary Schools.

39. One problem which has to be immediately tackled is the relationship of post-basic and secondary schools. We feel that the same credit should be given to the products of the two types for equal years of schooling for purposes of inter-school transfers and going in for higher education. For purposes of employment and adjudging capacity for social services, however, the attainments of the different pupils should provide the data for assessing their comparative worth. Maintenance of detailed index cards should considerably help in this direction.

5. UNIVERSITY EDUCATION.

40. The Ministry of Education appointed the University Education Commission, which reported in 1949, to go into the whole question of university education. The Commission has suggested comprehensive and far-reaching reforms. We have received valuable help from the Commission's report in framing our recommendations in the light of our resources and the over-all needs of the country.

41. The problem of the reorganisation of university education is really three-fold; the reform of the existing system to enable it to yield the best results it is capable of, the building up of a new system (or systems) more suited to our national needs and the working out of the relationship of the two systems while they exist side by side. In spite of their grave defects, the existing universities are the only repositories we have of the tradition of organised knowledge and the course of wisdom is to improve the working while we attempt to build a system or systems better suited to our needs.

Reform of the existing system

42. Finance: The immediate difficulty that has to be faced in the reform of university education is that of finances. The financial position of most of the universities has worsened in recent years, despite the increase in income registered by the majority of them, on account of the large increase in expenditure. A very large number of universities are running on deficit budgets and hardly any university has the funds for necessary development.

43. The sources of income other than Government are drying up or like fees have already almost reached their limit. The financial burden of any improvement, therefore, that might be undertaken has to be borne mainly by the State,

44. While means should be found to strengthen the position of the universities in this respect to the extent that our resources allow, it is necessary to make the best use of available resources, for

which we would recommend the following measures:-

- (1) Since the publication of the Draft Outline, the Government has decided to set up the University Grants Commission. It should be one of its functions, to see that the tendency to open new universities, without adequate finances, is resisted. Universities should not recognise new colleges until they are sure of their financial stability.
- (2) Economies should be effected and more satisfactory results obtained by the co-ordination of post-graduate work in the various universities, thereby preventing unnecessary duplication. This should also be the responsibility of the University Grants Commission when it is appointed.
- (3) There is some room for economy in the running of universities, as revealed by the Report of the Reviewing Committee, appointed by the Government of India to go into the problems and difficulties facing the three Central universities and the ways and means by which Government could help them. The recommendations of the Committee should receive the careful consideration of all universities.
- (4) Residential life in hostels should be based on the maximum of self-help and the ideals of utmost simplicity should be inculcated among university students.

45. Overcrowding in colleges: Another very important problem is the serious over-crowding in most of the colleges, which makes individual attention, so necessary at this stage, simply impossible. We must develop and apply selective tests on a large scale so that nobody is allowed to go up for higher education who is not fit to profit by it. But in order to be able to enforce this selection opportunities should be provided to the large majority of students to find gainful employment by making pre-university education purposeful and complete in itself.

46. The above measures will, however, take time to produce any appreciable results. Immediate relief can be had by providing facilities for private study through correspondence courses and radio lectures and allowing students to take the

various examinations privately. This will have the additional advantage of giving an opportunity for progress to those who have to enter life early.

47. The present practice under which a degree is the minimum qualification for a large number of even routine and clerical posts must change. Recruitment to the services should be by competitive tests, calculated to assess both aptitude and acquired knowledge, and the non-possession of a degree should be no bar to taking the competitive examination. This will open out new avenues of progress for those who enter life early but who equip themselves subsequently through other methods. In certain services it may be advisable not to pitch the standards of academic qualifications high so that youngmen with the requisite aptitudes can be selected at an early age, say, at the end of the secondary stage, and whatever further training they require is given to them in institutions maintained by the departments themselves. Both these measures should make it unnecessary for many students to crowd colleges merely to get a degree for securing employment.

48. Improving standards of teaching: The most important factor responsible for the existing low standards of teaching is the poor scales of pay and unsatisfactory

conditions of service of the staff employed. The question is discussed in paragraphs 121 and 122. In addition, the following measures are recommended for improving standards of teaching:-

- (1) Proper steps must be devised to remedy the existing state of affairs in universities where in too many cases power and position depend not on the quality of work a person puts in but on his capacity to manage votes in the various university elections.
- (2) The number of working days should be increased to at least 180, exclusive of examination days. The continuity of studies is too frequently broken by casual holidays. A continuous period of study followed by a continuous period of holidays is desirable. That would give students the opportunity to engage in part-time work if they so desire and enable college authorities to provide other activities for students such as study tours, work camps, etc.
- (3) The system of inviting guest speakers on an honorarium may make the services of some good teachers available without additional much cost, especially in big towns and cities.
- (4) In order to develop a more balanced outlook and personality and habits of co-operation and self-help students should engage themselves in such activities as community cleaning, making and repair of roads within the college compound, some gardening, visit to the country-side and slum areas, etc. These activities would have the additional advantage of reducing the cost of maintaining a college.
- (5) Another reform which is very urgently needed and should be considered in all its bearings is the raising of the age limit of admission to universities.
- (6) An atmosphere of discussion and free thinking should be encouraged through seminars, teachers' and students' camps, etc.

(7) Steps should also be taken to correct the one-sidedness of present university education so that arts students have basic scientific knowledge and science students the essential knowledge of the humanities.

49. Control of universities: The control of universities leaves much to be desired. Apart from the evils of the teacher-politician, who has come up as a result of the introduction of democratic control in universities, they are subjected to unhealthy outside influences which nullifies their autonomy. Except the universities directly administered by the Central Government, universities are a State subject, and consequently the all-India aspects in the quality of administration are apt to be neglected. There is great disparity of quality of administration in different universities. The functions of the University Grants Commission should, therefore, also include the ensuring of minimum standards of teaching and internal administration in the various universities and the securing of proper attention for the all India aspects of university education.

Building up of a new system - Rural Universities

50. The urgent necessity of providing higher education to the rural areas is obvious. To meet this need, the University Education Commission has recommended a new pattern under the name of the Rural University. The Central Government should help to establish during the period of the Plan at least one such university, wherever the earlier stages of basic education, out of which it has to grow, have been worked out. Apart from serving the villages the experience gained in the working of Rural Universities is likely to be useful in effecting certain necessary reforms in our existing universities thereby enabling them to serve our national needs more effectively.

Relationship between existing and new universities

51. The new universities have to pass through a period of experimentation during which it is essential that they should have free scope for development. In order not to place the product of these institutions at a disadvantage, the degree of the new universities

in the matter of public appointments should have as much validity as those of older universities.

52. The concept of adult education, which was mostly confined to literacy, was found to be too narrow to be able to meet the various needs of the adults. It was, therefore, widened to include, in addition to literacy, the health, recreation and home life of the adults, their economic life and citizenship training; and to denote this new concept the word 'Social Education' was coined. Social education implies an all-comprehensive programme of community uplift through community action. External aid may be there but only to stimulate not to replace community effort. The importance of such a programme is obvious. It should not only make our limited resources much more effective, but also build up a self-reliant nation. In a country where nearly 80 per cent of the population are illiterate democracy may well vanish before a progressive programme of primary education trains up a generation fit to undertake its responsibilities. Even the programme of primary education is considerably handicapped without a corresponding programme of the education of the adults.

Assessment of the present situation

53. The work in the field of social education has been mostly confined to literacy. As a result of the work in recent years, especially during 1937-39 and since 1949-50, the literacy percentage increased from 8.3 in 1931 to 17.2* per cent in 1951. Most of the post-literacy work is done through libraries though due to the dearth of suitable literature the library movement has not made much headway in the villages. Recently the importance of recreational and cultural activities in programmes of social education has been increasingly recognised. Our cultural agencies like dance, drama, puppet show, fairs and festivals, 'Bhajan', 'Kirtan', etc., have been used but without any systematic attempt being made to gauge, develop and exploit their potentialities for mass education. Fairs and festivals had a meaning in olden times. They have, however, to be reinterpreted and modified to fit into the modern context and become live and full of meaning to the people today. Modern means of mass communication like the film and the radio have attracted much greater attention but on account of

 * Figures are provisional

their heavy cost, their use has been very much limited. Attempts have also been made in a few institutions to improve the economic condition of the villagers by teaching them improved crafts and agriculture. Very good all-round social education work has been done by some of the basic institutions. Co-operatives have also been developed as an agency of social education.

The approach

54. The approach to the problem has to be determined in the light of our resources and the magnitude of the task ahead. The total expenditure on social education in 1950-51 was Rs 83.45 lakhs. The average annual expenditure visualized in the Plan is Rs 2.98 crores. We would, however, require an average annual expenditure of Rs 27* crores for the next ten years to make everybody literate and give him in addition a veneer of social education in the larger sense of the term. The situation, therefore, calls for a most carefully planned approach. At the national level priorities in the programme of social education should be determined by the overall national priorities, thereby not only winning for it the enthusiasm and support of the country at large but also making it directly productive as it would enable the human factor to respond fully to the national plans of development. Organization of co-operatives, agencies of village Councils, co-operative farming, agricultural extension work, etc., are priority tasks in the Plan. We would, therefore, recommend that social education should be based on them. That is to say that in handling these activities utmost attention should be paid to inculcating in the adults right individual and collective habits, and the knowledge of various subjects should be correlated to every step involved in these activities, thereby broadening the horizon of the adults and enabling them to understand and effectively participate in the wider national life. For that it would be necessary to give a reorientation course to the personnel engaged in these departments and to prepare literature to guide them in this work.

55. With the broad framework of national priorities the actual programmes in a locality should be determined by local needs. Planning at the local level is equally essential if the danger of frittering away our meagre resources in a number of unco-ordinated activities is to be avoided. The principles which should govern our approach in this regard may be stated as follows. Our resources should be used in the first instance, as far as possible, for that programme which not only meets some immediately felt need of the local community in whose midst the programme is conducted but also builds

* Pamphlet No. 79- Bureau of Education P.113-scheme(b).

up resources for developing the programme with the expanding awareness of its needs by the community. That is the only way by which, with our limited resources, we can make any impression on the problem. Secondly, the social education approach must permeate all programmes of State aid to the people. That is to say that before any programme of State aid is launched the people should be so educated in regard to it that their instinct to help themselves is fully aroused and they are anxious to receive the programme and put forth a pound of energy for every ounce of State aid received for the execution of it. Thirdly, there should be the closest integration of the various activities conducted in a locality so that the forces of friendship and goodwill released by one activity, immediately recognised by the villagers as good or pleasant, can be utilised for winning their co-operation for activities requiring more strenuous effort or whose usefulness is not so immediately apparent to them. Fourthly, it should be our endeavour to increase the effectiveness of private agencies doing social education work in an area by giving them proper help.

The programme

56. Besides the social education work which various agencies entrusted primarily with other work like Agriculture, Animal Husbandry, etc. should carry on in close connection with their work, the programme of social education will fall into two parts. One should consist of whatever items any agency wants to or is capable of taking up out of the vast field of social education. Such agencies should be encouraged and helped, depending upon the usefulness of the work performed and the extent to which State resources can be diverted for the purpose. The other part should consist of a planned programme outlined below which should be undertaken wherever a properly trained worker is available. This is calculated to achieve the maximum results. The State resources, however, should naturally be concentrated more on the latter part of the programme and in training workers for it. This programme will differ in rural and urban areas in view of the different conditions prevailing in each.

57. In rural areas: Though the actual point of beginning the social education programme in a locality will be decided by a worker in view of the actual conditions prevailing there at the time he should attempt at the earliest to organise an economic activity cooperatively conducted, the precise nature of which would vary in different localities. The degree and nature of cooperation will

also vary depending upon local needs and the degree of preparedness of the local people. Besides providing excellent education to the participants by their mere working, cooperatives, by pooling together the resources of a number of persons, make for their more effective use and thus ensure economic gain, which arouses sustained interest and wins for the worker the confidence of these people. The cooperative activity will be the rallying point for the community and mark the beginnings of a Community Centre, the nucleus of which will be a trained community organiser. This Centre will henceforth go on growing in strength and the scope of its activities with the development of the resources and organisational strength of the community. Where a cooperative already exists the task of the worker will be to transform it into an agency of social education. The other essential programme which the community organiser may suggest to the community for taking up, each at the opportune time, are health, recreation and literacy. The test of the proper time for any programme is that the community should be psychologically so prepared that it is ready to organise it with its own resources.

58. Attempts should be made to organise programmes of health education and health services also cooperatively. The economic aspects of certain activities like the preparation of compost, the preparation of manure from night soil, etc., should not be lost sight of. The health education programme ought to be organised and phased in terms of the particular problems of the area of operation.

59. The importance of providing healthy recreation cannot be too strongly stressed. In organising recreational programmes especial attention should be given to the revival and proper utilisation of our cultural agencies. Occasions provided by fairs and festivals should be utilised for purposes of education, recreation and community organisation. Literature should be prepared explaining the significance of the various fairs and festivals and their relevance today as well as how their full educational potentialities can be made use of. The State should encourage writers to produce plays containing constructive ideas for such occasions. Film shows by mobile vans may also be provided to the extent that resources permit. It should also be remembered that unless integrated with the programme of development going on in an area their use is strictly limited. Certain films which will be relevant to conditions all over India, such as those dealing with common diseases and those calculated to

inculcate right individual and collective habits, should be prepared by the Central Government and lent out to the various States. Well-regulated radio broadcasts should also be increasingly used for recreation and instruction.

60. In organising literacy and post-literacy work the aim should be to put it on a self-financing basis, as far as possible, by normally starting it only when the ground has been prepared by some more obviously useful activity like the economic activity, mentioned earlier, and the interest in knowledge has been stimulated. A news-sheet, locally produced, and carrying suggestions for improving their lot - suggestions which they can immediately put into practice and in which they have developed faith as a result of the work in the first stage - should find ready customers among the villagers. At a later stage the State can help with libraries to the extent that its resources allow.

61. If we have provided the above four programmes, correlating relevant knowledge at every step, we will not only have met the primary needs of the masses but also taught them through living, most of the things that are required for the citizen of a modern democratic state. There is, however, no end to activities that might be included in a programme of social education and as the capacity of the masses to help themselves increases more and more activities can be added. The above intensive programme should be developed in the surrounding villages through local leaders thrown up as a result of the working of small groups in Youth Clubs, Ladies' Clubs, Children's Clubs, Farmers' Clubs, etc., which it should be the aim of the Community Organiser to set up. Short and intensive camps should be organised for these leaders where the working of the social education programme is explained to them. Thereafter continual guidance is given to them from his headquarters by the community organiser.

62. In urban areas: In the case of urban areas, there are so many groups that the problems will have to be studied in relation to each group. The problem of healthy and cheap recreation is also more acute in the towns than in the villages. The overall consideration will, however, be the same as in the rural areas. The programmes must begin with felt needs and must have the capacity to grow by the resources

however, in towns the high price of land and buildings and the business of the townsman the State or philanthropic organisations may have to provide a building for each community Centre, though even here the attempt should be to mobilise as much of the local effort as possible for the purpose. As in the villages so in the towns the State or other organisations that may be doing the work of social education should provide a worker, highly trained in community organisation and in the mobilisation of its resources. In urban areas, especially in industrial areas, special attention should be paid to improving the skill of the workers.

Selection and training of workers

63. The selection and training of workers are perhaps the most important tasks. Two types of social education workers will be required: those who have specialised in community organisation, and others who with proper reorientation of outlook can work under their guidance. In the case of the former especially as the qualities of personality, initiative, resourcefulness, leadership and spirit of sacrifice and service and mastery of cheap, simple and intelligent living are more important than mere academic qualifications a new system of selection will have to be evolved. The training of community organisers should be very thorough and should consist of improved methods of Agriculture, Animal Husbandry, one or two of the most important cottage industries of the area concerned, principles and organisation of cooperatives, organisation of simple recreational programmes, organisation of community centres, etc., and above all the handling of these activities in such a way as to lead to the development of the minds of men most effectively. Training in literacy work should also be given. Their training should be organised in conjunction with a training centre for basic teachers, a post-basic school or an agricultural school or college, which should preferably be at an extension headquarters. The greatest stress should be laid on the development of the maximum possible self-help and self-support, consistent with other interests, as these workers have primarily to infuse that spirit among the people.

64. The other category of social education workers, will include (1) school teachers (2) village level workers, (3) various officers working in the locality concerned and (4) workers of private agencies. Regarding pupil-teachers, training in social education work should be compulsory in all training colleges. The State should provide special grants for the department of social education in training colleges for some years to come to give an impetus to the work. Short and intensive training in

social education work should be organised in camps for teachers already on the job. The training of village level workers should also include initiation into the human side of their work. mass psychology, mass approach, community organisation etc. Training facilities should also be offered for workers of private agencies, Higher officers should be given a reorientation course, so that they develop an integrated outlook which will not only enable them to guide the worker with sympathy and understanding but also make for better inter-departmental cooperation, upon which really the success of the rural development programme in an area depends.

Research in literacy methods and production of literature

65. Teachers' Training Colleges should take up research in methods of imparting literacy. Work in the experimental centres of social education, which should be associated in the case of rural areas with the group of model basic institutions mentioned earlier, should provide sufficient material for literature suitable for adults. There is also much room here for inter-departmental cooperation and cooperation between States sharing a common linguistic area. The centre should provide model guide books for workers and prepare pamphlets on certain standard subjects like health, democratic citizenship, cooperatives, etc.

Devising a suitable machinery.

66. The present stage of social education in the country is essentially experimental and needs Central guidance. The work should be coordinated with similar work in basic education and a common committee of experts should advise the Centre in the matter of initiating and aiding financially experimental work in both these fields in the States, and guide it, assess the results and make them available to other States. A common national platform where the various agencies can meet at intervals for mutual discussion - so necessary for evolving a common outlook and securing coordination of different agencies - is already provided by the Indian Adult Education Association.

67. The officer-in-charge of social education in a State should be a man highly trained in community organisation and should be able to advise and help the State in the matter of public participation. He should have a body representing important non-official agencies to advise him.

68. At the field level it is mostly a task of reorganising and coordinating existing agencies rather than of creating new ones. The problem is different in rural and urban areas. In rural areas the following measures should be taken:-

(1) Educational institutions should become examples of self-help, democratic community living, cooperative labour and intelligent handling of economic activity. Education should centre round agriculture and cottage industries and educational institutions should be well equipped with agricultural farms, craft work-shops, etc. Educational institutions would thereby become excellent centres for spreading ideas for improving our social and economic life. Basic schools which are already conceived on the above lines have special significance in this regard. All facilities should, therefore, be provided as the basic training centres so that the teachers are trained as first class social education workers.

(2) While the potentialities of basic teachers as agents of social education are being tested and developed the village level workers, wherever provided, should be stationed in a school where one exists. In this way under his guidance even ordinary schools may begin to make some contribution, which will also prepare them for ultimate conversion into basic schools.

XXXIII

Similarly there should be the closest cooperation in a Project Area between basic institutions and development headquarters at various levels. The degree of that cooperation will have to be carefully worked out.

(3) Besides the above agencies the State should provide, wherever possible, community organisers, say one for 50 villages, to make use of, help, guide and coordinate the activities of all agencies working in their respective spheres. These also should be attached to educational institutions.

(4) The role of private agencies has already been discussed.

69. In urban areas quite a large number of agencies exist and the key problem is to co-ordinate their activities for a comprehensive programme of social education. For this purpose City/Town Social Education Councils should be instituted where they do not exist, each consisting of the representatives of the various agencies operating in the town concerned. This Council should distribute items of social education work among the various agencies according to their capacity and willingness to undertake it. Social education in industrial areas in the towns has especial importance in view of the extremely dull and drab conditions of life prevailing there. Here the employer and the labour unions should be able to cooperate.

7 PROFESSIONAL EDUCATION

70. The importance of professional education cannot be over emphasised as it trains personnel for the varied national tasks ahead as well as fits pupils for earning a living for themselves. In view of the under-developed state of the country the professions offering prospects of lucrative employment are limited. Even so and despite the increasing attention which professional

educationa has received in the last few years, the available facilities on the whole fall far short of the demand by students. The situation, however, varies in different professions, depending more or less on the opportunities for employment which a particular pfofession offers.

Engineering and Technological Education.

71. Assessment of the existing situation: Engineering and technological education has been recieving an increasing amount of attention during the last five years. The development, however, has not been uniform at all levels. Facilities for post-graduate studies and research are very inadequate, while the progress in respect of the undergraduate courses has been quite rapid. There has also been considerable expansion in the provision of facilities for diploma/certificate course for training of supervisory personnel. The following figures indicate the quantum of development since 1947 in the provision of degree and diploma courses:

Year	Engineering		Technology	
	Output	Intake	Output	Intake.
<u>DEGREE COURSES:</u>				
1947	950	2,520	320	420
1950	1,652	3,297	795	1,156
1951	2,152	3,755	675	1,338
<u>DIPLOMA COURSES:</u>				
1947	1,150	3,150	290	500
1950	1,864	4,400	689	1,212
1951	1,923	4,965	885	1,523

Almost all the above development has taken place in the basic courses and specialised courses have not received due attention.

72. At the craftsman level except in a few progressive States adequate emphasis has not been placed on this highly important type of training and the existing facilities are very insufficient. Similarly the development that has taken place in the provision of facilities for the training of industrial workers, of technical teachers and instructors and of retrenched personnel for alternative employment is also not

commensurate with the requirements of the country. Technical High Schools recommended by the Central Advisory Board of Education have also not received sufficient attention.

73. It would thus appear that there has been extensive development in the provision of courses leading to degrees and diplomas. Until, therefore, the Technical Manpower Committee of the All-India Council for Technical Education has assessed the country's requirements, it would be advisable to consolidate the work in the existing institutions and not to embark upon new ventures except in certain specialised fields mentioned later. This is all the more necessary in view of the fact that the recent large increase in numbers has not always been accompanied by corresponding expansion of physical facilities (buildings and equipment) and the training in at least some of the institutions leaves much to be desired. Improvement of the institutions and reorientation of training are, therefore, the needs of the hour rather than any expansion in numbers.

74. Besides the quantitative aspect, mentioned above, are the more fundamental questions, such as the pattern of technical education, the apportionment of responsibility as between the various agencies concerned, the control of technical education, cooperation between industry and commerce on the one hand and technical institutions on the other, etc., that require to be clearly defined.

75. Pattern of technical education: The Joint Committee of the All-India Council for Technical Education and the Inter-University Board has made specific recommendations in regard to the pattern of education at different levels both in engineering and technology, viz.,

- a) That a Master's degree be given after a person has obtained the first award in the subject (University first degree or its equivalent) and has gone through disciplined training which may involve a certain amount of research.
- b) That the first degree in Engineering should be awarded, on satisfactory completion of a four years' course following Intermediate Science of which at least 6 months should have been spent in practical training.
- c) That the first degree in Technology should be awarded either after a four years' course following Intermediate Science or a two years' course following B.Sc.

76. We note that Except for a few courses at the Indian Institute of Science, Bangalore, and the Indian Institute of Technology, Kharagpur, there are hardly any facilities at the post-graduate level in engineering. On the technological side, there are wide disparities both in the nomenclature of awards and in the content of training leading to post-graduate awards. Similarly at the under-graduate level, there are considerable variations in the duration and content of training. The lead given by the Joint Committee should be of great value and we hope that the various universities will adopt the suggestions made by this expert body. We also hope that such committees will review from time to time the existing pattern in order to keep it adjusted to the requirements of the country and the institutions concerned will take advantage of the advice tendered by the appropriate expert bodies in the interests of efficiency and maintenance of standards.

77. One very important lacuna in the organisation of facilities of degree and diploma courses is the absence of adequate arrangements to enable young people entering industry to continue their education concurrently with the discipline and experience of work by part-time study during day time or in the evenings. Almost all development has taken place on routine lines and the time has come when due emphasis should be laid on practical aspects. We consider it important that appropriate steps should be taken to bring about the establishment of what are known in U.K. as "Technical Colleges", preferably by reorienting the activities of some of the existing institutions. Such colleges would adopt a less academic approach to scientific principles than that characteristic of colleges preparing students for university degrees and would train persons, who would be of great use in the industrial advancement of the country.

78. For the training of engineering supervisory personnel we would commend the universal adoption of the National Certificate Courses in engineering framed by the All-India Council for Technical Education. We are glad to note that these have been devised that they could be taken on part-time basis as well and we would again stress the desirability of making as large a provision as possible for young men already employed.

79. At the craftsman level there is at present no coordination in the matter of training and testing of craftsmen. The Government of India has appointed the National Trades Certification Investigation Committee. We hope that when its report is published it will provide valuable guidance in this matter.

80. Most of the trade training institutions cater at present for the urban population. We consider that the establishment of rural training centres, each at the centre of a group of villages, would go a long way in improving techniques and skills of the villagers. These workshops should be opened in conjunction with basic institutions wherever possible as that would enable us to effect economy in equipment and staff and to further establish the basic institutions in the affections of the people.

81. There is great need to establish a large number of Technical High Schools. We note that the All-India Council for Technical Education has appointed a small committee to report on this question.

82. Apportionment of responsibility: The responsibility for technical education has to be borne by the Central and State Governments on the one hand and industry and commerce on the other with whatever assistance they can get from the public at large. So far as the State and Central Governments are concerned the Constitution has defined their spheres. Within that broad directive, we feel that the responsibility for technical education should be apportioned as follows:-

Research, advanced work and post-graduate courses:

- Major responsibility should be that of the Central Government in view of the high expenditure involved and the need for proper co-ordination. The Central Government should, however, undertake this responsibility with such assistance as is available from the State Governments, commerce and industry.

Under-graduate work:

- Major responsibility should be that of the State Government concerned with such grant-in-aid as may be made by the Central Government for maintenance of proper standards and provision of new approved courses.

Diploma Certificate Courses for training supervisory personnel:

- State Governments and Central Government in the proportion agreed upon in each case.

Courses in junior technical institutions, Industrial Schools, Trade Schools, etc.

- State Governments with the assistance of industry.

Secondary Education with technical bias:

State Governments.

Training of industrial workers/ apprentices under proper supervision:

State and Central Governments with the assistance of industry.

Training of technical teachers and instructors:

The responsibility of the Central Government in this behalf will be in accordance with the responsibilities undertaken for the various levels of training for which teachers are being trained.

83. Co-ordination of Technical Education: The present position is that the All-India Council for Technical Education advises Governments on the development of higher technical education. This body's activities, however, relate only to the promotion of training and research facilities in the various institutions. For the promotion of engineering research the Council of Scientific and Industrial Research has recently set up an Engineering Research Board. It is clear that the activities of this Board will extend to engineering colleges as well and we have no doubt that suitable loans will be devised to co-ordinate the work of the two bodies.

84. The Council for Technical Education propose to have four Regional Committees, one each for the East, West, South and North of the country. The Eastern and Western Committees have already been set up and we hope the other two will also come into being very soon. It is the function of those Committees to advise the Central Government, the State Governments and other authorities on the various problems concerning the region connected with the provision of educational and training facilities both in the institutions and the industry and commerce at all levels.

85. In the interest of balanced development of technical education, especially in view of its expensiveness, it is desirable that the advice of a body which can take a comprehensive and overall view should be at the disposal of various authorities running

technical institutions or those who open new ones. We would, therefore, recommend that a healthy convention should be established that whenever a new project is intended to be launched or substantial development in existing institutions is contemplated, the views of the All-India Council for Technical Education are sought and accepted by the authorities concerned. This body with its Regional Committees, which would be in close touch with both technical institutions and industry and commerce, should be in an excellent position to render that service.

86. Co-operation between industry and commerce and technical institutions is inevitable. The necessity of the closest co-operation between industry and commerce on the one hand and the institutions that train the personnel for them on the other is obvious, and every step should be taken to improve the position in this regard. The colleges and industry working together can in several ways develop courses at the post-graduate level. One of these is "Company Operated Courses" for giving the new employees in addition to works experience some form of orientation training to acquaint them with their surroundings, the organisation of the companies, their purposes and policies and above all to show them the paths of opportunities that are available to them. The other is "College Extension Courses" for the technical employees of industry. Colleges located in industrial centres can meet a real need by offering out-of-hours courses for ambitious technical graduates. The third is "Post-Graduate College Courses" for employees on leave. Indian industry can certainly accomplish the task of training top grade scientists by returning to the universities and colleges a few men each year for independent study. Such men returning to colleges in their

years should not undertake any specific course of study or work for any degrees but should rather pursue their own research objectives developed from their industrial experience, doing some teaching also if they feel so inclined. Industry could greatly expand the opportunities for advanced study in the colleges by providing fellowships for its own employees who could be given leave of absence to carry on such study.

87. The importance of keeping teaching staff alert brings up another field for co-operative programmes. These programmes can best be brought about by the industry convening conferences of professors and teachers. A similar result can be accomplished in part through lectures at the colleges by industrial leaders. A series of lectures by a number of men in different fields will probably be more effective than single isolated ones. The stimulation obtained from dynamic leaders in particular fields should be a significant experience.

88. We feel that the industry is not making full use of the colleges for the solution of the multi-various problems, both analytical and experimental which confront them from time to time. Such problems should be supplied to the colleges but to accomplish the most effective results close association is essential between industry and the colleges with frequent interchange between Faculty members and industrial engineers concerned respectively with these problems at each end.

89. To bring about the various forms of co-operation it is necessary to bring together persons concerned with the provision of educational facilities on the one hand and industrialists and commercial magnates on the other. We consider it essential that the Governing Bodies of the various technical institutions should have adequate representation of industry on them and that the technical men working in industry should be given due representation on the Standing Advisory Committees constituted by the various institutions for development of their departments. The presence of various interests in each region on the Regional Committees of the All-India Council for Technical Education should greatly assist in bringing about greater co-operation between industry and educational institutions.

90. Lines of development: Organization of facilities for professional education cannot be strictly related to the existing opportunities for employment but should take into account the development planned in the various other spheres of national activity which require technical personnel. It is also necessary to turn out young men with initiative and grit in excess of the numbers indicated by the normal employment position in order that new ideas may be developed and small-scale ventures might receive an impetus. Data in regard to the employment position in different professions would still be an important requisite for the planning of facilities for professional education and should be a point of major policy in the Plan to establish machinery for gauging the employment position accurately. Technical institutions can also help a great deal in the planning and organization of facilities by maintaining proper records of their alumni and the work they do after leaving the institutions. Such records are useful in assessing the utility of the various courses provided in the institutions, as well as in indicating numbers for whom facilities are required to be organised.

91. Special attention should be given to the development of facilities for research and post-graduate work. To attract the right type of students it will be necessary to institute research scholarships of adequate value and in adequate numbers. Collaboration between universities and higher institutions on the one hand and the National Laboratories and Central Research Institutions on the other would go a long way in promoting research and integrated schemes to make full use of the National Laboratories and Central Research Institutions should be worked out. Existing institutions having on their staff teachers of proved research ability should also be encouraged by various means to develop their research sections in the particular fields.

92. The Central Government has established a Higher Technological Institute at Kharagpur (the Indian Institute of Technology) and the All-India Council for Technical Education has recommended that this Institute should concentrate on post-graduate courses, advanced work and research. As many of the courses at the post-graduate level as possible should, therefore, be provided at this Institute. The Indian Institute of Science,

Bangalore, should also be a good place in our view for the provision of such courses. Similarly other established institutions which have attained high standards at the under-graduate level should be assisted to develop post-graduate courses.

95. At the under-graduate level immediate steps have to be taken to provide courses in special subjects, such as, Printing Technology, Woollen Textile Technology, Silk Textile Technology, etc. Expansion of facilities in Architecture and Town Planning is also immediately necessary and the State of Bombay which is comparatively advanced in the provision of facilities for this subject, should offer training facilities to other States. Reorientation of courses in some of the existing institutions and improvement generally of the institutions should also be undertaken. In the plans submitted by the State Governments it is observed that most of the schemes relate to Government institutions. While industry and private philanthropists may be expected to help in the improvement of non-governmental institutions, the State Governments should not exclude such institutions completely from their plans. We suggest that the State Governments should, in consultation with the All-India Council for Technical Education, review the position regarding the continuance of the ill-equipped institutions started recently and should the decision be to continue them, provision should be made both in the Central and the State Governments' plans to bring about the desired improvement. To enable the State Governments to bear this increased burden the Central Government may undertake partial responsibility also for institutions wholly financed by the State Governments.

96. For the training of supervisory personnel special emphasis has to be laid on the reorientation of the activities of some of the existing institutions so as to train students for the National Certificate Courses of the All-India Council for Technical Education, mostly on part-time basis.

97. The greatest need for expansion of training facilities is at the level of artisans and craftsmen. Institutions run by the Ministry of Labour, trade schools, industrial schools, production-cum-training centres should be opened on an extensive scale, so that the skills of the vast masses of people engaged in production or likely to be so engaged are developed. The need for establishing rural

training centres in the villages has already been stressed. In towns industry and technical institutions should co-operate to provide instruction for industrial employees. Training of varying standards would have to be organised for such persons.

98. Another important activity which should be organised on an extensive scale is the provision of Apprenticeship Training Schemes in industry. Proper arrangements would require to be made for supervision of the training programmes in the industry and for co-ordination of such programmes with instruction in the technical institutions. The success of part-time courses is mainly dependent on the organisation of Apprenticeship Training Schemes and properly co-ordinated programmes of this kind are bound to lead to increased production. We hope that the Regional Committees of the All-Indian Council for Technical Education will consider this task as of the greatest urgency and importance.

99. Activities of the various institutions in the matter of refresher courses have been extremely restricted. The reports available indicate that only a few of the institutions have arranged such courses. Promotion of these courses, especially in areas where there is concentration of industries and other technical activities, should be encouraged by the various interests concerned. The Regional Committees of the All-India Council for Technical Education should investigate this problem in each region and organise, in collaboration with industrial and technical establishments on the one hand and educational institutions on the other, short-term and refresher courses in various subjects, on a full-time or part-time basis as convenient. In as much as such courses will benefit the industry and other technical establishments, the financial liability should normally be borne by those organisations though with a view to giving encouragement, Government may share the responsibility in the beginning.

100. The only institute for training of technical teachers is the one established by the Ministry of Labour at Koni Bilaspur. In this institution instructors are trained for craftsmanship training. Knowledge of teaching methods is as important for a teacher in a technical institution as it is for teachers engaged elsewhere. Some provision for the training of teachers has been made in the Ministry's plan as a beginning in this direction.

Education for Commerce and Management

991. The needs of Commerce are many and the facilities provided in India for training personnel for it are, therefore, many and varied. No comprehensive survey has, however, been made of the state of commercial education in the country and the standards of the various courses provided. In view of the importance of commerce in the modern world such a survey is urgently called for.

100. **Coordination and standardisation:** In the absence of such a survey we feel that the most important problem in the field of commercial education outside the universities is co-ordination and standardization. The very large number of commercial institutions, different courses and different examinations held by various bodies including State Governments, have resulted in wide variations in standards not only much to the detriment of the development of commercial education itself but to the confusion the employing agencies have about the usefulness of these courses. There is clearly a need for establishing some sort of order in this chaotic state and that is perhaps the most important task in the re-organization of commercial education in the country. The All India Council for Technical Education and its Board of Technical Studies in Commerce and Business Administration have prepared National Diploma and Certificate courses for the training of different categories of personnel required for commercial occupations. These courses designed on an all-India basis and keeping in view the requirements of commerce and industry go to a great extent towards achieving this much needed co-ordination and standardization of training. A number of institutions are already affiliated to the All India Council for these courses, but the time has now come when the courses must be accepted all over the country and adopted by all the institutions outside the universities. We would suggest in this regard that the various State Governments, having their own commercial institutions or giving grant-in-aid to private institutions, should introduce the National Diploma and Certificate courses and conduct examinations therein. The All India Council should periodically assess the standards followed by them in training and in the examinations and on the basis of such assessment, authorise the State Governments for the issue of the National Diploma and Certificates to the students.

101. Business management and industrial relations: A very important aspect of education for Commerce which has attracted world-wide attention and has seen large developments in U.K. and U.S.A. is Education for Business Management and Industrial Administration. The supreme need for increasing production and raising the standard of living of the people by improving the efficiency of manufacturing and distributive processes calls for specially trained management personnel at all levels and in all fields. We need not only scientists or technologists but also scientists and technologists, who can administer and organise and we need them in larger numbers than ever before. It must be remembered that a majority of men who possess these technical qualifications are engaged at a later date in managerial functions. The observations made by the University Education Commission, the Percy Committee of the United Kingdom and the Joint-Anglo-American Council on Productivity, all prominently bring out the importance of Management Studies and the need for facilities for such studies. The remarks of the Party Committee in particular concerning the need for Education in Management in the United Kingdom are fully applicable to our country at the present time.:

" The highly trained technician is often ignorant of the principles of industrial organisation and management and he often shows no inclination to accept administrative responsibilities. Admittedly, there is much that can be learnt in this field only from experience but there is a body of knowledge, the awareness of which may greatly facilitate the process of learning. This body of knowledge should be made available at both the undergraduate and post-graduate stages".

102. Drawing upon the experience of industrially advanced countries like the United Kingdom and the United States of America, we are convinced that there is scope for organised education for Management in this country and that young men, who

reveal aptitudes for managerial work, can be better prepared by such education to take up responsible managerial positions in business. This task, however, of detecting the aptitudes for managerial work in young men and giving them the appropriate education and training to develop such aptitudes into a profession is, by no means, an easy one. This can be dealt with only by such experts as now constitute the Committee on Industrial Administration and Business Management appointed by the All India Council for Technical Education. This Committee has already prepared a plan for introducing full-time courses in Industrial Administration, Business Management Studies for the Eastern Region and the Committee is at present engaged in preparing a similar plan so far as the Western Region is concerned. It is important that the work of this Committee should be carried through with expedition and its plans and proposals for developing facilities for Management Studies on regional basis should be implemented.

Law

Law

103. Among the various professional courses Law attracts a very large percentage of pupils. Large numbers go in for legal studies, in spite of the fact that conditions are hard for the profession, perhaps with a view to qualify themselves at least for one profession, however ill-paid it might be. Most of the lecturers in Law colleges are part-time and the attention they give to their work leaves much to be desired. The University Education Commission has analysed the question of legal education in detail.

8. WOMEN'S EDUCATION

104. Everyone realises the significance of the problem of women's education in the special circumstances of our country today and the need for adopting special devices for solving the problem. The general purpose and objective of women's education cannot of course be different from the purpose and objective of men's education. There are, however, vital differences in the way in which this purpose has to be realised.

105 The main point of difference to be stressed is that there are particular spheres of life in which women have a distinctive role and in which they can make a special contribution. It is now universally recognised that in the management of the household, in bringing up children, in the field of social service, in nursing and midwifery, in teaching - especially in elementary schools - in certain crafts and industries like knitting, embroidery, etc. and in the field of fine arts women have by instinct a better aptitude.

106 This does not, however, mean that women should, whatever be their individual aptitudes and ambitions, be confined to these few spheres. They must have the same opportunities as men have for taking to all kinds of work and this presupposes that they get equal educational opportunities with men so that they may enter the professions and public services with as much ease as men do.

107 In a programme of women's education the age needs of different groups have always to be kept in view. These groups are: girls of the school-going age, i.e., of the age-group 5-11; girls of the age-group 11-16; girls above this age who are married and have to look after their families and unmarried girls above this age who have to learn some vocation and earn their livelihood. There is also the general problem of the social education of women.

108 The matter of arousing the consciousness of parents to the need of educating their children, particularly their daughters, should form an integral part of a dynamic campaign of social education. Organisation of Parents' - Teachers' Associations would also go a long way towards the promotion and betterment of education in general and women's education in particular. Other organisations like the Bharat Sevak Samaj can undertake propaganda work in this connection.

109 Special facilities have to be provided for meeting the special needs of girls above the age of eleven who owing to social and economic conditions are not free to remain in schools even if they want to do so. Methods should be found whereby such girls are given special facilities for prosecuting studies beyond the primary stage at home and are allowed to sit for the Secondary School Leaving Certificate Examination privately. This is one agency through which girls may be encouraged to pursue secondary education.

110 Another agency also may be thought of. In certain parts of the country there are many voluntary organisations which hold their own examinations and issue certificates and diplomas to those who are successful. Free scope should be given for such voluntary effort and Government may, wherever possible and necessary, recognise these diplomas and certificates and aid all approved voluntary organizations. We would like to emphasise the point that in the period of transition through which the country is passing there should be the fullest scope for experimentation.

111 There are several girls who are unable after the completion of the secondary course to proceed to universities. All the same, they are interested in higher studies and can in their leisure moments pursue such studies and pass the normal university examinations. There are a few universities in the country which admit such private candidates for their examinations. It ought to be the endeavour of all universities to admit women to examinations as private candidates. Part-time schools and colleges, extension lectures, etc., are at present a common feature of educational organisation in most countries in the world and should also be organised in our country. The courses should be based on a harmonious combination of theory and practice.

112 The problem of women's education in India is essentially a problem of the education of grown-up women. rally, women cannot be educated in the same continuous fashion as men. Unlike boys, girls are forced to suspend their studies in their early teens in our country due to a variety of reasons and take up wider responsibilities of home. Arrangements should, therefore, be made to facilitate resumption of studies by women at a time when they have leisure. While it is found necessary even in the most advanced countries of Europe and America to organise education for the middle-aged women, it needs no

argument to stress the importance of providing facilities for private study in a country like ours. Social service organisations have to take up the cause of their education and conduct short-term courses for general education as well as training in crafts.

113. As regards the content of women's education the point that has to be stressed is that apart from the requirements of the different courses which they may take up women should learn everything which will enable them to discharge those functions which, as has been observed in the introductory paragraphs, legitimately belong to their peculiar sphere of life. The large majority of them will become mothers and have to bring up their children and manage their household in an economical and efficient manner.

114. There is also another aspect of the content of women's education for which special provision has to be made. It is one of the objectives of planning of women's education that at the secondary and even at the university stage it should have a vocational or occupational basis as far as possible so that women who undergo the secondary or the university course may be in a position, if necessary, to immediately take up some vocation or the other. The idea of the bifurcation of secondary education is now widely accepted and what is stressed here is to give it extensive application especially in the case of girls. Here there should be coordination between planning for women's education and planning for cottage industries. This giving of vocational bias to women's education is also of additional value in so far as their energies will be directed to productive channels and should appreciably add to the national income of the country.

115. In the organisation of women's education the Girl Guide Movement has an important part to play. The movement at the present day is restricted to urban centres and even there its activities are not widespread. They do not reach all the girls in the locality but are restricted only to those who attend regular schools. What is needed is that the movement should bring into its fold all the girls in the urban areas and it should extend the scope of its operations into rural areas also. As an agency of social education it is potentially strong and any planning of women's education must make the fullest use of it. It may be urged upon co-educational universities to raise girls' divisions in their N.C.C. units.

also
 Welfare movement in the country. In this connection, the step taken by the Madras State Government in constituting a separate Women's Welfare Department, administering a comprehensive programme, both in rural and urban areas, with the help of trained social workers and a large number of voluntary workers, is significant. The results achieved by the Department are worthy of emulation by other State Governments. The Government of U.P., it is understood, has already followed suit. The Ministry of Rehabilitation at the Centre and some of the Departments of Rehabilitation at the State level have also set up special divisions to deal with the problems of displaced women. The fullest use should be made of these departments for spreading education among women.

9. OTHER PROBLEMS

. Labour/social service by students

117. Institution of compulsory social and labour service is being urged, both as a measure of educational reform and as a means of improving the quality of manpower. The idea briefly is that students of both sexes, between the ages of 18 and 22, except when exempted on medical grounds, should be called upon to devote a period of about a year to disciplined national service at such place and time and in such manner as the State may decide. The economic value of the product of such labour is not the direct aim of this scheme, although the endeavour should be to constantly increase the efficiency of the work done under this scheme so that it can become a source of real satisfaction, create a pride of achievement, and at the same time, make the scheme as nearly self-sufficient as possible. The primary aim of the period of training is, however, the building up of the students, as workers and disciplined citizens. The vast place which manual work occupies in the life of a nation should be reflected in the activities of every citizen and the dignity of manual labour should be realised in practice. These lessons are best inculcated in the formative years of one's life as a student. A certain amount of manual work, as a part of the daily routine and a short-term stay in a labour camp once a year, should be features of the curriculum throughout the educational period. At some stage during this period, for a considerable length of time, manual activity should figure as the major item in the day's routine of the student. This, it is believed, should not be less than six months but may extend to a year.

118. This service can take a large variety of forms. It will develop significance in proportion as it is related to the real needs of the community. Community projects, irrigation works, buildings of public utility, roads, slum improvement, sanitation, etc. are among the avenues which are immediately open. Association of the students with such works will bring them an intellectual and emotional awareness of the various tasks of national reconstruction, which are in progress.

119. The intention is that every student before he enters life goes through the period of training. For those who enter the universities, the end of the Intermediate course would be the most suitable stage for participation in the scheme. It will cover a fairly large group and will operate at a time when the pressure of economic considerations and family responsibility is not so great as at later stages. In the absence, however, of sufficient experience of handling large bodies of students with economy and efficiency, the cost of introducing this scheme at this stage would be prohibitive. It is desirable, therefore, to begin with a small manageable group, say the students passing out of the M.A. (or equivalent) examination, for a period of three to six months; and as experience is gained and more funds become available, to shift the incidence of the scheme to an earlier stage and extend the period of its operation.

120. Doubts have been raised regarding the desirability of introducing compulsion in this matter. They relate only to short term difficulties and do not seriously touch any question of principle. A period of preparation and experimentation will be needed before the service can be put on a compulsory footing. Meanwhile, the scheme should be introduced on a voluntary basis with certain inducements. Those who go through such a course will naturally be more fitted for positions of responsibility. Organisers of this scheme should be as far as possible college professors for whose training adequate arrangements should be made. In this task, help should be sought of organisations like the Hindustan Scouts and Guides, Hindustani Talimi Sangh, colleges of physical education, the Bharat Sevak Samaj and other social service organisations.

Rs. 1 crore has been provided for implementing the above schemes for the remaining three years of the Plan.

Teachers' salaries and conditions of service.

121. One of the chief causes of the poor standard in our educational institutions is the low scales of salaries paid to teachers and their highly unsatisfactory conditions of service. The Central Government have taken steps to improve them in centrally administered areas and recently some States have also taken measures to improve the pay scales of teachers, but on the whole conditions remain very unsatisfactory. We are convinced that no improvement in the existing system will be possible without doing something towards the improvement in the conditions of service of teachers and putting their remuneration on a fair basis of comparison with other services. We strongly recommend that every State Government should examine the position of teachers' salaries and within the limits of its resources, try its best to raise their scales of pay.

122. In view, however, of the large numbers involved and the strained resources of the State the relief that might be expected from this measure is not likely to be sufficient and it will have to be supplemented by other measures. Teachers should be given additional facilities in the form of free accommodation, fee concessions for their children's education, etc. In village schools every teacher should be given a plot of land where he and his family can grow their own vegetables. While all measures should be taken to prevent the evil of private tuitions, avenues of useful educational work should be provided by which teachers can supplement their income and at the same time help the cause of educational improvement and expansion in their leisure hours. They could, for instance, be given the chance of participating in activities like conducting refresher courses of teachers of lower classes during vacation, organising extension services in universities, running evening classes for working children, doing social education work, etc., and paid extra allowance for the same. Besides adding to their income participation in these activities should in many cases help to enrich the personality of the teachers concerned and improve their knowledge.

Physical and mental health

123. We strongly feel that proper provision should be made in educational institutions for maintaining the physical and mental health of students. Health education ought to form a compulsory part of the curriculum from the earliest stage to the end of the university career. Educational institutions should also be responsible for spreading health education in the community around. Norms of physical fitness - comprehending agility, strength and endurance - should be laid down for boys and girls at every stage of education. These norms should be worked out by experts and applied to different groups of people with due regard to variations in economic, climatic and other conditions. The course of the physical exercises calculated to help students to attain these norms should, however, be regulated by medical advice in each case. The attainment of these norms should be certified by a diploma which should be given some consideration in matters of public appointments and the like.

124. Besides the above, we would recommend to State Governments and other authorities the following measures in this connection:

- (1) A National College of Physical Education for training the higher personnel for physical education and community recreation and leadership should be set up. We would recommend the upgrading of the existing Central Institution for Physical Education in Bombay for the purpose.
- (2) Suitable courses of physical education should be prepared and introduced in schools and colleges. These should provide for games and sports as well as suitable yogic exercises.
- (3) Adequate facilities for training of physical instructors should be provided. In teachers' training institutions physical education should be an essential subject. Short-term courses in physical education should also be organised for teachers.
- (4) Research in physical education should be conducted especially in regard to the following problems:

- (i) the relative value of different sports, games and exercises from the physiological, social and educational points of view;
- (ii) the value of the Yogic system of exercises; and
- (iii) appropriate suitable syllabuses of physical education for different age and vocational groups.

125. As regards mental health the need for emotional stability should be recognised and the stabilising, ennobling and unifying influence of religion should be utilised for the purpose. In the earlier stages the moral truths common to all religions should be taught and emphasis laid on their practice. The University Education Commission has already made recommendations* in regard to the study of religion at the university stage.

10. EDUCATIONAL PROGRAMMES

Scope of Scope Plan

126. The total allotment for educational development

* Ref. pp. 300-302, paras 31-34.

proposed in the Plan is Rs.155.66* crores for the five year period or an average annual expenditure of Rs.31.13 crores. The total expenditure on education in 1950-51 was Rs.63.16 crores of which Rs.19.55 crores may be regarded as development expenditure. The increase from Rs.19.55 to Rs.31.13 crores a year represents an annual increase of nearly 59 per cent.

127. The expenditure provided under the head "Education" does not include the sum of Rs.55.28 crores, during the five-year period or Rs.11.06 crores annually on an average, proposed to be spent on a number of schemes of training, education and research, which are shown under other heads such as Agriculture, Medical, Industries Labour, etc. The expenditure on such schemes in 1950-51 was Rs.6.96 crores only. The Plan thus represents an increase of 58.9 per cent. The sums included directly under education (i.e. Rs.155.66 crores) are nearly 46 per cent of the total proposed expenditure on Social Services, which is Rs.337.5 crores. The expenditure on education is nearly 7% of the total expenditure of approximately Rs.2,068 crores visualised in the Plan.

Distribution of Expenditure.

128. The distribution of the total expenditure visualised over the five years of the Plan among the various sub-heads will be as follows according to the schemes submitted by the Central Ministry and the States:-

* This sum does not include the additional resources that the local bodies may be able to raise for the purpose.

State/ Ministry	Administ- tration	Primary Educa- tion	Second- ary Educa- tion	Univer- sity Educa- tion	Techni- cal and Voca- tional Educa- tion	Social Education	Other sche- mes	Total
(Rs. in lakhs)								
States	75.7	78,26.5	8,31.4	9,25.1	9,90.4	7,39.1	5,76.3	1,16,64.
Central Govt.	-	12,50.0	-*	2,47.0	11,55.0	7,50.0*	5,00.0	39,02.
Total -	75.7 (0.5%)	87,76.5 (56.2%)	8,31.4 (5.4%)	11,72.1 (7.6%)	21,45.4 (13.8%)	14,89.1 (9.6%)	10,76.3 (6.9%)	1,55,66. (100%)
Develop- ment ex- penditure 1950-51	9.58 (0.5%)	13,24.2 (67.7%)	88.9 (4.5%)	1,20.1 (6.2%)	2,65.6 (13.6%)	76.9 (3.9%)	71.1 (3.6%)	19,55. (100%)

The development programmes as submitted, thus introduce no radical alterations in the overall structure of the educational system. The tendency in the pre-Plan period to broaden the base of the system has as a matter of fact been retarded. The percentage of development expenditure on primary education has fallen from 67.7 per cent in 1950-51 to 56.2 per cent during the Plan period. This is mainly due to the increase in the provision for social and university education and the introduction of programmes of Social Welfare (Rs.4 crores) and youth camps and labour service for students (Rs.1 crore). The increased share of social education which has risen from 3.9 per cent in 1950-51 to 9.6 per cent during the period of the Plan is partly due to the fact that the total provision for social education in 1950-51 was utterly inadequate. The percentage share of university education has risen from 6.2 per cent in 1950-51 to 7.6 per cent during the Plan period. That of secondary education has only slightly risen from 4.5 per cent in 1950-51 to 5.4 per cent during the period of the Plan. The need of the present situation, however, is as stated earlier, that the present emphasis on primary education should be considerably increased.

* Some expenditure is visualised on Secondary Education, promotion of Federal and Indian languages, etc. out of Rs20 crores shown here under Basic and Social Education. Detailed break-up is not yet available. Ministry of Education.

Although it is not possible to introduce radical alterations in the pattern of expenditure in the short period of five years without serious dislocation the programmes need to be revised so as to lay much greater stress on primary education than has been done hitherto. Similarly the emphasis on technical and vocational education needs an upward revision.

Programme of the Ministry of Education.

129. The total expenditure proposed for the Central Ministry is, as stated above, Rs.39.02 crores. Out of this provision Rs.5.72 crores* were provided in the budgets of 1951-52 and 1952-53. The provision for the remaining three years of the Plan, therefore, would be Rs.33.30 crores at the average rate of Rs.11.10 crores. The development expenditure of the Ministry in 1950-51 was Rs.1.25 crores.

130 The provision of Rs.39.02 crores is roughly divided into Rs.20.00 crores for pre-university education, comprising mostly of basic and social education; Rs.2.92 crores for university education; Rs.11.10 crores for scientific and technical education; Rs.4 crores for programmes of social welfare; and Rs.1 crore for youth camps and labour service for students. A large number of the schemes contemplated are intended to be carried out in the States as are willing to cooperate and jointly share financial responsibility with the Centre in such proportions as may be agreed upon. The various types of schemes contemplated are shown below.

(a) For pre-university education the Centre has the following schemes:-

(1) Basic and primary education: Complete units of basic education, from the pre-basic school to the Post-Graduate Basic Training College, will be set up, at least one unit in each State. Research in the problem of methods and of curriculum with a view to improve them will be one of the special functions of these units and results achieved by them will be made available to all basic institutions of the country in a systematic manner. The training colleges of these units will train teachers for junior and senior basic schools. Each of these units will also be a community centre as well as a research centre where the impact of a complete unit of basic education on the whole life of the community will be studied. Ordinary primary schools in the area in which a basic unit is set up will also be helped to improve their standards.

* The revised estimates for 1951-52 were Rs.1.49 crores and the budget estimates for 1952-53 were Rs.4.23.

(2) Social education: Janta Colleges will be established, at least one in each State, for experimental purposes. Their main object will be to train social education workers, community organisers and administrators. When some of these colleges are no longer needed for this training they will be turned into rural colleges. These colleges will also serve as community centres. An attempt will also be made to establish at least one school-cum-community centre in each district. The Janta Colleges will be opened in association with the units of basic education mentioned above. Library service will also be integrated with these institutions. The aim of concentrating all these institutions in one area is to attempt the intensive educational development of that area.

(3) Secondary education: At least one Multi-Lateral High School will be opened as a pilot institution in each State, if necessary with suitable Central aid. These schools will have not only sections for liberal arts and sciences but also sections for Technical Education, Commerce, Agriculture, etc. Occupational schools, particularly for children between the ages of 14-18 will also be established where possible for experimental purposes. Grants will be given on a non-recurring basis to such experimental schools conducted by the States if they satisfy the necessary conditions. Research bureaus devoted to the study of problems of secondary education will be established at secondary training colleges or in the universities. The development of public schools will be helped particularly by provision of more merit scholarships in the existing public schools to enable able but poor students to partake of the education provided in them.

(4) Production of audio-visual aids will be encouraged by establishing a unit for the purpose at the Central Institute of Education which will coordinate the efforts of research workers and teachers in this field all over the country. Assistance will be given to States in starting the production of simpler audio-visual aids. Various firms and publishers will also be similarly encouraged. These aids will be for use in primary and secondary schools as well as in social education work.

(5) Encouraging educational experiments at various levels: Grants will be given to States and voluntary and private organisations for carrying out important educational experiments.

(6) Helping schemes for the training of teachers: Grants will be given to States for training of basic teachers and social education workers.

(7) Production of literature: The Central Ministry will itself produce selected model literature and also encourage various firms and publishers to produce reading material. The literature that will be produced will be children's literature, social education literature, literature for the basic education scheme and additional reading material for secondary schools. The production of literature and audio-visual aids will also be encouraged by instituting competitive prizes and awards for the best material produced.

(8) Development of Indian and Federal languages: Original work as well as translation work in various Indian languages will be helped. Various steps will also be taken to promote the Federal language. As a first step dictionaries, encyclopedias and other reference books will be produced at the Centre.

(9) Establishment of pilot centres for juvenile delinquents and juvenile defectives.

(10) Schemes for training personnel for organising selective tests and providing vocational guidance at various levels are also under contemplation.

(11) The Central Ministry will be strengthened for the execution and supervision of the various schemes outlined above.

(b) For technical education a provision of Rs 11.10 crores has been made. Of this Rs. 7.55 crores will be spent on schemes which are already in progress. They include schemes for the development of the Indian Institute of Science, Bangalore. Both of these are calculated to make up for the deficiency of facilities for post-graduate and research work in our country. The scheme for the development and expansion of 14 engineering institutions is expected to give tone primarily to under-graduate work where there has been expansion in recent years without proper provision of teachers, equipment, buildings, etc. The Practical Training Stipends Scheme is calculated to help to make up the deficiency of practical training among the products of technical institutions in our country. Out of the remaining Rs 3.55 crores, money will

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be found for further helping post-graduate courses advanced work and research work; for providing facilities for the study of special subjects like Printing Technology, Silk Technology, Wool Technology, etc., at the under-graduate level, for training in Architecture and Town Planning, for facilities for developing facilities for part-time course at the various levels; for providing for teachers' training; and finally for the construction of hostels.

(c) In regard to university education Rs 2.92 crores have been provided for helping universities in science and humanities. Out of this Rs 20 lakhs have been earmarked for helping libraries in universities and Rs 45 lakhs for the Research Training Scholarship Scheme.

(d) The establishment of a National Central Library at New Delhi is also under consideration

Programmes of the States

131. The expenditure proposed in the States' sector is Rs 116.65 crores or an average annual expenditure of Rs 23.33 crores which represents an increase of 27 per cent over the development expenditure of Rs 18.31 crores in 1950-51. The scope of the expenditure of States is increased by the fact already stated that the major share of the expenditure of the Ministry of Education is to be incurred in the various States.

132. The different types of schemes which State Governments have included under different heads are as follows:-

(1) Schemes of primary education include improvement of existing primary schools and opening of new ones, conversion of primary into basic schools and opening of new basic schools. Under improvement of existing primary schools are schemes for the improvement of buildings, the provision of playgrounds, the improvement of salaries of teachers, and the training of additional teachers. There are programmes for the training of basic teachers whether newly recruited or taken from existing schools for refresher courses. Building and equipment for basic schools to be opened have also been provided for. There are schemes for extending primary education to rural and other backward areas.

(2) Schemes for secondary education include those for opening of new secondary schools and improvement of existing ones. There are schemes for opening both middle and high schools. Improvement schemes consist of provision for buildings, equipment and staff, as well as for upgrading of primary to middle schools, middle to high schools and high schools to Intermediate Colleges. New subjects like physical education, military training, gardening and agriculture, music, craft, etc., are sought for training of teachers in some of these subjects. There are schemes for maintenance of model schools. Some States have special schemes for extending secondary education for girls. A number of states have sought to provide playgrounds for secondary schools. In those States where new areas have been merged special provision has been made for extending education to these areas. /to be introduced in some schools and there are schemes

(3) Schemes for university education include opening of new universities and colleges, and improvement and expansion of existing colleges. Improvement schemes consist mostly of improvement of buildings and equipment. Expansion schemes involve opening of new classes of higher standard for new, mostly scientific, subjects. Provision for scholarships to meritorious students and for research has also been made.

(4) Schemes of social education include schemes for libraries, physical education and youth activities, audio-visual education, literacy and adult education centres, social education among women, etc. There are no schemes for the training of social education workers, organisers and administrators. The Central Government, however, has plans for providing these training facilities in conjunction with the States.

(5) Schemes of technical and vocational education include those for encouraging technical and vocational education at all levels. At lower levels we have schemes for opening craft schools, converting craft schools into junior Technical High Schools, for survey and opening of Junior Polytechnics, for organising technical and vocational education in middle schools, for conversion of secondary schools into Technical High Schools, for organisation of Diploma courses, for opening industrial schools and agriculture bias schools, etc. Hitherto craft centres have been opened only in towns. In the working of the Plan care should be taken to provide rural training centres (ref. para 77).

At higher levels we have the upgrading of some commercial and technical schools into colleges, opening of new technical colleges, grants to existing

technical institutions, giving stipends for students for studies abroad, etc.

(6) Administration, direction and inspection: The expansion of educational activities would necessitate the strengthening of the headquarters staff as well as the inspectorial staff. The introduction and extension of basic education and technical and vocational education has made the addition of special staff necessary. Various schemes have been provided for improvement of administration, direction and inspection.

(7) Besides the schemes mentioned above, there are schemes for further education of ex-service personnel, for development of regional languages and literature, for the education of the handicapped, for setting up the National Cadet Corps in colleges, for the improvement of special fields of education as oriental education, statistics, etc. There are schemes for the training of personnel abroad.

Results of the programmes

133. The results of the programmes as estimated on the basis of State resources proposed to be spent will be as follows:-

(1) In the field of primary education the number of primary schools will increase by 17 per cent while the number of pupils by 25 per cent. The corresponding increase in the junior basic schools would be 22 per cent and 81 per cent. Taking the primary and junior basic schools together we find that whereas in 1950-51 only 44.5 per cent of the children of the age group 6-11 were being provided for the percentage is estimated to rise to 55.7 per cent in 1955-56. This result is estimated only on the basis of State resources. We feel that it can be considerably improved if the local resources are properly developed and tapped for the purpose of education. Though firm estimates are impossible at this stage it should not be impossible to reach the target of 60 per cent. Again if crafts are introduced in primary and middle stages and the training in them is properly handled it should be possible to add the three senior classes to primary (or junior basic) schools without any appreciable addition to the cost which should enable us to considerably improve the results in respect of the children of 11-14 which will favourably affect the estimated results in regard to the secondary education which are mentioned below. Besides these

who go to regular schools a large number of properly directed Children's Clubs run with voluntary help, especially of students, should be able to spread, as already stated, some of the essentials of education among a large number of children who cannot go to school or for whom schools are not provided.

(2) In the field of secondary education while secondary schools are estimated to increase by 18 per cent during the Plan period the number of pupils would increase by 32 per cent. The percentage of the age-group 11-17 being provided for will increase from 10.8 per cent in 1950-51 to 13.3 per cent in 1955-56.

(3) In the case of technical and vocational education (other than Industrial Schools) although the percentage increase (57 per cent in the case of institutions and 63 per cent in the case of number trained during the year) is very striking, it has to be viewed against the present poor provision. The case with Industrial Schools is similar.

(4) As regards teachers, training facilities expand differently at different levels. While the number trained during the year increases only by 15 per cent in the case of primary teachers, it increases by 54 per cent in the case of basic teachers. The low percentage increase in the case of primary teachers is explained by the fact that with the policy of ultimately converting all primary schools into basic schools most of the States are taking steps to convert their primary teachers' training colleges into basic training colleges. So we could say that a high percentage of development of training facilities at all levels is contemplated during the Plan. But the present facilities are so poor that this increase does not make much impression on the present situation where a very high percentage of teachers are untrained. The percentage of untrained teachers was 37 in the case of primary schools and 45 in the case of junior basic schools and 44 per cent in secondary schools. As a result of the expansion of training facilities the percentage of trained teachers will rise by 3 per cent in the case of primary teachers, 15 per cent in the case of junior basic teachers and 6 per cent in the case of secondary teachers.

secondary features and 62 per cent in the case of

(5) The highly unsatisfactory situation in regard to girls' education does not very much improve and the programmes need to be revised to lay sufficient emphasis on this very important aspect of the educational problem.

Progress of Education 1951-56
(according to the returns submitted by the States)

Year	Primary (ordinary)					Municipal Basic					Secondary				
	No. of institutions	Total No. of pupils	% of girls	Total number of teachers	% of trained teachers	No. of institutions	Total number of pupils	% of girls	Total number of teachers	% of trained teachers	No. of institutions	Total number of pupils	% of girls	Total number of teachers	% of trained teachers
1.	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1950-51	1,72,779	1,51,10,316	30	3,06,169	63	35,002	29,00,322	8	77,013	55.0	18,347	43,07,057	19	1,03,575	50
1955-56	2,02,141	1,97,03,750	32	4,60,324	66	42,533	52,78,273	13	1,11,993	71.3	19,262	57,79,395	16	2,06,956	62
Percentage of increase in 1955-56 over 1950-51	17	25	2	3	22	31	5	45	15	19	32	3	20	0	

Year	Technical and Vocational (excl. industrial schools)		Industrial Schools		Training of Teachers	
	No. of institutions during the year	Total number of pupils during the year	No. of institutions during the year	Total number of pupils during the year	No. of teachers trained	Total number of teachers trained
1.	(15)	(16)	(17)	(18)	(19)	(20)
1950-51	260	26,702	365	14,750	27,927	9,516
1955-56	407	43,603	456	21,797	32,212	14,666
Percentage of increase in 1955-56 over 1950-51	57	63	25	49	15	54
						102

Note: Figures for Hyderabad, Kashmir, Rajasthan, Ajmer and Vindhya Pradesh are not included unless otherwise specifically stated in any of the figures. Other States excluded are mentioned under various heads.

- (1) Figures for U.P. are not included.
- (2) Figures for J.P. are not included.
- (3) Figures for Madhya Pradesh, Uttar Pradesh and Mysore are not included.
- (4) Figures for Madhya Pradesh, Uttar Pradesh and West Bengal are not included.
- (5) -do-
- (6) Figures for Madhya Pradesh, Travancore-Cochin and Coorg are not included and those for Rajasthan are included.
- (7) Figures for Madhya Pradesh and Coorg are not included.
- (8) Figures for Madhya Pradesh, Madras, Madhya Bharat, Mysore, Saurashtra, Travancore-Cochin, Bhopal, Coorg, Himachal Pradesh, Kutch and Tripura are not included.
- (9) Figures for Madhya Pradesh and Coorg are not included.
- (10) Figures for Madhya Pradesh and Coorg are not included.
- (11) Figures for Rajasthan included.
- (12) Figures for Madhya Pradesh, Mysore and Manipur are not included.
- (13) Figures for Madhya Pradesh are not included.
- (14) -do-
- (15) Figures for Orissa, Pepsu, Himachal Pradesh, Coorg, Manipur and Tripura are not included. Figures for Hyderabad are included.
- (16) Figures for Orissa, Pepsu, Coorg, Manipur and Tripura are not included. Those for Hyderabad are included.
- (17) Figures for Bihar, Saurashtra and Part 'C' States are not included. Those for Rajasthan and Hyderabad are included.
- (18) Figures for Bihar, Saurashtra and Part 'C' States are not included. Those for Hyderabad are included.
- (19) Figures for Travancore-Cochin, Bhopal, Coorg and Tripura are not included.
- (20) Figures for Coorg, Delhi, Kutch and Tripura are not included.
- (21) Figures for Uttar Pradesh, Travancore-Cochin, Coorg, Kutch, Manipur and Tripura are not included.

CHAPTER XXXIV

LABOUR

Our approach to labour problems rests on considerations which are related on the one hand to the requirements of the well being of the working class and on the other to its vital contribution to the economic stability and progress of the country. The worker is the principal instrument in the fulfilment of the targets of the Plan and in the achievement of economic progress generally. His cooperation will be an essential factor in creating an economic organisation in the country which will best subserve the needs of social justice. Certain rights and obligations are associated with this distinctive role.

2. Adequate provision has to be made for the basic needs of the workers in respect of food, clothing and shelter so as to enable them to remain in a state of health and efficiency. Besides the satisfaction of these basic needs, they should have their due share in social and economic progress in the shape of improved health services; wider provision of social security, better educational opportunities and increased recreational and cultural facilities. The workers must, of course, as members of the community have the full benefit of the social services and facilities available to any other section. Appropriate measures must, however, be taken to meet their peculiar difficulties and to remove their special handicaps.
3. The conditions of work should be such as to safeguard the worker's health and protect him against occupational hazards. The work-place should provide reasonable amenities for his essential needs. The worker should also be equipped with the necessary technical training and a certain level of general education. Having placed his assets - labour and skill - at the disposal of the community, he should be assured of a reasonable measure of security against the various natural and other risks to which he is exposed. In his relations with the management, it is necessary that he should be treated with consideration. When he feels he cannot get a fair deal from his employer, he should have access to an impartial machinery set up for the purpose. The worker must be free to organize and to take lawful action in furtherance

of his rights and interests. The community has recognised most of these rights, which have found a place in the Constitution.

4. The Central and State Governments have been alive to all these needs of workers. Some of the laws pertaining to factories, trade unions, workers' compensation for injuries and death have been in existence for a long time, but the pace of action has quickened since Independence. The Ministry of Labour at the Centre, in particular, have made strenuous efforts to promote the well-being of the working class on the basis of a planned programme with legislative and administrative measures, much of which has been successfully carried out. In the sphere of labour legislation undertaken recently mention may be made of the Industrial Disputes Act, 1947, the Factories Act, the Coal Mines Provident Fund and Bonus Scheme Act, the Minimum Wages Act, the Employees' State Insurance Act of 1948, the Plantation Labour Act 1951, the Mines Act and the Provident Fund Act of 1952. Some of these Acts have already come into operation while others are being put in force. A number of welfare schemes particularly for employees of mines and of Central Government undertakings have been introduced by the Ministry. Housing for industrial workers has made a modest beginning. Effect is now being given to the recommendations of the Commission for participation by Government in this activity on a much larger scale. In addition to the funds allotted to housing and to resettlement schemes of landless agricultural workers over 6.74 crores of rupees* are intended to be spent on labour welfare during the period of the Plan, both by the Central and State Governments. Tripartite bodies have been set up to advise Government on various labour matters. Advisory Boards are working in many States. The employment position in factories has been much better during recent years as compared to the two years immediately after the end of the war. The average annual earnings of factory workers have shown a steady increase. Trade unionism has experienced a remarkable growth during these years but the qualitative progress has not been even.

5. The response of the workers to these measures has been satisfactory. Noticeable increases in production have been recorded in a number of industries during last year and the first half of

* This includes in the case of some States the normal administrative expenditure for implementing labour legislation.

this year. Strike activity has considerably diminished. The number of man-days lost last year was the lowest among the years of the post-war period. There is increasing evidence of the relations of mutual dependence and the need for direct dealings on the part of the representatives of the workers and the employers. The emergence of the Joint Consultative Board as a bi-partite structure on the initiative of the top representatives of the working class and industry is a welcome advance. The tendency to rely more and more on internal settlement was manifest during and strengthened by the proceedings of the Indian Labour Conference held recently.

6. Greater improvement in the economic condition of workers has, however, been impeded by a rising price level and failure of the industry to renovate and modernise plant and rationalize management in many cases. In this context it is, however, to be realized that rate of progress has to be determined not only by the needs of the workers but also by the limitations of the country's resources. Too rapid changes or changes on a wide scale may result in financial, administrative and other difficulties which endanger new reforms and retard further development. On the side of labour, there should be a keen realisation of the fact that in an undeveloped economy it cannot build for itself and the community a better life except on the firm foundations of a higher level of productivity to which it has itself to make a substantial contribution. The role of labour in promoting better standards of living for the community involves acceptance of greater regularity in attendance, disciplined behaviour and meticulous care in discharge of duties. To ensure this, much greater attention has to be paid to the spread of literacy and the healthy development of trade unions so that workers are not exposed to exploitation and can act with greater sense of responsibility.

7. Industrial relations, wages and social security working conditions, employment and training and productivity are among the important aspects of the labour problem in respect of which the Commission proposes to make specific recommendations.

I. Industrial Relations

It is proposed to deal here with industrial relations both in the private and public sector. The role the trade unions and employers' organisations have to play in the implementation of the plan also requires to be specifically stated.

The recommendations in this section have, therefore, been grouped under the following heads: (A) Private sector (B) Public sector (C) Role of trade unions and employers' organisation in a planned economy.

A. Private sector.

8. Harmonious relations between capital and labour are essential for the realization of the targets of the Plan in the industrial sector. This would be assured to a large extent if it were possible for management and labour to come to an agreement regarding the principles which should govern industrial relations. To this end the Planning Commission worked out certain proposals in consultation with the Ministries of Labour and Commerce and Industry on the basis of which agreed conclusions have been reached in the Industries Development Committee composed of representative employers and leaders of the principal workers' organisations in the country. These agreed conclusions are reproduced below :-

The approach

9. Peace in industry has a great significance as a force for world peace if we consider the wider implications of the question. The answer to class-antagonisms and world conflicts will arrive soon if we succeed in discovering a sound basis for human relations in industry. Economic progress is also bound up with industrial peace. Industrial relations are, therefore, not a matter between employers and employees alone, but a vital concern of the community which may be expressed in measures for the protection of its larger interests.

10. In a community organised for social justice and the good of all its members, there would be a constant reconciliation of the interests of all sections and no legitimate occasion for a group to interfere with production or disorganise the life of the community should arise. Even where the workers and employers are ranged in opposite camps, the essential oneness of their interests over a wide area of the mutual relation of the parties is evident. But there is doubtless also a very considerable ground over which conflicts may arise. The employer usually possesses superior strength which may become a source of injustice and oppression unless he is imbued with a high sense of fairness

and uses his advantage with scrupulous regard to the rights and interest of others. In an economy organised on the basis of competition, private monopoly or private profit, the workers' right to have recourse to peaceful direct action for the defence of their rights and the improvement of their conditions cannot be denied and should not be curtailed unduly. It is generally accepted, however, that in any emergency and in the case of services essential to the safety and well-being of the community recourse to a strike or lock-out may be suspended or withheld on the condition that in all such cases provision is made for a just settlement of the parties' claims. Experience of many years has demonstrated that in the majority of labour struggles, owing to the ignorance and the mistakes of the workers and their organizational and bargaining weakness they have failed to gain their ends irrespective of the merits of the disputes. The community has, therefore, to intervene for redressing the balance in favour of the weaker party to assure just treatment for all concerned. Legal provisions relating to trade unions and industrial disputes have to be framed and interpreted in relation to these objectives. On occasions the workers too make an unreasonable use of their strength. Whatever may be the apparent outcome of a labour conflict, the resulting loss far outweighs any advantage secured by a party and in most cases all concerned stand to lose.

11. In normal times and in ordinary cases whether the right to strike or lock-out should be circumscribed is an open question. An economy organised for planned production and distribution, aiming at the realisation of social justice and the welfare of the masses can function effectively/in an atmosphere of industrial peace. India is moving in this direction, It is also at present passing through a period of economic and political emergency. Taking the period of the next few years, the regulation of industrial relations in the country has to be based on these two considerations and it is incumbent on the State to arm itself with legal powers to refer disputes for settlement by arbitration or adjudication, on failure of efforts to reach an agreement by other means. However the endeavour of the State has all along to be to encourage mutual settlement, collective bargaining and voluntary arbitration to the utmost extent, and thereby to reduce to the minimum occasions for its intervention in industrial disputes and the exercise of the special powers. The restrictive

aspects of any existing or future labour legislation must be judged in the light of these considerations.

12. The employer-employee relationship has to be conceived of as a partnership in a constructive endeavour to promote the satisfaction of the economic needs of the community in the best possible manner. The dignity of labour and the vital role of the worker in such a partnership must be recognised. In dealing with the worker it has not only to be borne in mind that his energy and skill are the most precious assets of the nation, but also that his personality is an object of care and respect and of equal significance and worth with that of any other element in the community. It may be that the worker on account of handicaps of illiteracy and ignorance and lack of opportunities is not able to play as effective a role in the working of industry as he should. Industrial relations have to be so developed that the worker's fitness to understand and carry out his responsibility grows and he is equipped to take an increasing share in the working of industry. There should be the closest collaboration through consultative committees at all levels between employers and employees for the purpose of increasing production, improving quality, reducing costs and eliminating waste.

13. The worker's right of association, organisation and collective bargaining is to be accepted without reservation as the fundamental basis of the mutual relationship. The attitude to trade unions should not be just a matter of toleration. They should be welcomed and helped to function as part and parcel of the industrial system.

14. If any differences arise between the parties, they should be examined and settled in a spirit of reasonable adjustment with an eye to the good of industry and the well being of the community. In the last resort differences may be resolved by impartial investigation and arbitration. The intervention of the State and imposed settlements may become necessary at times. The stress of the administration as well as the efforts of parties should, however, be for avoidance of disputes and securing their internal settlement.

15. The machinery and procedure relating to compulsory arbitration and adjudication of disputes should be so designed as to secure the essence of a fair settlement based on the principles of natural and social justice with the minimum expenditure

of time and money. To achieve the aforesaid aims, statutory provisions in this connection should be framed in accordance with the following principles:

- i) Legal technicalities and formalities of procedure should be reduced to the minimum, the relevant facts and figures should be furnished quickly and attention should be focussed on the material points in issue.
- ii) The machinery and procedure should be adapted to the varying needs. Every dispute should be taken up for final disposal directly at a level suited to the nature and importance of the case. Relatively simple or less important matters should not entail a disproportionate expenditure of time and attention.
- iii) Selection, recruitment and training of the personnel of the courts or tribunals should be carried out with a view to securing competent disposal of the question coming up before them and the requisite technical help should be provided to obtain speedy settlement and to avoid miscarriage of justice.
- iv) There should be no appeal from decisions of an industrial court or tribunal, barring the very exceptional case of a decision which may be found to be perverse or against the principles of natural justice.
- v) The provisions of law should be adequate for securing strict and prompt compliance with the terms of any award or decision.

16. Industrial arbitration differs fundamentally from the ordinary administration of justice. In the latter case the law of the land has pre-determined the rights and obligations of the parties and the courts have only to interpret and apply the provisions of the statutes. A wide element of discretion, however, rules the decisions of industrial tribunals, because there are no established criteria for settling the issues which arise before them. It is possible that case law on those points will grow in course of time, but

in matters affecting large economic interests it would be a very unsatisfactory procedure to leave the 'norms' and the guiding policy to be settled by such a process of trial and error. The resolution on Industrial Truce adopted at the Industries Conference in December 1947 visualises the establishment of a machinery for the determination of 'norms' and standards which may govern the mutual relations and dealings between the employers and employees and the settlement of industrial disputes. The most suitable machinery for the purpose can only be a tripartite body consisting of representatives of employers, employees and Government. It may be expected that agreements will be reached on many contentious matters, but where this is not possible the Government may, with such expert assistance and judicial advice as is needed, itself arrive at decisions. These agreements or decisions may, according to the nature of the case, be issued as directives binding on the courts or the tribunals, or embodied in legislation.

17. There is need for continuous education of employers and employees as well as the public with regard to their duties and mutual obligations. The conduct of the parties must be in keeping with the objectives of the Constitution and the declared social policies of the State. Enlightened and active public opinion capable of mobilising itself on the side of justice and fairplay should be counted upon as a much more potent force for the maintenance of healthy industrial relations than the coercive powers of the State.

18. It should be realised that while the economic aspects are important we are basically dealing with a human, psychological and social problem. The key to industrial peace lies ultimately in a transformed outlook on both the sides and it should be the business of leadership in the ranks of labour and employers as well as in Government to strive to work out a new relationship among the parties in accord with the spirit of true democracy. Where the State is itself the employer the relations between the management and the employees should be so ordered as to offer an example of sustained mutual goodwill and fruitful collaboration.

Avoidance of disputes.

19. In order to avoid needless friction, and disputes between employers and workers, it is necessary to lay down in concrete and specific terms the duties and responsibilities of either side. A worker should know what is expected of him in the particular occupation or capacity in which he is employed. He should also know the privileges which are due to him, in relation to the performance of his duties. The standing orders, which are now obligatory in case of most industrial establishments, cover some of this ground, but there are other matters concerning the relations between the parties and the precise range of duties of operatives in which some guidance may usefully be provided. Each undertaking should, therefore, adopt a manual of instructions for different classes of operatives of the type in vogue in some Government offices and commercial establishments. Such manuals should be prepared, and when necessary revised, by tripartite consultation.

20. Elected representatives of workers function as shop-stewards in some establishments at present. This agency should be developed and fully employed for redressal of grievances of workers in their individual and collective capacity.

21. An employer should in consultation with the workers lay down clearly the manner in which any worker or group of workers, individually or collectively through their representatives, may approach authorities at different levels in the plant in respect of various types of grievances. Such procedure should be as uniform as possible for different workers in the same industry at the same centre. Suitable records may be maintained for this purpose wherever necessary. It should be open to an individual worker or his representative in due course to approach the highest executive on the spot, in the last resort. By suitable means the workers should be kept in touch with the state of the industry and the affairs of the establishment in which they are employed. This applies particularly in matters which concern them directly. The workers should be apprised in advance, in all feasible cases, of any contemplated change which may alter the status quo relating to their conditions and interests. The employees must similarly indicate their desire for any change in the existing conditions. The observance of such a procedure will prevent precipitate action which often leads to avoidable trouble. Direct action on either side in violation of this obligation should be punishable under the law.

22. The standing orders should embrace all matters of routine industrial administration and any differences between the parties regarding the terms of the standing orders should be resolved by arbitration. Model standing orders should be framed officially for the purposes of guidance and to operate till they are settled in accordance with the prescribed procedure. Arrangements should be made for registration of agreements at whatever stage they are concluded between the parties, with the explicit provision that any dispute regarding the interpretation of the terms of the agreement will be referred to arbitration.

23. Social contacts, not of a patronising character but as among members of an industrial family, should be promoted for all those associated with the working of the establishment at any level. The supervisory staff and the technicians have a special position of advantage for taking the initiative in establishing a spirit of brotherhood and cordial relations. The personnel officers on the staff, usually designated as labour or labour welfare officers, have a special responsibility for the avoidance of disputes and creating mutual goodwill and understanding. In a number of cases owing to wrong selection, lack of proper equipment or training and a wholly misconceived view of their role on the part of the employer, these officers have failed to render any very useful service and have, on the other hand, accentuated distrust and ill-will between the parties. Remedial action in this matter in which the State may assist should be undertaken by organisations of employers without delay. It will be found helpful if joint committees at various levels periodically review the developments in industry and working conditions and other matters of common interest.

Internal settlement.

24. The informal approach visualised so far may not succeed in disposing of all the differences which arise between the employer and the employees in an establishment. Questions also arise which affect the common interests of the workers engaged in an industry and which must properly be pursued on a collective basis. Efforts for the settlement of such disputes may be pursued in a coordinated manner either through a suitable machinery for joint deliberations or by collective bargaining between the representatives of organised labour and of the employer or a group of employers as the case may be.

25. Joint committees. Works committees for the settlement of differences on the spot between the workers and the management is the key of the system of industrial

relations as conceived in this plan. Joint committees should also be set up for a centre and for the industry as a whole to tackle questions of wider import. These committees will be the best vehicle for improving labour relations and promoting employer-employee collaboration in the interests of high production and greater well-being of the workers through the progress of industry. It will not suffice to provide for the creation of joint committees either on a voluntary or compulsory basis. When a new institution of such a high significance has to be developed, active steps must be taken to foster it and to create conditions conducive to its healthy growth.

26. The successful functioning of works committees rests a good deal on the initiative, sympathy and interest of the management. The supervisory staff should be encouraged to lend a helping hand. There should be periodic review of progress of works committees. The circumstances hampering the operation of a committee in any unit should be examined carefully and every effort should be made to remove the hindrances. The works committee is in no sense to be a rival of the trade union. Every effort should be made to secure the support and cooperation of the latter in the conduct of the works committees. The personnel of the works committees on the side of the workers should invariably be chosen by the trade union enjoying a representative character and having the backing of the majority of the workers in the unit. In all other cases the workers should themselves elect their representatives on the works committees. It should be open to a union official or a Government Labour Officer to assist in the proceedings of the committees at the invitation of either party.

27. The committees while being free to take up any matter coming within the range of industrial relations should, in order that they may grow in strength, have a list of specified functions. All questions relating to amenities, working conditions, matters of discipline, quality of materials etc., should be necessarily dealt with by these committees. A works committee cannot of course take any decision which may diverge from the terms of a collective agreement and its decisions regarding matters lying within the scope of collective agreement should be subject to the ratification of the management and the organisation of labour possessing the bargaining rights for the purpose.

28. A works committee is ordinarily the culminating step in the grievances machinery designed to function within a unit and there may be a separate committee for the purpose of collaboration in dealing with matters specially relating to production. It may, in certain cases, be found more convenient to entrust the works committee with the functions of a production committee.

Collective bargaining

29. Collective bargaining can derive reality only from the organised strength of the workers and a genuine desire on the part of the employer to cooperate with their representatives in exploring every possibility of reaching a settlement. A legal framework may, however, be created to determine the appropriate bargaining agency and to fix the responsibility for the enforcement of collective agreements. For the success of collective bargaining, it is essential that there should be a single bargaining agent over as large an area of industry as possible and uniform conditions should be secured in at least all the establishments in one centre. Where no trade union has built up the requisite strength to obtain a representative character, the largest union should have the right to function in respect of all establishments in which it has a majority of the workers as its members. Separate unions for industrial establishments in the same industry in a local area are inimical to the growth of a strong and healthy trade union and their existence may be justified only in very exceptional circumstances. Provision has to be made for the direct election of representatives of workers from among the employees when no trade union exists or is able to secure the right to represent them. While it is preferable to have a single industrial union covering all the occupations in an industry, latitude may be permitted for special categories of salaried employees to form their own unions if the majority of these employees are in favour of such a course. In the absence of all other agencies arrangement has to be made by the State for the appointment of officials to look after the interests of the workers in industrial disputes.

30. To the bargaining status of the parties would naturally be attached certain obligations, especially with regard to non-participation in illegal strikes and illegal lock-outs.

31. An elaborate procedure relating to the representation of employees and employers may not be easily applicable to small and less advanced industries and a simpler alternative should be available for such cases.

Conciliation and enquiry.

32. The State has to step in with an offer of conciliation when the parties fail to reach an agreement and the dispute continues. Conciliation should be made available in all such disputes and must be resorted to except when there is a voluntary submission for arbitration or a direct approach to a tribunal or court is permitted or prescribed. The conciliation officer has an important role for which he should be adequately equipped and trained. For cases involving major issues ad hoc or standing conciliation boards may be appointed. The board should be composed of an independent chairman and persons in equal numbers to represent the interests of the parties. Panels of non-official conciliators may also be formed. Conciliation proceedings should be carried on in a completely informal atmosphere and concluded as quickly as possible within a fixed time limit. A court or a tribunal should not take cognizance of what transpires in conciliation proceedings.

33. It may be useful in certain cases to have recourse to an official enquiry for the purpose of avoiding disputes, eliciting information or educating public opinion regarding the merits of a dispute. A court or a commission of enquiry may be set up for this purpose.

Arbitration.

34. Adequate machinery should be provided for arriving at impartial decisions regarding disputes which are found incapable of settlement by conciliation. It is necessary to empower labour courts to take cognizance and dispose of any complaints relating to working conditions, health, safety, welfare and kindred matters. Reference of disputes relating to such crucial questions as wages, hours, rationalisation schemes should, as far as possible, be left to be settled by conciliation or voluntary arbitration. The State may however, have to refer such disputes for compulsory arbitration in the absence of a

voluntary submission. Employers and trade unions may be encouraged to bind themselves in advance to submit to arbitration every industrial dispute in which a settlement is not reached by conciliation and not to sanction or resort to a strike or lock-out as the case may be which is not legal and in respect of which all the legal methods for the settlement of an industrial dispute have not been exhausted. Such employers and unions should be in a position to make a direct approach to the machinery set up by statute for the purpose of compulsory arbitration. The most honourable and patriotic course for employers and employees would be to agree to submit any present or future dispute or classes of such disputes to arbitration of any person or board of their choice. The number of such agreements would be a good index of real progress in industrial relations in the country. The apparatus of arbitration must be adjusted to suit a variety of needs. For important industries separate wage boards would be found very helpful. Such wage boards may also be established at the centre to which issues affecting an industry in the country as a whole may be referred. A central tribunal should be set up to deal with disputes of national importance.

35. The cause of industrial peace has not been helped by the manner in which the legal machinery has functioned in several industrial disputes. There is a widespread feeling that excessive delays occur and the judgements in several cases lack balance and are incapable of meeting the true requirements of the situation. The remedial action already outlined here would go far to set things right. A considerable factor in the length of proceedings will be eliminated if the party making a claim submits its complete case at the start, furnishing a copy to the opposite party simultaneously. Similarly when conciliation fails a statement signed by the parties offering to submit their differences to arbitration may straightaway operate as a submission, to obviate delay.

36. The work of the industrial and labour courts suffers in quality and speed of disposal because the necessary information is not readily available. In part the State can itself fill the gap by preparing in advance the factual and statistical material which, in the light of experience, is found to have a bearing on the various types of cases which come before the courts. The State should have the power to require any employer or employers generally to maintain and furnish data relating to plant, manufacture, industrial transactions and dealings which might be needed for

the settlement of industrial disputes. The balance sheets of industrial concerns have often to be cited. They should be supplied to the authorities in a suitable standardised form as soon as they are ready. Provision for this may be made in the Companies' Act in which there should also be adequate safeguards to ensure that the balance sheets present the correct state of affairs of the company.

37. Legal sanctions may have to be employed for securing due observance of the awards and decisions of the tribunals. If direction and control of an establishment becomes necessary for this purpose they may be exercised under special legislation to be undertaken for the regulation of industries.

Stoppages.

38. There is obvious justification for compulsory postponement of stoppages without notice of change and while collective bargaining, conciliation or arbitration is in progress. A strike or lock-out without due notice during the pendency of any proceedings or in violation of the terms of a settlement, agreement, award or order have of course to be banned and attended by suitable penalties and loss of privileges. An illegal change should be treated on the same footing.

B. public sector (Industrial
and Commercial
employees in
Public Under-
takings)

39. In India, as elsewhere, more and more industrial undertakings are now being financed and managed by the State. The number of workers employed in such undertakings is sufficiently large and harmonious industrial relations therein are matters of vital importance to the success and efficient working of these undertakings.

40. Public undertakings differ in an important respect from private undertakings. The 'profit' motive and the exploitation of workers for private gain have no significance in the State-owned enterprises. The undertakings have no doubt to show the same, if not greater efficiency of working as private owned undertakings. They have also to show profits. But the nature of these profits is different. The profits which these undertakings make are not profits intended for any individual or group of individuals but are extra wealth for the whole country.

41. A worker in a public undertaking stands on a different footing from a worker in private undertakings. He has a dual role of master and servant; master as a citizen of the country and servant as a worker of the undertaking. It is therefore necessary that he should be made conscious that in serving the undertaking he is serving himself and that the better he works and the greater his efficiency the better he will serve and help himself. He must be made to feel that the responsibility for the success or failure is as much his as that of the management and that the undertaking belongs to the country as a whole including himself. He should take pride in his contribution to the success of the undertaking.

42. The workers' enthusiasm for the success of public undertakings can be aroused only when they know that justice and fairplay prevail in the undertakings and proper arrangements are made for redress of the grievances of the workers. The aim should be to have a co-operative and contented labour force. The ways by which this can be achieved while maintaining peace in the undertakings and increasing production are:

(a) Wages in public undertakings should not

be less favourable than those prevailing in the neighbouring private enterprises. In so far as working conditions and welfare amenities are concerned, undertakings in the public sector should set the pace and serve as models.

(b) The Board of Directors of these undertakings should have on it a few persons who can understand labour problems, the labour point of view and who have sympathy with the aspirations of labour.

(c) The benefits of all labour laws which are applicable to similar private undertakings should also be made available to the workers of these undertakings. Exemption from such labour legislation should as a rule not be granted but in case where the existing benefits are as good as or more favourable than those provided by such legislation, grant of exemptions may be considered.

(d) There should be progressive participation of labour in many matters of the undertaking. Works committees for the different departments and for the undertaking as a whole should be set up. The committees should be used for consultation and suggestions. The atmosphere should be such that the workers should be made to feel that in practice, as well as in theory, they are partners in the undertaking.

(e) Effective consideration of staff interests demand organized representation. A labour movement devoted to the protection and advancement of employee needs is as indispensable in public as in private undertakings. It is therefore essential to encourage the growth of healthy trade unions in these undertakings. There should not be any restrictions on industrial and commercial employees of Government undertakings exercising their trade union rights like any other employees.

(f) Collective bargaining between workers and management should be encouraged. Such collective bargaining should embrace both economic and non-economic demands. The management on the spot should be given full discretion and power to enter into commitments within certain prescribed financial limits. Government conciliation and arbitration machinery should be made available to the workers of these undertakings. The existing right of Government to accept, reject or modify an award should be restricted to periods of emergency.

(g) It is desirable that agreements between the management and the representatives of workers should make provisions for measures for increasing output and reducing costs, combating absenteeism and checking offences against discipline.

C. Role of trade unions and employers' associations in a planned economy.

43. The trade unions and the employers' associations can play a positive and important role in the execution of plans as experience of other countries has shown. For the successful implementation of the plans in India, co-operation from trade unions and employers is absolutely essential. The important central organizations of workers and the employers' associations should be persuaded to treat the period of the execution of the plan as a period of national emergency. Their close co-operation should be secured at different stages of the execution of the plan. Some beginning has been made in the direction of such co-operation. The passing of the Industrial Truce Resolution in December 1947, whereby both the employers and workers agreed to refrain from the use of lock-outs, strikes and slow-down tactics, the establishment in 1948 of industrial committees for important industries on a tripartite basis, the setting up of works committees under the Industrial Disputes Act, the co-opting of labour representatives on the Development Committee where labour matters are discussed, the constitution of the joint consultative Board on a bipartite basis and the recent establishment of the Central Industries Advisory Council on which employers and workers are represented along with other interests, are some of the instances of such co-operation. All these are steps in the right direction. The scope of such co-operation should be widened and the representatives of employers and trade unions should be associated at every step in the implementation of the Plan.

44. Cooperation from unions and employers can assume several forms, some of which have been mentioned below:-

The All India Organizations of Workers and of Employers can play an effective part by undertaking the task of presenting the plans to the affiliated unions and employers and discussing them with their members. They should convey their views to the planning authority and to Government. The aim should be to create enthusiasm amongst workers and employers for the Plan. The unions and the employers could thus contribute much to the achievement and overstepping of the targets of the Plan.

Healthy emulation should be promoted among the workers for this purpose.

The need for maintaining peace in industry and for avoiding interruption of work during the period of implementation of the Plan is obvious. In the interest of national economy unions and employers should exercise the utmost restraint in this respect.

The outlook of unions with regard to the question of wages should be attuned to the requirements of economic development, in keeping with considerations of social justice. It may otherwise happen that the increases are won by workers in those industries in which they are highly organised, while those which have a weak or no organisation would be neglected. It would not be appropriate to ask for flat percentage increases to maintain the relative advantage of those placed in higher categories.

The trade unions have to assume increased responsibility for the success of the productive effort. The whole economic health of the country * * depends of labour. Such increases will largely depend on upon rapidly improved conditions of work and improved method and increasing machinery. It will also greatly depend upon the utmost the produc- participation by the mass of workers in speeding up tivity and improving production and that improvement can best be effected through modern industrial trade union organisations. All this would depend upon the extent to which employers associate workers with the productive effort and make the workers feel that in increased production lies the good both of the employers and workers. The employers should consult workers in respect of new machinery, methods of production and the way in which economies could be effected in the costs of production.

An important welfare activity to which the trade unions in foreign countries have devoted themselves to is the organisation of cooperative societies. The activities of most of the trade unions in India have been confined so far to getting the grievances of workers redressed and fighting for the rights of the workers. This might have been inevitable in the earlier stages of the development of trade unions in this country. Trade unions should now devote more time to welfare and cultural activities especially the organisation and running of consumers' and credit societies. This will be an important activity for the

benefit of the workers. The employers could help such activity by providing facilities such as, accommodation, clerical help, loans to start such societies etc.

Trade unions and employers' representatives should be associated at the various levels - at the level of the undertaking, at the level of industry and at the regional and national level. The workers should feel that they are playing an effective part in the implementation of the Plan and that on them depends the rise in their standard of living as well as that of the common man.

II Wages And Social Security.

45. The workers today is not satisfied with merely the wage he receives. He expects to be protected against various types of natural and other risks arising out of employment. In addition to the principles of wage policy it is proposed to deal here with social security and provision for the future of workers. This section has, therefore, been sub-divided into A. Wages and B. Social security.

A. Wages

46. During the war and the post war period there had been a rapid rise in prices. The profits of industries have considerably increased. The organised section of labour has also been able to obtain substantial increases in wages. But if the inflationary pressure is to be checked, steps may be necessary to divert to saving the present expenditure on consumption and to increase production. With regard to the industrial sector, profits and wages may have to be subjected to some control by Government during the period of the implementation of the Plan. Action should therefore be taken on the following lines:-

(a) The excess profits tax and certain restrictions on dividends during the war and for a short period after the war have helped to keep in check the distribution of large dividends. During the period of the implementation of the Plan also similar restriction should be placed on the remuneration of management, distribution of profits and the issue of bonus shares. Such restrictions may have to give due consideration to

(i) a fair return on capital depending upon the nature of the business and the past practice of paying dividends during normal periods;

(ii) the claim of share-holders for a fair return on capital where during the initial period of the new undertaking no distributable profits are made.

(b) On the side of wages, any upward movement, at this juncture, will further jeopardise the economic stability of the country if it is reflected in costs of production and consequently raises the price of the product. For workers too, such gains will prove illusory because in all likelihood they will soon be cancelled by a rise in the general price level, and in the long run the volume of employment may be adversely affected. Such an increase in wages should, therefore, be avoided. Workers can be expected to agree to such a course only if restrictions are also placed on the distribution of profits as outlined in (a) above. Any steps to restrict wage increases should, therefore, be preceded by similar restrictions on the distribution of profits. Subject to this wage increases should be granted under the following circumstances:-

(i) To remove anomalies or where the existing rates are abnormally low;

(ii) To restore the pre-war real wage, as a first step towards the living wage, through increased productivity resulting from rationalisation and the renewal or modernisation of plant.

47. Certain broad principles which may help in the regulation of wages have emerged as a result of the labours of various Commissions and Committees appointed by the Central and State Governments. These have, for the most part, been embodied in the existing and proposed legislation on the subject. They still do not form an adequate practical basis for a uniform policy in determining wage rates and effecting wage adjustments. The tripartite machinery, visualised in the section on Industrial Relations, should evolve in as precise terms as practicable, the 'norms' and standards, which should guide wage boards or tribunals in settling questions relating to wages, having regard to the claims of the various groups of workers inter se, of the other participants in industry and of the community as a whole. The course of action in this respect in the immediate future should be governed by the following considerations:

- (a) All wages adjustments should conform to the broad principles of social policy and disparities of income have to be reduced to the utmost extent. The worker must obtain his due share in the national income.
- (b) The claims of labour should be dealt with liberally in proportion to the distance which the wages of different categories of workers have to cover before attaining the living wage standard.
- (c) The process of standardization of wages should be accelerated and extended to as large a field as possible. There should be a progressive narrowing down of disparities in the rates of remuneration of different classes of workers in the same unit, of workers engaged in similar occupations in different units of the same industry, of comparable occupations in different industries and in wages in the same industry at different centres. Differentials for various jobs should be maintained at the minimum levels justified by:
- (i) the degree of skill required;
 - (ii) the strain and the fatigue involved;
 - (iii) the training and experience required;
 - (iv) the responsibility to be undertaken;
 - (v) the mental and physical requirements for doing the work;
 - (vi) the disagreeableness of the task; and
 - (vii) the attendant hazards.
- (d) A scientific assessment of the relative work-load in different occupations and industries should be taken up. In this connection pilot studies on payment by results which are proposed to be sponsored by the Ministry of Labour with the technical assistance from the I.L.O. are a step in the right direction.
- (e) The payment of dearness allowance to compensate for the rise in the cost of living has been an important feature of the wage structure during the war and post-war period. Since the end of the war there have been demands made on behalf of labour for merging a substantial portion of dearness allowance into basic wages as there was no likelihood of prices falling to the pre-war level. The Government of India recently

appointed a Committee to recommend what percentage of dearness allowance given to Central Government servants should be treated as pay. The Committee, in its report submitted to Government, has come to the conclusion that in the foreseeable future the cost of living index is not likely to fall below the range 265-284, taking the pre-war index to be 100. On this basis, the Committee recommends that 50 per cent of the dearness allowance admissible to the Central Government servants drawing a basic pay upto Rs 750 p.m. should be amalgamated with pay. We accept this recommendation and suggest that the recommendation made by the Committee should be extended to workers in the private sector also.

48. Full and effective implementation of the minimum wage legislation should be secured during this period. Depressed areas should receive prior attention. In view of the paucity of data and the administrative difficulties pointed out by various State Governments, a limited beginning should be made with regard to the fixation of minimum wages for agricultural workers and the scope should be extended further as experience is gained. Suggestions on this subject have been made earlier in the report.

49. A kind of profit sharing in the form of periodic bonuses usually awarded by industrial courts and tribunals exists today. No proper basis for the awards had been worked out. The subject is one requiring expert examination and a study of the general and technical aspects of the problem. Efforts should be made to find out suitable experts within the country as also from countries like the U.S.A., Germany, the United Kingdom, Sweden, and organisations like the I.L.O. who should go into the question of wages, profits, terms and conditions of payment etc. and make recommendations. Although the quantum of bonus to be paid would be determined by the formulae to be laid down, to prevent the diversion of resources into consumption payment in cash should be restricted, the balance to constitute the savings of workers. This course of action should be accepted on the basis that it does not prejudice the contentions of either party regarding the character of the bonus. This would of course have to accompany similar restrictions on consumption in respect of other sections of the community.

50. Permanent wage boards with a tripartite composition should be set up in each State and at the Centre to deal comprehensively with all aspects of the question of wages, to initiate necessary enquiries, collect data, review the situation from time to time and take decisions regarding wage adjustments suo motu or on reference from parties or from the Government.

B. Social security.

51. Article 32 of the Constitution says, "The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education, and public assistance in case of unemployment, old age, sickness, disablement and other cases of undeserved want." While this is generally applicable to the population of the country as a whole, the industrial worker is more liable to disease and invalidity than the average citizen. The man-days lost on account of sickness and disability constitute a heavy drain not only on the slender resources of the industrial workers but also on the industrial output of the country. Lack of social security impedes increased production, leads to larger labour turn-over and prevents building up of a stable and efficient labour force.

52. In all advanced countries the worker is protected against various types of risks such as, sickness, unemployment, old age, employment injury, maternity, invalidity etc. In India also, some of the risks to which a worker is exposed have been covered by the Workmen's Compensation Act and the Maternity Benefit Acts of the various State Governments. The Employees State Insurance Act is a more comprehensive piece of legislation and it applies in the first instance to factories using power and employing 20 or more persons, and covers all employees who are in receipt of remuneration not exceeding Rs. 400/- p.m. It insures risks of sickness, maternity, and employment injury. In addition to the medical care to which an insured person is entitled, cash payments are given equal to about half of the average wages.

53. The scheme framed under the Employees State Insurance Act has been introduced at present in Delhi and Kanpur and is expected to be implemented throughout the country by the middle of July 1954. The programme for the implementation of the schemes in other States prepared by the Labour Ministry should be adhered to and the State Governments employers and workers should offer their fullest co-operation for the purpose. The scheme does not include at present the families of the insured persons. Both in its coverage and the amount of benefits provided the scheme may appear to be modest as compared with similar schemes in some of the advanced countries. In view of its novelty, administrative and other difficulties and the financial implications of the scheme, efforts should be directed during the period of the Plan only to the proper implementation of the scheme in its present form and to putting it on a sound and sure foundation.

54. Another measure which can provide for the future of the workers is the institution of provident funds. The Central Legislature has recently passed the Employees' Provident Fund Act, 1952. A scheme under that Act has also been published and its implementation is expected to take place shortly.

55. The Act at present applies to six major industries employing 50 or more persons-Textiles, Iron and Steel, Cement, Engineering, Paper and Cigarettes. As soon as experience is gained and the scheme is placed on a sound basis, it should be extended in gradual stages to all the industries employing 50 or more persons during the period of the Plan. A programme for its extension should be drawn up.

III. Working Conditions

56. In order to get the best out of a worker in the matter of production, working conditions require to be improved to a large extent. The Factories Act, 1948, the Indian Mines Act, the Plantation Labour Act 1951, and the proposed Central legislation for regulating the conditions of work in shops, establishments and motor transport services, have this common object and are sufficient for the purpose. The emphasis in the next five years should, therefore, be on the administrative measures needed for the implementation of such legislation. So far as the workers employed in factories and plantations are concerned, action may be taken on the following lines:-

A Factories.

57. The Factories Act, 1948, is a comprehensive measure, and should, to a great extent, help to improve working conditions inside factories. This will be possible only if the provisions in the Act are properly enforced. The Act contains detailed provisions for ensuring the safety, health and welfare of workers employed in factories. The provisions relating to medical supervision and occupational health, which had not hitherto received proper attention, have been strengthened, and notification of occupational disease has been made compulsory in order to focus attention on these aspects of the problem. Apart from these, the various provisions relating to welfare should contribute to the general well-being and contentment of the workers. The effective implementation of the Act is, therefore, a matter of the utmost importance in efforts to improve working conditions and promote the general well-being of the worker, and for this purpose the following recommendations are made:-

(i) Satisfactory standards have not yet been achieved in respect of enforcement in many areas. Factory inspection services need to be strengthened for this purpose and should be so reorganised as to include not only persons representing various branches of engineering but also men drawn from other technical professions, including the medical profession.

(ii) Considering the large number of factories and the vast areas over which they are spread, priorities should be fixed, to ensure better attention to areas and industries in which sub-standard conditions still prevail and to secure strict compliance with the provisions of the law.

(iii) In the enforcement of the various provisions of the Factories Act, particular emphasis should be placed on the social aspects of the legislation.

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(iv) In organised industries tripartite agreements should be drawn up on the standard of compliance with the provisions of the Factories Act. Effective machinery should be set up to review the working of the agreements in each group of industries. The working of the agreement would in itself constitute a form of inspection within * the basic requirements from which they might work up for further improvement in working conditions in the industry.

(v) For the proper implementation of the various provisions of the Factories Act and also for providing a centre of information for inspectors, employers, workers, and others concerned with the well-being of industrial labour and to stimulate interest in the application of principles of industrial safety, health and welfare, a National Museum of Industrial Health, Safety and Welfare should be established at an early date in a centrally-situated industrial area. The Museum, as a centre of demonstration, with exhibits covering all aspects of working conditions, including health, and with its information section and library, could be the nucleus round which any specialised scheme of training and education in labour problems could be evolved.

(vi) For the effective implementation of the provisions relating to medical supervision and occupational health, the appointment of full-time medical inspectors on the staff of the Factory Inspectorates should be expedited.

(vii) Short courses of instruction in industrial health for those who are working as part-time doctors and for those who are working as medical inspectors should be provided by Government.

(viii) Collection of objective information on occupational diseases and other health problems and teams for carrying out surveys and investigations should be organised as part of the activities of the Factory Inspection Services. The purpose of these investigations should be to assess and evaluate the potential hazards in industrial processes.

(ix) Research and investigations carried out by research institutions of trade associations are usually confined to technical advance in industry, such as new machinery and new processes. Such institutions should be encouraged to extend their activities so as to cover a wider field, such as industrial psychology, and investigations of human problems, which are of equal importance for the progress of industry in general.

(x) The Public Health Departments of some of the States, which have Industrial Hygiene Divisions, should maintain the closest liaison with the Factory Inspectorates.

(xi) Employers, Trade Unions and Governments should co-operate in educating the workers, so as to ensure their active participation in all measures taken for their well-being.

(xii) The fees recovered for licensing and registration of factories should be utilised primarily for strengthening the Factory Inspectorates.

B. Plantations

58. Plantations can be considered to be the largest single labour absorbing industry in the country. Conditions in the plantations remained unsatisfactory for a long time for a variety of reasons. This led to a number of studies undertaken by government agencies to assess the problems of plantations workers. As a result of these studies, steps have been taken from time to time to ameliorate the conditions of work of these workers. The most recent and far reaching piece of legislation, modelled on the lines of the Factories Act, is the Plantation Labour Act, 1951. There are, however, certain matters on which action is called for and the lines on which such action is necessary are indicated below:

other

(i) The activities of the Controller of Emigrant Labour should be co-ordinated with the proposed organisation to be set up for the supervision of the administration of the Plantation Labour Act.

(ii) To avoid duplication of recruiting staff for plantations, the possibilities of effecting co-ordination in the agencies of recruitment (i.e. Employers' Tea District Labour Association and the State Agencies of Employment Exchanges) should be investigated.

(iii) In pursuance of decisions taken by the Industrial Committee on Plantations and in consultation with the State Governments concerned, the Ministry of Labour has recommended certain steps for checking the evils of the Kangani System of Labour recruitment in South India. This system should be abolished as soon as possible.

(iv) To supplement the earnings of plantation workers, cottage industries for the manufacture of implements required for plantations should be established. A portion of the grant given by the Central Tea Board can be utilized for the purpose. If necessary the Tea Board should be

persuaded to increase this grant. Care should however be taken to see that the cottage industries do not interfere with the normal working of the plantations.

(v) The application of the Provident Fund Act to plantations should be examined in the light of the experience gained by the working of that Act in other fields.

(vi) There is considerable leeway to be made up in the provision of housing to workers. Employers should be persuaded to provide houses as agreed to in the tripartite conference and the Government should extend to them the necessary help in procuring building materials etc.

(vii) Minimum qualifications for doctors serving on tea estates of a certain size should be prescribed under the Central Rules to the Plantation Act.

(viii) The experimental Research Station at Toklai should be strengthened for undertaking studies in the human relations aspect of the industry.

(ix) The priorities as to welfare work on plantations expected of the employers should be decided on a regional basis. For example, assuming that education, health and housing of workers are the main items of welfare, in cases where plantation housing comes up to the standard of housing in adjoining areas, the planters should be asked to provide education and health facilities. In cases where adequate health provisions are there, the emphasis should be on the other two.

(x) In the case of small plantations welfare facilities should be the responsibility of a group of such plantations.

IV. Employment And Training

59. Effective utilization of man-power, having regard to the requirements of both industry and workers, is a question of national importance. Production depends upon a steady flow of labour of requisite skill in required quantities. This entails the collection and dissemination of information regarding man-power resources, organization of an efficient employment service, correct appraisal of the different types of skill required and the provision of facilities for training

of workers both to increase their efficiency and to make up deficiency in particular branches of technical personnel. Progress has been made in recent years in some of these directions. The main steps which should be taken to bring about an improvement in the present methods of recruitment, employment and training of personnel are:

(a) More attention should be given to the improvement of the internal recruiting arrangements made by individual concerns so as to eliminate completely exploitation of workers. In this regard, the possibility of extending the schemes of decasualization of dock workers and of textile workers in some of the States to other industries and centres should be investigated.

(b) The employment exchange organisation set up by the Government has been rendering useful but very limited service. An enquiry should urgently be made to examine what changes in character, methods and organisation of the service would help to put the system on a sound footing.*

(c) Although the correct assessment of long-term and short-term requirements of different types of skilled man-power both in its technical quantity and quality is important from the point of view of the expanding industries and of several development projects included in the Plan, very little work has been done by way of conducting man-power surveys in the country. A beginning should be made by undertaking a pilot study where major schemes are likely to be undertaken. The Director-General of Resettlement and Employment should select suitable regions for such study and conduct an informative and statistical survey assessing the labour requirements and employment opportunities.

(d) The value of provision of technical and vocational training has been gaining recognition only recently. Facilities provided through the technical and industrial schools, the training centres of the Ministry of Labour and the apprenticeship and training arrangements in industrial undertakings have remained by and large un-co-ordinated. The All-India Survey which is being conducted by the Director-General, Resettlement and Employment, should help to bring about the necessary co-ordination. Proper tests and standards should also be laid down. In any such training scheme the problem of the unemployed worker should receive special consideration. This

* Since the making of this recommendation, an Enquiry Committee has been set up to examine all aspects of the Resettlement and Employment Organisation and offer recommendation regarding its future.

will chiefly be in the form of adequate provision of retraining facilities with due regard to the prospects of future employment and the establishment of vocational guidance and employment-counsel services.

60. Another difficulty in the way of increase in production and reduction in costs is that several industries are faced with labour surplus to their requirements. The problem of rationalisation has so far proved difficult of solution. Notwithstanding the imperative need to reduce costs by rationalising industrial processes, the working class has strongly resisted it because of the consequent displacement of labour. It is now possible to reconcile the conflict and facilitate the progress of rationalisation on the strength of the following safeguards:-

- (i) ~~Loads fixed on the basis of technical~~ Musters should be standardised, and work-loads fixed on the basis of technical investigations carried out by experts selected by the management and labour. Side by side working conditions should also be standardised. In the case of new machinery, a period of trial may be necessary before standardisation is effected;
- (ii) Wherever rationalisation is contemplated, fresh recruitment should be stopped and vacancies due to death and retirement should not be refilled;
- (iii) Surplus workers should be offered work in other departments wherever possible without causing a break in service and without bringing down their emoluments as far as possible;
- (iv) Having regard to the position regarding raw materials, the state of the capital market, the availability of capital goods and the demand for the products of an industry, wherever the conditions of the industry permit, new machinery should be installed;
- (v) Gratuities should be offered as inducements to workers to retire voluntarily;
- (vi) Retrenchment should be effected from amongst persons who have been freshly employed;

- (vii) Where management and labour agree, the possibility of working for seven days in a week may be explored as a temporary measure;
- (viii) Workers thrown out of employment as a result of rationalisation should be offered facilities for retraining for alternative occupations. The period of such training may extend upto nine months. A training Scheme should be jointly worked out by Government, employers and workers;
- (ix) The maintenance of workers during the training period should be the responsibility of the management, whereas the cost of training should be borne by the Government;
- (x) Full use should be made of the possibilities of utilizing surplus labour in various projects undertaken by Government;
- (xi) Incentives for sharing the gains of rationalisation through higher wages and a better standard of living should be provided. Where such gains are made through the additional efforts of workers, they should receive a share in the resulting benefit, most of which should pass to workers where wages are below the living wage. Where there has been some capital investment by the management, this should be taken into account in distributing the workers' share. The object is to facilitate the workers attaining a living wage standard through acceptance of rationalisation.

V. Productivity

61. Considerable attention has been focussed on the productivity of labour in recent years both in this country and abroad. Employers in India have complained that productivity per worker has been going down. Workers contest this allegation with equal vehemence. It is, therefore, necessary that scientific investigations regarding these claims should be undertaken. Such investigations presuppose the existence of trained personnel,

reliable industrial and labour statistics and a scientific attitude on the part of organisations of employers and workers. None of these conditions exists in the country today and much preparatory work is needed. The first step is to evolve methods for carrying out productivity studies under Indian conditions before the share of the different factors in the causation of high or low levels of productivity can be allocated on the basis of such studies. It is therefore suggested that a team of productivity experts should be invited under the Technical Assistance Programme and that this team should be charged with the responsibility of training a sufficient number of officers from Government, industry and trade unions in developing methods of productivity. As a result of discussions between the Labour Ministry and the Planning Commission, and on a request made by the Labour Ministry, the I.L.O. has formulated proposals for technical assistance in the field of systems of payment by results and productivity. The experts to be sent out by the I.L.O. would undertake studies in the textile and engineering industries. After making a preliminary selection of the undertakings in which the studies are to be carried out, the experts would undertake a thorough analysis of the existing organisation and methods of work, job classification and wage scale with a view to suggesting improvements designed to increase efficiency and productivity and to improve working conditions. Indian experts from Government, employers and trade unions would be associated in this work. A limited number of persons from establishments would also be trained by the experts.

62. Closely allied with this subject is the training-within-industry programme. These T.W.I. methods enable supervisors to play a vital part in the operation of the industry. The scheme is intended to improve supervisory skill by three separate programmes; Job instruction, to develop skill in instructing workers in their particular operations; Job Relations, to develop skill in the management of personnel; and Job Methods, to develop skill in improving working technique. The Ahmedabad Textile Industry's Research Association with the assistance of the I.L.O.'s Asian Field office on Technical Training, has carried out some valuable experiments in one of the textile mills of Ahmedabad. The supervisors and the heads of the departments were trained in the technique of "Job Instruction" by the I.L.O. experts on Training-within-Industry. The results of the experiments have shown an increase in production from 7% to 18% in different sections of the Spinning Department and 11% to 30% in different sections of the Weaving Department.

63. Much of this valuable work will be lost after the departure of the experts unless permanent arrangements are made to carry it on afterwards. This should be part of the function of the Labour Ministry. Future action should be on the following lines:

(a) Experts on training-within-Industry should be invited under the Technical Assistance Programme to impart training in these methods.

(b) A sufficient number of officers from the Labour Ministry, employers' organizations and trade unions should be trained in the methods of productivity, payment by results, and training-within-industry. They will be mainly responsible for imparting training to a sufficient number of persons in different industries. Productivity and training-within-industry schools should be organized.

(c) An Advisory Committee consisting of representatives of employers' organisations and trade unions should be set up to advise the Ministry on all matters pertaining to these subjects.

(d) The work should be carried out in close co-operation and with the help of institutes and firms of industrial consultants engaged in similar studies.

(e) Regular conferences of managers, technicians and trade unions officers for discussion of all the aspects of these methods should be organised.

(f) Side by side with the studies in the textile and engineering industries, in consultation with experts such information as may be necessary should be collected concerning further industries to which the studies should be extended. On the basis of such information a regular programme of extension of productivity and training-within-industry methods for the next few years should be drawn up.

CHAPTER XXXV

H O U S I N G

Introductory:

1. The housing problem has become acute in most industrial regions of the world since the last War. There is increasing recognition everywhere of the close relation between housing and the health and well-being of the people. Actually, over a number of years, shortages on a large-scale have developed and conditions worsened a great deal. Efforts made to solve the problem were handicapped by the difficult economic situation prevailing during these years. Private enterprise has proved incapable of meeting the needs and the State has had to assume direct initiative and responsibility in this field to an increasing extent. In some highly industrialised countries, housing accommodation has been provided to a large extent by heavy subsidies from the State in respect of houses of standard design for low-income groups which are not an economic proposition anywhere at present on account of the high cost of construction and the building materials.

Conditions in India:

2. In India the situation has become particularly serious on account of the large increase of population since 1921. The percentage increase of population in the last three censuses has been 11%, 14.3% and 13.4% respectively. During the same period the growth of population in urban areas is estimated at 21%, 32% and 54% respectively. The heavy shifts of population from the rural areas reflected in these figures have occurred on account of the lack of adequate opportunities for employment in the villages and the growth of industry and business in towns with the attraction of relatively high wages and various kinds of amenities. The second world war helped the growth of urban population by setting up a number of war production plants.

The labour population engaged in them did not, as a rule, go back to the villages when these plants ceased to operate at the end of the war. The increasing unemployment and underemployment in agriculture have helped this tendency. Since 1947 when the country was partitioned there has been a very heavy influx of refugees, who have, on the whole, tried to settle in the urban areas. The supply of houses on the other hand did not keep pace with the increasing demand. Private enterprise, which has been the primary source of building activity so far, tended to shrink on account of scarcity and high price of building materials during and immediately after the war. The enactment of legislations controlling rents and requisitioning premises had also a deterrent effect on private enterprise in building. Pressure on the existing accommodation, therefore, progressively increased leading to evils of over-crowding, deterioration of housing estates and a variety of mal-practices in relations between landlords and tenants.

3. Most of the towns in India have grown up haphazardly. They have a large proportion of sub-standard houses and slums containing insanitary mudhuts of flimsy construction, poorly ventilated, over congested and often lacking in essential amenities such as water and light. This is specially so in the large industrial cities. The disgraceful sights presented by the ahatas of Kanpur and the bustees of Calcutta are conspicuous examples of this state of affairs. These conditions have developed because of insufficient control over building activity by the State or municipal authorities. Local authorities have been generally indifferent to enforcing such bye-laws regarding building and sanitation as have existed. Their own resources have been too meagre to permit any development work worth the name.

4. Rents have been generally high, but in pre-war years sharing of tenements by several people or even families in conditions of extreme over-crowding reduced the burden on the individual to some extent. But during and after the war, landlords, fully conscious of the scarcity value of accommodation, began to realise rents at much higher rates, sometimes wholly out of proportion to the capital outlay. Very often consideration money or premium, known as pugree or salami, was charged for letting out house property. The State Governments attempted to control rents and to prevent eviction of tenants by means of special legislations. While the tenants could be given some protection against eviction, the attempt to control rent, specially in the case of new comers, did not prove very successful, generally for the same reasons which led to the failure of price control of essential

commodities. Requisitioning of house properties by Governments, both Central and State, during and after the war to accommodate their offices as well as officers and in some cases for allotment to private citizens led to a further contraction of building activity of private landlords and thus aggravated the shortage.

Housing by Governments and public bodies

5. In India, the necessity of providing accommodation for their own employees specially in smaller towns or out of the way places has been long recognised by Governments, both Central and Provincial, and some housing activity of this description has been a regular feature throughout. Of late, it has also been realised that housing for low-income groups, who are not necessarily Government servants, will have to be undertaken, at least in the bigger cities, to cope with the acute shortage of accommodation. Among the State Governments, Bombay took a lead in 1921 by establishing a Development Department to reclaim land, to construct 50,000 one-roomed tenements and to organise the supply and distribution of building materials to cope with the growing shortage of houses in Bombay city. This Department had to be closed down soon after it had built only 15000 tenements. The cost of construction proved very high and workers could not afford to pay the rent which was fixed by the Department to cover the interest and maintenance charges of these buildings. The Bombay Government resumed their activity in this field in 1949 by setting up a special Housing Board with the object of building houses for industrial workers and other low-income groups, developing land, and assisting in the production and distribution of building materials. The Board, which was set up by legislation, was given a loan of Rs.4.37 crores upto March 1952 to provide its initial capital. It has constructed 7000 tenements for industrial workers and low-income groups and over 9000 tenements for displaced persons at a cost of Rs.2 crores. At present it is engaged in developing an area of about 4,000 acres of khazan land for cooperative housing societies at a cost of about rupees one crore. Of late, the activities of the Board have been considerably curtailed because loans and subsidies expected from the Central Government have not materialised.

Other State Governments have not so far taken very active steps in the sphere of housing. Some of them such as Uttar Pradesh, Madhya Pradesh and Hyderabad have set up Housing Boards quite recently. Others such as Bihar and Mysore are considering similar measures. None of these Boards appears to have started functioning yet except in Uttar Pradesh where construction of houses for workers of sugar factories has been taken up out of a special cess levied by the State Government.

6. Improvement trusts in Bombay, Calcutta, Madras and Kanpur have undertaken housing schemes to some extent. Very often these are rehousing schemes for persons displaced by the activities of these trusts in opening up and clearing residential localities. Municipalities have also constructed a certain number of houses, generally for their own essential staff but occasionally for other low-income groups as well. The total number of houses constructed by local authorities is reported to be 18,01. The main difficulty in the way of a more ambitious programme of construction has been the lack of funds. Most of the improvement trusts have no independent sources of revenue and have to depend on grants from State Governments or subventions from municipalities. As for municipal finance, it is generally in such a deplorable condition that few municipalities can provide even the minimum service to which the rate-payers are entitled, and can scarcely venture into such costly projects as housing schemes for low-income groups.

7. The activities of the Central Government till quite lately were confined to providing houses for their employees, particularly in essential services connected with communications and transport. The Indian railways have done pioneering work in this line and the total number of houses constructed by them up to the end of March, 1951, was 2,75,917 of which as many as 1,97,535 were meant for low-paid railway employees. The Railway Board have a further programme of construction of accommodation for their staff at a cost of about Rs.3.7 crores in 1952-53 and about Rs.4 crores a year for the rest of the period of the Five Year Plan. The Ministry of Defence also provide accommodation for their employees in various parts of the country. Upto 1949 the number of houses constructed for ordnance workers, for instance, was 22,340, the total labour employed in ordnance factories being only 52,864. The Posts and Telegraphs Department have also undertaken construction of houses for their staff. State industrial undertakings, such as the fertilizer factory at Sindri, the locomotive works at Chittaranjan and the aircraft factory at Bangalore have also constructed houses to accommodate their staff.

8. It is in connection with the construction of houses for refugees from Pakistan that the Central Government first undertook a large-scale housing programme for persons other than their employees. A major situation was created when as a result of the partition of the country about 75 lakhs of displaced persons came to India from Pakistan and had to be provided with accommodation of some sort. The problem has been tackled to a great extent and well-planned colonies and townships in various parts of the country have been developed where not only reasonably comfortable accommodation but also local employment in industry and trades has been provided. The total number of houses completed upto September, 1951, was 83,000 for displaced persons from Western Pakistan. Another 40,000 houses were under construction. In addition, 28,000 plots of land were developed to enable individual displaced persons to construct their own houses with financial assistance from Government. Among major colonies which have been set up are Ulhas Nagar near Bombay and Sardar Nagar near Ahmedabad; Gobindpur and Hastnapur in Uttar Pradesh; Chandigarh, Faridabad and Nilokeri in the Punjab. For the displaced persons from Eastern Pakistan, townships are under construction at Fulia and Habra in West Bengal and others in Assam and Bihar. Upto the end of 1951, 7667 houses had been constructed by Government for the displaced persons from Eastern Pakistan and about 2000 were under construction. An additional construction programme of 10,000 houses in West Bengal, Assam, Bihar and Orissa is also being taken up. In addition, 3397 plots have been developed and allotted to displaced persons for constructing their own houses. Another 9000 plots are expected to be made available in 1952. The efforts of Government to rehabilitate displaced persons are not yet over and additional funds are being allocated for the purpose. One outcome of this activity is the impetus for bold experiments in new materials and modes of construction with a view to effect utmost economy. Thus, the Punjab Government built nearly 4000 houses in stabilised soil with cement plaster on both inner and outer wall. The Ministry of Rehabilitation experimented with the construction of traditional types of houses at Nilokheri, Faridabad and a number of other towns in the Punjab and West Bengal, by organizing the production of all building materials and components and

labour under Government auspices, thereby eliminating the services of contractors. The cost of construction was considerably reduced as a result; at Nilokheri it came to Rs. 4/8/- to 4/12/- per sq.ft. with standard materials and Rs. 6/- per sq.ft. with inferior specifications by the Central Public Works Department. In West Bengal also housing at Fulia showed the cost to be Rs. 4/13/- per sq.ft. of the plinth area.

of the
plinth area
as against
Rs. 7 per
sq.ft.

Private enterprise

9. In respect of provision of houses for their workers, the employers have not a uniform record. A number of them have appreciated the necessity of providing accommodation for their workers in and around the work-site in the interest of efficiency as well as for securing a steady supply of labour. During and immediately after the war, several large concerns which had made considerable profits during the period invested part of their earnings in providing better living conditions for their workers. Some of them were prevented from doing so because they could not obtain land at reasonable cost and municipal services could not be assured. On the whole, construction of houses by employers in post-war years has fallen short of expectation. Where accommodation has been provided it has not always been of sufficient size or of satisfactory quality. The employers have generally taken the stand that not they but the State has the responsibility for providing houses for the working class and that apart from their other handicaps, they have not sufficient means for investing in houses. A few instances of the efforts made by the employers to solve the housing problem of labour may be referred to here. In November, 1950, the Industrial Committee on Plantations decided to adopt two-roomed standard for all housing in plantations in Northern India and called upon planters to put up houses for 8% of their labour every year. About 25,000 houses were built in 1950-51 in accordance with this scheme which is still in progress. The Coal Mines Welfare Board also undertook construction of standard types of houses for miners in a big colony at Bhuli near Dhanbad. In 1948-49 the Board constructed 1566 two-roomed tenements at a cost of about Rs. 54 lakhs out of the proceeds of a cess on coal, especially levied for miners' welfare. These tenements were let out at a concessional rate of Rs. 8/- per month, of which the worker paid only Rs. 2/-, the balance being

met by the mine-owners. The jute industry appears to have put up the largest number of houses for its workers. Statistics of houses constructed by different industries are not available but, some time ago, a total of 4,28,970 workers were reported to have been provided with accommodation by employers.

10. Co-operative housing societies have attempted, to a limited extent, to provide accommodation for middle and low-income groups. The Madras and Bombay States have been the centres of co-operative activity in this direction. In Madras about 4000 houses were constructed upto August 1950, by 273 co-operative building societies. About 12,000 houses were also under construction. In Bombay 3,500 houses were constructed in 1948 and 229 houses were under construction by 315 societies. In Uttar Pradesh 136 societies were registered by 1949 and were provided with facilities by way of sites and loans at low rates. The Textile Labour Association at Ahmedabad constructed 200 tenements and organised workers into co-operative housing societies for providing suitable accommodation for them on hire-purchase system. Originally such societies were formed to which 8 more were added after the last war. The major difficulty which faced the Association was paucity of funds and the inability of the Bombay Government to provide substantial assistance. Similar difficulty about obtaining loans at low rates has been experienced by co-operative building societies in other States as well.

11. The bulk of the building activity throughout has been in the hands of private enterprise. But for a long time it has not been able to keep up with demand.

During the war years and immediately thereafter both manpower and materials became scarce and the situation was further aggravated by a phenomenal growth of the urban population. A great defect in private construction, particularly for the low-income groups, is that too often only the barest amenities are altogether absent. The lack of vigorous enforcement of building regulations by municipal authorities has been a potent source of evil and private builders have generally put up houses with little regard for sanitation and comforts of tenants.

in services are provided and some times, as in the slum areas, even such minimum amenities

Estimate of housing shortage

12. Reliable statistics of the number of houses in urban areas are not available. While construction of houses remained at a standstill for several years on account of the war and post-war difficulties, urban population grew steadily. The advance census figures of 1951 show that in the decade 1941-51, while the rural population increased by 7.4%, the urban population increased by 53.77%. The corresponding figures of the previous decade were 12% and 32.1% respectively. The Planning Commission made an attempt to obtain a rough estimate of housing shortage in the principal industrial towns. Information received in respect of 37 such towns with a total population of 17,14,560 engaged in large-scale industries shows that the approximate number of industrial workers, who are in immediate need of accommodation, is 4,54,900. The Environmental Hygiene Committee estimated the shortage as 18.4 lakh houses in urban areas in addition to 10 lakh houses for displaced persons from Pakistan. According to the advance census figures of 1951, the population of 74 towns with one lakh or more inhabitants increased in the decade ending in 1950 by about 74 lakhs. Population of towns with 5000 to one lakh inhabitants increased by 140 lakhs. To house this increased population alone at least 43 lakhs of houses will be needed at the rate of 5 persons per house.

Housing policy

13. The subject of housing is not specifically mentioned in the seventh schedule of the Constitution of India, which deals with matters coming within the purview of the Union and State Legislatures. If so far as housing for industrial labour is concerned, item 24 of list III may be said to cover it because it deals comprehensively with welfare of labour. That would bring the matter in the Concurrent List with which both the Union and the State Governments are concerned. The residuary power in relation to subjects not mentioned in the Concurrent list or the State List, however, vests in the Union Legislature. As such the Centre may be said to be directly concerned with the subject of housing in general. In these times, the State cannot afford to confine its role in this field to planning and regulation. Private enterprise is not in a position to do the job so far as low-income groups are concerned. They cannot afford to pay

the economic rent for housing accommodation of even the minimum standards. The State has, therefore, to fill the gap and take up the supply of houses as a part of its own functions. This would involve a large measure of assistance which may take the form of subsidies on a generous scale and the supply of loans on a somewhat low rate of interest. In view of the gravity and vastness of the problem and the financial condition of the States, the Central Government have to accept a large measure of responsibility for financing housing programmes in the industrial centres where congestion and shortage have become very acute in recent years. Provision is also being made to find funds for middle-class housing schemes, preferably through cooperative building societies. We would, however, suggest that the State Governments, who are being relieved to a large extent of the responsibility for industrial housing, should concentrate on ameliorating conditions of housing in rural areas. Although a great deal cannot be expected in view of the financial limitations, a good beginning can be made in taking up pilot schemes of model housing and better living conditions in selected rural areas.

14. The principle of interest-free loan and subsidy for housing schemes are not novel ideas as far as the Central Government are concerned. The Industrial Housing Scheme, which was formulated in 1946, envisaged the issue of interest-free loans by the Central Government to the State Governments or private employers sponsored by the latter to the extent of two-thirds of the cost of an approved housing scheme, on condition that the rent charged would not exceed $2\frac{1}{2}\%$ of the capital cost subject to a maximum of 10% of the workers' wages, the employer contributing 3% of the cost of the houses. Early in 1952 a new policy was announced whereby the Central Government were prepared to pay a subsidy upto 20% of the cost of construction, including the cost of land, provided the balance was met by employers who would also let out the houses to genuine workers at rates suggested under the earlier scheme. The houses thus constructed would remain the property of the employers.

15. That these concessions have not produced the desired effect seems to indicate that the policy of paying subsidies, which has already been accepted, will have to be further liberalized as well as supplemented by loans. We recommend that subsidy should be paid to the State Governments upto 50% of the total cost of construction including the cost of land. The State Governments in their turn will allocate the grant to the statutory housing boards and cooperative societies of industrial workers. The subsidy admissible to private employers of labour under this scheme should be limited to 25% of the total cost of construction. In addition to the subsidies, loans should be made available to the State Governments for the balance of the cost of construction at a rate of interest which should only take into account the cost of servicing the loans above the current rate of the Central Government borrowing. Such loans should be repayable in 25 years. The State Governments in their turn are expected to make funds available to statutory housing boards out of the Central loan. Loans will also be admissible to the cooperative housing societies of industrial workers and to private employers up to 37½% of the actual cost of construction including the cost of land i.e. the total cost less the subsidy of 25%. Interest will be charged at a reasonable rate having regard to the rate at which similar loans are advanced to the State Governments. The period of repayment in these cases will, however, be 15 years. In regard to the cooperative societies, however, we would suggest that as far as possible, the subsidy should take the form of grant of developed lands of equivalent value. It will also be necessary in these cases to provide sufficient safeguards in regard to transfer of shares of the members so that by a change in the composition of the society the houses do not come into the possession of a class for whom they are not intended. We further suggest that where cooperative building societies of industrial workers are not in existence, developed building sites may be made available to individual workers who are willing to construct houses of their own under this scheme on the same terms as are admissible to industrial cooperatives.

16. At the same time we think that provision should be made for loans to cooperative building societies of middle class and other low-income groups who are also in need of financial accommodation no less than industrial workers, though they may not be considered eligible for the payment of subsidy. In their case we think it would be sufficient if loans

are made available at reasonable rates of interest. For this purpose we recommend that the Central Government should provide funds for issue of loans to cooperative building societies through the State Governments, who will make the money available to such societies through the State cooperative organisations. The important point is that the difference between the rate of interest at which such loans are made available by the Central Government and the rate at which the cooperative societies are asked to pay should not be more than half per cent in order that the scheme is of substantial assistance to such societies. We lay special emphasis on cooperative housing societies not only because they can mobilise private capital, which otherwise would remain dormant, but because they open the way for aided self-help in the construction of houses which should be encouraged for reducing the cost as much as possible.

17. We recognise, however, that for years to come the bulk of the building activity will still have to be undertaken by private enterprise. Often the private builder can construct at a rate considerably cheaper than public bodies on account of economy in supervision and personal attention to details. We think that the encouragement to private builders should take the following forms:-

- (a) provision of suitable building sites, where possible, at reasonable cost;
- (b) empowering the statutory housing boards to guarantee loans which a private builder may obtain from a bank or an insurance company to finance construction of buildings, - the buildings in such cases being hypothecated to the housing boards;
- (c) reorganising the present system of distribution of essential building materials; such as steel, cement, coal, etc., and taking steps to reduce the high prices of these materials which are all subject to price control and for this purpose conducting necessary investigation; and
- (d) provision on the lines of section 39 of the Delhi and Ajmer Rent Control Act XXVIII of 1952, which exempts premises constructed

between certain periods from the operation of the rent fixation law.

At the same time we would suggest that while private builders should be encouraged to the maximum, steps should be taken to eliminate the speculative element in land and to discourage land hoarding in urban areas, for which purpose the taxation structure on vacant lands should be redesigned as to make all land hoarding unprofitable. We understand that steps in this direction have been taken in certain States.

18. Building cost can be substantially reduced by adopting improved techniques which have already been tried in other countries. For instance, production of bricks can be mechanised, at least in the bigger cities, by use of power and improved types of continuous process kilns. Similarly building components such as door and window frames and other building equipment can be standardised, thus making mass production possible. Use of modern implements and machinery in building construction has not been introduced in India to any appreciable extent. The attention of the building trade is drawn to the possibility of using various types of machinery and tools which are at present employed in advanced countries abroad for construction purposes.

Housing standards and estimates of cost:

19. The immediate need is the construction of a maximum number of houses for removing congestion and providing reasonably decent accommodation in the urban areas within the limited funds available for the purpose. The standards and specifications proposed by various commissions and committees in the past will, therefore, have to be re-examined. The situation being what it is, it seems to us impracticable to insist on standards which it is difficult, if not impossible, to achieve in the present conditions of building cost. All that we can aim at is that the minimum, from the point of view of health and privacy, is provided, at least for the next few years. On this basis our suggestions are that houses should be built of the two following types:-

(a) in smaller towns, where land value is low and permits a less intensive development: a single-storeyed tenement with a carpet area of 220 sq.ft. and an enclosed space of about 250 sq.ft. The tenement will comprise a living-room, a kitchen, a verandah and a water-flushed latrine;

The tenement will comprise a living-room, a kitchen, a verandah and a water-flushed latrine;

(b) in larger cities where land value is relatively high: multi-storeyed buildings in which each tenement should have a carpet area of about 240 sq.ft. comprising a living-room and a kitchen. The bath-rooms and latrines will have to be shared by a group of flats. In these constructions density of development should not exceed 20 tenements or 100 persons per acre. As far as possible ramps should replace staircases. It is not desirable to build more than 3 storeys unless lifts can be provided.

20. The minimum standards of services should be as follows:-

(i) every unit should have at least one water-tap for drinking-water;

(ii) the latrine should be preferably of the water-borne sanitary type which in a single-storeyed unit may have to be shared between two tenements;

(iii) effective provision should be made for disposal of kitchen and bath-water through the water-borne system; and

(iv) electricity should be provided for lighting, wherever possible.

21. We do not favour temporary constructions for relieving housing shortage, because in the long run the recurring liability proves heavier. It is not necessary that construction should aim at long life of houses but that it should provide adequate safeguard against instability and risk of fire.

22. Careful calculations have been made of the cost of construction of tenements of the types proposed. According to an estimate prepared by the Central Public Works Department, the cost of construction of a single-storeyed tenement in the smaller towns would be about Rs.2200. The cost of land would vary according to locality, but it may be expected that for a plot of about 55 sq.yds., which is the size contemplated the cost would not

the case of the multi-storeyed building in land exceed Rs.500. In cities, the calculations made in chapter III, paragraph 17, of the Report of the Environmental Hygiene-Committee have been followed with an additional provision of 20% as the cost of staircase, balcony, etc, necessary in vertical development. In general the construction of a multi-storeyed unit would cost about 11% more than a single-storeyed tenement. The cost of land may be assumed as Rs.700 to Rs.1000 per unit. The total cost of a tenement in a multi-storeyed building in the larger cities should, therefore, be about Rs.4500.

and 25% of rent in the case of multi-storeyed tenements.

* It may be pointed out that even now the worker pays as rent Rs.7 to 10 per mensem for such inferior accommodation than is envisaged under the scheme.

23. In calculating rent, the subsidy is not taken into account. On the balance a return of 6½% is considered adequate to meet the interest charge on the loans which may be obtained from the Central Government or other sources, cost of maintenance at 1½% of the cost of construction and municipal rates and taxes at 12½% of rent in the case of single-storeyed tenements. The calculation takes into account the sinking fund charge on the net cost calculated on 40 years basis. From the point of view of the workers care has been taken to see that, in general rent does not exceed 10% of the average family earnings. On the basis proposed, the rent of a single storeyed tenement would amount to Rs.10 per mensem and of a tenement in a multi-storeyed building Rs.17/8/- per mensem.* There should not, therefore, be any reasonable grievance in the matter of fixation of rent.

24. In this connection we would like to refer to the objections raised in certain quarters to the proposal for subsidising constructions by employers for housing their workers. It has been urged that as the houses will belong to private employers there can be no justification for subsidising them from public revenues. A closer examination will show that the subsidy, in fact, does not amount to any substantial concession. We do not propose that the employers should have absolute right of ownership in these houses. On the contrary, we suggest that the management of these houses should vest in a committee consisting of the representatives of the employer and employees together with a chairman nominated by the State Government. This committee will be responsible for allotment of tenements and generally for the management of the housing estate. We also propose that a tenant, who ceases to be in the employment of the employer who owns the property, must be given a reasonable time for vacating the tenement.

The ordinary trade union rights of access to the workers must similarly be guaranteed. These provisions should be laid down in the agreement to be entered into by the employers when obtaining subsidy and loan from the Central Government. Later, it may be desirable to have the provisions incorporated in the proposed legislation on housing or in statutory rules framed thereunder. It will thus be seen that the ownership which we envisage is of a limited, indeed nominal, character. The employer owns the building only in the sense that his own employees, and not others, are housed therein. The employer also should have no objection to these provisions because by obtaining subsidy and loan at a cheap rate, he can provide accommodation for his employees, which is ultimately to the benefit of his concern. Even the fact that about 25% of the total cost will have to be initially borne by him does not mean any loss. The provision whereby the sinking fund charges are spread over 40 years, ensures recovery of the outlay, because the houses of the specifications proposed would last longer than 40 years. From the point of view of the State too, there should not be any objection to what seems, on the face of it, to be an outright grant to private employers because the immediate object is to house as large a number of industrial labour as possible and it can only be done by inducing capital to be invested in such schemes by an offer to meet a part of the initial cost. There is no other way in which large scale house-building can be undertaken for low-income groups in the present situation. It may be pointed out that the argument has no application in the case of the houses constructed by the State Government and the housing boards which will remain public property or the houses constructed by cooperative societies of industrial workers which will be owned by the society on what amounts to a hire-purchase basis.

Housing finance

25. In the Outline of the First Five-Year Plan ^{Originally} the provision of the Central assistance towards industrial housing in the five year period was Rs.13.5 crores and it was expected that a contribution of Rs.15 crores each would be forthcoming from the employers and workers and that the State Governments would provide an amount of Rs. 3.7 crores.

It was, however, suggested that an alternative scheme for raising finance would be to utilize money in the provident fund accounts created under the Employees Provident Fund Act. We have reviewed our recommendation in this regard and we are now of the opinion that advantage should be taken of the alternative scheme which was put forward by us, namely, to utilize the provident fund deposits without imposing any additional burden on the industry. It is expected that contribution of the workers and employers to the provident fund scheme will amount to Rs. 15 or 16 crores annually, out of which, after meeting the cost of administration and withdrawals, a substantial amount can be expected to be available for investment every year. It is also expected that subsidies to the extent of about Rs. 2 crores per annum will be available from the Central revenues. A provision of Rs. 38.5 crores is accordingly suggested in grants and loans by the Central Government for housing schemes during the period of the Plan. Loans will be advanced to private employers and to workers' cooperatives repayable in 15 years and to the State Governments repayable in 25 years but the standard rent for housing estates will be calculated so as to spread over the period of the redemption of loans to 40 years in all cases.

26. Loans at reasonable rates should also be made available (1) to cooperative housing societies of middle and low income groups referred to in paragraph 16, and (b) to local authorities, for clearance of slums, which, as will be explained subsequently, is considered an essential part of the housing policy.

• Town and country planning

27. The solution of the housing problem on a permanent basis has to be linked up with town and country planning. We have already seen how haphazard growth and ribbon development have been caused by inadequate legal powers to control use of land and construction of buildings, though it must be admitted that neither the State Governments nor local authorities

have shown a full appreciation of the situation or utilised such powers as they already have to arrest the unhealthy growth. In some States, legislation on town planning has been enacted or is contemplated. It is, however, desirable that there should be a uniform policy in the matter and we recommend that there should be a National Town and Country Planning Act, which would provide for zoning and use of land, control of ribbon development, location of industries in areas considered suitable, clearance of slums, carrying out of civic and diagnostic surveys and preparation of Master Plans.

28. Regional planning has become even more important in view of the implementation of the several river valley schemes. Such regional planning should take into account the population, agricultural condition, industries, and communications of a region with a view to secure a balance of population in the particular area between villages, market towns and industrial centres. Such plans will aim at integrating agriculture and industry in rural areas, and will provide for dispersal of industries from existing centres, development of cottage and small-scale industries, services like medical aid, education and recreation facilities.

Slum-clearance

29. Slums have grown up in practically all the major industrial cities of India as a result of laxity in enforcing building regulations, the indifferent attitude, till recently, to conditions of living amongst industrial workers and the high land values prevalent in certain cities which led the landlords to exploit their advantage to the fullest. These slums are a disgrace to the country and it is a matter of regret that Governments, both Central and State, have so far paid little attention to this acute problem. No city can be considered healthy which tolerates within itself the existence of a highly congested area with the minimum amenities of life where some of the poorest elements of population are huddled together in almost subhuman conditions. It has been observed that slums are a national problem. A person who becomes a juvenile delinquent or a tuberculosis case because of slum conditions is

only

no less a national than a local liability. From the national point of view it is better to pay for the cost of clearing slums than to continue to pay the mounting cost of slums and suffer their destructive effects upon human lives and property indefinitely.

30. In certain cities, improvement trusts have made some efforts at slum-clearance. These efforts have been rather sporadic in character, mainly because the improvement trusts, to a greater degree than other local authorities, suffer from limitation of funds. Few of them have independent sources of income and have generally to depend on uncertain grants and subventions from the State Governments and local authorities. The initial cost of acquiring slum areas which under the present state of the law have to be compensated not only at their market value but with an additional surcharge in consideration of the compulsory nature of acquisition, is almost prohibitive, in most areas, for improvement trusts to undertake any large scale clearance of slums. We consider the clearance of slums to be an essential part of a housing policy because the housing we propose is meant for the class of people who are now generally dwellers of slums. In our view the schemes of housing should proceed pari passu with the scheme of slum clearance, at least in the major industrial cities, so that when a housing estate is ready, steps should be taken to remove the slum dwellers to the newly built houses and to proceed with the clearance of the slum area in question.

31. The procedure to be adopted in such cases should be simple and of a summary nature. The competent authority should, after proper survey and enquiry, issue a clearance order. Compensation will be assessed on the basis of the use to which the land was put on the date of the issue of the clearance order. We suggest that no additional compensation on account of the compulsory nature of acquisition should be allowed in case of acquisition of slum areas, because we believe that such compensation ought not to be admissible to properties which are not put to social use. We do not think that the owners of slum areas perform any social service by accommodating large number of the poorest sections of the community in conditions of squalor and filth and we do not see why such social abuse of property should be compensated for over and above the

actual value. We agree, however, with the suggestion that where the owners of slum areas themselves come forward to rebuild and develop their properties within a specified period, on standard plans to be approved by the competent authority, there may be no need for acquiring such lands for the purpose of clearance of slums. We understand that in certain Municipal Acts provisions to this effect already exist.

32. We have already pointed out that the main difficulty which hampers a large-scale clearance of slums is insufficient financial resources of improvement trusts and local authorities. We, therefore, suggest that out of the provision of Rs. 38.5 crores for housing schemes in the period of the Plan a certain amount should be set apart every year for issue as loans by the Central Government to improvement trust and other local authorities through the State Government concerned for providing the initial capital for acquisition and demolition of slums. We recommend that this loan should bear a low rate of interest not exceeding half per cent of the rate at which the loan is made available to the State by the Central Government.

Rural housing

33. The problem of housing in rural areas is a vast one as even now 83% of the entire population of India live in villages. Having regard to the limitations of financial resources, a satisfactory programme of rural housing during the period of the Plan cannot be envisaged. It should, however, be appreciated that the pressure of population shifts towards cities and the slum problems resulting therefrom cannot be solved without ameliorating rural living conditions. Some opportunities for planning in the villages have arisen of late due to reforms in the land tenure system and establishment of community development projects. The problems which confront the rural areas are, however, somewhat different in character and do not call for expenditure of large sums for individual housing units. Unlike in towns, land value, and consequently congestion, is not a principal factor. The immediate needs of the villagers are primarily adequate water-supply, improved communications and arrangements for disposal of sewage and waste-products. Improvement in standards of rural housing should be aimed at primarily by utilising labour and materials locally available with only a medium of technical assistance. By the use of aided self-help technique, preferably

promoted through the Community Projects Administration wherever possible, a significant increase in the standard of living in the villages may be accomplished and the pressure on the cities relieved to a large extent. It seems to us that there are two principal ways in which Government can attempt to improve the standards of housing in the villages viz. by demonstrating improved standards through model houses built in selected areas and by assisting the villager to build better types of houses within his means and with the resources readily available to him through methods of aided self-help. Aided self-help housing should, however be planned in such a way that improvement over existing conditions is achieved without prematurely advancing beyond the living habits and means of the villagers.

34. With regard to model houses in selected villages, the fifty-five community development projects taken up under the Indo-American Technical Aid Programme offer the most suitable venue for demonstration of improved techniques and designs for rural housing. Emphasis should be laid on the use of local materials with the object of teaching the villagers how cheap houses can be built which would provide adequate ventilation, remove the proximity of cattle and other animals and provide manure-pits, sanitary latrines and such other simple and essential amenities of decent living. The other method which we advocate is, in many respects, a corollary of the first; that is to say, when the villager has learnt the technique of constructing a cheap and decent house within his means, there should simultaneously be a scheme to give practical effect to his desire to build along the lines he has been shown. Self-help in putting up houses has been a feature in Indian villages for generations. It is only necessary to encourage and foster the habit of the villager to build his own house by utilizing local building materials but providing greater amenities than are now available to him. Certain improvements can be readily effected without much additional cost, such as, improved floors by stabilization, simple devices for ventilation, provision of chimneys in the kitchen to draw away smoke, use of erosion-resistant mud plaster for walls and roofs of improved materials and designs. Aided self-help in housing aims at helping people to build their shelters out of materials available in their community. Generations of trials and error have produced very practical ways of using many kinds of local resources including timber, bamboo, lime, clay, stone, gypsum, sand, kaolin, murrum, junglewood, grass and waste products of various types. It is, however, necessary to see that

use of local materials does not degenerate into use of unsuitable materials like galvanized iron sheets, packing boxes, salvaged lumber etc. A practical approach, in our opinion, would be for Government to provide technical assistance in the form of skilled supervision and equipment. Pilot projects in selected villages can be taken up to teach the use of local materials. Since our proposals on urban housing practically relieve the State Governments from their share of the expenditure, we think they may be expected usefully to concentrate on improving standard of housing and living conditions in the rural areas. The provision for housing in the State Plans is of the order of Rs. 10.19 crores. The State Governments may, therefore, provide funds for house-building in rural areas by issuing interest-free loans or long term loans. The cost of a house built with the villager's own labour is not likely to exceed Rs. 200/- to 300/- per unit. The State Governments may also perform a useful function by disseminating information regarding experiments in cheap housing which are taking place in other parts of India, such as, the pot-tiled vaulted roofing in Hyderabad State and the stabilized soil construction in the Punjab.

35. In this connection we should like to cite the example of aided self-help in Puerto Rico as being worthy of emulation in India. Conditions in Puerto Rico are similar in many ways to those obtaining in this country. There, a rural development programme included secure tenure of building-cum-garden plots with aided self-help in house construction, in gardening, in water-supply and sanitation development and in multi-purpose cooperative activities. The aid given by the State consisted of equipment, materials and skilled assistance costing \$ 300 per housing unit. The equipment consisted of a truck for hauling gravel and sand from nearby sources, concrete mixers, hand-operated cement block machines and wheel barrows. Building materials in the form of lumber, Portland cement and reinforcing steel were also supplied. The estimated cost of each housing unit, viz., \$ 300 was advanced to the villager as a loan with provision of repayment in easy instalments of about \$ 2.50 a month. The only subsidy involved in the housing aspect of the scheme was the absence of interest on the loan. The cost of the house, if purchased, would have been \$1500. Thus by investing his own labour and with a certain amount of help from the State, the villager in Puerto Rico saved \$ 1200 or 80% of the cost of a house of much better quality than he could otherwise afford. Owing to the shortage of cement and steel in India, we shall have to emphasize the need for using

local materials. But the principle of aided self-help, as practised in Puerto Rico can, if adopted, result in great improvement in quality at a very low cost.

Research.

36. Research in the building techniques and materials is necessary for achieving reduction in cost and improving the quality of work. It is also necessary to standardize building components and invent new materials or synthetic substitutes. In the West building research has made considerable progress and has resulted in the discovery of new building techniques and finish without any substantial increase in cost. Problem of design, functional requirements of buildings, basic studies of structure nature and properties of clay, minerals and soil are matters of very great importance which require research and further study.

37. In India, facilities for such research are provided in universities, such specialized institutions as the Central Building Research Institute at Roorkee, the Forest Research Institute and colleges at Dehra Dun, the Indian Standards Institution in Delhi, the Government Test House at Alipore, the Engineering Laboratory at Hyderabad, the Soil Mechanics Laboratory at Karnal in the Punjab, and the Road Research Institutes in Delhi and Bangalore. There are also the recognized institutes of engineers, architects and town-planners and the association of builders. Industrial undertakings which manufacture building materials such as the Associated-Cement Company, the Tata Iron and Steel Company and the Indian Steel and Wire-Products also provide facilities for research. There is, however, considerable scope for expansion and consolidation of the work which is being done by these institutions. In particular, stress should be laid on research in the following subjects:

- (a) basic building materials such as bricks, tiles, high-tension steel, laminated timber, calcination of ordinary soil for use as bricks and the possibility of utilizing indigenous materials as building components;
- (b) possibility of use of substitutes such as timber, bamboo etc. for steel and other traditional building materials;
- (c) revision of building codes, specifications and factors of safety; and
- (d) standardization and mass-production methods of building components and materials.

at Chittaranjan, Bangalore and Ahmedabad, pot-tiled vaulted roof construction in the Hyderabad State and cement cemented wall construction by the former B.B.&C.I Railways in Bombay. The Government Housing Factory in Delhi has produced prefabricated panels. These experiments offer scope for further research. Constructions in stabilised soil and sand-cement blocks for walls and pot-tiled roofs are specially suited for aided self-help housing. In India, although prefabricated housing has made very little progress so far, there is little doubt that manufacture of prefabricated building components offers considerable scope.

39. It is also desirable to organise the building trade in all its aspects including training of labour and technical personnel of all grades. It is unfortunate that importance of technical training in house-building labour is not sufficiently realised. In Europe and America, it has been found that training of personnel not only improves the quality of work but expedites the process of building. In India, the building activity in the public sector as a whole is estimated to involve an annual expenditure of Rs. 150 crores. The need of a requisite organisation for training facilities both to economise cost and to intensify the building programme can, therefore, easily be appreciated.

National Building Organisation.

40. Though research is being carried on in different institutions for cheapening cost and improving building techniques, there is no authority to coordinate the results of such research and to make it available in a form which would have ready acceptance with Governments as well as private firms and individuals engaged in building activity. It is for this reason that the setting up of a National Building Organisation as an important activity connected with housing has become necessary. We suggest that such a body should be set up with the following principal objectives :-

- (a) to coordinate and evaluate results of research on building materials and technical development now being carried on in different institutions;
- (b) to suggest from time to time subject of further research and development with due regard to their relative importance and urgency.
- (c) to incorporate the results of such research in actual building practice;

- (d) to ensure effective utilisation of all available building materials including non-traditional materials;
- (e) to guide industry and public in general on the use of new materials and techniques in building construction;
- (f) to initiate proposals for increased production of building materials and their proper distribution;
- (g) to examine building costs with a view to reduction in overheads and other expenses particularly in the public sector;
- (h) to provide museums or standing exhibitions where methods of cheap houses and techniques for economic building can be displayed, explained and demonstrated;
- (i) to take necessary steps for the standardisation of building components and to organise production and distribution of such standardised components on a large scale;
- (j) to advise Government on technical matters including experiments, research, building education and new techniques; and
- (k) to provide for training in building work and improved techniques and to organise refresher courses for engineers and architects.

41. Such a body should consist of persons who are eminent in their professions and whose decisions would carry weight. It must also have facilities for experiments in various types of building materials and it must be associated with a Ministry of the Central Government which should act as its executive wing to translate its recommendations into actual practice. We are, therefore, of the opinion that the Council of the Organisation should consist of such persons as the Chief Engineer, Central Public Works Department, the Director in charge of Civil Engineering in the Railway Board, the Road Development Adviser to the Central Government, the Engineer-in-Chief at the Army Headquarters, the Director of the Forest Research Institute, Dehra Dun, and the Director of the Central Building Research Institute, Roorkee. The Council should be assisted by an advisory body consisting of three experts, respectively on steel and concrete, clay products, and timber and forest

XXXV

products. There should be a whole-time Chairman who will coordinate the work of the Council and the advisory body. The National Building Organisation should hold annual conferences on building techniques and designs to which may be invited not only all those who are interested in the subject but, in particular, the Chief Engineers of Roads and Buildings of the State Governments. We consider that dissemination of new ideas through such conferences is of considerable value specially when persons in charge of large constructions are themselves convinced of the suitability of the new techniques and processes.

42. We also recommend the establishment of a permanent museum, or preferably several regional permanent museums, where exhibits of cheap housing can be displayed and the comparative costs, building techniques and methods, use of substitutes for traditional building materials can be studied with profit by engineers, industry and the general public.

Housing boards

43. We recommend the setting up of Housing Boards which would be statutory autonomous bodies appointed by Government and responsible for implementing the housing programme. Such Boards should be both Central and Regional and should have an executive body with a president, a whole-time secretary and not more than five other members, some of whom at least should be specialists in town-planning, architecture, and ~~social~~, economic and financial aspects of housing problems. The Boards may have associated with them advisory bodies consisting of representatives of employers, tenants, building trade and the general public.

44. The principal functions of the Central Housing Board may be as follows :-

- (a) to administer the Central Housing Fund;
- (b) to activate housing programmes;
- (c) to administer such housing projects as are directly entrusted to it by the Central Government;
- (d) to lay down principles for the guidance of the Regional Boards, regarding selection and development of sites for housing schemes and fixation of priorities in the allotment of tenements;

- (e) to advise on rationalisation in building legislation and to prepare model building bye-laws for adoption by regional and local authorities;
- (f) to suggest action in regard to slum clearance and improvement in environmental conditions of housing; and
- (g) to recommend from time to time any legislation or amendment of existing legislations which have a bearing on the problems of housing, town and village planning, fixation of rents and such allied subjects;

45. There should be a Regional Housing Board for each State where there is an active housing programme; but in suitable cases, there may be more than one Board in a State. The principal functions of these Boards may be as follows :-

- (a) to administer the Regional Housing Fund;
- (b) to activate the State building programme;
- (c) to collect information regarding housing needs of different classes of people and to undertake surveys for the purpose;
- (d) to undertake the construction of houses in selected areas according to approved plans;
- (e) to allot tenements to workers and other low-income groups in accordance with the policy laid down by Central Housing Board;
- (f) to establish new townships and industrial suburbs and to prepare Master Plans for the same;
- (g) to undertake and encourage slum clearance and improvement of existing conditions of housing within their jurisdiction;
- (h) to undertake maintenance of houses and other properties belonging to the Board and to realise rents for the same;
- (i) to encourage self-builders both in the shape of co-operatives and individuals;

generally and

- (K) to guarantee loans taken by private builders for housebuilding, provided adequate securities are furnished and
- (L) to organise training for building-labour in specialised types of work, such as laying patent-stone floors, reinforced cement concrete roofs and beams, etc.

46. The Housing Boards which we envisage should be statutory autonomous bodies. It will, therefore, be necessary to provide them with independent sources of income in addition to grants and subsidies which may be made available from the Central or the State Exchequer. While it is true that for many years, the Central Government will have to subsidise the construction of houses for the lowest-income groups and also to provide funds in the shape of loans, it is our intention that the Housing Boards should be financially self-supporting to a large extent so as to undertake housing programmes on their own, if not for the lowest-income groups, at least for the middle classes. In States where improvement trusts have been set up, it may be considered whether their functions cannot conveniently be amalgamated with those of Housing Boards, the aims and objectives of both the organisations being more or less similar.

47. The principal sources of income of Housing Boards may, therefore, be stated as follows :-

- (a) grants from the Central or State Governments and municipal authorities;
- (b) rents and recoveries from housing estates constructed by the Boards;
- (c) sale proceeds of lands acquired for development by the Boards;
- (d) betterment levies which the Boards may be authorised to charge from persons benefitting from an improvement scheme;
- (e) terminal tax on passengers and goods, arriving by road or rail, in cities where housing programmes have been undertaken within the jurisdiction of the Boards;

- (f) issue of housing bonds with the consent of the Central or the State Government, as the case may be, at rates half per cent above the current rate of Government borrowing; and
- (g) loans from banks, insurance companies and such financing institutions on terms to be approved by Central or State Governments;

An additional surcharge on stamp duty on the value of immovable property transferred or mortgaged within the State is also recommended for those States where there is still scope for an increase in the rate of stamp duty.

Legislation.

Legislation

48. We have already indicated the lines on which the proposed Housing Act and the Town and Country Planning Act should proceed. Here we shall confine our remarks to certain amendments in the existing legislation, which are considered desirable. We are of the opinion that the basis of assessment of compensation in the Land Acquisition Act of 1894 requires modification in respect of acquisition of slum areas as well as of lands which will be needed for the housing schemes. At present the cost of acquiring slum areas is prohibitive because not only their market value but an additional compensation at 15% has to be paid in consideration of the compulsory nature of acquisition. It may be that when a slum has been demolished and the area cleared and developed, the land can sometimes be disposed of at a reasonable price, especially if it is situated in the heart of a city. It is not, however, possible for housing boards and improvement trusts with their meagre resources, to undertake a take a considerable outlay for the purpose of acquiring slum areas and demolishing slums in the expectation of a reasonable return at a distant date. We, therefore, suggest that the Act should be modified in respect of payment of compensation which should be on the basis of the issue of the preliminary notification. We do not think that any additional compensation should be admissible for acquiring either slum areas or lands required for housing scheme for the industrial workers and low-income groups. The Act should also be amended so as to provide for landspeedienipohedara; for taking possession of lands on which housing projects are contemplated or where slum areas are to be cleared. Without such a provision neither the housing schemes nor schemes for clearance of slums will be expedited as the normal procedure of land acquisition is often very protracted.

49. We would also suggest that the various State legislations on the control of rent should be made uniform. In order to encourage private construction, without which the problem of housing cannot possibly be solved in the near future, provision may be made to exempt newly-constructed houses from the operation of the rent control legislation for an initial period of, say, 4 years. The civil courts, however, should have jurisdiction, on the application of parties, to fix fair rents (excluding municipal rates) even in such cases on the basis of a return not exceeding $6\frac{1}{2}\%$ of the cost of construction, including services. With regard to the acquisition of premises for public purposes, we would recommend that the practice should be resorted to only exceptionally. It cannot be denied that requisitioning of premises on an extensive scale in recent years has had a deterrent effect on the building activity in the private sector. We would, therefore, urge upon Governments, both Central and State, to be cautious in having recourse to requisitioning house properties in times of peace.

CHAPTER XXXVI

SOCIAL WELFARE

The social structure in India has shown strength in endurance, and a unity of basic outlook in the midst of change and vicissitude. This strength has now to be demonstrated in productive and creative endeavour; and the unity of the people has to be deepened and harnessed for economic development and cultural achievement.

2. The objects of social welfare are the attainment of social health which implies the realisation of such objectives as adequate living standards, the assurance of social justice, opportunities for cultural development through individual and group self-expressions, and re-adjustment of human relations leading to social harmony. A comprehensive concept of living standards will include the satisfaction of basic needs like food, clothing and shelter as well as normal satisfactions of family life, enjoyment of physical and mental health; opportunities for the expression of skills and recreational abilities, and active and pleasurable social participation. The achievement of social justice demands cooperative and concerted efforts on the part of the State and the people. These objectives are to be achieved mainly by revitalising the nation's life by creating well-organised and active regional communities in rural and urban areas to work cooperatively for national development. Such decentralised community groups will release national energy, extend the scope for leadership, and help to create initiative and organisation extensively in the remotest parts of the country.

3. The aim of social service in the past was essentially curative, and efforts were directed to give more relief to the handicapped and uplift the under-privileged sections of society. It is now essential to maintain vigilance over weaknesses and the strains in the social structure and to provide against them by organising social services. The aim of all social work now should be the gradual rehabilitation of all weak, handicapped and anti-social elements in society.

4. Some of the important social problems like poverty, ignorance, over-population and rural backwardness are of a general nature and in varying degree, they are influenced by factors like squalor and bad housing, mal-nutrition and physical and mental ill-health, neglected childhood, family disorganisation and a low standard of living. For a long time, society has remained apathetic to these conditions; but with the awakening of political consciousness and the enthusiasm of organisations and workers to improve social conditions, there is a possibility of developing programmes which

could gradually remedy the present situation. The economic programmes of the Five Year Plan will mitigate these problems to some extent, but the gains of economic development have to be maintained and consolidated by well-conceived and organised social welfare programmes spread over the entire country. In this chapter it is proposed to consider some of the more important problems of social welfare which need the special attention of both state and private welfare agencies.

5. The principal social welfare problems relate to the women, children, youth, the family, under-privileged groups and social vice. The social health of any community will depend a great deal upon the status, functions and responsibilities of the woman in the family and in the community. Social conditions should give to the woman opportunities for creative self expression, so that she can make her full contribution towards the economic and social life of the community. Problems relating to health, maternity and child welfare, education, employment, and conditions of work are dealt with elsewhere in this report. Some problems of women have to be dealt through social legislation but other problems pertaining to health social education vocational training, increased participation in social and cultural life, provision of shelter, and assistance to the handicapped or maladjusted call for programmes at the community level. As women have to carry heavy domestic and economic responsibilities, adequate attention has to be paid to the need for relaxation and recreation both in the home as well as in the community. The welfare agencies have catered to some extent to the needs of the widow and the destitute woman but the quality of the service rendered by them and the nature of their work needs to be surveyed.

6. Considering the numbers involved, the needs of children should receive much greater consideration than is commonly given to them. There is a growing demand for child health services and educational facilities. The standard of child welfare services in the country can be improved if the rate of increase in population is reduced. Problems relating to family planning, children's health, infant mortality, education, training and development have been discussed elsewhere in this report. Malnutrition is perhaps the major cause of ill-health and lack of proper growth of the child. The feeding of the child in the early years is the responsibility of the family, and is dependent

upon economic conditions and traditional food habits. The nature and extent of malnutrition has to be determined, and resources have to be found to supplement and improve the diet of children through schools and community and child welfare agencies. The problem of children's recreation and development outside educational institutions has received some attention during recent years; but play activities of children are considerably restricted in urban areas on account of the environmental conditions, lack of adequate space, and to some extent neglect of this vital need of the child by the family and the community. Not enough is known about the work of private agencies for the welfare of destitute and homeless children.

7. The Juvenile courts and the children's aid societies have so / touched a fringe of the problem / far of children's welfare. Certain special aspects may be briefly mentioned. The existing facilities for the children and defective children are far from adequate and suitable agencies have to be created. Hospitals provide treatment for polio, congenital deformities, fractures, bone disorders and other diseases, but there is a need to extend existing services and provide special institutions and care for disabled and crippled children. At present deficient children attend educational institutions together with normal children and seldom receive treatment and special training to enable them to overcome their handicaps. The subject needs to be studied carefully. The problem of juvenile delinquency has already received considerable attention and many of the States have special Children's Act. Juvenile delinquency may often be the result of poverty, and many offences may be traced to the connivance or support of adults.

8. The youth constitute the most vital section of the community. In recent years, young people have had to face and have been increasingly conscious of problems such as inadequate educational facilities, un-employment, and lack of opportunity for social development, national service and leadership. The problems of health, education and employment of youth have been considered as aspects of national problems in these fields. Social welfare is primarily concerned with the improvement of services provided for the benefit of youth by welfare agencies with the object of promoting development of character, and training for citizenship and physical, intellectual, moral fitness. It is necessary to encourage initiative among youth so that through their own organisations, they can develop programmes of youth welfare and national service. Ways must also be found to give opportunities to youth for active participation in constructive

activity. Such training and experience will equip them for shouldering the responsibilities of leadership in different spheres of national life.

9. Traditionally, the family has been left largely to its own resources to deal with most of its problems, although in some cases it may be assisted by the larger community groups (such as caste) to which a family may belong. General problems relating to health, education and employment have been considered in the relevant sections of this report. Questions relating to status and rights, property, inheritance, etc., are the subject of social legislation. The gradual break-up of the joint family and the emergence of the small family has increased its economic problems and burdens. Family responsibilities have now to be borne at a comparatively younger age by the head of the small family than happened in the joint family. This creates the need for greater guidance and assistance to deal with family problems. The increasing complexity of the social situation and handicaps arising from physical disability, ailment by unemployment render it more difficult for the family to provide a sense of security to its members. This fact suggests a number of problems which, along with other problems such as divorce, desertion, and treatment of mal-adjusted members of the family need to be studied carefully if welfare agencies are to develop suitable methods of treatment for guiding and assisting those in need.

10. There are a number of under-privileged communities such as the scheduled tribes, scheduled castes and other backward classes including criminal tribes. The problems of poverty, ill-health, and lack of opportunities for development affect them to a larger extent than many other sections of the society. The subject is considered in a separate Chapter.

11. Every community has its share of those who are physically handicapped such as the blind, the deaf and dumb, and those who are crippled and infirm. Reliable statistics are not available about the extent of the population which suffers from such handicaps. A certain number of welfare agencies are already working in this field, but little information about their resources and their ability to deal with the problem is at present available.

12. The main problems to be considered under the description of social vices are prostitution, crime and delinquency, alcoholism, gambling and beggary. These problems have existed for a long period, although necessarily their nature and extent vary according to the prevailing social and economic conditions. Some of them have to be dealt with largely by local communities, and

the approach and treatment have to be varied from place to place. The character and magnitude of these problems of social defence have to be determined carefully before the value and efficacy of the existing agencies and programmes could be assessed. Social legislation deals with many of the social evils with a view to control and, if possible, to eradicate them, but its practical working needs to be reviewed. Among the practical problems to be resolved are the demarcation of the relative roles of State and private agencies, determination of the machinery of enforcement, estimation of the resources required, examination of methods, development of correct programmes, and creation of public opinion in favour of the need for dealing objectively with social vices.

Agencies

13. As the social structure becomes more complex, the State is called upon to play an increasing role to provide social services for the welfare of the people. The Central Government, the various State Governments and local self-governing bodies, each in its own sphere, have to ensure that they have at least the minimum administrative machinery for dealing with social problems. What form this machinery takes will depend on their particular circumstances and requirements, but it is certain that without the necessary machinery they will not be able to pursue their programmes.

14. The functions of the social welfare machinery of the Central and State Governments may include, for instance, the following functions:-

- (1) to study the need for, and efficacy of social legislation,
- (2) to execute programmes of social welfare,
- (3) to promote, both directly and through other agencies, the development of social services, the study of social problems, and the creation of trained personnel for social administration,
- (4) to assist specialised and private agencies through guidance, and financially, and to protect the interest of society by a measure of regulation and control,
- (5) to initiate pilot projects, or help field organisations to develop such projects in order to demonstrate the efficacy of programmes, methods, leadership and organisation,

- (6) to promote initiative in and improvement of social services by supplying information materials, publications, audio-visual aids, etc., and
- (7) to take over social services of vital importance initiated and organised by private agencies when these develop beyond their ability to manage.

15. Local self-governing bodies can do much to co-ordinate welfare activities in their areas and promote cooperation between their departments and the work of private agencies. Local committees or councils of social service agencies could undertake activities such as the following to the extent to which resources are available or can be raised:-

- (a) taking effective measures to alleviate sufferings, especially by providing emergency relief;
- (b) organising and assisting community centres;
- (c) improving housing conditions, clearing slum and providing welfare services and special amenities for communities residing in slum areas;
- (d) promoting child welfare activities;
- (e) providing parks, playgrounds and other amenities for physical recreation and welfare;
- (f) supporting private social service agencies and institutions for social education, women's welfare, youth welfare, and welfare of handicapped persons and under-privileged communities, and
- (g) creating public opinion and assisting the vigilance authorities for the control of social vice and beggary.

16. The inter-relationship between the various activities has to be emphasised and the necessary coordination assured both in the Central Government and in the States. One aspect of this coordination would be to secure that legislation relating to social problems follows broadly similar principles. In cases where grants-in-aid are given by a State authority to a private agency, it is desirable to lay down general directions for improving the content of the programmes and their administration. A measure of supervision and inspection should also be provided in order to maintain standards of efficacy.

17. A great responsibility for organising activities in different fields of social welfare, like the welfare of women and children, social education, community organisation, etc., falls naturally on private voluntary agencies. These private agencies have for long been working in their own humble way and without adequate State aid for the achievement of their objectives with their own leadership, organisation and resources. Any plan for the social and economic regeneration of the country should take into account the service rendered by these private agencies and the State should give them maximum co-operation in strengthening their efforts. Public co-operation, through these voluntary social service organisations, is capable of yielding best results in canalising private effort for the promotion of social welfare. One of the most important tasks of the State is to conduct a survey of the nature, quality and extent of service rendered by voluntary agencies in different parts of the country and to assess the extent of financial and other aid that they are in need of in order to enlarge their scope of work and to coordinate their activities. A sum of Rs. 4 crores has been provided as grants-in-aid to voluntary social service organisations for strengthening, improving and extending the existing activities in the field of social welfare and for developing new programmes and carrying out pilot projects. It is envisaged that this fund of Rs. 4 crores should be administered by a Board set up by the Central Government to which a great deal of administrative authority will be developed. The Board should be predominantly composed of non-officials who have actual experience of field work in promoting welfare activities on voluntary level.

18. It is necessary to co-ordinate the programmes of various agencies so as to channelise them into broad streams and bring added strength and intensity of purpose to welfare activities. Such co-ordination calls for a common approach and a co-operative outlook on the part of the organisers of voluntary social work. Further, efforts will have to be made to induce agencies to willingly subordinate their individual interests and thus make collective efforts possible not merely to execute programmes, but also for the economic and rational use of personnel. Such co-operation could also lead to joint efforts for the collection of resources. Co-ordination need not involve on the part of the co-operating organisations loss of individuality or of freedom to organise and to carry out programmes. Co-ordination will have to be of two types. In the first place, there may be functional co-ordination on the part of national organisations striving to achieve specific objectives like physical fitness, child welfare, youth welfare, there may be effective co-ordination of effort on the part of agencies functioning in the same regional

7 /social education, community organisation etc.
Secondly,

area or community, so that each area may serve the various agencies through a common pool of activities.

19. Training for social work: The contribution which social services make will depend to a considerable extent upon personnel and leadership. Social workers possessing a general knowledge of the philosophy and history of social work, the structure and functions of society, the nature and extent of social problems, the methods and techniques of social work and especially of programmes and the evaluation of their results, will help improve the quality and efficacy of all services organised by State and private agencies. The training of social workers should of course include knowledge of conditions prevailing in fields in which they are to work, and social workers must possess the spirit of service and the character and energy to execute programmes despite handicaps and limitations and with such resources as may be readily available.

20. There are several schools of social work in India and the setting up of some other institutions on similar lines is being contemplated in some of the States. There are important problems involved in these institutions which require specially qualified and experienced personnel, careful selection of candidates for training, special training for fields in which there is scope for employment, and adequate opportunities for field-work experience. Trained social workers are needed in large numbers for rural areas. It should be possible for the existing schools of social work to enrol students from rural areas and arrange for their training in the field in selected centres organised by rural welfare agencies. Universities and colleges in or near rural areas could also develop training programmes for rural welfare. Agricultural colleges could introduce intensive social welfare courses and field work programmes as part of their curricula. Similar institutions with greater emphasis on social anthropology could be created in tribal areas.

21. It is not possible for many voluntary organisations in the country to employ highly trained personnel for their ordinary programmes and activities. It is, therefore, necessary to arrange for training at the community level for field workers, instructors and supervisors. The existing schools of social work, specialised social service agencies, social welfare agencies functioning at the national and State level should provide opportunities for such training. Arrangements for 'in-service' training should also be made by the larger voluntary organisations which have worked in the field of social welfare for many years. Further, arrangements have to be made for the training of voluntary workers who will be needed in large numbers during the coming years. It is especially desirable that voluntary administrative and field personnel should be given some elementary training in social work.

22. The emergence of State social services and of large central organisations to deal with important social problems and the lack of opportunities for higher training in the social sciences within the country indicate the need in selected cases for training and study abroad in specialised fields. It is necessary that persons who go abroad for training should first have sufficient knowledge and experience of Indian conditions and problems.

. Social research.

23. Scientific research into social problems and fields of social work is at present limited to a few universities and the schools of social work. A provision of Rs. 50 lakhs has been made in the Plan for research and investigations relating to social, economic and administrative problems of national development. Research studies now undertaken are not adequate or extensive enough for the purpose of getting a comprehensive knowledge of basic social problems. It is necessary to stress the need for ensuring that research personnel receive adequate training in methods and techniques. Secondly, it is important that the results of any research that is carried out should be made available to the public. The appropriate machinery for guiding research in the fields mentioned above is at present under consideration. In the field of social research, it will be necessary to give a broad direction/ subjects on which research should be undertaken, carry out concerning the some important research projects directly co-ordinate the work of research agencies in so far as this may be necessary, and assist these agencies in improving the quality of their work and bringing the results of research to the attention of the public. Universities, schools of social work, social welfare agencies and special research organisations can cooperate in research projects, and field investigations which could be of practical value in dealing with social problems. Assistance could also be given by way of literature and equipment needed for field research.

Resources

24. The total resources of the country being limited, it is essential to ensure that funds available for social welfare programmes on the part of State agencies as well as voluntary organisations are put

the best possible use. This is a problem to which the proposed social welfare board could give detailed attention. While the State may assist suitable voluntary agencies, the principle of self-help should be applied to social welfare, and the required resources needed should, as far as possible, be obtained from the local communities. Social services are organised to carry out specific welfare activities. The total resources required by social service agencies in the country are obtained from State grants, income from endowments, public collections and income from special activities and from membership fees. Due to the prevailing economic conditions in the country, it is sometimes true that the public response is not as effective as it should be if the various organisations are to carry out their programmes efficiently. The appeal to the public is likely to yield greater results if care is taken to observe some elementary conditions such as the following:-

- (1) the right methods for collection of funds are adopted;
- (2) definite programmes of activities stating the manner in which funds are to be utilised by an agency are placed before the public, together with a psychological appeal;
- (3) the effort of collection should be well-organised;
- (4) the appeal should be addressed to as wide a section of the community as possible. Full use should be made of various modes of publicity and the public should feel that the cause is one worth supporting; and
- (5) correct reports and accounts are provided and the public convinced of the integrity and the bona-fides of the organisations and the organisers concerned.

25. Funds available with endowments and trusts may be an important method of supplementing resources which the State and private agencies can provide. We, therefore, consider necessary an enquiry into this subject which may offer a basis for legislation concerning the use of funds in endowments and trusts for approved purposes.

Social legislation

26. One of the important methods of bringing about progressive social change is social legislation. A good deal of legislation of basic importance has been enacted in the post-independence period, though its nature and scope differ from State to State. The existing legislation needs to be scrutinised more intensively, especially to find out to what extent it serves the new social and economic objectives of the nation, and whether it is adequate to meet the current needs to deal with some of the important social problems. Some machinery is needed to review existing legislation and suggest possible modifications, amendments, and if necessary, repeal of obsolete law in order that all existing legislation may be brought into conformity with the requirements of the Constitution. Social legislation has at times to be punitive in order to protect society from anti-social elements; but wherever possible, the legislation should be preventive and protective, and where it deals with the offender its approach must be to completely rehabilitate the person after eradicating the contributory factors to anti-social conduct.

27. Social legislation by itself is inadequately effective for dealing with social problems in a comprehensive manner unless it is backed by powerful public opinion. Social legislation has also suffered owing to incomplete enforcement. This is especially due to lack of adequate, or the right type of machinery for enforcement, and also because of the inadequacy of resources to deal with individuals concerned, organisationally and institutionally. Social legislation can be better enforced by associating social service agencies with the formal State administration. As regional communities become organised for social action, voluntary cooperation of the community based on enlightenment and understanding will go a long way in facilitating adequate enforcement of the law.

28. An analysis and general survey of prevalent legislation may reveal the inadequacies of the text of the present legislation; the inadequacies of its enforcement; and the need of altogether new legislation. The proposed Social Welfare Board, of the Council of Social Research, or any other appropriate agency may take the initiative to organise and execute a comprehensive survey to study the problem of social legislation in all its bearings. Within the first category may fall such legislation as Prevention of Child Marriage Act, Prevention of Immoral Traffic Act, Housing and Public Health Laws and laws affecting tribal areas and communities, as also certain sections of the Indian Penal code, and other civil and criminal laws.

Some of the laws like those dealing with charity and endowments are so obsolete that they need to be completely revised. Under the second category, instances could be given of Children's Acts, the Prevention of Beggary Act, Anti-corruption Laws, laws against prostitution etc. New legislation is required for the effective operation of social services in various fields. The registration of social service agencies with a view to inspection and sanction of grants-in-aid is one of the primary needs.

Women's welfare.

29. In order that the woman may be allowed to fulfil her legitimate role in the family and the community, adequate services need to be promoted for her welfare. The position and functions of the woman differ to a great extent in different communities, and therefore community welfare agencies, will have to organise programmes and activities according to local needs and conditions prevailing in specific areas.

Important problems relating to the status and rights of woman has to be dealt with by legislation. State programmes for the welfare of women have been mainly confined to the Ministries of Health, but Madras and Uttar Pradesh have given a lead by creating special departments to promote the welfare of women. When Departments of Social Services are organised in the various States, it will be possible to carry out more comprehensive programmes of woman and child welfare and achieve better coordination between the efforts of the State and private agencies. The major burden of organising activities for the benefit of the vast female population has to be borne by private agencies which have already done considerable work for the promotion of women's welfare. The All-India Women's Conference has 37 branches and about 300 sub-branches in the country. The National Council of Women in India has 12 major branches, and the Girl Guide Association, the National Y.W.C.A., the Association for Moral and Social Hygiene, and the Trained Nurses Association in India, are affiliated to it. The Kasturba Gandhi National Memorial Trust does extensive work for the welfare of women and children in rural areas and has representatives

to carry out activities in eighteen States. There are innumerable organisations all over the country which have done valuable work for women. These organisations provide dispensaries and maternity centres, homes for destitute children and shelter homes and work houses for women. They also organise programmes for education, recreation and training in handicraft.

30. Organised efforts are needed to stimulate activities at the community level, both in rural and urban areas. This should be done by community centres, social education agencies, and agencies working for the welfare of under-employed groups by organising groups of women who could be gradually habituated to regular participation in group activities promoting programmes of recreation, education, arts and crafts, and cooperative participation in social and economic activities of the whole country. Groups could also be organised as "mothers' clubs or unions" in all anti-natal and post-natal clinics, milk centres, cooperative, and as a part of Trade Union activities. Such groups should especially be organised in slum areas and backward areas and amongst working-women and women of backward classes in general. Such groups may prove useful if they are organised all over the country, and amongst all sections of the people. A large number of voluntary workers will be required for such groups, and these could be recruited by the women's welfare organisations. Girl guides and girl students in high schools and universities could carry out their activities as a part of the national services programme. The existing women's organisations in the country could be strengthened if their membership and activities are extended, and if they organise programmes for creating women's organisations in all localities and villages. Such local organisations need trained workers, guidance and assistance which could be given by leading women's organisations through travelling organisations, training camps, instructional manuals, and other literatures.

31. Due to the lack of a common approach and outlook in the various States, the available statistics on commercial vice are limited and unreliable. India is a signatory to the international agreement for the suppression of the traffic in persons and of the exploitation of the

prostitution of others which was reached in the U.N. in 1950. However, clandestine prostitution, and even brothels continue to exist in the country together with tolerated areas in some of the cities. Clandestine prostitution exists in many forms and the danger of the evil is augmented when the woman is not assured economic security by the family or the community, or when she is psychologically maladjusted in terms of her sexual and material desires, or when her economic activities do not permit a normal family life. This clandestine prostitution is further promoted by activities of persons who organise traffic in women and children. Immoral trafficking is invariably carried out between the backward and the poor rural areas on the one hand, and the more prosperous urban areas. Inter-provincial trafficking is also not unknown.

32. Certain social evils are products of inherent maladjustments in the social order and their complete eradication needs basic social adjustments. It is realised that such adjustments are only possible when social justice is more effective, there are reduced opportunities for concentration of wealth, exploitation is eradicated, economic conditions are improved, and social morality is established by well-adjusted patterns of community behaviour determined at the lowest level. The following measures are suggested for dealing with the problem:

(1) an advisory committee should be set up by the Central Government to make proposals and review progress in respect of law and policy in different States regarding the prevention and treatment of social vice;

(2) enforcement of the law should be more effectively carried out; measures to enforce the law may include, wherever necessary, the creation of a separate vigilance branch within the police force;

(3) whenever it is found difficult to eradicate the tolerated areas, adequate arrangements should be made for medical assistance and facilities for the treatment of venereal diseases;

(4) wherever it is found that clandestine prostitution is in existence, efforts should be made to eradicate soliciting;

(5) institutions for the protection, care, shelter and rehabilitation of fallen women are not adequate in the country, and cases of neglect are frequent. There is a need for more institutions organised by local self-governing bodies and private social service agencies and provision for regulation, inspection and control of homes which should be under the management of trained personnel. Such homes should provide shelter, medical aid and assistance for marriage; and

(6) there is a need to strengthen existing specialised and private agencies like the vigilance associations and societies for the preventions of traffic in women.

. Child Welfare

33. The child, being always dependent, has to be provided for by its parents and the family, the community and the State. Considering the size of the population involved and the nature and complexity of the problem, the total responsibility of welfare has to be borne cumulatively by the family, the regional community, and the State

at three different levels. The problem of survival and the high incidence of infant mortality and birthrate has been dealt with in the chapter on Health. The problem of education is dealt with likewise in another chapter. However, certain aspects of the problem of health, growth and care of the child need to be dealt with by social welfare agencies.

34. In a country where poverty is very extensive, there is need to supplement the diet of children. Effective ways have to be devised by the State and private agencies to see that this imperative nourishment is received at least by under-nourished children in schools and institutions. In the absence of State resources, it is desirable that intense efforts are made by each local community to assist educational institutions and child welfare organisations to supplement the diet of the child in some way. At present, skimmed milk powder, cases of baby foods, semolina, vitamin tablets, pabulum cereals, cod-liver oil, etc., are received as gifts from various sources. Efforts to organise collections in kind at the community level could be supplemented by grants-in-aid from charity trusts and local self-governing bodies. It is desirable that State organisations, the Red Cross, the Indian Council of Child Welfare, and other important national and State organisations for child welfare should co-ordinate their efforts both for the collection and distribution of supplementary foods for children. The five most suitable agencies for the distribution of free foods to children at the community level are (1) milk centres (2) maternity and child welfare centres (3) community centres (4) day nurseries and schools and (5) play centres.

35. Feeble-mindedness: The attention of the educational authorities is naturally concentrated in the early stages on formal education. The problem of feeble-mindedness is gradually beginning to receive attention of psychologists and educationists in the country. Up till now there are no adequate institutions in the country for the care and treatment of feeble-minded children. A beginning has been made to deal with this problem by the Society for the Care, Treatment, and Training of Children in Need of Special Care. A few pilot projects could be developed by specialised agencies for child welfare to deal with such children in selected areas. One of the major handicaps in this respect is the absence of adequate number of trained psychologists and psychiatrists and specially trained teachers to deal with mentally

backward children, and provision may be made for training the above categories of personnel as early as possible.

36. **Child Guidance Clinics:** A child guidance clinic was first organised in the country in 1936. Since then a small number of child guidance clinics have been brought into existence in some of the major cities. It is desirable that at least one child guidance clinic should be brought into existence in every State and wherever possible, such clinics should be organised by municipalities. The organisation of this important service is also likely to be handicapped due to want of psychiatrists and child psychologists. It is desirable to train a number of psychologists to train case workers in the Schools of Social Work in order to provide trained personnel to deal with cases of problem children.

37. **Creches:** An important service which has already made considerable headway in India for the welfare of children is the organisation of creches, day nurseries and other types of pre-schools. In large factories in major cities, already a number of creches are organised with a reasonable standard of efficiency in the \angle for children whose mothers work in the factory. In 1950, Bombay had 177 creches with about 3,000 children, Madras had 93 with about 2,334 children, Bihar had 26 with 796 children, Madhya Pradesh had 16 with 360 children and Uttar Pradesh had 7 with 126 children. These figures reveal that only a very small percentage of children of working mothers take advantage of these creches, specially because it is the tradition in India for children to be looked after by other women members of the family. As it is now compulsory under the Factories Act of 1948 to provide a creche in factories employing 250 or more women special efforts may be made by factory owners to induce mothers to send their children to the creches. /interest

38. **Play activities:** Play is a vital need in the life of the child; and its playlife in the home, school and community environments consists of playthings, companionship, and playground activities. Local self-governing bodies as well as the community should provide play-space for children either as a reserved part of a community playground, or as a separate playground equipped with suitable accessories for play. Only a small number of fairly well-equipped playgrounds are in existence in the country; and their number needs to be very considerably increased in urban as well as rural areas.

Proper maintenance and management of playgrounds are essential in order to provide necessary guidance, supervision, and protection to children during play hours. Such a playground service could be provided by voluntary welfare agencies and youth and students' organisations.

39. **Children's Centres:** In order to extend the scope of children's recreations, the programmes for children's centres are now being ~~started~~ so that they can be equipped with playgrounds, and indoor space for a children's library, a dramatic hall, and facilities for developing child arts and handicrafts. Such centres may also provide a case work service, where it is not possible to organise a child guidance clinic.

40. **Handicapped children:** One of the most difficult problems which deserves urgent consideration is the problem of lone, orphaned, neglected, deserted and destitute children. It is desirable to develop special institutions, children's villages, boys' towns and similar organisations where a large number of children could be given protection, shelter, care, education and training till they are rehabilitated to function as normal citizens. At present such institutions are mainly organised by private agencies, and especially the Children's Aid Societies. Most of these institutions at present deal with a very small number of children, and it is desirable to initiate a number of pilot projects where a larger number of children could be brought together under the care of specialised social welfare agencies in the various States.

41. The practice of adoption has existed in India for centuries. Such religious adoptions are not legally controlled. Besides this benefit is invariably given to the boy. In other cases the orphaned child is institutionalised, or becomes a beggar, and in some cases becomes a victim of illegal trafficking and exploitation. Orphanages exist all over the country, both in urban and rural areas. The need to compel registration, supervision and control of these institutions is now realised, and legislation and machinery of enforcement will have to be devised to protect children in institutions organised by private agencies. Such institutions, with the support of the States, should be able to provide a reasonable opportunity for growth, development and rehabilitation of all the inmates.

42. Juvenile delinquency: The complexities of the problem of delinquency and the inadequacy of resources, institutions and personnel have prevented a study of the true nature and extent of the problem. At present only a small number of delinquent children are dealt with, and the treatment given to them is not completely rehabilitative. The problem of delinquency is extensive because of the prevailing general conditions in which children are brought up. Poverty, neglect, slum life and frustration may lead to acts of delinquency. Case treatment very often reveals the delinquency of parent, experience of cruelty at home, and encouragement of delinquent acts by elders.

43. Legislation dealing with delinquency is progressive in many places, whilst it is not yet in existence in some States. The Ministry of Education has drafted a Model Act for the guidance of States. Most of the Children's Acts deal with neglected, dependent, and destitute children, difficult, uncontrollable and delinquent children and victimised and exploited children. In some cases the provisions of the Act are in conflict with the Wards and Guardians Act. Legislation for child welfare in the States needs to lay down new approaches, and all existing legislation and treatment should be reviewed from the standpoint of comprehensive philosophy for the treatment of the problem.

44. The weakest link in the treatment of the problem is the absence of one suitable agency for enforcement of the Act, the absence of an adequate police force, and inadequacy of court facilities, children's institutions, and probation officers. It is necessary to set up juvenile aid committees in cities, consisting of a small number of selected and specially trained police officials who will examine cases of delinquents, and deal with cases of minor delinquencies without reference to courts. The inadequacy of existing certified schools and fit-persons institutions is well known, and in order to provide the right conditions a beginning has been made in some States to create children's villages, Boys Towns, and large institutions with proper conditions of rehabilitation. Pilot projects for this purpose are contemplated in certain States where the incidence of delinquency is high. Institutions like juvenile reformatories exist in the country, and these need to be adapted and reorganised to suit the new objectives. The practice of providing even temporary habitation and shelter to juveniles in correctional institutions where adult under-trials and prisoners live should be discontinued.

45. The general improvement of child welfare services in India requires greater co-ordination and better leadership for the several hundred child welfare organisations that exist in India. The child welfare movement, under the guidance of the Indian Council for Child Welfare needs to be encouraged and strengthened; and it should be made more representative of the children's organisation in the country. There should be a strong national headquarters to carry out the objectives of the movement, and maintain and improve standards of child welfare. It is proposed to create a national centre of child welfare in a central place, with similar organisations in some of the States. The national centre will become the experimental station, training centre, seat of pilot projects and clearing house for information and material on child welfare.

46. Children's organisations: Though comparatively small in size, organisations for children have come into existence in different parts of India for providing recreation for children. The Balkan-jib Bari is a developing organisation and its main value lies in bringing together children from all over India in camps and national festivals. The Bachon-ki-Biradari and Kishore Dal are similar organisations in the north. Such organisations deserve the support of local self-governing bodies and child welfare agencies. The junior sections of the Boy Scouts and Girl Guides Organisations have been long engaged in giving valuable training to children outside the educational institutions for several decades. These organisations help to develop children for a fitting role in the youth movement.

. Family Welfare

47. There are very few agencies to deal exclusively with the problems of the family in India, and these only cater to local needs. Sectional groups assist their members with small doles and provide help to promote education, and obtain medical assistance and housing accommodation. Recently some family welfare agencies have come into existence in Madras, Bombay and other places. The case work method is being used to assist families in rural as well as urban slum areas. This is a small beginning which shows a new approach to family problems. The organisations of extensive community welfare programmes in urban and rural areas creates the possibility of organising family welfare services on a small scale, especially including a

family counselling service. As more case workers become trained in the various Schools of Social Work, it will be possible to undertake a survey of family mal-adjustments and handicaps in selected community areas, and assist families to deal with their economic and pathological problems.

48. The general programme of social education ought to make a valuable contribution towards the promotion of family welfare. There is need to give general information to adults about subjects like family relationships, family planning, marital hygiene, domestic economy, mothercraft and homecraft. This information could be supplemented by a programme of audio-visual aids dealing with all aspects of family life. Family welfare agencies should be able to publish literature giving specific information about the treatment of family problems.

The Central as well as State Governments may assist private organisations, trusts and funds to create and run institutions or centres for the development of small-scale industries, crafts and handicrafts. Such institutions will provide avenues of employment and training, and could help families to avoid destitution or supplement small family incomes.

. Youth Welfare

49. Youth is the stage in life when through training and development, immaturity approaches maturity for work, marriage, social participation and cultural attainment. The period of youth should stand for growth, development, preparation, action and leadership. Youth matures quickly in an atmosphere in which there is freedom, activity, recognition and opportunity. The life of youth should not be over-occupied with training and education, but there should be opportunity for self-expression, comradeship, community life, and national service.

50. The youth movement includes two kinds of organisations, namely, those which work for the welfare of youth, and those composed of the youth themselves. In varying degrees, youth organisations are interested in or are influenced by political emphasis, in order that youth organisations should grow and make an effective continuing contribution to national life, their endeavour should be to give their main attention to activities which will promote youth welfare.

Besides, the strength of the national youth movement can only be built up as a result of unity in action, and comradeship amongst those who work in any aspect of the life of youth.

51. The objectives of the youth movement may be classified to cover two separate aspects of the movement: (1) those that contribute towards self-preparation, personality development, character formation and citizenship; and (2) those that lead to organised action in the service of the community and the nation. Youth has with courage opposed conventionalism and unhelpful traditions, but the immediate task before youth in India is to organise, and work hard to carry out constructive tasks in the national programme. There is need to coordinate the work of all youth organisations into a single powerful youth movement, functioning through a national council of affiliated youth organisations. Such an organisation, whilst permitting its members to work for their own objectives and carry out their programme independently, will work to build up the individual and collective strength of all youth organisations. The national youth movement has to create a national headquarters with young men and women of vision and ability who should be trained youth organisers, aware of the problems of youth, and trained to develop group work, recreational activities and national service programmes which can be quickly canalised into various fields of service. Assistance may be given by the State to the existing youth and other organisations to create and strengthen the youth movement.

52. Special measures are needed to strengthen the scout movement. The Bharat Scouts and Guides has 1,73,902 cubs, 2,65,296 scouts and about 50,000 bulbuls and guides on its rolls in 1951. The movement has 21,393 trained and warranted scouters and 3997 helpers. The scout movement has to play a vital role to serve the younger generation and organise them for the active service of the country. Not only has the movement to be extended to serve villages, but the quality of its service has to be improved. For this purpose the national as well as State headquarters have to be strengthened and adequately equipped to create and train a larger number of scouters and promote efficient guidance and supervision to its units. The scout movement should receive the support of the State, the local self-governing bodies as well as the community. There should also be coordination of activities between the scout movement and the other youth and children's

organisations. The youth and student organisations should be able to provide an increasing number of ~~scouters who will be required to extend the work of the movement in the near future.~~ The National Cadet Corps is another movement for youth which functions in the universities for the promotion of physical fitness, discipline, character and the general fitness of youth for defence, national service and personal welfare. The membership of the National Cadet Corps is voluntary, but universities and educational authorities should encourage youth to take advantage of this organisation, and membership of the National Cadet Corps should be considered an added qualification for the purpose of employment.

53. Youth is immature and needs guidance, advice and help with regard to personality problems, sex difficulties, and situations in home and community life. The organisation of community centres in urban and rural areas will make "youth counselling" possible, provided there are mature persons who are given a brief training on youth problems, and who are willing to undertake counselling on a voluntary basis. It is possible to introduce "youth counselling" as one of the activities in educational institutions as well as in youth organisations and trade unions, and it could also form part of the labour welfare programme in factories.

54. Opportunity for physical activities, group companionship, arts, hobbies, personal and social problems, and constant contact with nature can be given by organised programmes of local boys' and girls' clubs, inventors' clubs, young farmers clubs, hobby clubs, etc. These do not require large resources, and the youth themselves can contribute and find the necessary funds to run their own organisations as independent programmes or as part of community centres or as extra-curricular activities in educational institutions. An important contribution towards the development of youth is made by youth camping and travelling programmes. A beginning has been made in India with a Youth Hostels Association, which is part of an international organisation. The movement needs organisers, and houses with caretakers, which could be used as hostels. University hostels, Dharmshalas, unused parts of houses of the rich hutments on camp sites, and houses near holiday resorts should be made available to youth travellers with minimum equipment and boarding and lodging facilities at lowest cost. The Government can help the youth movement by allowing special reduced rates on railways, steamships, and State and

municipal motor services to members of approved youth organisations. Whenever merit awards are given to youth in universities, and sports, cultural and other organisations, it should be possible to give travel prizes and journey scholarships.

55. Youth and national service: Youth have given a valuable contribution to the struggle for freedom, and they must be given the opportunity to give their contributions to constructive activities and programmes of economic development and social welfare. Reference has been made in the chapter on 'Education' to the contribution students will be called upon to make towards national service. An amount of Rs. one crore has been provided for assessing a comprehensive programme of youth camps, labour service for students, etc. The programme will have to be worked out in connection with universities and other educational institutions as well as youth and student organisations. Youth participation in constructive activities should be based on personal inclination and interest, and youth should be encouraged to become members of organisations that carry out specific activities amongst the people or to create independent youth groups to carry out specific programmes. It is also possible for educational institutions to organise "Service clubs" as one of the extracurricular activities. The enthusiastic participation of youth is required in programmes and activities for promoting physical fitness and community recreation, social education, child welfare and youth organisation. Youth could also render valuable help to institutes organised to render different types of service to the needy, handicapped and maladjusted members of society.

National Physical Fitness

56. The chapter on Health has covered the problems of ill health and diseases in India. The subject of national fitness deals with the maintenance and improvement of health of every citizen in order to develop efficiency. In the absence of legislation in the form of a National Fitness Act, it is necessary that physical fitness programmes are promoted by the States, as well as by the community.

70. It is possible for a nation to attain by organised effort and education certain physical qualities, abilities, and skills so as to be able to perform the normal functions of life, be prepared for the protection of home and nation in times of external aggression and danger, and contribute towards national efficiency for economic production. A physical fitness standard for the individual should include the three factors of

agility, strength and endurance which are the basis of all physical qualities and skills. In order to achieve the above, a national standard of physical achievement for all adults has to be laid down.

57. In a country like India, with numerous, climatic, regional and racial differences, a universally applicable national standard may be difficult to attain and allowance will have to be made for sex differences, the racial factor, types of physical region, climatic conditions, standard and content of nutrition, and prevailing averages of height and weight for specific racial groups. The standards to be achieved may be laid down by a committee of health and education experts and other social scientists after full consultation in different parts of the country. It is possible for every individual to strive to attain this standard individually; but the State, educational authorities and private social welfare, and especially physical welfare agencies must attempt to provide facilities and opportunities to assist the individual to attain this standard. The community project authorities, the Bharat Sevak Samaj, all sports and play-ground organisations and universities should aim at teaching the proposed national standards. /at

58. The maintenance and promotion of national physical fitness requires the proper management of housing and sanitation, the care of diet, the need for relaxation and rest, the promotion of play-ground, sports, physical culture and camping movements, execution of intensive programmes of child welfare, the protection of the health of working men and women, and the adoption of preventive measures against diseases and psychological disorders like neurosis.

59. The housing problem has been dealt with in another part of this Report, but reference may be made here to the need for certain regional supervision of promoting

national campaign for large scale participation in all kinds of physical welfare activities. Playground programmes are naturally spread over in different areas. Regional co-ordination of all agencies and activities will promote the growth of leadership, the training of personnel, and the development as well as the economic use of resources. The National Association for Physical Education and Recreation should be strengthened; and it should organise branches in all States so as to be able to guide and assist the building up of playground activities, athletics, community recreation, and yogic exercises. As playground activities will be extensively developed in the near future as a result of community programmes, and as youth activities are also to be promoted extensively, there will be an increasing demand for directive, executive and field leadership. It is desirable to convert one of the existing training institutes of physical education into a national institute.

60. As national fitness programmes involve activities for large numbers of persons, the problem of resources becomes the greatest handicap in the promotion of the movement. It is imperative that some kind of playground should be available for the use of every community centre, school and youth organisations. Equipment is also needed for physical fitness programmes. When developing playground programmes, it is necessary to keep in view the four important objectives of recreation, namely education, leadership, training, and social participation. India has yet to make much headway in the field of sports and steady support and encouraging are needed.

61. India has a rich gamelore with a variety of games adopted to age and sex groups and to local physical conditions and cultural patterns. There is need to survey play activities in every district, prepare a manual of instructions for specially selected games, and enrich the gamelore of the whole country by organised publicity through documentary films demonstrating each game. Indian gymnastic programmes have considerable appeal in urban as well as rural areas. Community programmes should help the revival and extension of such activities in every part of the country.

62. Research in the problem of crime in India has not yet made sufficient advance. The immediate task is to change or modify existing policies and programmes in order to adjust them to new objectives which seek to protect the interest of society and achieve a total rehabilitation of the offender. Crime is stimulated by conditions prevailing in society and it is due to personal and psychological factors. Economic conditions have always been a factor contributing to crime. Intensive surveys to study the causes, nature and extent of crime should be undertaken by research organisations, universities and other private agencies. The treatment of the crime problem is intimately related to the nature of legislation, and the approach of the judiciary to crime. So far there has been no basic approach towards the various problems of correctional administration, but a number of useful steps have been recently taken by States and there is growing interest in the reform of penal administration.

63. The problem of correctional administration has to be dealt with in three stages: the pre-committal stage; the administration of correctional institutions; and probation and aftercare. The principle that no person should be considered an offender till he is proved guilty should govern the treatment of accused and under-trial persons. The administration of police lockups and jails needs to be reviewed in the interest of the proper treatment of the inmates of the lock-ups. Special care must be taken when first offenders are committed to jails, so that no serious psychological harm is done to them. The administration of correctional institutions is governed by jail manuals. A recent conference of Inspectors General of Prisons has proposed the appointment of a committee to suggest the basis on which jail manuals may be revised to suit the new objectives, methods and programmes of correctional institutions, remove the inflexibility of rules, and permit greater freedom to the authorities on the spot to interpret sympathetically the rules so as to serve the objects of rehabilitation. Changes in the jail manuals will naturally require a revision of the Prison and Prisoners' Act which would need to be modified to meet changes in correctional administration.

64. The need to utilise prisons as agencies for the rehabilitation of prisoners is generally accepted. Modern principles of penology require

that each prisoner is to be dealt with as an individual, and corrective handling should be so devised as to be in consonance with his abilities, aptitudes, background and also with the paramount importance of enabling/to earn his living honestly as/law-abiding /him member of society. While this must be the ideal and all plans must be directed to this end, the possibility of utilising the manpower resources represented by prisoners on projects of socially constructive character should be fully explored. Central prisons and district jails should receive the assistance of Departments such as those concerned with industries, agriculture and irrigation, so that the maximum advantage can be taken of the labour available in correctional institutions. A probation and aftercare service is likely to minimise the cost of maintenance, as prisoners will not be called upon to serve long sentences during which they will be maintained by State Governments. As life in prison has to be organised so that the inmates live as a community and as the method of case work is to be increasingly used to deal with individual cases in correctional institutions, welfare officers should be progressively employed in central prisons and first grade district jails. Officials of correctional institutions should be given special training both before employment and during service.

65. Prisons and jails may need to be reconditioned so as to provide arrangements to suit different classes of prisoners. Separate correctional institutions may be provided for female-convicts. It should also be possible to develop open and close farm workshop prisons, agricultural colonies, and work camps at important work projects. The provision for Borstals, both open and closed, will also need to be expanded. It will be necessary to bring about greater uniformity in legislation applicable to first offenders and others charged more than once for minor offences. The appointment of probation officers and the release of prisoners on parole should remove a great deal of congestion from correctional institutions, reduce the cost of prison administration, and enable many prisoners to live as normal citizens after they have served their sentences. The work of private agencies like prisoners' aid societies and district probation and after-care associations has suffered on account of limited resources. It is desirable to entrust after-care work to probation officers, and a beginning may be made by organising after-care departments in central prisons and first grade district jails to deal with problems relating to work and employment, housing, health and family relationship.

XXXVI

New developments in the administration and programmes of correctional institutions require the guidance and advice of experienced personnel working together in a central organisation. Such an organisation can assist programmes in the States, undertake experimental work and pilot projects, and function as a centre of information and publicity on all matters relating to correctional administration. Recognising the need for such a central organisation, the recent conference of the Inspectors General of Prisons recommended that a national bureau of correctional institutions may be established in the Ministry of Home Affairs.

Welfare of the physically handicapped

66. The physically handicapped person, if he is not able to receive medical attention, or when such attention is found to be of no avail, has to depend upon his family for maintenance and shelter. Absence of family support leads to beggary, or dependence upon public charity. Inadequate medical treatment, absence of vocational training, and lack of opportunities for social adjustment of the persons to the environment has contributed to the sufferings of a large number of persons who ought to receive the intelligent assistance of the community, and if possible an effective assistance from the State. Physically handicapped persons are classified as (1) those lacking in one or more physical senses, i.e., blindness and deafness, or combinations; (2) those suffering from movement difficulties, i.e., orthopedic, malnutrities and cardiacs; and (3) lepers, epileptics, rachitics, and dumb persons. The total number of afflicted persons in India has hardly ever been correctly estimated. This is due to defective enumeration, lack of definitions, and the desire of persons to avoid publicity to their handicaps. To obtain better estimates of afflicted persons, sample surveys in selected urban and rural areas are needed. Some provision for physically handicapped persons exists in several States. Voluntary associations which are already working the welfare programmes for this class of persons need to be encouraged and assisted.

Community approach in social welfare.

67. The field of social welfare will expand in the measure in which local communities accept responsibility for solving their own problems. The State has undoubtedly a vital role to play and as its functions develop, an increasing field of social work becomes linked in one way or the other with programmes initiated or supported on behalf of the State. Community welfare programmes embody four inter-linked ideas, namely, (1) self-help and mutual service, (2) maximum use and development of local resources through organised community life, (3) economic betterment and cultural development through social participation in co-operative effort, and (4) achievement of community objectives through the minimum amount of assistance from the State.

68. These ideas are applied in different fields of social welfare. According to its circumstances and problems, and its size and resources, each community sets before itself its principal objectives and organises the effort for their achievement. The community approach finds perhaps its most striking sphere of action in the community development programme included in the Five Year Plan. This programme is mainly rural at present but in some States it has a large urban component as well. The rural community development programme has already been described in an earlier chapter. The programme concentrates on certain strategic features of village life, but has within it the element of growth, so that its essential aim is to transform not only the technical environment in the village, but also the social and economic relations and attitudes within the village community. There is no section of the community which stands outside the influence of the programme.

69. Community programmes hold high promise in urban areas as well. Cities and towns have to be divided into manageable units and the more backward areas, in particular, the slum areas, selected for intensive social work. Urban life tends to shift the emphasis from the community to the individual with all the consequences that this implies. There is, therefore, considerable need to establish community centres which will foster a sense of community responsibility, civic pride and a feeling that the interests and welfare of individual members are realised best through community action. Through community centres established in the main through their own effort, local urban groups

XXXVI

can survey their own urgent social and economic needs and seek solutions through cooperative effort. Innumerable problems, touching upon every aspect of the life of the community and more especially affecting its weaker members, at present remain neglected and unattended. Organised community action on the part of local urban groups in the cultural field no less than in solving common problems can make a vital contribution towards raising the level and enriching the content of urban life.

CHAPTER XXXVII

• WELFARE OF BACKWARD CLASSES.

Scheduled castes and other backward classes.

The evolution of the social structure during centuries of feudalism in regions which were not then developed by communications led to the existence of large communities which suffered handicaps and disabilities imposed by other economically and culturally dominant groups. The chief amongst the underprivileged or socially handicapped groups are the backward classes including the tribal population, groups which were so far known as criminal tribes, Harijans i.e. the scheduled castes, and other groups who can be considered to constitute the weaker section of the population and who are socially, economically, and educationally backward.

2. The term 'Backward Class' is difficult to define. Backwardness is expressed in lack of adequate opportunity for group and individual self-development, especially in economic life and in matters of health, housing and education. It is measured in terms of low levels of income, the extent of illiteracy, and the low standard of life demonstrated by living conditions.

3. The present population of the 779 scheduled castes in India is 498.37 lakhs*. This figure does not include backward groups which are not mentioned in the Schedule. Such groups are known as "Other Backward Classes" and their population, according to the Ministry of Education Scholarship Board, was 546 lacs in 1951. Article 340 of the Constitution has empowered the President to appoint a Commission to determine the conditions of backward groups not included in the schedule of castes who could be considered to be socially, economically and educationally backward. This Commission, known as the Backward Class Commission, will shortly be appointed, and one of its functions will be to prepare a Schedule to be known as the "Schedule of Other Backward Classes" for the approval of the President.

4. The country has now passed the stage of discussing the problem of the origin or sanctity of the institution of untouchability. That the Stigma of untouchability should be totally and unreservedly

* The Scholarship Board of the Ministry of Education has shown the population of Scheduled Castes as 517 lacs in 1951.

eradicated has now been accepted by the whole country. According to Article 17 of Part III of the Constitution "Untouchability is abolished and its practice in any form is forbidden". But untouchability, being an age-old institution, has taken roots in the psychology and social structure of certain communities. Its eradication is incomplete so long as it receives a mental recognition and persists indirectly in some form in the social structure.. A fourfold programme is therefore necessary, viz: (1) removal of untouchability by law; (2) removal by persuasive and educative processes through social education; (3) the practice of democratic behaviour in social and recreational life; and (4) opportunities afforded by State and private agencies for self-development and expression for the betterment of health, education, economic life, and living conditions. Improved living conditions, education, and participation in a society with extensive economic interdependence and facilities for communication, movement and contact, will in due course of time lead to a total integration of these groups with the rest of the country.

5. Welfare services for scheduled castes are included in the special programme for the welfare of the backward classes. Education is the most urgent need of these communities, and extensive measures for increasing educational facilities have been taken by the State. In some of the Part A and B States these concessions extend right up to University stage. Emphasis is placed in almost all cases on vocational or technical training. The concessions usually take the form of free tuition, stipends, scholarships, provision of books, stationery and other equipment. In certain cases the aid extends to clothing and mid-day meals. The opening of primary schools in areas where scheduled castes live in large numbers and the running of hostels for their benefit in district towns and educational centres are the other two usual activities. For vocational training there are paripatetic parties of instructors in Bombay and West Bengal and also the established technical and vocational training centres of the Bakshi-ke-Talab in Uttar Pradesh. The trainees, who are almost always stipend holders, also receive loans and subsidies to enable them to settle down in their respective trades. A total amount of about Rs.3 crores has been provided in the Five-Year Plans of the State Governments for the education of the Backward Classes.

6. For those residing in rural areas there is a provision for the allotment of waste land. This is

usually accompanied by the grant of a taccavi loan for the purchase of agricultural implements and bullocks.

7. A certain percentage of Government positions are reserved for all scheduled caste candidates, and in almost all these cases the standards of age, qualifications or experience are also relaxed. A minimum number of vacancies are reserved for them; there is, however, no bar to their recruitment and employment in larger numbers.

8. The State Governments have provided a sum of Rs.10 crores for the benefit of scheduled castes during the period of the Plan. The Central Government have also provided a further sum of Rs.4 crores for expenditure during the remaining period of the Plan. The general aim is to follow intensive programmes rather than to dissipate the limited resources on loosely conducted activities over a wide area. Provision is made for the more liberal disbursement of money under different heads to institutions working in this field, and an effort is being made to improve efficiency by channelling expenditure through effective and well-supervised organisations. Since most of the Harijans live in isolated colonies, they offer good scope for organising community centres. Measures for achieving the welfare of the scheduled castes are circumscribed by the amount of available resources. The pace of improvement is, however, being accelerated, and still more progress is expected as larger resources are devoted to this work.

9. The chief voluntary agency for the welfare of Harijans is the / Harijan Sevak Sangh. It has 35 State branches, and 325 district committees. Its activities are directed towards the all-sided welfare of Harijans communities.

The scheduled tribes.

10. The tribal population in India is accepted to be the oldest population of the land. The communities have lived for centuries in the forest and hilly regions, and at present they are found in a wide central belt beginning with the Aravalli Hills in the West and extending into parts of Bombay State, Madhya Pradesh, Bihar, Orissa, West Bengal and Assam. There are tribes in the north in the southern ranges of the Himalayas, and also in the south, in the Western Ghats and Eastern Ghats and in the Vindhya and Satpura mountains.

11. The Schedule of the tribes entitled to the special rights conferred on Scheduled Tribes by the Constitution was issued by the President in March 1950. The population of the 245 tribes included in this schedule was in 1950 178.75 lakhs, which is 7.8 per cent of the entire population.*

12. Heretofore the problems of the tribes have been approached from different angles according to the interests of the persons dealing with them. Amongst these have been anthropologists, administrators, missionaries, social workers and politicians. There developed one school of thought which held that the tribal population should be permitted to live in isolation from other more organised groups, without even the interference of the political administration. There may be a good deal of justification for such a policy of non-interference; but it is not easily practicable when tribal life has been influenced by social forces from without, and tribal communities have reached a certain degree of acculturation accompanied by penetration of communications into the tribal areas and social services for the betterment of their lives.

13. The conditions are now generally such that there has to be a positive policy of assisting the tribal people to develop their natural resources and to evolve a productive economic life wherein they will enjoy the fruits of their labour, and will not be exploited by more organised economic forces from outside. So far as their religious and social life is concerned, it is not desirable to bring about changes except at the initiative of the tribal people themselves and with

* Note: - The percentage of the tribal population to total population in the different States (after partition and merger) is as follows:- Part A States: Assam - 33.9, Bihar - 14.1, Bombay - 9.2, Madhya Pradesh - 22.6, Madras - 1.1, Orissa - 25.4, Punjab - Nil, Uttar Pradesh - 0.5, West Bengal - 6.5, Part B States: Hyderabad - 4.1, Jammu & Kashmir - 0.7, Madhya Bharat - 15.4, Mysore - 0.1, Pepsu - Nil, Rajasthan - 11.7, Saurashtra - 0.06, Travancore-Cochin - 1.8, Part C States: Ajmer - 15.6, Bhopal - 9.0, Coorg - 11.6, Delhi - Nil, Himachal Pradesh - Nil, Kutch - 6.3, Manipur - 29.8, Tripura - 6.4, Vindhya Pradesh - 5.9.

their willing consent. It is accepted that there are many healthy features of tribal life, which should be not only retained but developed. The qualities of their dialects, and the rich content of their arts and crafts also need to be appreciated and preserved.

14. Article 275 of the Constitution requires that a special financial grant should be provided for programmes for the social and economic welfare of the tribal population living in scheduled areas. Under this Article the Central Government have made a provision of Rs.112 crores for the period of the Plan, but detailed schemes have not yet been fully worked out. The various States have provided another Rs.11 crores for the development of tribal areas. Their programmes include schemes for the building of roads, the improvement of water supply, the provision of irrigation, the development of agriculture, animal husbandry and cottage industries, and for increased educational and medical facilities.

15. The North East Frontier Agency is populated by a large section of the tribal population and their economic and cultural development has to be brought in line with the progress made in the rest of the country. A sum of Rs.3 crores has been provided for the physical, economic and social development of this area and its tribal inhabitants and a Five Year Plan has been drawn up.

. Development of the economic life of scheduled tribes.

16. Communications: The problems of different tribes may vary in different regions; but priority has to be given to the maximum development of their economic life. Most of the tribal areas have been neglected so far as roads and communications are concerned. The importance of communications has now been recognised and a sum of over Rs.2 crores is provided in the State Plans for developing the roads in the tribal areas. This amount is separate from the road grants available from the Central and the State Governments. Great care has to be taken however to see that communications are not prematurely developed so as to permit economic exploitation by outside and more advanced communities.

17. Water supply: Tribal areas are mostly hilly and rocky and, therefore, there is a considerable shortage of water. In areas which are covered by

thick jungles, the water becomes at times unfit for drinking and for cultivation owing to the accumulation of decayed leaves. Special efforts are therefore being directed towards the construction of wells and the improvement of irrigation facilities.

18. Forest economy: Tribal economy in the past was able to develop or exploit the physical region without control or hindrance. Later on, there was in many parts of the country an intensive and yet unsystematic exploitation of the physical region inhabited by the tribes, with very little consideration for their economic welfare. It is desirable that tribal communities should be made the primary agents for the care and development of the forests and the exploitation of forest resources. Forest schools should be started to bring the young tribal up, to love, care for, and work systematically for the enrichment of the forests which will mean in turn the betterment of their own lives.

19. Agriculture: The nature of agricultural development in tribal regions will vary according to the prevailing agricultural practices, the type of soil, and the forces that promote agricultural initiative. Though adequate facts and statistics are not available, land in the tribal areas consists generally of poor, rocky and barren soils on which in most cases only coarse cereals, pulses and roots are cultivated. The problem of land ownership has become increasingly difficult during the last few decades. Many tribal groups became landowning communities, but in times of famine and economic difficulty, their lands passed to absentee landlords. The problem of land restoration and distribution is linked up with the larger problem of land reform affecting all agriculturists, but the tribal population could be induced and assisted to move to large uncultivated areas which are suited to their modes of living.

20. The tribal communities in hilly regions have long been accustomed to the system of shifting cultivation. Though in parts of the country they have already adopted more settled methods of agriculture and have taken to terrace cultivation using the normal village implements, there are areas where the system of shifting cultivation still prevails. The introduction of improved methods of agriculture has to be attempted after a study of local conditions and with due regard for the level of understanding of the tribal communities concerned.

21. People in the tribal areas are illiterate, but in spite of this and the many other difficulties in the

way of the cooperative movement, a large number of cooperatives worked by social workers on behalf of the tribals have come into existence in several States. Cooperative activities should be developed in a planned manner throughout the tribal areas so that their benefits may not only be reaped by the cultivator but also by other sections of the people. Various States have created new organisations to help the agriculturists in the tribal areas. The Grain Banks of Beej Kosh in Bombay, the Grain Golas in Bihar and other States help the people with seeds, and with the storage of crops so as to build up food resources, and also give guidance for the improvement of agriculture.

22. The Community Development Projects will now be able to accelerate the speed of agricultural development in the tribal areas. The following areas which have been selected for community development include tribal communities:

Assam - Cachar District: One development block,
Darrang Distt: One development block,
Tribal Areas in Assam - Two development blocks.

Bihar - Santal Pargana Distt: One development block.

Orissa - Kala Hindi Distt: One development block.

Madhya Pradesh - Bastar Distt: One development block.

Tripura - Nutan Haveli: One development block.

23. Arts and Crafts: Tribal communities are invariably accustomed to more than one type of economic activity. Their free life, initiative, dexterity and desire for basic goods for domestic religious and social life lead them to exploit the resources of their environment, and thus they are the creators of a large number of interesting crafts, which are practised not so much to supplement their income, as to supply them with some of the necessities of life. They are not, however, yet fully conscious of the richness of their environments and they require to be helped to exploit commercially the clay, stone, animal, bird, insect and plant life of the forests using their skills in organised cooperatives, and exporting their products to the markets of the land.

24. The physical environment stimulates arts and skills which are peculiar to the culture of each tribal community. Their principal form of artistic

expression is dancing which has become the inspiration of professional dancers in rural and urban areas. The cultural life of the tribes should not be interfered with; on the contrary they should be given encouragement and opportunity to develop their tribal cultures.

25. Health and Hygiene: The deficiency of health services in the rural areas is well known, and the tribal areas which are lacking in communications and where the population is scattered over vast distances, have hardly been provided with any medical assistance up till now. Some of the diseases prevalent in tribal areas are malaria, yaws, scabies, venereal diseases, small-pox, leprosy, tuberculosis, trachoma, glaucoma, and elephantiasis. Unhygienic conditions, malnutrition, bad water, lack of protection against the climate, and in some cases harmful social customs and practices are among the causes of the widespread prevalence of disease.

26. Throughout most of the tribal areas the belief in 'possession' and in the deminical causation of disease still prevails. But a patient programme of health education, with the assistance of mobile dispensaries and the gradual introduction of regular medical services will introduce the people the advantages of scientific methods in dealing with problems of health and disease.

27. There is a need for comprehensive healthy surveys in selected areas covering diet, beliefs and health practices, the etiology, prognosis and incidence of various diseases, and herbal medicines and other tribal ways of healing. It may be advantageous to develop such of the medicines and healing practices as are found to have some scientific basis or therapeutic value.

28. Education: Article 46 of the Constitution requires that special attention should be given to the education of the children of scheduled tribes. It will, however, have to be conceded that the usual formal system of education is not likely to prove suitable to the tribal communities. It is desirable that the Commissioner of Scheduled Castes and Scheduled Tribes and the Department of Scheduled Castes and Tribes in the various States should deal with the problem of the education of tribal children for some time before the Departments of Education take over the management of institutions in tribal areas. Student in tribal areas will receive a primary-cum-basic education for eight years and basic education will receive the primary attention of

the Department of Scheduled Castes and Tribes during the next five years. The programme of basic schools will have to be adjusted to the needs of forest, pastoral and agricultural communities of a very simple type.

29. The problem of which language should be the medium of instruction in tribal areas has already received consideration not only in the Planning Commission, but by the various agencies which are working for tribal welfare. It is generally accepted that the medium of instruction in the basic schools should be the mother tongue of the child. The regional language will be introduced at the beginning of the upper primary level, and this will be the State language.

30. State programmes of tribal education include the creation of residential education ashrams, vocational and technical training schools, and hostels for tribal students.

31. Leadership and Personnel: It is desirable that there should be provision for special courses on tribal welfare, including field work experience, in the training institute of the Indian Administrative Service, as well as in such schools of Social Work as can afford it. There is also a need to train community organisers and other types of social workers from amongst the educated youth of the tribal communities.

► Criminal tribes.

32. The criminal tribes are made up of a few pastoral communities which could not adjust themselves to the economy of settled life; small sections of forest tribes which broke away from larger tribes because they could not adjust themselves to economies resulting from the forest and land policies of successive governments; and certain groups which were temperamentally and psychologically unable to adjust themselves to a law-and-order society and found it profitable to take advantage of concentrated properties in settled economies rather than to earn their livelihood by productive labour.

33. These nomadic communities preferred to continue their nomadic habits in urban areas where they would not find themselves bound by the need of working on land or by the laws governing the possession of land. Many of them had developed peculiar concepts of property and practiced anti-social activities. But not all the

persons in these communities were criminal and unwilling to adopt normal vocations and occupations. Many members of these communities were inclined to become small traders and shopkeepers, and they possess skills which can be used to develop various crafts. With some persuasion they can, if given and, become agriculturists.

34. On the whole most of these communities have now settled down, and only small sections of them follow their old predatory habits. There may be some groups who sometimes take to anti-social activities due to economic condition or the opportunities offered by their environment. Certain groups still prefer to move from place to place; improvising shelters and finding ways of living without having to settle down in any particular area. The last estimate of persons belonging to criminal tribes gave their number as 2,268,348 and there were 198 tribes enumerated as "Criminal".

35. The Indian Constitution has accepted the principal that no man can be considered guilty unless he is proved to be so in a court of law. Accordingly the Criminal Tribes Acts have been repealed and with effect from 30th August 1952, have ceased to be in force in any of the States. With the repeal of these Acts the problem of the criminal tribes has to be dealt with according to new programmes and policies. The original objective was to safeguard the interest of the larger society, and this was done without much consideration for basic principles of jurisprudence. Even if criminality was a fact adequate efforts were not made to rehabilitate the individual and the group and to adjust the community economically to the environment. The new policy will be to treat all such communities as backward classes. Special efforts will be made by the States to rehabilitate the communities economically. Individual acts of criminality will be dealt with according to the ordinary law.

36. There are two major solutions to the problem of such groups. The first is to achieve their economic rehabilitation; and the second is to apply to the children of these communities a well thought out scheme of education which will gradually wean them from their present practices. The members of these communities possess vitality, energy, resourcefulness and skill. Rather than paying attention to their know evil habits and weaknesses, it should be possible to concentrate on the positive qualities disposing them to engage themselves in creative activities in which there is the element of adventure, romance and achievement. It has been difficult to find economic opportunities for them outside the ordinary spheres of agriculture and handicrafts, but certain selected crafts have been

found capable of engaging their interest and skills. The experiment should be made of settling these communities in new areas which need to be developed, and where they will be put under leadership which is able to understand their temperament and problems. A suitable method of dealing with criminal tribes settlements, wherever they exist, would be to convert them into Community Centres under a trained Community Director.

39. It is likely that some members of groups previously styled criminal tribes may still prove to be uncontrollable and be responsible for anti-social acts. In such circumstances the Probation of Habitual Offenders Act should be applied to them in selected areas. Under its provisions it should be possible to intern them within their homes and to release them on license after a defined period not exceeding three years or help them to settle peacefully in an area and occupations suitable to them.

CHAPTER XXXVIII

REHABILITATION OF DISPLACED PERSONS

Within a few months of the Partition of the country in August, 1947 nearly 5 million Hindus and Sikhs living in West Pakistan had to leave their homes. Under somewhat different conditions 1.5 million displaced persons migrated from East Pakistan. The disturbances in East Pakistan early in 1950 brought another million or so. According to the 1951 Census, about 7.5 million persons had moved into India in search of permanent homes, 4.9 million from West Pakistan and about 2.6 million lakhs from East Pakistan.

2. The displaced persons from West Pakistan are dispersed over the Punjab, PEPSU, Delhi, Uttar Pradesh, Saurashtra, Bombay, Madhya Pradesh, Madhya Bharat, Ajmer, Bhopal and Rajasthan. They are more or less evenly divided as between urban and rural avocations.

3. Although 2.6 million Hindus had moved into India from East Pakistan by the beginning of 1951, there are still seven or eight million Hindus living there. The influx continues; sometimes it slows down and sometimes, as during recent months, it assumes serious proportions. There are at present over 2.1 million displaced persons in West Bengal and of them, 1.4 million are in Calcutta and the two neighbouring districts of Nadia and 24-Parganas. The economy of West Bengal has thus been subjected to very serious strain. It is estimated that 92 per cent or about 2.4 million of these displaced persons derived their livelihood from agriculture or ancillary occupations.

Rural rehabilitation

4. In some States of India, namely the Punjab, PEPSU, Rajasthan and Delhi, large areas of agricultural land were left vacant by the Muslim evacuees. The Government of India utilised these lands and explored other avenues for rural rehabilitation of displaced persons from West Pakistan. Three distinct policies were followed:-

- i) quasi-permanent allotment of evacuee agricultural land in the Punjab and PEPSU.
- ii) allotment of evacuee agricultural land on a temporary basis in other parts of India, especially the States of Delhi and Rajasthan

- iii) settlement of culturable waste lands reclaimed by the various State Governments or the Central Tractor Organisation.

The first policy constituted the single largest measure of rehabilitation and was carried out in respect of displaced land-owners from West Punjab and of Punjabi extraction from other parts of West Pakistan. These persons had left behind 6.7 million acres, whereas the area abandoned by Muslim evacuees in the Punjab and PEPSU was 4.7 million acres, or in terms of 'standard acres' (into which differences in qualities of land and differences of rights were reduced) 3.9 and 2.4 million respectively. This gap of nearly 1.5 million 'standard acres' was made up by applying graded cuts on a slab system. A cut of 25 percent was imposed on holdings upto 10 acres. Higher cuts were applied to the larger holdings and the highest cut was at the rate of 95 percent in the case of holdings over 1,000 acres. An owner of 10 'standard' acres received an allotment of $7\frac{1}{2}$ acres, of 100 acres $51\frac{1}{2}$ acres, of 500 acres $126\frac{1}{2}$ acres, of 1000 acres $176\frac{1}{2}$ acres and of 5000 acres $376\frac{1}{2}$ acres. The allotment was on a quasi-permanent basis. In all, 2.4 million 'standard acres' were allotted to about half a million families. About 93 percent of the allotted area has been taken possession of by the allottees. The allotments of those who failed to take possession of their lands were cancelled and the lands so vacated were reallocated to displaced persons whose claims had not been met so far.

5. In addition to displaced persons who received quasi-permanent allotments of land, there were about 76,000 agriculturist families who had either been working as tenants of Muslim evacuees or had been settled temporarily on evacuee land immediately after the Partition although they had left no land as owners in West Pakistan. Over 33,000 of them have already been satisfactorily settled as tenants-at-will and through new tenancy legislation and otherwise the Punjab and PEPSU Governments have taken it upon themselves to see that the remaining tenant families are also absorbed within the rural economy.

6. The second and third policies were confined primarily to displaced agriculturists from West Pakistan who had lands outside West Punjab or were not of Punjabi origin. The area allotted to a family depended on its size. From 10 to 15 acres were allotted to each family in Alwar and Bharatpur, 16 to 24 acres of irrigated

land and 16 to 32 acres of unirrigated land in Bikaner, 5 to 10 acres in Delhi and 10 acres in the Ganga Khadar and the Naini Tal Tarai areas of Uttar Pradesh. In all, 57,500 families have been settled on 7.4 lakh acres. Of them as many as 44,000 families have been settled in Rajasthan alone, especially in the districts of Alwar, Bharatpur and Shri Ganganagar in Bikaner, all of which now form part of Rajasthan.

7. Early in 1951, allotments of land were offered to 12,645 families of non-Punjabi displaced agriculturists. Of these only about 4,000 families actually moved to the land. It would appear that many of the families for whom allotments were proposed had found some means of livelihood in areas in which they were residing and were consequently unwilling to settle on unirrigated land.

8. The vast majority of displaced agriculturists from West Pakistan may, therefore, be regarded as having been resettled. Upto the end of the year 1951-52, about Rs. 8 crores had been given as loans for the purchase of bullocks, fodder, seeds and other agricultural equipment, repair and construction of houses and wells, etc. and for the maintenance of families for the initial period of six months following allotment of land.

9. In respect of displaced persons from East Pakistan, it is estimated that about 330,000 out of 470,000 rural families have already been settled in the Eastern States on land and in occupations ancillary to agriculture. They have been so far given financial assistance exceeding Rs. 8 crores. It is proposed to settle 50,000 families during 1952-53 and 25,000 during 1953-54 in rural areas at a further expenditure of Rs. 10.10 crores. But for the recent influx, the rural resettlement of displaced persons from East Pakistan would have been practically completed by the end of 1953-54.

Urban resettlement

10. The problem of urban resettlement has been one of great complexity, chiefly because of the essential difference in the economic pattern of the incoming and outgoing population. This difference has been the more marked in the case of displaced persons from West Pakistan. While the Muslim migrant from the Punjab, PEPSU, Delhi etc. was often a labourer or an artisan, with a comparatively low

standard of life, the incoming non-Muslim was frequently an industrialist, a businessman, a petty shopkeeper or one belonging to the white-collar professions and used to much better conditions of living. Secondly, as the urban economy in India, as in any other under-developed country, does not offer scope for quick expansion, the absorption of new elements on any scale presents considerable difficulty.

11. Accommodation was needed in urban areas for about 2.5 million displaced persons from West Pakistan. The Government embarked upon an extensive building programme and up till March, 1952, 150,000 houses and tenements had been built at a cost of Rs. 38 crores. It is proposed to build another 50,000 houses at a cost of about Rs. 21 crores in the course of the next two years. This programme, when completed, will have provided accommodation for about a million displaced persons. About 1.5 million persons have already found accommodation in evacuee houses. Thus, making allowances for those families who have been able to make their own arrangements or who may do so in future, it may be said that the housing problem of the displaced persons from West Pakistan will have been substantially solved by the end of 1953-54.

12. While building activity on private account was promoted by granting sites and building loans to displaced persons and cooperative societies who could find a part of the finance themselves, the bulk of the programme in the Western Zone has been undertaken departmentally by Government or through special agencies, such as the Faridabad, Rajpura and Hastinapur Development Boards and the Sindhu Resettlement Corporation. Most of the new housing colonies are in the form of suburban extensions of existing cities and towns and have been provided with urban amenities. In addition, 10 new townships have been planned and much progress has been made in their development. They are Faridabad, Nilokheri and Chandigarh in the Punjab, Rajpura and Tripuri in PEPSU, Sardarnagar and Ulhasnagar in Bombay, Gandhi Dham in Kutch and Gobindpuri and Hastinapur in Uttar Pradesh. The construction of these towns is expected to be completed in the main by 1953-54. Together, they are likely to provide accommodation and gainful occupation to over 400,000 persons. The experiments at Nilokheri and Faridabad are significant in themselves. They are based on the principle of self-help on a cooperative basis. If successful, they will be a stepping stone for further planning and development on a national scale.

Build-
ing

13. It is expected that no additional construction will

be necessary for displaced persons from West Pakistan after 1953-54, but a sum of Rs. 4 crores will be required for completing the development schemes in hand and paying compensation for lands and barracks acquired for housing colonies or new townships.

14. In the Eastern States, on the other hand, emphasis was laid right from the beginning on private initiative and displaced persons were given developed plots and urban loans on a fairly large scale. The Government undertook only a limited building programme. However, upto the end of 1951-52, about 9,000 houses and tenements were built by the State Governments of West Bengal, Assam, Bihar and Orissa, and two new townships have been established at Fulia and Habra Baigachi. As conditions in the Eastern States are still fluid, it is difficult to estimate the total number of persons for whom housing will eventually have to be provided. Nevertheless, it is proposed to build 95,000 units, in the next two years, 25 percent of which will be built directly by the Government and the rest by displaced persons with assistance from the Government. Up till the end of March, 1952, the total financial outlay by the Government on housing in the eastern States was Rs. 8.8 crores.

15. Gainful employment of displaced persons has been largely achieved by providing service under the Government and imparting technical and vocational training to those fit for it, by allotment and construction of business premises and industrial undertakings, by grant of loans for small as well as large-scale businesses and by grant of financial assistance for school and college education covering arts, science and technical courses.

(i) Employment: Upto the middle of 1952, the employment exchanges found employment for 1,63,000 displaced persons from West Pakistan and 31,000 from East Pakistan. In addition, the Ministry of Home Affairs set up a special Transfer Bureau for the same purpose and the Ministry of Railways also reserved 15,000 vacancies for displaced persons. It is estimated that over 80,000 persons thus received employment, although some of them had been sponsored by the employment exchanges as well and might have been shown in their returns also.

(ii) Technical and Vocational Training: A large proportion of displaced persons from towns

XXXVIII

had been occupied in distributive trades before migration and, therefore, it was felt necessary to train the younger generation among them for productive work. For that purpose arrangements were made to impart to them training in suitable vocations and crafts. The Rehabilitation Ministers' Conference in December 1950, recommended that 80,000 displaced persons should be trained. That target is being gradually achieved. By the end of March, 1952, about 52,000 persons had completed their training and 12,000 more are expected to be trained during the current financial year. It has not been possible to fix a similar target for displaced persons from East Pakistan because of the uncertainty of the situation. However, until the end of March, 1952, 8000 displaced persons had been trained and it is hoped that 12,000 more will be trained during 1952-53. Targets for subsequent years have not yet been determined.

(iii) Education: Steps have been taken to extend the educational facilities in the country by opening new schools and colleges and increasing the capacity of existing institutions. Under the new policy introduced in July 1951, freeship concessions have been extended up to the high school standard and cash grants for books and stationery are given to deserving students. Stipends are also given to good students in colleges for training in arts, science and technical courses.

On vocational and technical training and on education of displaced persons from West Pakistan Rs.7.39 crores had been spent up to the end of March, 1952, and a further expenditure of Rs.2.55 crores is proposed during 1952-53 and of Rs.1.9 crores during 1953-54. The corresponding figures for displaced persons from East Pakistan are Rs.4.05, 0.98 and 1.56 crores respectively.

Other rehabilitation measures

16. The Government have also endeavoured to assist displaced artisans, business and professional men by granting them small loans upto Rs.5,000/- each. The amounts already advanced and proposed to be advanced in the next two years are shown below:

(Rupees crores) XXXVIII

Upto March 1952-53 1953-54
1952

Displaced persons from West Pakistan	10.38	0.50	0.50
Displaced persons from East Pakistan	4.24	2.86	2.86

Altogether, 1,58,000 displaced persons from West Pakistan and 44,000 from East Pakistan had received loans upto the end of March, 1952, and it is estimated that about 15,300 and 11,500 families will receive loans in 1952-53 and 1953-54 respectively. Many of the displaced persons who have received loans from the Government have also filed claims under the Displaced Persons Claims Act, 1950, and most of such claims have already been verified. As a prelude to the grant of such compensation, as may be possible on the basis of these claims, it has been decided that the recovery of a loan from a borrower may be postponed upto one-tenth of the total value of his verified claim. To ensure better use of sums advanced by the Government, it has now been decided that hereafter such loans will be given only to displaced persons who have either received technical and vocational training under any of the schemes of the Government and wish to set up industry of their own or who have settled in the new townships.

17. For the larger businesses loans are advanced to displaced persons by a special agency set up by the Government namely, the Rehabilitation Finance Administration. Upto the 31st March, 1952, the Administration had sanctioned Rs.8.25 crores in favour of 9,621 persons, of which Rs.4.17 crores were actually disbursed. During 1952-53 the Administration expects to disburse Rs.2.05 crores and during 1953-54 Rs.3 crores.

18. Financial assistance on this scale has helped to bring back into activity about 27,000 evacuee shops and 2,000 evacuee industrial establishments which have been allotted to suitable displaced persons. Apart from this, 28,000 new shops and several new markets have been built in various towns. Industries are being developed in the new townships in order to provide further scope for employment and for individual enterprise.

19. There are 74,000 displaced persons - about 38,000 from West Pakistan and about 36,000 from East Pakistan - who are being looked after by the

Government as a permanent measure. They consist of destitute, old and infirm persons and their dependents and unattached women and their children. The majority of them are being maintained and looked after in Homes or Infirmaries specially established for them. It is proposed that eventually the Government will not, save in exceptional cases, look after and maintain anyone outside a Home or an Infirmary. In such Homes and Infirmaries work and training are provided to the old and infirm and to women according to their physical condition and aptitude. Education is given to the children. Some of the Homes have been entrusted to non-official organisations with a view to securing the largest measure of cooperation from the public. Well-known institutions - the Kasturba Gandhi National Memorial Trust, the Trust for Sindhi Women and Children, the Arya Pradeshak Pritinidhi Sabha, the Rama Krishna Mission and others - are assisting the Government in the field of rehabilitation. A Central Advisory Board has been set up to advise the Government on all matters pertaining to the well-being of displaced persons described in this paragraph.

20. There were numerous displaced persons who depended upon their income from immovable property in West Pakistan and who had no means of livelihood in India and who, at the same time, by reason of old age, infirmity and other causes were unable to make a living for themselves. It was decided, as a temporary measure, to grant them maintenance allowances, according to a prescribed scale, subject to a maximum of Rs.100/- per month. Under this scheme, allowances are being given to 16,000 persons every month and so far Rs.50 lakhs have been spent on such allowances. The scheme is likely to continue until such time as compensation is awarded to displaced persons for the immovable property they have left behind in West Pakistan.

21. A special Board has been set up for the rehabilitation of displaced Harijans and under the aegis of this Board employment has been found for about 8800 displaced Harijans and accommodation in urban areas to the extent of 1123 houses and tenements. The Board has also helped 16,259 Harijan families in the matter of allotment of land and rural loans and provided 2,403 huts in the rural areas.

Expenditure on rehabilitation

22. Upto the 31st March, 1952 the Government had incurred a total expenditure of Rs.90.54 crores on the

rehabilitation as distinct from relief, of displaced persons. Rs. 27.81 crores are proposed to be spent during 1952-53 and Rs. 29.14 crores during 1953-54. The table below gives the rehabilitation expenditure during the three years from 1951-52 to 1953-54:

(Rupees in crores)

Programme	1951-52	1952-53	1953-54	Total
Rural Resettlement	3.88	4.04	2.53	10.50
Urban Housing (other than R.F.A.)	16.11	14.34	13.01	43.46
Loans by Rehabilitation Finance Administration	2.42	3.37	3.36	9.15
Technical Training education and other schemes	1.88	2.05	3.00	6.93
	4.88	4.01	7.19	16.08
	29.17	27.81	29.14	86.12

23. It is hoped that the bulk of the problem of rehabilitation of displaced persons from West Pakistan will be over by the end of 1953-54. Besides meeting commitments already accepted, only a few outstanding matters will need attention. For this purpose Rs. 6.20 crores will be required as shown below:-

	1954-55	1955-56
Housing	Rs. 4.00 crores	-
Urban loans	Rs. 0.50 "	Rs. 0.50 crores
Vocational and technical training	Rs. 0.25 "	Rs. 0.25 "
Education	Rs. 0.35 "	Rs. 0.35 "
	Rs. 5.10 "	Rs. 1.10 "
Grand total		Rs. 6.20 crores

24. The situation in the Eastern States, on the other hand, fluctuates fitfully and it is not

possible to forecast the likely expenditure on displaced persons from East Pakistan beyond 1953-54. If the conditions remain normal, the present scale of annual expenditure which is of the order of about Rs. 11 crores (this is approximately the average of the estimated expenditure for 1952-53 and 1953-54) will have to be maintained. If conditions in East Pakistan worsen, the magnitude of the problem and therefore of the effect, will be correspondingly greater.

Compensation for displaced person

25. There has been so far no agreement between India and Pakistan on the disposal of evacuee property in the two countries. Owing to the urgency of the problem of rehabilitation and the fact that evacuee properties, particularly in urban areas, tend to deteriorate, certain steps in the direction of giving a measure of compensation to displaced persons have been taken. The quasi-permanent allotment of land in the Punjab and Pepsu has already been described. In other parts of India, the problem of giving some kind of compensation for the agricultural lands left behind by land holders of Sind, NWFP., Bahawalpur and Baluchistan still remains to be tackled. The problem of urban properties is more complicated. In framing any scheme for their distribution it is important not to cause any large-scale dislocation. A large proportion of displaced persons from West Pakistan have now established themselves in larger or smaller measure in places where they have been living and if they are dislocated they will have to be found a new habitation as also new means of livelihood. Many urban properties are in the occupation of displaced persons who have no claims to compensation. Tentative proposals for the disposal of evacuee properties and grant of compensation have been recently worked out, but final decisions have not yet been taken.

Rehabilitation and development

26. The rehabilitation of 7.5 million displaced persons presents numerous special problems, but

viewed broadly, it has to be regarded as an essential aspect of the development of the economy of the country as a whole. The expansion of the national economy by itself provides numerous opportunities for the rehabilitation of displaced persons possessing initiative and enterprise. The programme of rehabilitation is an integral part of the Five Year Plan, although it necessarily has to be kept under constant review, in particular, for meeting the exigencies of the changing situation in respect of displaced persons from East Pakistan.

EMPLOYMENT

The problem of finding employment for all the able-bodied persons willing to work is a problem common to all countries - advanced as well as industrially backward -, although the causes and the extent of such unemployment may differ from country to country. Three main types of unemployment, distinguished according to causes, are: (1) unemployment arising from deficiency in aggregate demand; (2) unemployment arising from shortage of capital equipment or other complementary resources, and (3) frictional unemployment. The first type is mainly cyclical in character and has been recurring in all advanced countries from time to time. The second is found mainly in under-developed countries, while the third may occur in any progressive economy. The goal of social policy in all countries, especially the advanced countries, has been to achieve full employment by directing investments along certain channels chiefly and by encouraging capital formation.

2. In India, in common with other under-developed countries, production is carried on with insufficient amount of real capital per head of the population. In almost all processes of production and distribution, the techniques are relatively backward leading to various forms of unemployment, seasonal unemployment in agriculture and disguised, or even manifest, unemployment in certain industries and services. It, perhaps, appears strange that an under-developed economy, in which there is shortage of goods and services should at the same time have insufficient employment opportunities, resulting in a surplus labour force. The consequent social and economic injury cannot be exaggerated. The problem is of devising ways and means of utilising the labour power for productive purposes so as to increase the volume of goods and services available in the country and to raise living standards all round. In formulating a solution, however, the basic fact of the shortage of land and capital equipment has always to be kept in view.

3. To assess the magnitude of the problem in quantitative terms with the existing data on the subject is an almost impossible task. There have been no attempts so far for collecting statistical material on employment and unemployment; the

only published figures at present available are the registrations and placements of employment exchanges. These figures cannot, however, give an idea of the total volume of unemployment. Firstly, employment exchanges are confined to industrial towns and the figures of registrations and placements which they compile are restricted mostly to the industrial sector. Secondly, even in the industrial sector, there is neither compulsion for the unemployed to register with the exchanges, nor is there any obligation on the part of the employer to recruit labour only through these exchanges. Even the information regarding unemployment among the industrial workers is thus inadequate. Thirdly, in the nature of the case, employment exchange statistics cannot indicate the amount of disguised unemployment which is reported to exist. This means that the extent, to which qualified persons have to accept work which does not give them the income which persons with similar qualifications get elsewhere, cannot be assessed from these data. There is also to some extent registration of persons who are already in employment and who desire to seek better jobs. This tendency is reported to exist in the more qualified section of registrants, but to the extent a region maintains these persons on the register of employment seekers, there is an over-estimate of the number unemployed. In spite of these serious limitations, the following table containing occupational distribution of the applicants on the live register of the employment exchanges does, to some extent, confirm the popular belief that unemployment is on the increase. This increase is mostly among the unskilled and clerical categories:-

Occupational distribution of applicants on live register.

Month	Number on live register of applicants for employment			
	Technical	Clerical	Unskilled	Total
Dec. 1947	42,194	44,468	84,942	1,71,604
Dec. 1948	35,012	62,320	86,546	1,83,878
Dec. 1949	41,115	63,519	1,27,676	2,32,310
Dec. 1950	45,623	77,745	1,64,108	2,87,476
Dec. 1951	41,469	85,057	1,62,445	2,88,971
March '52	43,947	88,566	1,68,682	3,01,195
June 1952	47,868	1,10,920	1,76,864	3,35,652
Oct. 1952	49,879	1,20,221	1,94,579	3,64,679

4. In this country the problem of unemployment and under-employment seems to have been there for a long time. Its awareness is manifest in the fact that the nationalist movement in the earlier decades of this century laid a great emphasis on propagating the 'swadeshi' cult and the promotion of khadi and other village industries. The two wars to some extent obscured the issue during their duration and for a short period thereafter. The main factors which have now aggravated the problem are the following:-

- (a) the rapid growth of population;
- (b) the disappearance of the old rural industries which provided part time employment to a large number of persons in the rural areas;
- (c) inadequate development of the non-agricultural sector from the point of view of employment, (inspite of the considerable development during the last forty years, the shift of occupation from agricultural to non-agricultural sector since 1911 is only about 3%);
- (d) the large displacement of population as a result of partition.

5. One of the objects of the Plan is to increase the employment opportunities and to raise the standard of living of the masses. Among the measures intended to be taken to tackle the problem of unemployment, foremost consideration is given to the rural sector on account of the magnitude and seriousness of the problem there. Moreover, offer of better employment opportunities in the rural sector will have a salutary effect on the unemployment situation in the urban sector. The extent of unemployment in rural areas is, however, difficult to estimate. Some authorities put the figure at 30%; but in addition to this, there is chronic under-employment. The quantitative estimates of this are even more difficult to work out. The reports of the Agricultural Labour Enquiry of the Government of India when published may throw some light on this subject.

6. Of the various measures proposed to be taken in the Plan to reduce the incidence of rural unemployment mention may be made of the major and minor irrigation works. These are expected to irrigate over 19 million acres. There are large scale land reclamation schemes which will, to some extent, help to relieve the pressure on the existing land resources. The large-scale unemployment and under-employment in rural areas can, however, be tackled only by providing the village community other avenues of employment in addition to agriculture. The revival and development of rural industries have therefore found a central place in the rural development programmes. These industries have been considered both economically and socially desirable because the requirements of capital and skill are low. For the same amount of capital investment, these industries provide more employment than large scale industries. Moreover, owing to the low cost of labour, the unit cost of production in these industries can be substantially lower than that in heavily capitalised large-scale industries, provided these small industries are reorganised and modernised. The Plan has, therefore, made provision for development of 12 village industries. The experience gained as a result of the development of these industries should be valuable in reviving and developing other village industries. Equally important is the revival of old handicrafts, the principal feature of which is skilled craftsmanship. The Plan makes various suggestions for the rehabilitation of these handicrafts. The financial provision for village industries and handicrafts for the period of the Plan is Rs.15 crores. The cess proposed to be levied on large-scale industries to provide finance for the development of small-scale industries will encourage the starting of more small scale industries and thus provide additional employment. Two other steps, which might help in reducing the pressure on employment in rural areas, are (a) the extension of mixed farming and (b) the undertaking of public work programmes in slack agricultural seasons. The possibilities of these measures will be investigated.

7. Unemployment and under-employment is not confined to the rural sector; it also pervades the urban centres. The increasing pressure on land has forced a large number of able-bodied persons to go to towns and cities in search of employment. They are mostly without much education and possess little degree of skill. There is, therefore, keen competition for unskilled jobs in factories, and in a number of small occupations; the tertiary sector, especially the domestic service, absorbs also a good deal of this labour. Hotels, restaurants, stations and other public places are other sources of employment. Most of the occupations are generally overstaffed and the wages paid consequently are extremely low. The problem has to some extent been aggravated after the end of the war due to the difficulties faced by a number of small-scale industries, which came to be started during war-time on account of the ceasing of imports. Even industries like jari weaving, power-looms etc. which were there for a long time have been encountering difficulties of one type or the other. These industries occupy the same place in urban centres as village industries do in rural areas. The solution of this unemployment problem lies mainly in the expansion of existing large-scale industries and the starting of new ones. Along with this suggestions are made in the Plan to save the existing small-scale industries and also to encourage the starting of similar new industries especially those industries which can serve as complementary to large-scale industries. The provision made for small-scale industries in the Plan has to be viewed in this light.

8. The question has frequently been raised as to what would be the quantitative effect of the plan on employment. For this purpose, on the one side, information would be necessary of the estimates of available population for gainful occupation in various age groups and on the other, the expected volume of employment in different economic activities in the country, primary, secondary and tertiary. Fairly reliable statistics of employment are available only in respect of organised productive activities.

In respect of unorganised processes of production and distribution such as, agriculture, forests, fishing, animal husbandry, small scale industries, trade etc. the information can be had fully from Census Reports for the year of enumeration but there is no machinery to keep this information up-to-date. About unemployment, practically no data are available. It is also necessary to have estimates of the man-power requirements in all branches of economic activity. The absence of all these statistics makes it difficult to assess with any degree of accuracy the results of the plan on the employment situation. But this does not mean that attempts should not be made in the direction of estimating future employment trends however imperfect such attempts may be. These imperfections have to be viewed against the background of physical and organisational difficulties and will help to build a clearer picture for future work of this kind. It is for this purpose that an attempt has been made to work out the effect of the Plan on employment in certain schemes of development. We recognise that the estimates given here are very rough approximations and may be much wide of the mark. The assumptions made in every case, therefore, have been clearly stated.

(a) Industry

The estimates in case of some industries have been made on the basis of information collected through employers organisations as regards the future labour requirements. But in majority of cases they have been worked out on the assumption that additional production will lead to proportionate rise in employment which may or may not be true in most of the cases because of so many other factors viz. idle labour engaged at the moment, revised man-machine ratio in view of the installation of new machinery, rationalisation schemes under contemplation and so on. The right approach to this problem

therefore, will be to call for the forecasts from the employers themselves and to test them in the light of objective standards, evolved after tripartite consultations (Government, employers and workers). Though the authenticity of this method is fully recognised, it has not been possible to get in touch with each and every employer and even in case of those industries where this has been possible, the estimates given by employers could not be tested because of the non-existence of any objective standards. The industries in case of which such estimates could be had are agricultural machinery, power alcohol, salt and one or two light engineering industries. No estimates have been possible in case of fertilizers, fine chemicals, pharmaceuticals, heavy chemicals, railway rolling stock and some of the rayon industries due to the non-availability of employment figures in the base year. Subject to all these limitations it has been estimated that the additional employment in this sector will be of the order of $\frac{1}{2}$ lacs inclusive of additional employment offered in small-scale industries.

(b) Major irrigation and power projects:

An expenditure of about Rs. 100 crores a year is contemplated under the Plan for the construction of major irrigation and power projects. Assuming that 20 per cent of this would be spent on wages (direct and indirect) and that worker's average earnings would be about Rs. 750 per annum, (Rs. 2-8-0 per day for 300 days), the resulting employment will be about $2\frac{1}{2}$ lacs annually for the period of the Plan.

(c) Agriculture:

On completion of the irrigation projects, the additional area irrigated will be nearly 19 million acres. Mostly this will lead to fuller employment rather than additional employment. It is estimated, however, that 30 per cent of the area may be expected to require the attention of new hands. Taking an economic holding to be of the size of $\frac{1}{4}$ acres per person $\frac{1}{4}$ employed, major irrigation schemes will provide additional employment to 14 lacs persons in 1955-56. Additional employment for $1\frac{1}{2}$ lacs of persons annually will result from repairs to tanks etc. for minor irrigation schemes.

Apart from this, additional employment in agriculture will also result from land-reclamation schemes which will bring 7.4 million acres of new land under cultivation by 1955-56. Taking an economic holding of the size of 10 acres per cultivator in the case of such land the resultant employment will be for

about 7½ lacs persons. These estimates do not take into account the fuller employment accruing to under-employed agricultural population as a result of minor irrigation schemes and schemes of intensive cultivation and improved agriculture.

(d) Minerals:

The policy advocated by the Commission regarding minerals relates to their conservation rather than their exploitation. The emphasis has been more on improved methods of mining and research and not on suggesting targets for increase in production. The additional production will be necessary only in case of iron ore to feed the iron and steel plants. This will lead to employment for 4,000 persons which may be considered negligible.

(e) Building and construction:

The plans makes provision for the construction of about 25,000 houses annually for industrial workers. It has been worked out that 600 man-days are required to build a house of the specifications recommended in the Plan. 50,000 workers of all categories will thus be annually employed on this project. In addition to this, 50,000 persons can be assumed to find employment in building activity in private sectors. /the

(f) Roads:

Another major item of additional employment is roads. An expenditure of Rs. 20 crores a year is envisaged during the Plan period. Assuming that 60 per cent of this will go for wages and assuming the average annual wage/at Rs. 600 a year (i.e. Rs. 2 per /per per day, for 300 days) the additional annual employment son will be for 2 lacs of persons.

(g) Cottage Industries:

Considerable additional employment will result from cottage and small-scale industries. It has been estimated that development schemes in this sector will give additional employment to about 20 lacs of persons and provide fuller employment to about 20 lacs of persons and provide full employment to about 36 lacs under-employed persons. Bulk of additional employment (i.e. 18 lacs) will result from cotton handloom industry.

XXXIX

(h) Tertiary sector and local works:

The employment figures given above consider the sectors in which there is going to be direct investment and development. But the development of agriculture, industries and roads, major and minor irrigation projects, and the building and construction activities will lead to the development of the tertiary sector e.g. there will be more demand for transport storage, banking and other kinds of services. This sector will, therefore, provide additional employment, although any estimate of such employment will be difficult to make. Similarly, there will be increased activity in regard to works undertaken by local bodies and therefore, more employment. The figures worked out have not taken into account this source of employment due to the difficulty of estimating the figures.

P.T.O.

II- Employment among the educated

9. The problem of unemployment among the educated has not received due attention elsewhere in the report. It is, therefore, proposed to deal with it here in greater detail. The problem in its present form is not new. Between the two wars unemployment of the educated had assumed serious proportions everywhere including this country where perhaps it assumed a more acute form. The war, to some extent, helped in temporarily relieving this unemployment by providing opportunities of service in armed forces and in the expanded avenues of production and services which were dependent on the war. There was a time during the war and in the immediately post-war years when it was difficult to get persons of one's choice to man the production processes. After the end of the war and with the demobilization of armed personnel and large-scale retrenchment in industries producing materials for the armed forces, and the consequent retrenchment in Government, commercial and business houses, the problem has again come to the forefront. The awareness of Government of the situation is evident from the fact that simultaneously with demobilisation, training facilities were provided by Government for equipping the demobilised personnel for alternative employment. There was also some reservation of vacancies for such persons, but its result was to deny corresponding opportunities to fresh entrants. Partition of the country further aggravated the problem because of the preferences shown by Government to the displaced persons in the matter of employment. It is, therefore, necessary to seek a solution, not through the negative approach of relief to the unemployed, but with a positive approach for organising employment as a part of economic development.

10. Subject to the remarks made above regarding the employment exchange figures, the position of the educated persons as revealed by the employment exchanges over a period of five years, is shown by the following figures:

un-
employed

	Dec. 1947	Dec. 1948	Dec. 1949	Dec. 1950	Dec. 1951	Oct. 1952
Techni- cal*	42,194	35,012	41,115	45,623	41,469	49,879
Clerical:	44,468	62,320	63,519	77,745	85,057	120,221

(* In the absence of a detailed classification, all the persons given under this head are regarded as educated)

The figures show that the unemployment among the technical personnel is smaller as compared with the clerical personnel and that while the number of unemployed technical persons has gone up a little over a period of 5 years, the number of persons seeking clerical posts has gone up considerably over the same period. As against this, the following figures obtained as a result of an ad hoc enquiry conducted by the Directorate General of Resettlement and Employment last year illustrate the position of the employment opportunities for the technical and clerical personnel:-

	Number of vacancies made available by employers.	Percentage of vacancies to applicants awaiting jobs.
Technical	5,180	12.5
Clerical	3,212	3.8

This means that of every 100 unemployed technical persons, only about 12 persons could be provided with jobs, while in the case of clerical jobs the vacancies were only 4 for every 100 unemployed registrants. This indicates that, while the problem of unemployment amongst the technical personnel is serious enough, in the clerical cadres it is at least thrice as bad.

11. A recent investigation undertaken by the Employment Exchanges Organisation into the number of matriculates and graduates seeking employment assistance reveals that over a lakh of persons with such education were in search of employment through the exchanges. 14% of these were University graduates. Amongst the persons with University degrees the largest number of employment seekers was of graduates in subjects other than engineering and medicine. Even these latter claim near 800 graduate registrants. This is a fairly large number in view of the fact that such personnel has been reported to be in short supply in the country. In these categories, therefore, unemployment seems to be either structural or resulting out of distaste for mobility. Another finding of this investigation was that the unemployment among graduates was mostly in non-technical lines. This reinforces the conclusions reached by the Scientific Man-power Committee.

12. The data discussed above have obviously their limitations. One thing, however, is clear that the unemployment in this class is on the increase and suitable measures appear to be necessary. The First Five Year Plan lays an emphasis on increasing agricultural production and at the same time creating a base for future industrial expansion. This limits the

immediate expansion of employment opportunities for the educated unemployed. It is only when a more rapid expansion of the industrial sector than is envisaged in the present Plan takes place that there will be a possibility of increasing avenues of employment for the educated class. As a matter of fact, the experience of other countries shows that " although the expansion rate of the manual labour force employed by processing and production industries seems as a whole to have slackened to a great extent as a result of the concentration and extension of undertakings, improvements in technique, mechanization, and the scientific organization of labour, these same factors nevertheless give rise to a considerable increase both in the administration, financial, supervisory and marketing services and also in the preparation, organization, co-ordination and supervision of the processes assigned to manual workers. An increasingly important place is also being reserved for research and laboratory work. All these manifold tasks involving increasing specialization, are carried out by commercial and office workers, supervisors, technicians and managerial grades of staff of every kind, i.e. by non-manual workers." These are no doubt long-term solutions but some immediate steps are necessary to deal with the problem. It seems necessary that the plans for education, especially in the post-primary stages, will have to be so framed that our future requirements will not suffer for want of structural adjustments. In this connection we recommend that the suggestions made by the Scientific Man-Power Committee for overcoming shortages in certain technical lines should be given effect to, if necessary, by reassessing our requirements in the light of changes that have taken place since 1947.

13. In addition, we suggest the following short-time remedies:

(a) We have observed that there is some unemployment even among technical personnel, e.g. engineers and doctors. This may be due to unattractive service conditions of certain posts and concentration in large cities and towns. It is,

therefore, necessary to take measures to remedy this situation. It has to be seen that the pay offered is consistent with the cost of training of such personnel. Inducements, such as subsidising of private dispensaries, which form a part of some of the State plans, should be offered to doctors elsewhere also for settling down in villages.

(b) As the University Commission has observed the utility to employers of graduates with certain qualifications, e.g., commerce, can be increased if the present purely theoretical knowledge imparted in colleges is supplemented by practical training. Its recommendation to impart such practical training either during college terms or during the periods of vacation deserves consideration.

(c) It has been seen that the problem of unemployment is very acute amongst those seeking clerical posts. Amongst the educated classes there is a disinclination for manual jobs. They prefer soft jobs to manual work not knowing the dignity of labour. The result is keen competition among them. It is not only graduates and matriculates who compete for these posts, but even non-matriculates who are not qualified to hold these posts, try for these jobs, rather than accept manual jobs. On the other hand, there is bound to be a big demand for manual work of a skilled or specialised kind. Educated persons should be persuaded to rid themselves of prejudice against manual employment and should be encouraged to receive sufficient training for manual jobs rather than cling to clerical jobs.* It is expected that the reorientation of the educational system with emphasis on basic education as proposed in the Plan will be a corrective factor in future to bring about the desired change.

* (It is reported that an investigation was recently undertaken by a social scientist in Delhi. The main conclusion of this investigation seems to be "that the educated middle-class generally has a very unrealistic conception of jobs for themselves.").

(d) Certain special problems arise in case of young persons without experience as well as in case of older persons. In the former case employers are usually reluctant to engage persons without experience. This can be solved only with the help of employers by providing apprenticeship training to such persons. In case of the latter category of persons, such persons may be precluded from public employment because of age bar, while private employers may prefer young persons to older people. It is only by reservation of certain number of posts in public service and by persuading private employers to engage such persons, especially those with family responsibilities, that the unemployment of such persons can be tackled.

(e) The better distribution of educated persons based on a choice of studies in accordance with the employment possibilities offered can be brought about only by collecting full and accurate information on present and future manpower requirements and reserves. It is, therefore, necessary to develop vocational counselling and guidance services and to see that greater use is made of them both by the young people intending to enter into service and also by the redundant workers who have already joined them.

14. All the above measures will no doubt bring a better distribution of educated labour force among different occupations helping to divert the people from occupations which are crowded to those where there is a shortage. In addition to these measures it is necessary that there should be a reduction in the number of job seekers. For bringing this about the following recommendations are made:

(a) It is quite conceivable that in the educated families there may be a desire for starting an independent establishment requiring small capital. A list will be made of small scale industries which could be started with different amounts of capital ranging from Rs 500 to Rs 5000. Government should help them by advancing loans for initial capital and providing vocational training facilities. It should be a condition that the major portion of the fund required should be invested by the applicants for such loans. In such cases help should also be rendered for procuring raw materials and for disposal of the finished goods. The principle of co-operation in reference to such activities should be encouraged. Care should, however, be taken that such funds will not go for investment in distributive trades. What is required in short is the extension to the educated unemployed of a scheme envisaged for assisting the displaced persons.

(b) Trading Estates in the United Kingdom provide factory sites or built/factory premises, with such facilities as transport and supply of electricity, water and gas laid on, /up

to small amateur manufacturers on a rental basis. These facilities, which individuals could not have been able to provide except at very high cost, have made possible the establishment of small and medium sized factories in selected areas. In the U. K., Government took initiative in encouraging private capital to provide building up these estates after the great depression to reduce unemployment and to bring about better distribution of industries. While the objective of dispersal of industries is only a long-term process, the idea of trading estates can be experimented upon if it can help to some extent solve the unemployment problem of the educated classes. The built up factory accommodation with all the other ancilliary facilities (like electricity, water etc.) will provide the right type of incentive for persons who want to work hard and have also some small amount to invest. It is perhaps difficult in this country to attract private capital for such enterprises but it is encouraging to find that some States have already taken an initiative in the matter. It is understood that the Industrial Finance Corporation is interested in a scheme of this kind. The idea, therefore, requires to be pursued by Government in cooperation with the Corporation.

(CONCLUSION

In our Introduction of consultation and preparation of the Plan. In preparing this Plan with the Ministries of the Governments of the States and with representatives of different interests in the country. Although the task of drawing up a plan of development has been in some measure concluded, we are conscious that planning is a continuing process and from time to time adjustments in policy and programmes will be needed. The submission of the Plan marks, however, a stage in the journey, and prepares the way for the harnessing of the nation's effort at the fulfilment of the Plan.

action we have referred to the process of discussion which has preceded the preparation of the Plan which we now submit to the Government. In we have acted in close cooperation of the Central Government and the States and with leaders of opinion and different interests in the country. drawing up a plan of development has concluded, we are conscious that continuing process and from time to time policy and programmes will be needed. The Plan marks, however, a stage in the journey, and prepares the way for the harnessing of the resources for the fulfilment of the

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Secretary.

Tarlok Singh,
Deputy Secretary.

December 7, 1952.

*Shri G.L. Mehta remained a Member of the Planning Commission until August 26, 1952. Shri R.K. Patil served as a Member until November 10, 1951, and was subsequently associated with the work of the Commission. With their permission, their signatures have been appended to the Plan.