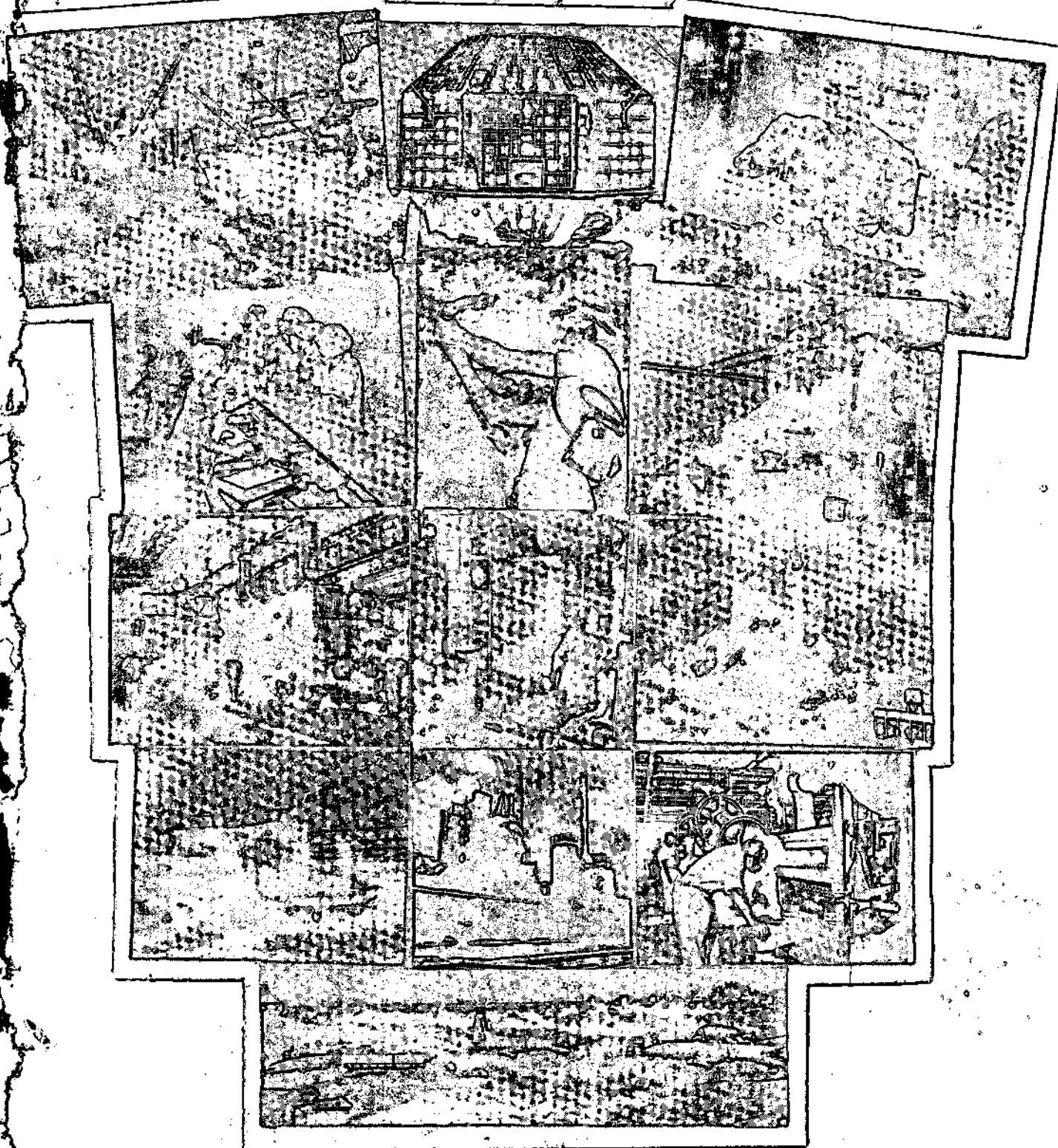
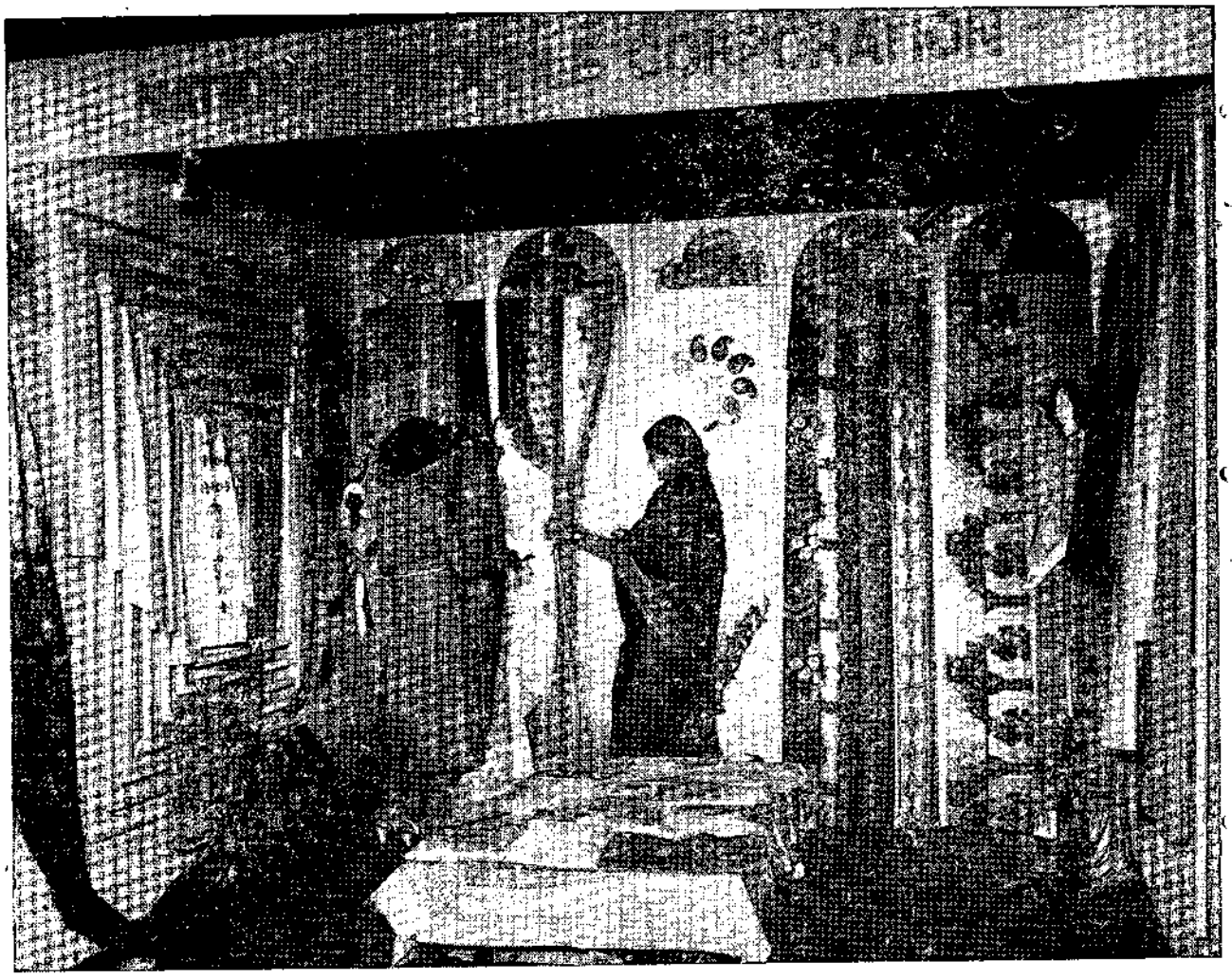
VOL. XXVII & 2 26 JANUARY 198

yojana

Rupees Three



PUBLIC SECTOR IN INDIA



A NTC Emporium

Round-Up

National Textile Corporation

NATIONAL Textile Corporation (NTC) was incorporated in April, 1968, with main objective of ensuring continued employment to the textile workers who were rendered jobless as a result of closure and also for managing the affairs of the sick textile undertakings taken over by the Government. It was also proposed to rehabilitate and modernise these mills after the takeover and wherever necessary expand them with a view to make them economically viable.

At the time of incorporation of the NTC there were only 16 mills under Government management. The total number of mills under the NTC now is 111. It has a paid-up capital of Rs. 168.95 crores.

With a view to ensuring effective management on decentralised basis, NTC has formed 9 subsidiary corporations with Headquarters at Delhi, Kanpur, Indore, Bombay (two subsidiaries), Ahmedabad, Calcutta, Bangalore and Coimbatore.

Out of 109 mills, 38 are spinning units, 71 (including 4 weaving only) are composite units and one processing unit. The total installed capacity of these mills is 3.2 million spindles and 47,787 looms. This accounts for approximately 18 per cent of the spining capacity and 23 per cent of the weaving capacity of the cotton textile mills industry of the country.

(Contd. on cover III)

YOJANA

Volume XXV Numbers 1 & 2

26 January 1981 6 Magha 1902

Journal devoted to Planning and Development. Published Fortnightly in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

Chief Editor
P. Srinivasan

Editor
Sethu Rao S.

Assistant Editors
Kamlesh Mackrell
G. C. Rangrass

Correspondent
R. R. Rao

Sub-Editor
Vijay K. Verma

Advertisement Manager
T. R. Maheshwari
Tel: 386942

Senior Correspondents : Ahmedabad : **H. R. Sanghavi**, Bombay : **Avinash Godbole**, Calcutta : S. K. Ray, Hyderabad : V. Sripathi Rao, Madras : T. R. Panchapagesan, Trivandrum : T.K.N. Nair, Gauhati : R. N. Bez Baruah.

Photographic Officer : **P. K. De**
Cover Design : **P. K. Sengupta**

Editorial Office :

Yojana Bhavan, Parliament Street, New Delhi-110001, **Telegraphic Address : Yojana**, New Delhi. **Telephones :** 383655 387910, 385481 (extensions 420 and 373) **Circulation :** Business Manager, Publications Division, Patiala House, New Delhi-110001

Subscription : Local : One year Rs. 20, Two years Rs. 35 Three Years Rs. 50, Foreign : One Year $ 6 or £ 3 ; Two Years $10.50 or £ 5.25 ; Three Years $ 45 or £ 7.50 Single copy $ 0.30 or 0.15

IN THIS ISSUE

Public Sector's Future

EVEN during the freedom struggle our national leadership was aware of the need for planned efforts to undo the ravages of colonial rule and to attain economic prosperity and social justice. Later, free India's Constitution directed the state to work for national reconstruction and fair distribution. The adoption of the objective of a socialist pattern of society also gave the state a controlling role in the economic field. The requirement of large capital which was beyond the capacity of private capitalists was another compelling factor for the government to directly participate in development by establishing the public sector. The Industrial Policy Resolution of 1956 formed, and still forms, the broad framework for demarcating the roles of public and private sectors.

The public sector has grown to an enormous extent during the three decades of planning, especially from the second plan period onwards. The Central investment in public sector undertakings has increased from Rs. 29 crores in 1951 to Rs. 15,602 crores in 1979. The number of the undertakings has increased from just five to 179 during the same period. The share of public sector in the national domestic product has risen from 10.7 per cent in 1960-61 to 19.4 per cent in 1978-79. It has monopoly in railways, communications and air transport; virtual monopoly in coal mining, power generation and petroleum industry; a predominant share in banking, insurance shipping, steel and other metals, machine tools, fertilizers, insecticides and petrochemicals; and share in light engineering industries and consumer industries like drugs, textiles, etc. Apart from establishing new industries it has also been taking over old ones from time to time for various reasons. It has also been participating on a large scale in trading and marketing activities, including foreign trade.

The most important achievement of the public sector is the very industrialisation of the country. By establishing the basic and heavy industries and providing the infrastructure, it has enabled the birth of innumerable light industries and also provided the vital inputs for ushering in the 'green revolution'. It has thus promoted the rapid growth of private sector industry and agriculture. The public sector has played a pioneering role in dispersing industries in the various regions of the country, particularly in the backward areas. It has been providing increasing employment—the jobs have increased from seven million in 1961 to 14.7 million in 1978, accounting for 67.5 per cent in the organised sector. It is generally recognised as a model employer, providing fair wages, good working conditions and amenities, and recognising the rights of the workers. As a result, industrial relations in it are better and the man-days lost are much less than in the private sector.

In spite of its phenomenal growth and achievements the public sector has also come in for criticism for its major shortfalls. The most important defect in the public sector is the overall net loss incurred by it. According to an estimate the loss was about Rs. 517 crores in 1978-79. Profits are universally accepted as an index of efficiency and any amount of talk about social objectives cannot disprove it. The non-utilisation of the rated capacity by the public sector undertakings is another major shortcoming. The shortfalls in core items in particular adversely affect the growth of the entire economy. Some other defects noticed in the public sector are as follows : lack of professional management, lack of autonomy for the managers of undertakings, adoption of bureaucratic procedures which breed delay, appointment of surplus labour, overstocking of inventories, unproductive expenditure, neglect in maintenance of equipment, taking over the burden of sick industries, uneconomic pricing of products and lack of organic linkages between the big plants and small industries.

The defects in the public sector should be quickly rectified so that it may effectively play its 'commanding role' in the economy. Unless it produces enough goods and earns reasonable profits it cannot countervail the power of private capitalists. Conscious of the deficiencies in the public sector, especially in the core items, the new Central Government initiated measures—including strong ones as in the case of railways—for changing the situation. As a result of this, the performance of the public sector has been improving in the past four or five months. Its comparatively better performance between 1972-73 and 1976-77, and the present hopeful trend show that a strong political will is basic for the effective functioning of public sector as in the case of other branches of national life.

A Committee headed by Shri Mohammad Fazal is at present engaged in a unit-by-unit study of the public sector. It is hoped that the Committee would suggest ways and methods for putting it on a permanently sound footing. The sixth five year Plan envisages an outlay of Rs. 90,000 crores on the public sector which is also required to contribute about Rs. 11,000 crores for the Plan resources. It should strengthen itself through a crash nutrition course in order to perform this herculean task. Its survival in this competetive world depends on its success.

Public Sector in India

Narayan Datt Tiwari

THE BROAD OBJECTIVES of Indian planning and its social premises emanate from the Directive Pdinciples of State Policy set forth in our Constitution. In the implementation of the Directive Principles, the State has to take on heavy responsibilities as the principal agency on behalf of the community as a whole.

As early as in the First Plan, the policy approach enunciated was that the State must not only assume the responsibility for providing infrastructural facilities but also undertake direct promotional work. The need for the intervention of the State in the industrial field was recognised and the development of basic and strategic industries was earmarked to the public sector. At the same time, it was realised that the task before the country was so large that it would be necessary to make use of the initiative and expertise available in the private sector so that maximum growth could be achieved. The activities of the private sector were, however, sought to be regulated and made to conform to the overall social and economic objective of planned development. It was implied that Government's power of regulation and instruments of central as well as the fiscal and monetary policies were to be used to give direction to the economic activities in the private sector.

The Industrial Policy Resolution of 1956 spelt out the role expected to be played by the public sector in the Indian economy in more concerte terms. This Resolution which continues to provide the framework of industrial policy even today, provided that 'the need for planned and rapid development requires that all industries of basic and strategic importance or in the nature of public utility services should be in the public sector. Other industries which are essential and require investment in a scale which only the State, in the present circumstances, could provide, have also to be in the public sector. The State has, therefore, to assume direct responsibility for the future development of industries over a wide area.' Two schedules were drawn up : Schedule 'A' enumerating 17 industries, the future development of which will be the exclusive responsibility of the State, and Schedule 'B' containing a list of 12 industries which will be progressively State-owned and in which the State will, therefore, generally take the initiative in establishing new industries, but in which private enterprise will also be expected to supplement the efforts of the State.

The role of the public sector was expanded in various Plan periods in accordance with the social and economic objectives envisaged in the plans. In the Third as well as the Fourth Plan periods, further emphasis was laid on policies relating to reduction in inequalities, prevention of concentration of economic power, development of tribal and backward areas as well as backward communities. Following the reorganisation of credit policies resulting from the nationalisation of major banks in 1969, the public sector was expected more and more to occupy the commanding heights of the economy. The principal objectives of removal of poverty and attainment of self-reliance envisaged in the Fifth Plan also provided a dominant role to the public sector.

The Central Public Sector today covers a wide range of acivities though the bulk of investment is in the industry and mining sector

The basic soundness of this policy of assigning a dominant role to the public sector has been demonstrated by the progress made in the country during the last two decades. The structural transformation that has been achieved would not have been possible but for the initiative taken by the State especialy in the field of basic and heavy industries. The State is also instrumental in creating the necessary infrastructure which is so vital for rapid growth. It is this heavy investment in economic and social overheads, combined with the vigorous growth of basic and heavy industries in the public sector, that has forced the pace of industrialisation and created the necessary environment for stimulating industrial production in the private sector.

Increasing Role

The Central public sector today covers a wide range of activities, though the bulk of investment is in the industry and mining sector. In the energy sector, the public sector has a virtual monopoly in coal mining, exploration and refining of petroleum and in electricity generation. Apart from the monopoly in the field of railway transport, communications and air transport, public sector accounts for a considerable share in shiping as well as road transport. With the nationalisation of large banks, the public sector dominates in banking, financial and insurance services. In the manufacturing sector, the activities of the public sector cover a large number of industries particularly the basic industries such as steel, non-ferrous metals, fertilisers, power generation equipment and a host of other industries such as machine tools, mining machinery, steel making equipment, drugs, petrochemicals, insecticides and light engineering industries. As a result

* Minister for Planning and Labour and Deputy Chairman of Planning Commission.

of the take-over of sick industries, the role of the public sector has further expanded in the field of production of consumer goods like textiles. So much so that today the producution of cloth by the sick mills taken-over by the Government amounts to about one-fifth of the total production of cloth in the organised sector.

In terms of contribution to net domestic product (NDP) at current prices the share of the public sector as a whole has increased from 10.7 per cent in 1960-61 to 19.4 per cent in 1978-79. In the case of departmental and non-departmental enterprises alone, their share of NDP has increased from 5.2 per cent in 1960-61 to 11.8 per cent in 1978-79.

Accordingly to the statistics compiled by the Bureau of Public Enterprises, the investment in the Central Goverment enterprises (other than departmental projects) amounted to Rs. 15,620 crores at the end of 1978-79. The bulk of the investment, whether in the shape of equity capital or long-term loans, has come from the Central Government though in some cases State Governments have participated in paid up capital and in a few cases private parties have also made investments. The growth of the Central public sector can be appreciated from the number of enterprises and the investment figures at various points of time given in the following table :

	(Rs. crores) Total Investment	Number of enterprises
(i) At the commencement of Ist Plan (1-4-51)	29	5
(ii) At the commencement of 2nd plan (1-4-56)	81	21
(iii) At the commencement of 3rd plan (1-4-61)	953	48
(iv) At the commencement of 4th plan (1-4-69)	3902	85
(v) At the commencement of 5th plan (1-4-74)	6237	122
(vi) As on 1-4-1977	11997	145
(vii) As on 1-4-1979	15602	176

The investment of Rs. 15,620 crores at the end of March, 1979, is spread over a wide spectrum of production, mining, maufacturing, marketing and trading enterprises, financial institutions, etc. A significant feature of the public sector investment, however, is the predominance of investment in a few crucial sectors namely steel, minerals and metals, petroleum, coal and chemicals and fertilisers. These alone account for over 60 per cent of the total investment in the public sector, as would be seen from the table given below.

Industry	(Rs. crores) Investments 1979	Percentage
Steel	3102	19.9
Chemicals & Fertilisers	2738	17.5
Coal	1513	9.7
Minerals & Metals	1158	7.4
Petroleum	893	5.7

More Goods and Jobs

Another indication of the role of public sector in the strategy of industrialisation in the country can be had from the impressive increases in its share in the total national output of basic raw materials as well as certain industrial and agricultural inputs. Apart from industries like coal, petroleum and copper, which are almost entirely in the public sector, the share of the public sector in a large number of oher vital industries such as steel, cement, aluminium and fertilisers has substantially increased.

Some of the manufacturing units of Cement Corporation of India or assembly units of HMT have been deliberately set up in backward regions to foster employment.

The growth of the public sector in the last decade is marked by two other distinct trends. The pioneering enterprises set up by the Government have grown in number as well as in the volume of their turnover. An equally important feature is the growth in the number of units taken-over from the private sector, partly because of nationalisation of certain key industries like coal, copper, etc. but primarily because of the sick units being taken over by the Government in order to have stability of industrial production and provide continuity of employment. The number of employees working in enterprises which have been taken over by the Government now constitutes around 48 per cent of the total number of employees working in Central public sector enterprises.

Apart from providing avenues for increased employment, the public enterprises have also helped in bringing about reduction in disparities in income through the process of generating employment and by pushing up the wage levels of the lower income group. The role of public sector as a model employer in this context also needs to be emphasised. The social objectives that the public sector enterprises serve by providing housing, medical care and educational facilities to its employees are some of the important dimensions. During the last decade, the average emoluments of the public sector employees have increased from Rs. 4264 per annum in 1968-69 to Rs. 11,031 per annum in 1978-79. The average expenditure per employee on welfare has also increased from Rs. 420 per annum to Rs. 701 per annum during the same period.

Although the location of public sector enterprises, which are generally of a capital intensive nature, has primarily to be determined on techno-economic considerations, the Central investment is dispersed throughout the country and the need to develop backward regions is kept in view to the extent possible. Some of the manufacturing units of Cement Corporation of India or assembly units of HMT have been deliberately set up to foster development in the backward regions. The public sector has also helped in the development of ancillary units. As a result of sustained efforts, the number of ancillary units has grown to more than 800 now.

Profit and Loss

A few words about the often-repeated criticism of the public sector regarding the losses or low return on capital invested in the public sector undertakings. According to data compiled by the Bureau of Public

Enterprises on the profitability of all the Central Public Sector indstrial and commercial undertakings, there was a net loss of Rs. 31.96 crores in the year 1978-79. But at the same time it has also to be noted that 88 running enterprises earned a net profit of Rs. 484.75 crores during the year. These includued undertakings like ONGC, Indian Oil Corporation, Steel Authority of India Limited, Air India, Indian Airlines etc. A large number of other unudertakings did, however, incur losses during the year amounting to Rs. 516.71 crores. While a substantial part of it is accounted for by Coal India Limited and its subsidiaries, a number of other undertakings like Shipping Corporation, Heavy Engineering Corporation, Indian Petrochemicals Corporation, Hindustan Fertiliser Corporation, Indian Iron and Steel Company also showed substantial losses. Apart from losses in financial terms, capacity utilisation in a large number of public undertakings has been rather low. While the performance of the public sector need not be viewed merely in terms of its financial achievements, there cannot be any two opinions about the need to raise the levels of capacity utilisation and more efficient management of public sector enterprises. The public sector should undoubtedly generate adequate surpluses which can be utilised for further development of the economy. In order to bring about an improvement in the performance of public sector undertakings, high level committee under the Chairmanship of Member, Planning Commission has been set up to undertake a study of public sector enterprises on a unit-wise basis and to suggest suitable measures to imrove their efficiency as well as for developing proper management cadres in varios functional fields such as operations, finance, marketing information systems etc.

In the Sixth Plan

In the Sixth Plan, which is currently under formulation, it is envisaged to have an average annual growth rate of 5 per cent. The achievement of this growth rate would depend to a large extent on the efficient performance of the public sector. According to tentative estimates, the public sector outlay in the Sixth Plan is estimated at about Rs. 90,000 crores out of a total investment of Rs. 156,000 crores in the economy. Of this, the current outlay would be of the order of Rs. 13,000 crores and public sector investment is placed at Rs. 77,000 crores. Although the sectoral allocations have not yet been finally decided, there is no doubt that substantial provisions will have to be made in the Plan for augmenting infrastructural inputs like coal, power, railways as well as for basic industries like steel, non-ferrous metals, fertilisers, petro-chemicals, petroleum, etc. in the public sector. A crucial role is, thertfore, assigned to the public sector in the Sixth Plan. The role of the public sector in the field of industry and mining becomes all the more vital to achieve an annual average growth rate of 8-9 per cent in industrial production envisaged in the Plan. Viewed in relation to past performance when the overall industrial growth rate over the lst decade has been of the order of 4-5 per cent, it presents a challenging task, and concerned efforts have to be made in toning up the efficiency of public sector enterprises. The success of the Sixth Plan would, in fact, depend to large extent on a significant improvement in the performance of public enterprises.

It has been noticed that a major set-back to industrial production in the year 1978—80 as well as in the current year has been the inadequacy of infrastructural inputs such as railway transport, power, coal, etc. The low capacity utilisation and the deficiencies in these sectors have caused a great imbalance in the economy. While in the short term, efforts are being made to bring about improvement in this respect through coordination and removal of bottlenecks, great stress is proposed to be laid in the Plan on the creation of additional capacities in these sectors. The public sector will have to play a predominant role in these sectors. As mentioned in the 'Framework of the Sixth Five Year Plan 1980—85' the challenge ahead is to make use of the efficient, modern, large scale public enterprises as pace setters in a joint technological leap forward for industry and the entire economy.

Do You Know ?

1. **There were 189 Central Government Public Sector Enterprises as on October 1, 1980.**
2. **The Public Sector Enterprises cover a wide range of manufacturing and production activities with a total investment of about Rs. 17,000 crores.**
3. **As many as eighty-eight pubic sector enterprises made a net profit of Rs. 484.75 crores (after tax) during 1978-79.**
4. **Oil and Natural Gas Commission (ONGC) earned the highest net profit (after tax) of Rs. 72.52 crores during 1978-79, followed, by Indian Oil Corporation (Rs. 69.20 crores), and Steel Authority of India Ltd. (Rs. 65.84 crores).**
5. **The Public Sector Enterprises provide employment to about 19 lakh persons.**
6. **The sales of the Public Sector Undertakings in 1978-79 were to the tune of Rs. 12,137 crores.**
7. **As many as eighty-three public sector enterpr ses are providing housing facilities to their employees.**
8. **The capital outlay on townships in these undertakings was Rs. 554 crores at the end of March, 1979.**
9. **About five lakh Residential Units had been constructed till the end of March in these Public Sector Enterprises.**
10. **Public Sector Undertakings spent Rs. 92 crores on social services such as education and medical care during 1978-79.**

Iron and Steel: Performance and Prospects

Pranab Mukherjee*

INDUSTRIAL development in India has reached a high degree of self-reliance and the steel industry occupies a place of primacy in the strategy of future development. The capacity of steel in the large integrated steel plants is likely to be doubled from the present level of 11.4 million ingot tonnes to about 23 million ingot tonnes by 1989-90. The public sector steel industry has been restructured to meet the new challenges and due emphasis is being laid on technological/rehabilitation and modernisation of the industry. Apart from this, a complementary role is being played by the mini-steel plants using the electric arc furnace route and efforts are being made to reduce the feed stock problem of this sector. Plans are also being drawn up to balance the availability of basic inputs to the steel industry taking into account the special problem of coking coal, sponge iron, power etc. While exercising a high degree of selectivity, there is no inhibiting bias against the import of sophisticated technology, wherever considered necessary for the rapid growth of the vital industry.

The steel industry in India can be broadly divided into two parts—integrated steel plants and the other units. There are presently six integrated steel plants in the country with a combined capacity of 11.4 million ingot tonnes, with five in the public sector and one in the private sector. Production from integrated steel plants in terms of ingot steel and saleable steel during 1978-80 is given in Table 1.

Table 1

(In '000 tonnes)

Steel Plant	Annual rated capacity	Production	Percentage of rated capacity
Ingot Steel			
BSP	2500	2108	84.3
DSP	1600	882	55.1
RSP	1800 *	1268	70.4
BSL	2500	1426	57.0
IISCO	1000	565	56.5
TISCO	2000	1779	89.0
Total	11400	8028	70.4
Saleable Steel			
BSP	1965	1706	86.8
DSP	1239	604	48.7
RSP	1225	1045	85.3
BSL	2000	849	42.5
IISCO *	800	430	53.8
TISCO	1500	1447	96.5
Total	8729	6039	69.2

*Minister of Steel and Mines and Commerce.

The production of ingot steel in the integrated steel plants during the year 1979-80 was 8.028 m.t. which represents 70.4 per cent of the rated capacity and 85.9 per cent of the target set for the year. Similarly, the corresponding production of saleable steel from the integrated steel plants during the year was 6.039 m.t. which represents 69.2 per cent utilisation of the rated capacity and 81.6 per cent realisation of the target set for the year. The production performance was below the target primarily due to shortage of power supplied to both the coal and steel sector which in turn also resulted in the short supply of coking coal to the steel industry. The total availability of steel in the economy of the country during 1979-80 was 8.615 m.t. This could be achieved by a contribution from mini steel plants to the extent of 1.32 m.t. and planned imports.

Expansion Plans

In the expectation that the economy will regain the momentum of growth and that the various constraints in maintaining production at high levels will cease to operate, it has been planned that the availability of steel in the eonomy during 1980-81 will increase by 17.9 per cent, that is 1.545 m.t. over the last year that is 1979-80.

It has been planned to increase the production of saleable steel from the integrated steel plants to 7.32 m.t. during 1980-81. Maintaining the exports at the previous year's level with an anticipated contribution from the electric arc furnace industries to the extent of 1.5 m.t. and planned imports of about 1.4 m.t., the total availability of steel in the home market during 1980-81 would be about 10.16 million tonnes.

The following important capital investment schemes are either in progress or are in advanced stages of consideration or are scheduled for completion in the coming years :

(i) Completion of current expansion programmes of Bhilai and Bokaro Steel Plants to 4.0 m.t. each.

(ii) Further expansion of Bokaro Steel Plant to 4.75 million ingot tonnes.

(iii) Salem Steel Plant with an annual capacity of 32,000 tonnes of cold rolled stainless steel sheets.

(iv) A plant at Rourkela to produce 37,500 tonnes of cold rolled grain oriented electrical steel sheets and 36,000 tonnes of cold rolled non-grain-oriented sheets per annum to meet the requirements of the electrical industry.

(v) Provision of adidtional meetin gfaciliteis at Alloy Steels Plant, Durgapur, to increase the existing capacity from 1,00,000 ingot tonnes of alloy steels to 1,60,000 tonnes.

(vi) Modernisation and replacement of equipment in the existing steel plants.

(vii) Schemes for updating of technology and replacement of obsolescent processes.

(viii) Research and Development Schemes for achieving higher productivity, product diversification etc. in steel plants.

(ix) Installation of an experimental plant for producing sponge iron using a solid reductant, namely, non-coking coal.

(x) Establishment of a shore-based steel plant at Visakhapatnam with an installed capacity of about 3.4 million tonnes of liquid steel to be implemented in two overlapping stages, within a span of 6 years from the start of work at site.

((xi) Certain proposals for the setting up of more new steel plants, including the coastal steel plant of about 3 m.t. capacity recently approved in principle for implementation in two stages, in financial and technical collaboration with some developed countries which are presently under consideration.

Modernisation

The Indian steel industry has achieved a fair measure of self-reliance in areas connected with steel making, as wide-ranging and diverse as preparation of feasibility studies, detailed project reports, design and consultancy work, project engineering including infrastructural facilities, plant and equipment manufacture, investigation of raw materials, training of manpower as well as development of management competence, besides efficiency in operation and maintenance. However, rapid development in the steel making technology is a continuing phenomenon and to keep abreast of these developments, the Indian steel industry must continue to make sustained efforts for process improvements, development of indigenous technology and adaptation of new technology, thereby retaining its competitiveness with similar industries in other countries. It is in this context that an R&D Centre for Iron and Steel has been established under the SAIL. At the same time, it is necessary to maintain close links with and benefit from technological developments in the more advanced countries. It is for this reason that the Government of India have also entered into agreements with the Soviet authorities for the preparation of programmes for introduction of technological improvements/innovations at Bhilai and Bokaro Steel Plants to achieve higher productivity from the existing facilities at both these plants at the lowest possible cost.

Future Projections

On the basis of a recent study conducted, the demand and availability of finished steel in 1984-85 and 1989-90 works out as given in Table 2.

Table 2

(in million tonnes)

Year	Demand	Availability	Gap
1984-85	12.700	11.395	1.305
1989-90	18.400	15.217	3.183

The gaps are proposed to be met by expansion of existing steel capacities and construction of new steel plants at greenfield sites, as well as optimum utilisation of the existing steel capacities. The production capacity of ingot/liquid steel is proposed to be increased from 11.400 m.t. by the end of 1979-80 to 14.56 m.t. by 1984-85 and 22.635 m.t. by 1989-90. Corresponding capacity in respect of saleable steel was 8.729 m.t. in 1979-80 and this is proposed to be increased to 11.301 m. t. by 1984-85 and to 18.166 m.t. by 1989-90. Table 3 gives the yearwise capacity build up in respect of ingot steel and saleable steel during the decade 1980-90.

Table 3

Capacity (Mtpy)

By and year	Ingot/Liquid Steel	Saleable steel
1979-80	11.400	8.729
VIth Plan		
1980-81	11.400	8.729
1981-82	11.400	8.717
1982-83	11.400	11.061
1983-84	14.560	11.301
1984-85	14.560	11.301
VIIth Plan		
1985-86	15.704	12.331
1986-87	17.204	13.601
1987-88	20.235	15.554
1988-89	21.335	17.009
1989-90	22.635	18.166

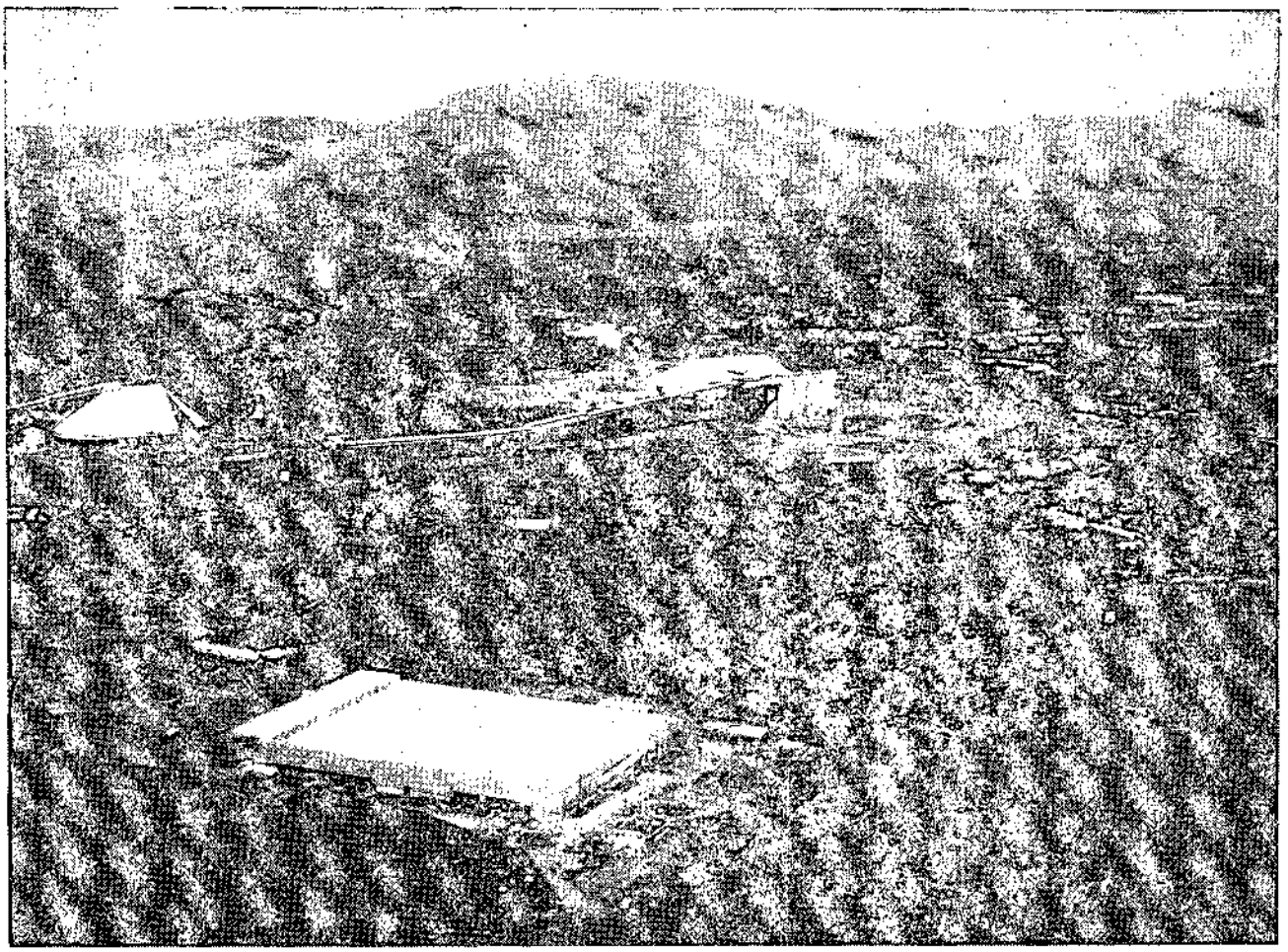
Table 4

(in million tonnes)

Year	Hot Metal	Ingot/ Liquid Steel	Saleable Steel	Saleable pig iron
1979-80	8.474	8.028	6.039	0.976
VIth Plan				
1980-81	10.040	9.160	7.320	1.400
1981-82	10.835	9.745	7.570	1.535
1982-83	11.479	10.650	8.320	1.450
1983-84	12.480	11.830	9.220	1.335
1984-85	13.195	12.450	9.710	1.400
VIIth Plan				
1985-86	14.645	13.425	10.500	2.005
1986-87	16.140	14.950	11.800	1.995
1987-88	17.510	16.335	13.025	2.045
1988-89	19.140	17.720	14.175	2.305
1989-90	20.375	19.385	15.580	1.970

The output of ingot steel at the main steel plants is planned to increase from 8.028 m. t. during 1979-80 to 12.450 m. t. in 1984-85 and 19.385 in 1989-90. Corresponding output of saleable steel in 1979-80 was 6.039 m.t. and is planned to be increased to 9.710 m. t. by 1984-85 and to 15.58 m. t. by 1989-90. Output projections of ingot steel/saleable steel and saleable pig iron during 1980-90 are given in Table 4.

The demand and availability position will be reviewed at the end of the Sixth Five Year Plan period. The thrust of present policy is to plan for further narrowing down the gap between demand and availability of steel by the Seventh Plan period (1985—90), to enable the industry to fulfil the role envisaged for it as a key factor in the country's industrial and economic growth.



Aerial view of the Kudremukh Project

Round-up

Kudremukh Mining Project

KUDREMUKH, which means 'horse's face' in Kannada and was known as 'Ayomukh' in the epic Ramayan, is located in the picturesque, Wordsworthian Aroli Gangamula range of the western ghats in Chikmagalur district of Karnataka State.

The National Mineral Development Corporation, a Government of India undertaking, started detailed investigation of this areas in 1965. With the collaboration of the U.S. and Japanese firms, a project report was prepared in 1971. However, in 1974, the collaborators withdrew their interest due to recession. Subsequently, two agreements were signed on November 4, 1975 with Iran for collaboration. Iran agreed to extend a loan of 630 million US dollars, and to purchase of 150 million tonnes of iron ore concentrate of stipulated quality and specifications for 20 years from 1980, at the rate of 7.5 million tonnes a year, which could earn India in the process about Rs. 3000 crores in foreign exchange. In accordance with one of the terms of the financial agreement, a new Company was estabblished on April 2, 1976 to construct and administer the Kudremukh project. Thus was born the Kudremukh Iron ore Company with headquarters at Bangalore and with its two activity centres at Kudremukh and Mangalore.

The total area of the deposit is about five square kilometres. Kudremukh ore body is sedimentary precambrian iron formation composed of thin layers of magnetite and quartizite. The weathered ore is exposed on the surface and there is practically no 'over-burden'.

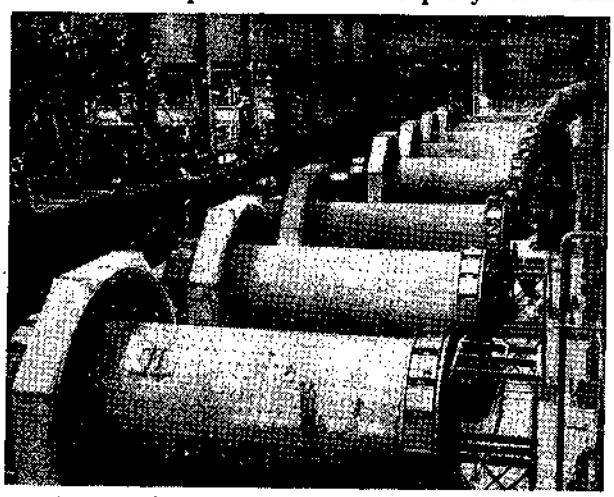
IS DPD/80—2

The total reserves are estimated at 610 million tionnes of weathered ore and transitional ore with an average Fe content of 38.6E for mineable ore. In addition the reserves of primary oxidised ore are estimated to be 400 million tonnes.

The mechanised mining scheme of Kudremukh envisages a daily production of run of mine of the order of 82,,000 tonnes. The blasting will be done using pumpable slurry explosives which will be directly pumped into blast holes from specially designed trucks.

The concentrate will be transported from Kudremukh to Mangalore through a 67 km long pipeline, passing through a 1.7 km long tunnel to avoid pumping of slurry over the hills. The slurry pipeline will discharge concentrate slurry into two storage tanks at Mangalore Port. The concentrate will be reclaimed from the stockpiles by two bucket wheel reclaimers, each of capacity of 3500 tonnes per hour and conveyed to the shiploader for loading into the ships of 40,000 to 60,000 tonnes DWT capacity at an average rate of 6000 tonnes per hour.

As a result of production of 7.5 million tonnes as finished concentrate, about 13 million tonnes of material will be produced as waste per year. This



A view of Concentrator Plant of Kudremukh

Kudremukh-Mangalore Pipeline

waste or tailing comprising mostly of silica, will be disposed of without causing pollution. The Lakya valley located 'North-west' of the project has been chosen for the disposal of tailings. A 72 m high earthen dam has been provided across the Lakya river.

The total expenditure to be incurred on the Kudremukh Project including infrastructure facilities of power and port may amount to Rs. 647.30 crores. About 20,000 people are working at Kudremukh at present. When the operation commences only about 3000 to 4000 will be directly employed.

Development of NE Region

THE Union Public Service Commission has decided to open additional examination centres in North Eastern Region at Kohima, Imphal, Agartala, Jorhat, Aizwal and Itanagar from early 1981 and the Staff Selection Commission had decided to open new examination centres at Jorhat, Tezpur, Kohima, Sibsagar, Dimapur and Aizwal for examinations to be held in early 1981.

Nineteen public sector undertakings have agreed to recruit 700 local youth this year for training and absorption.

This was disclosed at the high level Committee of Ministers for the Economic Development of North-Eastern Region which met in New Delhi recently under the chairmanship of Shri Yogendra Makwana, Union Minister of State for Home Affairs. This committee reviewed various steps taken on both the ongoing programmes and the new schemes in the region.

It was further disclosed that six roads namely Imphal-Silchar-Badarpur, Silchar-Aizwal-Lunglei, Link to Itanagar, North Trunk Road, Paikan-Tura-Daiu, and Lateral Road were declared as National Highways. A Special Action Group to expedite availability of adequate raw materials, financing and marketing facilities of small industrial units in the North-Eastern region has been set up with the Director of SIDO as the Convenor.

Public Sector Drug Industry

DALBIR SINGH*

THE entry of Government into the field of drugs and pharmaceuticals dates back to the early fifties with the conclusion of a tripartite agreement between the Government of India, UNICEF and WHO on 24-7-51 for the production of Penicillin in India. The UNICEF undertook to supply all foreign imported equipment to the tune of $ 8.5 lakhs while WHO undertook to provide technical assistance involving an expenditure of $ 3.5 lakhs. The terms of the agreement with these UN organisations required that this project should give them Pencillin free of cost to the tune of expenditure incurred by them for free distribution in India. Pimpri, rear Pune was selected for the site of the project. The project started with the laying of the foundation stone in March, 1952 and a new company called Hindustan Antibiotics Limited (HAL) was registered on 30-3-1954 for the implementation of the project. The factory started regular production of Penicillin from August, 1955.

The second public sector project was the Indian Drugs & Pharmaceuticals Limited (IDPL) registered in April, 1961 for the implementation of the drugs and surgical instruments projects with the assistance of USSR on the basis of an agreement between the Government of India and the USSR. That Government granted a credit of Rs. 9.52 lakhs towards foreign exchange expenditure on preparation of detailed project report, working drawings, plant and machinery supplied by Soviet Union, training of Indian technicians in USSR, factories and deputation of USSR technicians in India for erection and commissioning of the plants. The three projects which were taken up were the Antibiotics Plant Rishikesh, the Synthetic Drugs Plant, Hyderabad and the Surgical Instruments Plant, Madras. The investment on these three projects was Rs. 61.15 crores. The Surgical instruments Plant commenced production in 1965 while the Antibiotics Plant and Synthetic Drugs Plant started commercial production from 1967-68 in stages.

Since then the expansion of these projects has been taken up for implementation. IDPL have established a drug formulation unit in Gurgaon for the manufacture of various formulation and Nicotinamide and Chemicals plant at Muzaffarpur, Bihar, apart from taking up the expansion of the Antibiotics Plant, Rishikesh ad Synthetic Drugs Plant, Hyderabad. In the SIP, Madras a small formulation unit has also been established, as also diversification scheme. The plant is manufacturing scalpel blades as well as various equipments required by the drugs and chemicals and engineering industries. The total investment approved on expansion projects amounts to Rs. 64.65 crores.

The expansions of the Antibiotics Plant and of SDP, Hyderabad are expected to be completed in 1981. Commercial production of Acetaldehyde, Acetic Acid and Methyl Ethyl Pyridine in Nictotinamide plant, Bihar has startede while Nicotinamide Plant was expected to be Commissioned by December, 1980. The formulation units at Gurgaon and Madras have commenced production.

The public sector drug industry in India has come of age. Under the new drug policy it has been assigned the leading role in the production and distribution of drugs.

IDPL are obtaining strains and technology for the manufacture of oPtassium Penicillin, Tetracycline Erythromycin and Semi-synthetic Penicillins from Farmafin of Italy. The guarantee trial runs have been completed in regard to Penicillin, Erythromycin and Tetracycline while guarantee trial runs in regard to Semi-synthetic Penicillins are expected to be completed by the end of 1980 or early next year. IDPL are obtaining technology and know-how for the manufacture of Acetic Acid MEP and Nicotinamide from A.B. Bofors of Sweden.

Joint Ventures in States

IDPL are also establishing joint venture formulation units in Punjab, U.P. and Rajasthan. These are in collaboration with the State Financial Corporations. The Punjab unit located at Sangrur (Punjab Maize Products Ltd.) involving capital outlay of Rs. 797 lakhs and with IDPL's investment of 51 per cent at Rs. 127.50 lakhs will be producing Starch, Glucose and Dextrose and other by-prodcts. The other two units in U.P. and Rajasthan located at Lucknow and Jaipur are purely drug formulaltion units involving a capital outlay of Rs. 160 lakhs and Rs. 135 lakhs with IDPL's investment being Rs. 32.64 lakhs and Rs. 24.06 lakhs respectively. The present status of the Punjab unit is that the Glucose plant has already been satisfactorily commissioned and trial runs for Dextrose plant are scheduled to be taken up shortly. The entire project is expected to be completed by March, 1981.

The drug formulation unit in U. P. has commenced production from September, 1979. The Rajasthan formulation unit is expected to commence production by March, 1981.

IDPL also propose to establish similar joint venture units in Orissa, Gujarat, Bihar, M. P. and Jammu & Kashmir. A Phytochemical-cum-drug formulation unit is expected to be established in Himachal Pradesh.

* Union Minister of State for Petroleum and Chemicals and Fertiliser.

The value of production of bulk drugs, formulations and surgical instruments and chemicals by IDPL during 1978-79 and 1979-80 was as follows :—

	(Rs Crores)	
	1978-79	1979-80
Bulk Drugs	30.52	37.57
Formulations	38.16	45.47
Surgical Instruments, Chemicals & Itermediates	2.64	3.24

HAL Schemes

Hindustan Antibiotics Limited which started with the manufacture of Penicillin are now manufacturing Streptomycin with the know-how and technical assistance originally obtained from Merck of USA; Ampicillin from APA with the know-how of American Home Products, and Gentamycin with technology from Medimpex and CHINOIN of Hungary. Glaxo of UK have also supplied strains for improving the production of Streptomycin. HAL have installed a Vitamin 'C' plant of 125 tonnes capacity with the technology developed by NCL, Pune.

The Government approved in February, 1977 the expansion of the manufacture of Penicillin, Streptomycin, Ampicillin and Gentamycin involving a capital outlay of Rs. 14.90 crores. The Government also approved the establishment of a second formulation unit at an estimated outlay of Rs. 339 lakhs. The total investment in HAL's projects including expansion amounts to Rs. 26.70 crores.

HAL are also establishing joint venture formulation units in Maharashtra, Karnataka and Goa in association with the State Corportions. The Maharashtra unit will come into production by March, 1981. The other two projects are in the initial stages of implementation. The total investment on these joint venture projects is Rs. 8.26 crores, with HAL's investment in equity at Rs. 1.60 crores.

The value of production of bulk drugs and formulations by HAL amounted to Rs. 14 crores and Rs. 13 crores during 1979-80 as against Rs. 12.7 crores and Rs. 10.40 crores during 1978-79 respectively.

Bright Future

Government have nationalised Smith Stanistreet & Company Limited, Calcutta under the IDR Act. The nationalisation took effect from 1-10-77. This company is engaged only in the manufacture of formulations. The Goverment have approved the expansion of formulation capacity involving outlay of Rs. 76 lakhs which would increase the turnover to Rs. 12 to 13 crores. The value of production of formulations amounted to Rs. 6.05 crores during 1979-80 as against Rs. 5.70 crores during 1978-79.

The Government have also nationalised on 15-12-1980, the Bengal Chemical and Pharmaceutical Works Limited, Calcutta, a company manufacturing drugs, formulations and chemicals. The management of this company was taken over on 15-12-1977. It is expected that with the nationalisation of the company there will be scope for further investment resulting in improvement. The value of production during 1979-80 was Rs. 8.41 crores as against Rs. 7 crores during 1978-79.

The Public Sector drug industry has thus come of age in India. IDPL, HAL and the two units in Calcutta contributed to a turnover of about Rs. 100 crores during 1979-80. They are producing over 50 bulk drugs and over 100 formulations and more new items of formulations are also expected to be marketed by them in keeping with the trends in the market. The present range includes in large measure highly essential and life saving drugs. The present bulk drug production is about 26 per cent and formulations is about 6.3 per cent of the total in the country. According to the New Drug Policy, Government have assigned a leading role to the Public Sector in the production and distribution of drugs and pharmaceuticals. Towards this end it is expected that the bulk drug production by public sector by 1984-85 will go upto Rs. 215 crores from about Rs. 59 crores in 1979-80 and formulations to the extent of Rs. 330 crores from about Rs. 72 crores in 1979-80. To reach this, the estimate of the Working Group on Drugs & Pharmaceuticals is that an investment of Rs. 140 crores for bulk drugs and Rs. 20 crores for formulations will be required during the Sixth Plan.

Steps to Curb Smoking

TO discourage the smoking habit, various steps have been taken by the State and Central Governments.

The Cigarettes (Regulation of Production Supply and Distribution) Act, 1975 provides certain restrictions regarding trade and commerce in the production, supply and distribution of cigarettes. Several States have passed laws prohibiting juvenile smoking and smoking in public places like cinema halls, buses, etc.

The Central Health Education Bureau has undertaken, through publication and mass media, massive publicity campaign against the hazards of smoking. The Ministry of Health and Family Welfare have suggested to the Ministry of Education that a chapter on "Harmful Effects of Smoking" may be prepared by the NCERT in consultation with the Central Health Education Bureau for inclusion in the School level text books of the various States/Union Territories. The tax burden on production and sale of cigarettes has been increased. All India Radio and Door Darshan do not accept any advertisement regarding cigarettes and other tobacco products. The Indian Airlines have extended the "No Smoking areas" and stopped the permissive announcement "You may smoke, if you wish".

Nehru on Public Sector

OUR mind was clear, not because of certain theories, though, of course, there is theory behind everything, but essentially because of certain practical considerations. We think that in India, as it is today certain basic industries, the key industries, should be under State control partly because it is danagerous for those key and basic industries to be controlled by private interests and also for other reasons which I need not go into. As for the other industries, they can be under private control, but remember again that when a state plans its industrial or other developments, planing itself involves a certain measure of control or direction from the State.

Why Two Sectors ?

It is obvious, in a country as undeveloped as ours, that we cannot progress except by enlarging the public sector, and except by controlling the private sector at important points. I cannot obviously go into the question of where the line should be drawn. But the line will ever be a changing one, because the public sector will be a growing one. The important thing is that the strategic points must be controlled by the State. Having said that, I shall add : If you leave something to the private sector, give them freedom to function within those strategic controls; it is absurd to ask them to function, denying them room to function, denying them the initiative.

The Middle Way

It is inevitable that those countries, which do not want either of the two extremes (capitalism and complete state control) must find a middle way. In that middle way, there is bound to be more emphasis on some factors than on others but obviously a middle way or a mixed economy, if you like to call it that is inevitable. That is not a dogma or an axiom which can be applied to any country regardless of its conditions.

New Plants for Public Sector

It seems to me a far better approach to the problem for the State to concentrate more and more on new industries of the latest type and to control them in a large measure, because then the resources of the State go towards further progress. Such controlled progress is better than merely trying to get hold of something which exists. Of course, one sometimes has to do that too.

Two Basic Criteria

In regard to the private sector and the public sector, I think the criteria should be basically two. One is to have as much production as possible through all the means at our disposal, and the second is prevention of accumulation of wealth and economic power in individual hands. If we have only the first one, it may lead subsequently to unsocial, undesirable and harmful consequences, Therefore, we must aim right from the beginning and all the time at the prevention of this accumulation of wealth and economic power.

Why the Conflict

The whole of our land is in the private sector. Our small industries are very largely in the private sector. The whole conflict comes—not conflict exactly but a certain pull—for two reasons. Certain basic industries are in the private sector; some of the great industrialists want more of them because not only they might prove to be very profitable but because it gives them economic power. I think it is highly objectionable that economic power should in the hands of a small group of persons, however able or good they might be. Such a thing must be prevented. That is our broad approach. With this approach, the Planning Commission have to deal with questions of production, both in the private and the public sector, and with the question of preventing accumulations. . . It is well know that ever since we started our plans, private enterprise has prospered as it has never done previously, for the simple reason that they have certain assured things to look to and they have proved profitable.

Checks and Freedom

I have no doubt that the normal governmental procedure applied to a public enterprise will lead to the failure of that public enterprise. Therefore, we have to evolve a system for working public enterprises where, on the one hand, there are adequate checks and protections, and on the other, enough freedom for that enterprise to work quickly and without delay. Ultimately it has to be judged by the results, though one cannot judge a government by financial results alone. In judging a big enterprise, one has to judge by final results. Of course, there are checks

and audit and all that, but checks come afterwards. The chief man on the spot must be able quickly to do what he wants to do.

Management

Normally it is not easy to find competent, trained persons to man these rather very specialized and high-class jobs. We can have them from civil services. We can have them from private industry. The normal civil service or administration service approach is not quite the same as the approach required for a big industry. The methods of work in governmental and civil services are somewhat different. The Government functions in a particular way, in a rather static way usually. There is so much in it that the bright person gets frustrated about. We can have bright persons from private industry to manage public enterprises. Again, the question arises whether the private enterprise approach to mind is the same as the approach of mind required for public enterprise. There is a difference between the two. In a public enterprise one has to have the background of thinking and training of public enterprises, and of the basic objectives of planning. □

Sixth and Annual Plans of the States

THE outlay of the Sixth Five Year Plan ot Meghalaya is Rs. 235 crores and that of the Annual Plan 1981-82 is of Rs. 46 crores. Important projects in the power sector included in the State Plan are the Myntdu Hydro Electric Project in the Jaintia Hills and the on-going project Umiam-Umtro Stage IV.

Gujarat will have the Sixth Plan outlay of Rs. 3,660 crores. The Annual Plan 1981-82 of the State has been finalised at Rs. 631.5 crores. In the State Plan special emphasis has been put on the Narmada Irrigation Project for which an inter-State Control Authority has been constituted. The work is to be completed in 12 years. Power and Irrigation sectors in the State Plan have been assigned about 52 per cent of the proposed outlay in the Sixth Plan.

THE outlay for the Sixth Five Year Plan 1980-85 for Uttar Pradesh has been fixed at Rs. 6200 crores and for the 1981-82 Annual Plan at Rs. 1075 crores. Emphasis would be on power, irrigation including flood control and minor irrigation.

The outlay for the Sixth Five Year Plan 1980-85 for Rajasthan has been finalised at Rs. 2025 crores and for Annhal Plan 1981-82, at Rs. 340 crores. The major emphasis in the Plan will be on development of irrigation potential, promotion of agriculture and allied sectors.

The Sixth Five Year Plan size of Tamil Nadu has been finalised at Rs. 3,150 crores. The outlay for the Annual Plan 1981-82 will be Rs. 514 crores. Under the Sixth Five Year Plan emphasis will be on increase in production of foodgrains, rice, sugarcane, cotton and oilseeds.

Madhya Pradesh will have Sixth Five Year Plan of the size of Rs. 3.800 crores. The outlay on the Annual Plan 1981-82 of the State has been finalised at Rs. 640 crores. The maximum emphasis in the State Plan has been put on irrigation, power and agriculture and allied sectors which have been allocated 86 per cent of the outlay.

The Sixth Five Year Plan of Goa, Daman and Diu has been finalised at Rs. 192 crores. The outlay on the Annual Plan 1981-82 of the Union Territory will be Rs. 34.5 crores. The highest priority in the Plan of the Union Territory has been accorded to irrigation and flood control sector, which accounts for about 23 per cent of the total outlay.

Himachal Pradesh will have the Sixth Five Year Plan size of Rs. 560 crores. The Annual Plan 1981-82 of the State has been finalised at Rs. 100 crores. In the Sixth Plan, water and power development agriculture and allied services transport and communications and social and community services have been allocated 30, 27, 20 and 18 per cent, respectively.

The Sixth Five Year Plan size of Manipur has been finalised at Rs. 240 crores. The Annual Plan 1981-82 outlay has been fixed at Rs. 43 crores. In the State Plan, emphasis has been put on agriculture and allied sectors. The target for foodgrains production has been fixed at 4.50 lakh tonnes.

The size of the Sixth Five Year Plan of the North Eastern Council (NEC) will be Rs. 315 crores. The outlay on the Annual Plan 1981-82 of the Council has been fixed at Rs. 65 crores. The Plan of the NEC approved by the Planning Commission includes on transport side, completion of the Brahmaputra bridge on Sylhet development of aboht 1000 km. of inter State|UT roads and ropeways and inland water transport. The power schemes include completion of the Kopili Power Project, taking up of Garo Hills Thermal Project (2X30 MW) and some other power project of inter-State/UT importance.

These were agreed when the concerned Chief Ministers/Governor met the Union Minister of Planning and Labour and Deputy Chairman, Planning Commission, Shri Narayan Datt Tiwari and Members of the Commission recently.

Shri Tiwari said that within the financial constraints the Planning Commission would help backward States like Meghalaya to the maximum possible extent. He also urged the need for better evaluation and monitoring of Plan schemes. He commended Gujarat on her good record of Plan implementation. He also appreciated the efforts made by the State to mobilise additional resoures for the Plan schemes. The buoyancy in the economy at present, he said, could be further utilised to expand the resource-base of the State. Referring to the problems of the North East Shri Narayan Datt Tiwari appreciated the need for regional approach to the problems of communications power and minerals utilisation and the role the NEC could play in this regard.

The State Chief Ministers and the Governor of the NEC said that they would undertake mobilisation of additional resources in order to sustain the bigger Annual and Sixth Five Year Plans. □

Prime Minister on Public Sector

THE Public Sector can claim no virtue unless it functions effectively as an instrument of production and development and as a creator of new wealth....Many of the difficulties of the public sector belong to the gestation period itself. Faulty planning with regard to concept, size, location, raw materials, design, choice of processes, equipment, personnel, contractual arrangements, supervision, co-ordination time-schedules, etc., has resulted in cost escalation and delay. Over-capitalisation, over-staffing, incidentally, adding to township costs, inadequate work-study, lack of delegation of power, the application of secretarial codes and procedures to commercial undertakings, faulty system of financial control and audit, and the lack of a well-thought-out personnel policy, constitute another set of problems. The proper programming of orders, pricing policies, quality and cost controls, research and design development and the structure of management are other factors which need looking into. Labour relations have not always been satisfactory....As I said, the final test lies in profitability, service and growth. If the public sector cannot pass these tests, then there is no meaning in it.

Management

In fact the basic weakness of industrial undertakings in the country, whether in the private or the public sector, is that they are under amateur management. If we have general administrators managing industrial enterprises under the public sector, we have family groups dominating the private sector. The aim should be to bring both under competent professional management dedicated to the objectives of economic growth and social justice. Government have already taken some steps to bring about some managerial revolution in the public sector. We should expect the private sector to initiate similar action in their own sphere.

The public sector must justify itself by its efficiency. I agree that a basic requirement for increased efficiency in the public sector is the induction of professional expertise instead of mere administrative talent. We often speak of the constraint of resources. This is real enough, but even more real is the shortage of managerial ability, a shortage shared by public and private sectors alike. It is easier to raise capital, to build buildings and to instal machinery than to develop the managerial skills necessary to run a plant at a high degree of efficiency. It is easier to buy technical know-how than to develop it ourselves. It is harder still to unite technical and managerial know-how under the same roof. For tasks which demand initiative, comprehension and competence, we must have the best men, from wherever we can and whatever be their background—whether they are in the public or in the private sector.

Industrial Relations

There is scope for the improvement of communication between management and workers in public enterprises. I do not think that it is enough to give workers representation merely on the boards of management. We need to involve them more intimately in the problems of the enterprises at various levels.

We constantly hear of the need to check the concentration of economic power in the hands of a few in the private sector. I believe that by far the most effective means of checking these trends is to enlarge the role of the public sector and to upgrade its efficiency. The formidable managerial problems of the public sector need immediate attention. But the acceptance of a greater measure of discipline and dedication on the part of labour in public enterprises is also an essential element in our strategy to make the public sector the pace-setter in our economy.

Pricing Policy

Efficient management and evolution of a rational pricing policy for public sector enterprises, whether under the State or the Centre, should be an important element in our programme for the mobilisation of resources....Apart from improvement in the day-to-day management and fuller utilization of the potential already built up, there is clear need to ensure that we secure a reasonable return on investments already made through appropriate revision of irrigation rates and power tariff. It is only by improving the rate of return on the investments already made that

we can generate sufficient resources to maintain even a minimum tempo of development in the years that lie ahead.

Subsidies

As far as possible they (Public sector undertakings) should certainly live upon their own earnings. But earnings cannot be the most important thing. Otherwise whole areas of production would be neglected. Many of the things which have been produced in the public sector are essential to the building of an infrastructure which will then provide opportunities even to the private sector.....It is not only the public sector which has been getting subsidies. We are giving incentives practically to every area of private enterprise. Equally that should stop too. So, all this is part of a much bigger question. You simply cannot separate one area from the overall situation.

Bank Nationalisation

An institution, such as the banking system, which touches and should touch—the lives of millions, has necessarily to be inspired by a larger social purpose and has to subserve national priorities and objectives.. Certainly, public ownership of the major banks will help to eliminate the use of bank credit for speculative and unproductive purpose. What is sought to be achieved through the decision to nationalise the major banks is to accelerate the achievement of our objectives—the purpose of expanding bank credit to priority areas which have hitherto been somewhat neglected such as (1) the removal of control by a few, (2) provision of adequate credit for agriculture, small indutsr and exports; (3) the giving of a professional bent to bank management; (4) the encouragement of new classes of entrepreneurs; (5) the provision of adequate training as well as reasonable terms of service for bank staff still remains and will call for continuous efforts over a long time.

Role of the Public and Private Sectors in Developing the National Economy

K. N. Modi*

IT has been found necessary by most developing countries to set up state enterprises to bring about rapid economic growth. In a "mixed" economy, ideally, both the private and public sectors should fortify one another and operate as integral parts of one and the same organism to optimise growth. The state intervention of an active kind has become a cardinal feature of the Indian economy since the mid 1950's. The government committed itself to the philosophy of development planning and target-oriented growth with regard to industrialisation and social welfare. The basic feature of this guided industrialisation is the evolution of the mixed economy with control and command in the hands of the state. There are two dimensions of this feature : (a) the creation of public sector in the industrial infrastructure and (b) the deliberate direction of economy and production planning for long-term development.

The public sector came into being with the adoption of the Industrial Policy Resolution in 1948, which was subsequently followed by the Industries (Development and Regulation) Act of 1951. This demarcated the respective spheres for publlic and private sectors. The Industrial Policy Resolution of 1956 classified industries into three clear categories, namely, (i) industries, for which the state will be responsible for establishment of all new units with monopoly in railways and air transport, arms and ammunition and atomic energy; (ii) industries, which will be progressively state-owned and in which the state will generally take the initiative in establishing new undertakings. Private sector enterprise will, however, have opportunity to develop in this field; and (iii) remaining industries, whose development will be left to the initiative and enterprise of the private sector, though the state could start any industry even in this category.

1970—Water-Shed Year

With the commencement of the planning era in 1952 and the acceptance of socialism, the attention paid to these two sectors gradually became unequal. The first Five Year Plan was merely a collection of individual projects. The Second Plan based its investment strategy on development of a leading sector comprising heavy industrial complex with its industrial linkages stimulating growth in complimentary activities. The public sector was assigned a key role in India's development programmes. The setting up of heavy and basic public sector industries with long gestation periods involved heavy investment and deficit financing. There were considerable shortfalls in the achievement of targets during this plan. Several contradictions and distortions had in fact emerged. Though a core of capital goods industries had been built, part of the capacity, so created had, tended to remain unutilised for lack of demand. Subsequent experience has shown, that the capital goods sector with all its potential of enclave development had failed to reach the stage of self-sustaining growth under ownership and management of public sector. In fact, 1970 was the very year visualised as a water-shed year in India's economic growth. Around early seventies it was anticipated that a great hump period of India's industrialisation would more or less be over and massive investments in heavy industry begun in 1956, would by then start yielding rich dividends in the form of large surpluses by the public sector undertakings. This has not happened because the working of the public sector undertakings resulted in recurring losses. The progress achieved during the Third Plan was even more uneven and unsatisfactory.

Since past investment did not yield any resources and non-developmental expenditure of the Governmet began to rise, the resources for planned investment began to be raised through additional taxation. A transfer of resources, thus took place from the private sector to the public sector, as a result of which, the saving and investment capability of the private sector was severely eroded. Because of links in industry, the entire economy was affected. Thus, the Third Plan paved the way for a lopsided development of the public and private sectors in the industrial set-up.

The growing importance of the public sector can be gauged by their share in the successive national plan outlays:

Plan	Share in the plan outlay	
	Public Sector	Private Sector
	Percentage	Percentage
I	46.4	53.6
II	54.1	45.9
III	58.6	41.4
IV	60.3	39.7
V	66.0	34.0
VI	57.69	42.31

Policy Towards Private Sector

After the mid 1960's the Government's Policies visibly hardened towards private sector industries and this was reflected in the appointment of Committees

*President, Federation of Indian Chambers of Commerce& Industry.

to study monopolies in industry, licensing system etc. As a result of the recommendations of the Mahalanobis Committee, MRTP Commission and Hazari and Dutt committee Reports, we have today, numerous Acts and Amendments which control each and every activity of the private industrial sector. Controls and restrictions imposed by the Government with utter disregard to their snowball effects have come to be accepted by the private sector as a way of life. Price and distribution controls have thus become the major cause of perpetual shortage.

To a greater extent, the declaration of industrial growth in the recent years can be attributed to Government's decisions made in the past. It it no wonder that the industrial sector which recorded rapid and almost continuous growth rate at 8% per annum during the first 14 years of the plan period, thereafter grew at a very uneven and sluggish rate. In the 1970s the growth has been a mere 4% against the target of 10%, the last year, 1979-80, recording a dismal - 1.5%. An industrial growth rate of at least 10% has to be achieved this year for putting the economy on the road to recovery.

Acquisition of Private Sector Industries

In the late 1960s and early 1970s, expansion of public sector took place through acquiring industries from the private sector. Thus, coal mining, insurance, a part off textile mills and substantial chunk of the banknig sector passed into Government's hands. These industries were expected to significantly improve after nationalisation. But unfortunately this has not happened. The coal industry even after a total investment of Rs. 1,120 crores and three revision in the price of coal has continued to make losses year after year. The banking sector is riddled with strikes while labour problems continue to affect the textile mills.

The performance of the public sector units hitherto has, thus, cast doubt about their ability to fulfil all expectations. Instead of being a source of finance to the national exchequer, they have become a financial drug.

To a greater extent, the deceleration of industrial growth in the recent year can be, attributed to Government's decisions made in the past.

Prof. Sergei Tyulpanov of the University of Leningrad points out that, "only when the public sector operates efficiently and profitably, and makes a decisive contribution to the domestic accumulation of fund does it show its advantage over the private capitalist sector and ensure the fulfilment of the cardinal tasks of Indian development". To say the least, the public sector has neither been efficient nor profitable.

Rise in Loss-making Enterprises

Although public sector undertakings under Central Government grew from 73 in 1968-69 to 159 in 1978-79, the number of loss making enterprises also rose from 32 to 69 in the same period, and correspondingly the quantum of losses increased from Rs. 94.2 crores in 1968-69 to 516.71 crores in 1978-79. The Minister of State for Finance recently stated that as many as 69 public setcor undertakings have incurred a net loss of Rs. 236.56 crores (after tax) in the first quarter (April-June) of the year 1980. The highest loss of Rs. 40.32 crores was incurred by Coal India Limited and its subsidiaries followed by the Steel Authority of India Limited with a staggering figure of Rs. 38.19 crores. The list includes 16 public sector enterprises which made net profit in 1979-80.

An indstrial growth rate of at least ten per cent has to be achieved this year for putting the economy on the road to recovery.

Any discussion on the profit making aspect of public units brings forth retaliation by the supporters of State enterprises. They point out that the efficiency of public enterprises lies in their ability to cope successfully with their social objectives. This approach has become a fetish. Apart from dealing with extremely vague and almost immeasurable social benefits, the advocates of this "broad" interpretation of public sector efficiency try to conceal their helplessness and inactivity. In other words, they try to justify the losses even if they were caused by unjustifiable causes. It is absolutely clear that unless the public enterprises make a profit, it will not be possible to provide a base for further investment and perform the functions assigned to it. It, therefore, becomes necessary for them to earn a rate of return of at least 12 per cent to make them viable. The public sector is, after all not in business only for fun.

Main Causes of Low Profitability

One of the main causes for the low profitability of public sector enterprises is poor capacity utilisation. Production capacity is not being put to full use because of improper use of equipment, poor organisation of supply and sale, limited demand due to their poor quality of products. There has been a decline, especially in respect of units in the range of over 75 per cent capacity utilisation in the year 1978-79 as compared to the previous two years. In 1976-77, the percentage of units with capacity utilisation 75% was 65%, 55% in 1977-78 and 47% in 1978-79. Another reason has been the enormous accumulation of inventories by these enterprises—mostly reserves of unrealised products and working capital. Inadequate availability of skilled technical personnel and employment of unnecessary labour to reduce unemployment leading to staggering of labour discipline has hampered the public sector in fulfilling its role in market regulation, development of ancillaries and transfer of technology and management expertise to small units.

Unproductive expenditure of the public sector enterprises has risen enormously over the years. An element of cost consciousness must be introduced in the management of public sector enterprises. Greater stress on professionalism, better utilisation of resources and productivity of men and material, improved financial and material management and an effort to reduce inventory level would all greatly help in improving the performance of the public sector.

Most of all, a certain degree of autonomy is needed which would ensure for the enterprise the necessary flexibility and freedom of action in carrying out their production and financial assignments.

The private sector, submerged as it is, in numerous controls and restrictions has proved itself creditable. While the public sector in 1977-78 made a loss of Rs. 91 crores on investment of Rs. 11,400 crores, the 1720 medium and large limited companies are estimated to have made an after-tax profit of Rs. 381.36 crores on the total capital employed of Rs. 13,043.79 crore. If due appreciation is given to the fact that the private sector has a complementary and not substitutive role to play in industrial growth then, it is necessary for the government to create a conducive environment for its meaningful contribution. Unless support measures are devised to encourage investment and monetary policy is modified, private sector cannot do much to expand its investment.

Fruitful Interaction

A mixed economy offers immense scope for fruitful interaction between the public and private sectors. For example, management cadre of the private sector is well known for its business efficiency and can be used by the public sector to improve production, sales and profit. To introduce an element of competition, areas now reserved exclusively for the public sector units can be thrown open increasingly to private units. This would, no doubt, work very well in industries where the public sector units are not up to the mark, for example, power. Public sector enterprises can be allowed to be managed by private sector firms on a contract basis. Thus, democratisation of management of public enterprises will be in public interest. The decision to issue some share of public units to the general public will, apart from ensuring vigilance by share-holders, increase accountability of these enterprises.

The private sector has an important and healthy role to play in preserving the base of a democratic society. Variety, diversity, spontaneity and competition all go to make a society rich. The success of democracy depends on the effective role played by its various constituent groups. There must be division and not centralisation of authority, a variety and not unanimity of opinion in economic, social political and administrative functions. For the perpetuation of democracy there is need for both the public and the private sectors to understand and accept each other's role. Only then will the country succeed in achieving rapid industrial prosperity. □

Power From Earth's Inter or

Khabibulla Amirkhanov*

THE amount of heat contained in the 10-kilometre layer of the Earth's crust is several thousand times greater than the prospective resources of all fuel deposits discovered so far. In addition, geothermal energy has some advantages over traditional energy sources : it is ecologically clean and, most important, practically inexhaustible.

The use of the heat of the Earth's interior for energy-producing purposes has already started. More than 1.5 million kilowatts is the present installed capacity of geothermal power stations operating in the world. One of them, the Pauzhetka, has been in service for more than ten years now in Kamchatka.

On a wider scale the heat of the Earth's interior is used for industrial and agricultural needs, and for heating cities.

In some towns of Daghestan thermal waters are used for winter heating. The heat from underground "boiler houses" is used by every eighth inhabitant of Makhachakala (capital of Daghestan) and every second in Izberbash and Kizlyar. In our republic, thermal waters meet the requirements of more than a hundred enterprises, greenhouses and other installations. What is more, a unit of heat from the underground "boiler houses" is one-fifth to one-tenth as costly as that obtained at a thermal power station. Our autonomous republic has large deposits of thermal waters. We have knowledge of their depth of occurrence, temperature and mineral content. This information helps substantially the staff of the department concerned with the utilisation of the Earth's heat, which has been functioning in Daghestan for 15 years now. Similar departments are set up in the union republics of Transcaucasia, Kazakhistan, the Chechen-Ingush area, and the Stavropol territory.

Daghestan has been found to contain a number of areas with particularly large reserves of thermal waters. For example, not far from the village of Tarumovka, a well has been bored which produces 12,000 tons of steam and brine a day. At the mouth of the well the steam temperature is some 240 degrees Centigrade. It is planned to build a geothermal power station there, and also a factory to extract from the brine valuable elements, cesum, rubidium, boron, iodium and others.

In the Daghestan branch of the USSR Academy of Sciences an Institute of Geothermal Studies the first one in the world, has been set up. This institution works on solving comprehensively the problems connected with the use of heat from the Earth's interior.

Some 50 large deposits of thermal waters have been discovered in the Soviet Union. But the number of areas where the inexhaustible heat of the hot and dry interior can be used is even greater. But thermal waters are mineralised, which makes their use difficult. By injecting pure and salt-free water into the hot dry interior, we obtain it, after natural heating, in practically the same chemical state.

Scientists of our branch of the USSR Academy of Sciences have developed several methods of creating artificial fissures in the hot interior where water is injected. Work in this direction is continued by specialists of the newly established Institute.

* Corresponding Member of the USSR Academy of Sciences, Chairman of the Presidium of the Daghestan Branch of the USSR Academy of Sciences.

Industrial Relations in Public Sector

G. Ramanujam*

IN its estimates of financial resources for the Sixth Plan aggregating to Rs. 90,000 crore, the Planning Commission has taken 11,007 crore as the contribution of public sector enterprises. At the same time para 16 of the Sixth Five Year Plan Frame admits that :

> "a large number of Central and State Public Sector Enterprises are not yielding the returns which could be normally expected from them. Deficiencies in Management, as well as lack of appropriate pricing policies are responsible for this outcome. Major Central Public enterprises, including railways, steel and coal will have to generate much larger internal resources than they have done in the past."

If the public enterprises must be enabled to fulfil the great expectations and contribute more than Rs. 11,000 crore to the plan resources, it is not enough if deficiencies in management and lack of appropriate price policies are set right, but there must also be full utilisation of installed capacity in all public sector undertakings. They must also be assured of harmnious industrial relations. I propose to deal in this article with only the industrial relations factor in public sector undertakings.

Lower Man-Days Lost

The year 1979 witnessed a record number ot man-days lost on account of industrial relations conflicts in the country. Out of the total number of man-days lost, the loss in the private sector was 304,40,000 days while in the public sector it was only 66,60,000 days. That is, it was a loss 4,281 man-days for 1,000 employed in the private sector, it was only a loss of 441 man-days for 1,000 employees in the public sector. That is to say the number of man-days lost in the public sector was actually one-tenth of the man-days lost in the private sector. We can take pride in the fact that the number of man-days lost in the public sector was thus relatively lower than in the private sector. But then we should not ignore another indicator in this regard, viz., that while the number of man-days lost in the public sector in 1978 was 43,50,000 only, it has gone up to 66,60,000 in 1979, i.e., by more than 50 per cent. It is imperative that we must not only arrest this trend of increasing number of man-days lost, in all indstries generally, more particularly in the public sector, but also bring it down substantially. All the more so as the net result of that contribution by the public sector by way of net surpluses is only marginal. This indicates that there is need for an in-depth study into all aspects of the working of the public sector, so that the public sector's contribution too in the industrial development of the country becomes substantial.

In this context, the setting up of a Committee under the chairmanship of Mr. Mohamed Fazal, a member of the Planning Commission, to go into the working of the Public Sector Undertakings, unit by unit, is a timely step in the right direction. The Committee, however, could be more effective if a labour representative also is associated with it in its studies as that could bring forth any industrial relations problem that might have contributed to the poor results in any public sector undertaking. It might also indicate the possible lines on which the performance of the Undertaking could be improved through improved industrial relations.

In 1979, the man-days lost in the public sector were one tenth of those lost in private sector.

Further a mere fall in the number of man-days lost cannot be taken as reflecting ideal industrial relations. In spite of the fall in the number of man-days lost there might still be a cold war between the parties. In other words, man-days lost might be less, but still harmonious industrial relations might be absent and there may not be enthusiastic cooperation between labour and management; and this, in turn, will affect the performance of the Undertakings. It should, therefore, be our endeavour not merely be bring down the number of man-days lost, but also to improve the quality of industrial relations.

Need for a New Culture

The culture of industrial relations in our country is based on 'conflict of interests' and consequently 'confrontation' between labour and capital becomes inevitable. Even the existing law on the subject is based on the 'conflict of interests'. We have found that this has not helped either to improve the quality of industrial relations or to enthuse the workers to cooperate with the management to put in their best for maximising productivity. There is, therefore, need for a radical change in the very basis of our industrial relations from the culture of 'conflict of interests' and consequent 'confrontation' to a new culture of 'community of interests' and 'cooperation'.

* General Secretary, Indian National Trade Union Congress

18 DPD/80—3

To me, it appears that the culture of 'community of interests' is more natural and consistent with the realities than the outmoded culture of 'conflict of interests'. In the prosperity of the Undertaking lies the "community of interests" of both labour and capital. If the industry does not prosper, neither capital nor labour can be happy. Therefore, the prosperity of the industry or the undertaking should be the common objective of both labour and capital. Once this 'community of interests' is accepted, co-operation between labour and management follows as a logical consequence.

The absence of 'conflict of interests' and the pronounced presence of 'community of interests' are more manifest in the public sector; for here you do not have the traditional capitalist who wants to run an industry for his private profits, thereby coming in conflict with the aspirations of labour. Public sector should, therefore, give a lead for the transformation of the culture of 'conflict of interests' into a new culture of 'community of interests'.

With the acceptance of labour's right to participate in the management of industries, the new culture of 'community of interests' becomes natural in industrial relations. There have been frequent appeals by our leaders for a moratorium on strikes in the interests of the nation. But it has been our experience that such appeals have not received a favourable response. The reasons are not far to seek.

Alternative to Strikes

It must be remembered that normally labour will not resort to strike with a light heart. If it is presented with an effective alternative to strikes, responsible labour will naturrally prefer that alternative. At present, the alternative to strikes is only adjudication. Adjudication remains long since condemned as time-consuming and frustrating. Labour by and large has, therefore, rejected this alternative. The other alternatives resorted to by labour in the name of 'direct action', such as go-slow, work-to-rule, and sometimes even gheraos, are even more undesirable. It should, therefore, be our endeavour to provide labour with an acceptable alternative, and that acceptable alternative lies in the 'voluntary arbitration'.

In industrial relations, conflict of interests should yield place to community of interests.

Strikes, lock-outs, work-to-rule, go-slow and gheros can never go with participative management, whereas voluntary arbitration will fit in with the scheme of 'participative management'. Indeed, 'voluntary arbitration should be an extension of the 'collective bargaining process' itself and arbitration must ensure a fair, final and prompt settlement of disputes. There should be no appeal against the awards of arbitrators and this might mean amending the law, for it has been held by the Supreme Court that an arbitrator's award is not different from that of an adiudicator. If that position were to continue, then arbitration will lose all its charm. The award of an arbitrator should be made final and binding on the parties and it should not, therefore, be on par with the award of an adjudicator which is subject to writs and appeals.

Voluntary arbitration should be accepted as the alternative to strikes.

Generally, employers are hesitant to accept arbitration voluntarily. Here again, the public sector must lead the way by making it the normal rule that all differences between labour and management which cannot be resolved by collective bargaining shall be settled by voluntary arbitration. In order to have a balanced award through the process of arbitration, it is desirable to have a 'Board of Arbitration' consisting of one representative of the employees and one of the management. If the members are unable to give a unanimous award, then the Umpire appointed by them shall decide the question and his decision shall be final and binding on the parties. Already we have a similar system of arbitration under the Joint Consultative Machinery for the Government employees and this system has been working well.

Bargaining Council

Successful collective bargaining presupposes the existence of a competent bargaining agent. In the context of multiplicity of unions, it has been somewhat difficult to choose a single bargaining agent. In fact, we have been stuck for too long with the controversy over the manner of choosing the bargaining agent. Between the traditional demand for 'verified membership' and the untried demand for 'secret ballot' as the means of choosing the bargaining agent, a better course appears to be membership verification through the 'check-off' system. Any union which has a substantial membership as revealed through 'check-off system' can be made the "sole bargaining agent". But, if, in certain circumstances, it is found that a single bargaining agent will not be able to deliver goods, then a 'bargaining council' of trade unions enjoying above a particular percentage of membership as revealed through the 'check-off system' may be set up.

But it is not merely the numerical strength that should be taken as the basis for such recognition. All unions which accept the new culture of 'community of interests' and 'cooperation' should alone be entitled to participate in the trial of strength through 'check-off system', as we will then be assured of quality-based strength, which is very necessary.

It is often said that the public sector should function as an ideal employer. I agree. But it will be impossible to have an ideal employer in the absence of an ideal union. In order, therefore, to make the public sector management function as an ideal employer, it is also necessary to improve the quality of our trade unions, and towards this end there is need for some quality-control of trade unions.

Revamp Bureau of Public Enterprises

Collective bargaining to succeed must be carried on in good faith by both the parties. Generally mana-

gements of public sector undertakings plead helplessness in coming to a settlement because of a considerable degree of back-seat driving. Sometimes, they are being put in a straight jacket by the 'Bureau of Public Enterprises' with very little scope for bargaining. I quite see the need for a machinery like the 'Bureau of Public Enterprises' to co-ordinate the policies of public sector management, and, as far as possible introduce a degree of uniformity in standards by giving them proper advice and guidance on all aspects of the working of the public sector undertakings. But such advice and guidance cannot be given by bureaucrats in the Finance Ministry. The 'Bureau of Public Enterprises' itself should be revamped and manned by experts in the different disciplines, such as materials management, production management, marketing management, financial management and personnel management. Such a re-organised 'Bureau of Public Enterprises' will be better equipped to advise the public sector from which so much is expected.

Humanise Management

The public sector should not deteriorate into a bureaucratic sector, more so in the field of industrial relations. Therefore, there is need for humanising the management machinery to enable the management to evoke a more favourable response from the workmen and get their maximum co-operation. Those in charge of public sector managements must develop qualities of leadership and must function as the leader of a team so that they command the respect, affection, confidence and cooperation of the workers whom they are called upon to lead.

The Bureau of Public Enterprises should be revamped and membered by experts in different disciplines.

The middle-management personnel also require a degree of protection from their superiors. Otherwise, they will also turn out to be mere "yes-men", and that may not conduce to improve either the efficiency or facilitate the introduction of innovative management practices.

In short, the public sector must provide the leadership and function as the vanguard of a new industrial relations culture in the country. At the same time, the trade unions operating in the public sector also should change their attitudes and approach, modernise themselves and imbibe the new culture and regulate their conduct voluntarily to meet the growing demands of the nation. □

Development of Backward Areas : Role of Public Sector Industries

B. Sivaraman*

UNDER the Industrial Policy Resolution, various sectors of industries have been reserved for the public sector. Particularly basic industries like steel, coal, certain chemicals and so on have been reserved for the public sector. The state has also participated in a big way in exploitation of raw materials for industries such as cement production and paper production in order to make up the lack of private enterprise in these sectors over some time. As a definite policy, the state has dispersed the location of the public sector plants, of course taking into consideration the economic location. As a result, a large number of public sector industries have come up in what may be called fundamentally backward areas like the tribal areas, drought prone areas and hill areas. Whilst dispersal of public sector industries has been a definite policy, there has not been a clear policy as to how to make the public sector factories the nuclei for development of the backward areas.

The ordinary man in the street expects that by the location of a public sector plant in his district or in his State somehow people of the State and the area around about the location will benefit. Experience over the last three decades has shown conclusively that merely expecting a factory location would somehow develop the area or improve the economy of the rest of the State is not enough. There has to be a conscious policy to see that the public sector industries take prominent part in developing the hinterland and there has to be a parallel policy in the various States to prepare the infrastructure and the ground for enabling their public to take benefit out of the location. When the Rourkela Steel Plant was conceived and started in 1951, 35,000 acres of land was acquired though the factory and the townships would not have required even half that area. The general manager of the plant at the initiation, Shri S. N. Majumdar, took the view that the rest of the area was necessary for developing vegetable garden, horticulture, animal husbandary and so on for meeting the requirements of the population which was expected to grow round the steel plant. The Government of Orissa agreed to the acquisition and expected that in due course the initial vision of the general manager would be translated into reality. Long years after, we see that the land which is not used by the factory is still lying without any benefit to the displaced population of the locality. In our country, visions are ephemeral and there is generally no institutional commitment to follow best of visions in the interest of the nation.

Japanese Example

What are the benefits that can accrue to the people of an area by the location of a massive public sector factory in their midst? A look at the Japanese experience would be extremely paying. In Japan, a major industry tries to estimate at the beginning itself which of the various parts going into the final production and which of the various serving industries and industries that may arise out of the basic material produced in the factory can be taken for production by smaller entrepreneurs. In some instances, the major factory is only an assembling factory where almost all the parts are produced in ancillary industries. To some extent, in this country an attempt has been made to try and follow this principle. The Hindustan Machine Tools have been trying to utilise ancillaries for production of various parts in their production chain. The Petro-Chemicals Complex in Gujarat tries to encourage subsidiary industries utilising the basic raw materials produced in the main Petro-Chemical Complexes. These are stray cases in the vast universe of the public sector. There has been no conscious attempt in the initial planning or in the execution to enable the public sector factories to play the role of encouraging industries in the area of location and round about. Our public sector factories have been planned to produce from a pin to an elephant so that the production may be completely controlled by the factory management. Varions issues were raised by the planners and by the executors when demands were made for ancillarisation that in this country such ancillarisation may not produce the parts in time and anyhow it will not be an economic venture. Points like double taxation in sales tax have been raised to prove their points. If an industrial giant in the world like Japan can plan and execute the ancillarisation programme so effectively and can compete in the world markets with success, surely India can also, if it had planned its approaches correctly, spread ancillarisation very effectively. At least time has now come to dispassionately consider the prospects of ancillarisation by the public sector factories so that

* Chairman, National Committee on the Development of Backward Areas.

entrepreneurship can develop in its hinterland and the local population and entrepreneurs can get a look in into the prosperity that can accrue.

Hinterland Neglected

In our public sector not only the factory has to be built from scratch but all amenities and housing for its labour, have all to be provided by the public sector factories. Thus the planning of the entire urban complex is financed generally by the public sector factories and it has full freedom to plan the environment. A large urban settlement requires various services to the households in transport and in maintenance services which if they had been similarly planned and passed on to the local entrepreneur, lot of people in the hinterland would have got employment because of the factory and would have got the opportunity of earning far higher wages than they were doing in the backward areas. The Rourkela vision was a part of this idea. It never matured. There was not even a vision in many of the other places. A time has come, therefore, to examine what sort of policy will be required in future to develop the hinterland and its people wherever public sector projects are to be started. How are the projects to be designed so that maximum benefit can go to the area round about and the State in which it is located ?

It is not that public sector factories are not buying intermediates and primary parts from small industries and meduim industries in various parts of the country. It was estimated roughly that about 800 crores worth of ancillary production was being purchased a couple of years ago by the public sector factories in the country. These purchases are made from many corners of the country from small and medium industries located in many parts. Industrial development in the country has been a matter of history and is generally skewed in nature and concentrated in and around certain townships like Bombay, Madras, Calcutta, Delhi and so on. The small industries and medium industries are concentrated in industrially developed complexes in the country. Very few of these industries are really located in the backward areas of the country. This general principle of purchasing by tender anywhere without a conscious effort to develop ancillaries as in the Japanese method has thereby led to very little benefit out of public sector factory to the hinterland around the factory. Can there be an attempt to consciously develop ancillaries in the backward areas to supply materials to the public sector factories?

For the purpose of various facilities under the licensing procedures and supply of raw materials, etc., ancillary units have been defined recently to cover any unit with an investment in plant machinery of less than Rs. 25 lakhs which manufactures parts, components, sub-assemblies or intermediates, rather than services and markets 50 per cent of its output to other units. This limitation of Rs. 25 lakhs itself is artificial. There can be ancillary industrial units which have plant machinery worth more than Rs. 25 lakhs but which produce only parts for some other major industry to absorb. The apanese method is to tie an ancillary to major producer so that the major producer buys his requirements from those ancillaries only. Thereby a wide complex of industrialisation takes place. The present method of buying ancillary products from all over the country shows clearly that distance of the supplier from the location of the factory is not a very relevant factor in the economics of production. Thus, ancillaries can be said to be quite capable of being footloose industries—i.e. they can be located wherever convenient as long as transport from the ancillary to the factory can be organised without difficulty. Production in public sector factories will be rising and new public sector factories will be located year after year as the economy expands. Whilst some rationalisation in the ancillary purchase system of the public sector factories can be introduced to ensure that more and more of their purchases are related to the tied ancillaries, it is anyhow possible by strict planning to see that the additional quantities required in future are definitely earmarked for production and supply by tied ancillaries. Though this will not be a complete answer as in the Japanese method a time has come to start this process so that public sector factories really give benefits to the hinterland. The distance factor between the ancillary and the factory not being very relevant even if a public sector factory is located in a forward area, the nearest backward area can be chosen for location of the ancillary industries. A conscious policy decision in this manner is now required.

Policy Not Implemented

It is not that the country had not thought about this problem. In the early sixties a conscious decision was taken by the Central Government that public sector factories must encourage tied ancillaries. The policy was reiterated in 1970 and was put into active operation when Shri T. A. Pai was the Minister for Industrial Development at the Centre. With all that it was found that the pace of ancillarisation was very slow. In 1969-70, the supplies made by tied ancillaries were of the value of Rs. 6.60 crores for the whole area. It rose to Rs. 45 crores in 1976-77. In 1977-78 there was a jump to Rs. 78 crores. Even the jump in 1977-78 brought the figure to a level which was only a small fraction of the total ancillary purchases of more than Rs. 800 crores by the public sector factories.

The purchases made by the public sector factories from their tied ancillaries are just a fraction of their total purchases.

The basic concept of tied ancillary was that the public sector factory should identify the entrepreneurs who would put up the ancillary factories and agree to supply a certain quantity of intermediates. The price was to be fixed by negotiations and was to be working for a time before any change is contemplated so as to give the ancillary time to settle down. Technical expertise was to be provided to the ancillary industry and quality control was to be established so that rejections were very few. Raw material supply was to be made by the parent factory as scarce raw materials are difficult to get for a small industry. Unfortunately, not only were these salutory principles not observed but

various difficulties arose in the relationship. The report on 'Industrial Disposal' by the National Committee on the Development of Backward Areas has the following to state on the subject :—

"Analysing the situation, the relationship suffered from the following ills and problems :

(i) Irregular leading pattern and often inadequate work load causing dislocation of production.

(ii) Frequent change of orders in quantity and specifications—disturbing production schedule and calling for changes in designs, toolings, etc.

(iii) Absence or pricing formula and exposing ancillaries to undesirable open market competition.

(iv) Reluctance of management to enter into long term contracts with ancillaries, making it difficult for the latter to do long-term planning.

(v) No institutional arrangement within the public sector undertaking to tackle the problem.

(vi) Delays in inspection and acceptance of items offered by ancillaries resulting in consequent delays in payment in turn affecting profit margins of ancillaries."

It may be seen that there has been a lukewarm approach to the entire concept of tied ancillaries. The programme as it was worked obviously put the ancillary entrepreneur at the mercy of the major factory and its purchase organisation. Prices were not properly fixed and there was a reluctance to enter into long-term contracts whereas the public policy was to make them do so. Delays in inspection and acceptance loaded the ancillary entrepreneur with loans taken for holding on to stocks. All told, even though the national policy may have been stated, in actual working, a terrible reluctance on the part of the public factories has been noticed.

In 1977-78 the Department of Industrial Development took the leadership and through the Bureau of Public Enterprises sent out teams comprising senior officials of the BPE and of the administrative Ministries along with officials from the DCSSI by the SISI in the the states and the Director of Industries to visit various public sector factories and see whether the factories can be persuaded to follow the Government policy in a bigger way. This Committee had no authority to enforce any decision. Yet, it was gratifying to note that by their mere visit to these plants, they were able to push up ancillary purchases from Rs. 45 crores in 1976-77 to Rs. 78 crores in 1977-78. Had there been any effort by the Ministries concerned and the Department of Industrial Development to enforce on the public sector factories the national policy declared, surely much larger amounts could have been passed on to a tied ancillary system. A time has come, therefore, to examine why the national policy cannot be effectively translated by suitable monitoring and compulsion whereover necessary so that the public sector factories may encourage ancillary industries in the backward areas.

Training and Credit

Whereas theoretical enforcement of the national policy by the Government of India may be expected to lead to the result we expect, the matter is not so simple. In backward areas, private entrepreneurship is lacking. Even a small industry today requires a capital of more than Rs. 25 to Rs. 30 lakhs allowing for the capital goods and the working capital. The experience of the small industries all over the country has been that the banking system has not been as free with loans to the small industries for capital goods and working capital as they have been with the large and medium industries. The problem will be still more acute in the backward areas where even the basic capital that the entrepreneur can put up will be much less than in the forward areas. The prospect of locating tied ancillaries of the public sector projects in the backward areas with a view to giving benefit to the backward areas cannot be realised unless entrepreneurship is developed in the backward areas to take advantage of the opportunity and the credit system is suitably tuned to remove the difficulties of entrepreneurs' margins to make up for the difficulty to raise basic capital in the area. Entrepreneurial development and training of local people is a primary necessity. The report on 'Industrial Dispersal' of the National Committee on the Development of Backward Areas has expanded on this thesis as follows :

"Entrepreneurial development and training has been undertaken by many agencies but with mixed results. The Gujarat experiment has been studied in detail. Though this experiment may not be completely replicable, some of its features are worth noting.

(a) The programme involves an elaborate selection procedure to ensure that the chosen trainees are suitably motivated and achievement oriented.

(b) The training programmes for inexperienced trainees emphasise the need to acquire operating experience.

(c) The preparations for setting up a project are an integral part of the training system in which the candidate prepares a project report which later forms the basis for raising finance.

(d) The programme is guided by all the corporations involved in industrial promotion which helps to ensure their interest in assisting the trainees to realise their projects.

The selections of entrepreneurs in Gujarat fall broadly into the following categories :

(i) People who already have an industrial background either having run an industry which is close to the field selected or who have worked at lower levels in industry ;

(ii) People from traditional trading families who are aware of marketing possibilities of the goods to be produced or have contracts with other families outside the district and the State who deal in such commodities and can help to tie up marketing ;

(iii) Technicians and professionals who understand the technology of the industry they have selected but may lack previous entrepreneurial experience.

(iv) Others.

"The necessity for a suitable selection process is established. In the first instance, it is desirable to follow the priorities of selection thrown up by Gujarat experience. A point may be raised that in the backward

areas it is difficult to get entrepreneurs from the first two classes listed above. That is not so. Backward areas have today enterprising pioneers, not necessarily related to one group or caste, who exploit the raw material markets of the area which are substantial. Similarly trading enterprises exist to meet the consumer requirements of the backward areas. These acquire a good judgement as to what will sell and what can be promoted, and what will not sell. What is necessary is to spread the net wide and add effective propaganda for which the project group recommended by the Committee in their report can be used at the field level. It may be felt that entrepreneurs of the first class, viz., those already running an industry elsewhere or engaged at lower levels in industry elsewhere, may not be found in backward areas. One often forgets that many of our backward areas because of the widespread education, have competent technologists who for lack of opportunity in their home district, or State, pioneered industries in other areas or took employment elsewhere at middle levels. If entrepreneurial promotion is extended to attract such people back to utilise their talent in the backward areas, the problem is solveable. The third class is even now available in the backward areas because of the spread of technical education and special facilities to the backward areas. In case of this class, they will lack the basic background of the first and second class and will require the continuing attention of the State Industrial Development Organisation".

The same report has dealt with the problem of margin money as follows :—

"The Gujarat study shows that even in schemes where 100 per cent finance was permitted, enterpreneurs had to find on average12-25 per cent of the fixed cost. In the case of working funds the dependence on own resources was greater. In the backward areas it is too much to expect that we can find volunteers with such resources. The following aids are the minimum required :—

(1) Margin money for small industries will have to be lower in backward areas. The Committee would recommend that it may be so at 20 per cent of which 15 per cent will be available from the subsidy and the balance 5 per cent will have to be found by the entrepreneurs. The flow of subsidy and institutional resources to the entrepreneur must match with the flow of expenditure and there should be a suitable provision to cover pre-investment expenses also.

(2) Margin money for working capital will have to be lower and should not exceed 50 per cent of the normal requirement, as specified by the monetary authorities. In addition, both term loans and production loans must be available as a package from the institutions so that the eternal wrangle on security can be overcome.

(3) Both types of credit must be adequate for smooth operation. There must be a regional body of arbiters in which the State promotion organisation, representatives of the SISI and the main banks of the area must be involved. In Muzaffarpur (Bihar) this sort of arrangement has given some relief.

(4) Some arrangement will have to be developed to see that the enterprise gets paid in full promptly for the supplies to other industries and the public sector. Even good running industries collapse for lack of timely credit at favourable rates to bridge the delay. The Committee observes that, generally, the buyers exploit the small sector shamelessly in this matter."

It has to be noticed that without state and institutional intervention, public sector factories by themselves cannot develop the ancillaries in the backward areas so as to benefit the people of the backward areas. This limitation has to be understood.

Help to Local People

Public Sector factories can give another benefit to the people of the local area. The large complex with a large number of industrial labour and supervisors generally at a wage level much higher than in the hinterland can activise a tremendous amount of tertiary sector growth in the hinterland. Experience of Rourkela which has already been mentioned shows clearly that such a development cannot take place without somebody making the effort to tie up the opportunity with the people of the area. Many of the tertiary sector employments which are in the nature of services may be beyond the available skill of the people in the hinterland. At the same time, the people can acquire these skills by suitable training. Further, direct employment in the public sector factory can also give a high wage opportunity to people of the hinterland provided the people are suitably trained to be absorbed in the posts. Normally, between the conception of a public sector factory and its timplementation and coming to fruition there is a large time gap.

Joint efforts of public sector industries, government and financial institutions are necessary for developing ancillaries in backward areas.

This time gap is more than sufficient to give the necessary training to people of the hinterland to absorb the opportunities, thrown up by the public sector factory. Here again, it will be a joint effort by the public sector factory and the local administration to identify the beneficiaries, train them and get them absorbed. Some will be directly absorbed in self-employment services which the demand in the industrial complex throws up.

The Rourkela experiment shows that even though production of daily needs of the industry complex in vegetables, fruit, eggs, meat, poultry, etc., can be met by production in the hinterland, this may not take place suo moto. The normal tendency is for established marketing services to spread to these new settlements and expand their business rather than for entrepreneurship to start in the hinterland and avail of the opportunities. Here again is another sector where the result can be achieved only by a mutual agreement between the public sector factory and the local administration to develop the production and absorb it in the complex. □

18DPD/80—5

Public Sector and Economic Growth

K. Rangachari*

THE role of the public sector in economic growth has been a subject of controversy almost from the beginning of planning in India when it was adopted as a major instrument of development. The debate in the earlier stages was wholly ideological, the challenge about its relevance or suitability coming entirely from the advocates of free enterprise who feared that extensive state ownership in addition to the wide area of controls over the private sector would stifle market forces and increase the power of the bureaucracy. This line of opposition gradually weakened in view of the declared socialist objectives of the Government. It implied prevention of concentration of economic power and ownership of the means of production in private hands, a course for which there seemed to be general support at most political levels. It was also clear that the state was entering into the fields of basic, strategic and key industries besides the infrastructure services like irrigation electricity generation. In all these areas the requirements of capital and the element of risk were so large that the private sector was unlikely to venture quickly enough to make up for the long years of neglect before independence. Eventually as the steel plants, heavy engineering, chemical and defence industries came up along with multi-purpose projects railway expansion, the private sector found that far from being done out of business, they had a supplementary role in fulfilling public sector orders for construction and supplies, while also providing the goods required by the people who were working for the public sector and had benefited by the incomes generated by development expenditure under the five year plans.

All these considerations continue to be valid even today when the image of the public sector is not bright and its former critics now feel vindicated by the malfunctioning of many of the public sector units. No one will dispute that major irrigation, power schemes, railways communications will always remain the responsibility of the Government, though everyone will fervently hope that these will be managed with greater efficiency and due regard to the public interest than has been possible so far in the complex conditions of the economy in recent years. The scale of investment required for steel expansion, oil exploration and refining, petro-chemicals and fertilisers are well beyond the resources available to the private sector which is increasingly relying on the public financial institutions for a major part of their investment capital even in the areas now open to it. Facing this reality, leaders of the private sector now talk of the "national" sector, in which both the Government and the private sector are partners, the latter playing a junior role.

The Main Issues

Today the question is, therefore, not ideology or even the alleged inadequacy of the residuary role left for the private sector. The main issues regarding the functioning of the public sector enterprises are, firstly, their efficiency in operation not only in terms of returns on the investment but also in terms of the production of the goods and services for which the various enterprises were set up; secondly, their profitability in order to provide resources for further investment, or at least to prevent the resources raised by the Government every year from being devoted to subsidising their loses, while other new schemes lag behind for lack of investment capital; and, lastly, there is the question of improvement of their systems of accountability without prejudice to their functional autonomy, so that the social objectives behind the steady expansion of the public sector are achieved.

The main issues regarding the functioning of the public sector enterprises are, their effficiency in operation not only in terms of returns on the investment but also of the production of the goods and services for which the various enterprises were set up.

Immediately, the first problem has assumed great importance because the public sector, having deliberately sought and gained control over most of the "commanding heights" of the economy seems to have lost the power to command them. Unless it functions with greater efficiency, the public sector cannot have the necessary prestige of authority to act as the countervailing force against increasing concentration of economic power or control of the means of production in private hands, which was one of the major roles envisaged for the public sector. The crisis in the infrastructure services is now hampering the growth of the entire economy in both the sectors. Without adequate supplies of coal, electricity and transport, both public and private enterprises have to accept a low level of performance and low utilisation of existing installed capacity for production while inflationary forces are riding high. In these basic industries, the imediate need is more output or coal and power and improved transport whether or not the units concerned make profits. It could at least be said that if they produce more, the losses incurred by the public sector units can be partly offset by the economic and social benefits to the nation. The trouble seems to lie in deficiencies in poor management, and labour

* Former Editor, The Stateman.

indiscipline, bad maintenance of machinery and equipment (which is the result of the two previous shortcomings) and a general feeling that the public sector has no need to justify itself by its performance standards because it can exist in its own right on grounds of social policy.

Unit-by-Unit Review

The Government has now ordered a unit-by-unit review of the problems of the public sector undertakings with a view to finding out the remedies and we can expect some solutions to emerge in due course, at least for a majority of the cases. A large number of units are reported to have been kept without top level personnel for long periods. It raises the question whether in spite of the institutes of technology and management set up in recent years, persons of the right calibre are not forthcoming for these onerous jobs. Unless suitable men are found and they are kept long enough in their posts with an obligation to show fulfilment of the objectives of each enterprise, it will be very difficult indeed, to ensure proper performance levels. One of the expectations of our early planners was that organised industrial labour will cooperate with efficiency and enthusiasm in the working of the public enterprises as they will be working for public interest and not for private profit. This faith has not been justified by events, judging by the tensions and law and order problems witnessed in the coal mining areas and the growing indiscipline on the railways. Thus the human factor at both the managerial and worker levels has to be improved to get the best results.

Next in order of priority is the profitability of the public sector enterprises. No longer can we deceive ourselves by the specious theory that the potential social benefits or the social objectives behind their existence make this problem of profitability of public sector enterprises irrelevant. For one thing, profits are an index of efficiency in operation not just for the private sector, though different standards may be adopted for the public sector for determining the appropriate levels of profit. Still more vital for the economy is the generation of surpluses for further investment in expansion or the setting up of new units. Since the bulk of the available resources in the last three decades have been invested in the public sector of over Rs. 16,000 crores in the public sector undertakings, besides larger sums in those run departmentally like the railways and communications facilities—it is not being reasonable to expect that further resources for future investment should continue to be found through taxation or public borrowing because of the current scale of losses incurred by these undertakings. While on the one hand, the proposed investment in power capacity have to be large, State Electricity Boards incurred a loss of Rs. 418 crores in 1979-80; at that rate of cumulative losses during 1980-85 will amount to Rs. 3,000 crores, Irrigation projects and State road transport undertakings are likely to incur another Rs. 1,000 crore of losses. Hence, the Sixth Plan framework points out that (along with the reduction of subdidies), higher financial returns from public enterprises both at the Centre and the States offer the only substantial scope for generating additional resources, particularly when the limits to additional taxation have been reached.

One of the expectations of our early planners was that organised industrial labour will cooperate with efficiency and enthusiasm in the working of the public enterprises as they will be working for public interest and not for private profit. This faith has not been justified by events, judging by the tensions and law and order problems witnessed in the coal mining areas and the growing indiscipline on the railways.

Pricing Policies

It is true that the Government's pricing policies based on wider considerations have been the cause of some losses, a factor which is also operative in the private sector in the cement, drugs, paper and other industries. But this kind of subsidy for social or economic policy reasons is measurable and cannot be cited as a general argument for the present scale of losses. Secondly, the Bureau of Public Enterprises argues that most of the losses are to be found in the enterprises taken over from the private sector, the chief of them being the textile units, coal mines, some engineering concerns. In all these cases, the objective of public ownership was not employment generation but employment protection and it is a debateable point whether on balance it would not have been better to let several of the units close down and other avenues found for the labour thus displaced. Moreover, this explanation of the sickness of the private units does not fit in with the continuing losses of certain major public sector units set by the Government like the Heavy Engineering Corporation, the Mining and Allied Machinery Corporation, Hindustan Copper and the Fertiliser Corporation or the dismal record of the State Electricity Boards. More depressing is the fact that even when the remedies are known, it is difficult to apply them because of bureaucratic intertia or opposition from entrenched interests of workers. An example is the proposed separation of electricity generation from distribution and supply on which little progress has been made.

It is an immensely complex task before the Government for the success of which it needs the cooperation of the public and the States, besides support from its own personnel. It is unrealistic to expect the bureaucracy to rise to great heights all of a sudden to cope with the problems; nor will labour agree to transform its attitudes. The next two or three years can however, be utilised to delegate tasks and responsibilities to various agencies in both sectors. Managerial personnel in both sectors are doing commendable work in projects abroad where the obstacles are fewer, proving that they do not suffer from incompetence or other inherent weaknesses. The private sector can be asked to help wherever suitable since it can bring some flexibility to business operations without necessarily diluting Government ownership or control or the social objectives of the public sector. But ultimately the drive for greater efficiency should spring from a strong political will to achieve positive results, since the Government which owns the public enterprises need not brook impediments to the enforcement of its authority. □

Public Sector Pricing Policy

Balraj Mehta*

WITH the expanding role of public enterprise in economic activity and management of the economy, the question of evolving a pricing policy relevant to it has assumed considerable importance. It has received special attention in the context of the losses that industrial and commercial undertakings in the public sector are found to incur and the need to generate surpluses for recycling the large investment which has been made in these enterprises for not only upgrading and expanding them but also for accelerating the overall rate of growth of the economy.

The "Framework" paper of the Planning Commission for the Sixth Five Year Plan (1980-85) lays special emphasis on the role of public sector enterprise in the overall resources scheme of the development effort that it projects. It cautions that taxation can now make only a limited contribution to the additional resource mobilisation effort required for the Plan and "if the public sector has to play its assigned role, conditions have to be created to enable it to generate larger resources for financing further expansion and development". In the alternative, inability of the public sector to generate adequate resources results in eroding the "resource base of the Indian fiscal system". This is only further underlined by the mounting burden of subsidies which are directly related to non-recovery of the costs of investment in public enterprise in such infrastructural facilities as irrigation, power and transport systems as well as in the production of such intermediate goods as stool and coal.

Earlier, in the draft five year Plan for 1978-83, the planners had pointed out that in determining administered prices in important sectors (in which private sector plays a role) the Government went by the norm of 10-15 per cent (net of taxes) as a fair return. It was, therefore, urged that public enterprise should aim at a return of at least 10 per cent as against hardly 4.8 per cent at present and for this purpose it would be necessary to allow price adjustments to the extent they might be required, consistent, of course, with proper norms of efficiency in the working of public sector enterprise.

Once, however, the commercial criterion of a reasonable rate of return is accepted and prices are accordingly adjusted for public sector enterprise—departmental or non-departmental other significant issues will have to be reckoned with. These are criteria that must govern investment decisions and the norms of efficiency, accountability and social responsibility that the management of public sector must be called upon to observe. There must be no ambivalence in official policy in these counts.

The tendency so far has been that while functional managers in public sector enterprises are called upon to show returns, both in physical and financial terms, they are placed in a wholly untenable position in rendering their accountability, and judgement on their performance is vitiated by irrelevant or extraneous considerations. Looking back, one will find it amazing that public sector undertakings should have been able to perform as well as they have done. In passing, it might also be mentioned here that whereas the planners thought it necessary in their "Framework" paper specifically to recommend that "frequent shifts of top management personnel needs to be avoided "to improve efficiency and secure returns, abrupt shifts and changes of management personnel have become a routine affair in the running of public sector enterprises.

The present pricing policy in public sector erodes capital and only helps the private sector.

But coming back to pricing policy, a basic principle that must be observed is that no part of the consumption of goods and services produced in the economy should result in a loss to the produces in the public or the private sector. In the event of a loss for the producer in the private sector, he will simply not produce such goods and services and will shift to others in which he can make adequate profit. To the extent administered prices sometime tend to peg prices at a level which is not considered "remunerative" by the producers, shortages are bound to arise in such products, which actually result in the private producer making his recoveries from what is euphemistacally called the "open" market. In this process, black money transactions thrive and the structure of relative prices is sharply disoriented and distorted and, in turn, disorient and distort the production, consumption and incomes pattern. When, however, price controls of this kind are clamped on goods and services produced in the pubic sector, they result in losses for public sector undertakings and subsidies from the public exchequer which have to cover their losses. This too has its own deleterious efforts on the consumption and production patterns.

Who Benefits ?

The fact must be faced that the majority of our people eke out their existence at or below subsistence level. They have no access to goods and services with price tags on them even if they might be subsidised.

* Correspondent, Economic & Political Weekly.

This position is graphically illustrated by the socalled "surpluses" which are often talked about to glibly even in such essential consumption items as foodgrains, course cloth and so on. The reasons for such phoney surpluses are obvious. There is no enough purchasing power with the mass of our proverty-stricken people. Who can benefit from price subsidies in this situation ? Unquestionably who can purchase available supplies and to the extent they can purchase them in the market—be it under the public distribution system or the "open" market. This position is clear enough in respect of individual or personal consumption. But it is valid also in respect of social consumption, including education and health services or transport and other facilities. Individuals, groups and classes can and do pre-empt the use of public services in proportion to their income levels, leaving large masses out in the cold.

When investment is made in the public sector and its end-product does not recover the cost of its production, it means, that those who consume it are being subsidised at the cost essentially of those who do not consume it—in the main those who do not have purchasing power to take advantage of even its subsidised sales. A concomitant of this is that there is no generation of surpluses and there is actually erosion of capital accumulated from past investment. This is indeed the heart of the problem of resource stringency which is trotted out as an alibi for the deceleration in the rate of growth of public sector infrastructural facilities as well as production capacities. It may be said with considerable justification in this context that selling of goods and services produced in the public sector—largely critical infrastructural facilities and intermediate goods—at a loss has been really a device for transfer of resources collected by the State from the mass of the people by way of taxation and other ways, including deficit financing, to the private sector and for private gains. The position has by now reached a point in this process where viability of public sector enterprise itself has been grossly undermined and more powerful and enterprising elements in the private sector are beginning to stake claims to a direct hand in the management and even ownership of public sector enterprises, albeit in the name of the supposedly higher efficiency of the private sector.

The pricing should be based on cost-plus principal and subsidy, if any, should be borne by the government and not the enterprise.

Talking about efficiency, however, it is at the same time suggested that the public sector enterprises should continue to sell their products at a loss to the gain of private interests, personal and corporate, because the cost of the much-publicised 'inefficiency' of public sector enterprises should not be passed on to the consumers and should be borne by the public authority and public exchequer. This line of reasoning would appear to be quite appealing on the face of it, if looked at superficially, of course, and may well be justified by the dictum that if private enterprise is run inefficiently and makes losses, it is expected to go bankrupt and fold up. It may be in order to enter a caveat here on this score, however, by pointing out that in our present dispensation even losses of private sector enterprise are taken over by public authority (the takeover of sick mills falls in this category of action on the part of the government) in the name of certain, often very dubious, special purposes.

Basis for Pricing

This is not to say that there is no need to worry about efficiency of public sector enterprise. There is undoubtedly need for improving management of public sector undertakings. But when dealing with the problem of pricing of products of public sector enterprises, there are some overriding considerations to be taken into account. First of all, there is no valid reason why the cost of 'inefficiency' of public sector enterprise should not be borne by the consumers of its services and goods and why should it be passed on to the general public and the public exchequer—this is, largely those who do not partake of the consumption of these services and goods. So long as there is inefficiency and while steps are taken to improve efficiency, the costs of inefficiency too must be recovered from those who take or want to take advantage of its goods and services, be they steel or power or telephones. There is no escape from this position unless, of course, it is suggested that public sector enterprise should cease to be and should be wound up. But this again can be no general or abstract proposition and has to be considered in specific terms. Can it be argued, it must be asked, that public sector enterprise in India in areas and sectors where it operates, can be substituted by private sector with any greater efficiency. Further, can it be argued that private sector in India is at all in a position and has the resources and the ability to take up any of these areas and sectors and deliver the goods on the scale and on the standard required ? Finally, can it be argued that any of these areas and sectors could be ignored in any meaningful design of economic and social development. The answers in all these respects are clearly to be in the negative.

Once the critical role of public sector enterprise is recognised in India's development process, and there is a national consesus on this score, the cost of public sector enterprise and its growth, with all its supposed inefficiency will have to be borne, above all, by those who depend on its supplies of goods and services for satisfaction of their needs and purchase them. It might also be emphasised in this connection that obliging the functional management of any public sector enterprise to sell its goods and services at below their cost of production and to show losses on that account is the surest way of undermining the morale of the work force in the enterprise as well as undermine its efficiency. Any socially meaningful and economically rational pricing policy for public sector enterprise must, therefore, be squarely based on the sale of its goods and services on the cost-plus principal. If at all it is considered necessary to subsidise these sales, this should be done on a highly selective basis in the open and with specific and stated social or economic reasons. Such selective subsidisation should be fully covered by the public exchequer and must not appear as the losses of public sector enterprises. □

The Public Sector in Tourism Industry

S. N. Chib*

TOURISM is basically a service industry and as such, historically it was generally left to private enterprise to provide accommodation, transport and other services to visitors. But as tourism became a global phenomenon in the sixties and seventies the governments found it necessary to play a more active role. Thus, over the last 20 years, increasingly so in the seventies, a variety of patterns of the role of the State in the development of tourism have emerged : (i) the developed countries where adequate infrastructure and utilities are generally available and the governments limit their responsibility to mainly promotional and regulatory functions; (ii) the socialist countries where private enterprise is practically non-existent and the state undertakes the development of infrastucture as well as operation of facilities and services ; (iii) the Third World consisting of about 120 countries where the governments assume the responsibility of developing the infrastructure but exercise different options in providing tourist service depending on the level of economic development and the national goals of the country. For instance, in Sri Lanka, the ASEAN, Kenya, Jordan, Egypt, Venzuela, Mexico the governments have generally desisted from operating hotels and road transport services for tourists while in India the public sector entered the field of operation as far back as 1964. There is yet another group of developing countries in the Caribbean which has followed a policy of complete *laissez faire*. Extremely poor in resources many of these small islands generally offer an almost complete tax-free situation and open skies for air services to foreign developers, as distinct from investors. The developers then must build all the infrastructure and utilities besides accommodation and other facilities.

The tourist industry in India had an earlier start, and was relatively more developed than in most of the Asian and Middle East countries by 1964. Why was it then necessary for the public sector to start operating in a service industry ? Partly because of ideological reasons, in pursuance of the concept of a 'socialist pattern of society', but mainly to get over certain administrative constraints that were hindering the growth of tourism. Under the Second Five Year Plan (1956—61), for the first time tourism was given an allocation of Rs. 2 crores and then about Rs. 3.5 crores in the 3rd Plan. Under these plans it was proposed to provide accommodation and other facilities in places with high tourist potential like Khajuraho, Ellora-Ajanta, Konarak, Mandu, Halebid-Belur, Madurai, Bodh Gaya and so on. However, the executing agencies being the CPWD or State PWDs the progress was at a snail's pace. Only about Rs. 1.35 crores was spent in the 2nd Plan period. Similarly under the rules of procedure all the publicity material required for world-wide dissemination had to be produced through the agency of I & B Ministry—Publications Division, Directorate of Audio-Visual Publicity and the Films Division. There were serious delays in production and the quality was not of international standards. Finally, because road transport had been nationalised private operators were not given permits to run transport services of requisite standard for tourists on popular routes like Delhi-Agra-Jaipur, Aurangabad-Ellora or, for that matter, anywhere.

While the public sector in tourism opens up new areas, redresses regional imbalances and changes low prices, it is found wanting in the quality of services.

There was an apparent need for equipping the Department of Tourism with an autonomous technical and operational arm. Thus the Tourism Review Committee under the chairmanship of Shri L. K. Jha recommended in 1963 that three public sector enterprises be established for the execution and management of tourist bangalows, for the production of tourist publicity material and for the operation of transport services. In 1967 the three enterprises were merged into the present India Tourism Development Corporation (ITDC). A more significant development was to associate the State governments with tourism development. When the first move was made in 1955 by holding a meeting of State Chief Secretaries and asking them to include tourism in their Second Plan, some of them expressed a sense of disbelief. Their reaction was : Tourism—what ? Over the years the States started setting up their own Tourist Departments. They too felt that need for an operational arm for management of facilities on a semi-commercial basis. By now 15 States have established Tourist Development Corporations. One could hazard the opinion that even though almost half the people live below the poverty line, tourism, apart from travel for pilgrimages and business purposes etc., has gradually taken roots in India. Only the process has been reversed. In industrial countries tourism started at grass-root level and the national tourist organisations came into being by a process of integration. In India, as in most developing countries, it percolated to local levels from above.

Poor Service

To evaluate the performance of the public sector in Indian tourism one has first to determine what sort of a yardstick to apply. Should performance be judged mainly on the basis of profitability or should the 'developmental' role of these enterprises, both at the Centre and in the States, be emphasized. All these

* Former Director General of Tourism and well-known tourism consultant

enterprises are called Tourist Development Corporations, but unfortunately the key word 'development' is generally ignored, even by the Estimates Committee and the Committee on Public Undertakings. The Jha Committee defined the role of the public sector as follows : "Our intention clearly is that this Company should be self-supporting but the purpose of setting up such a Government undertaking should also be to blaze the trail, as it were, in ventures which are not immediately remunerative but which are designed to promote tourism. In fact, it should be clearly mentioned in the articles of association of the Company that it should also engage in activities of this kind."

When the first three undertakings were set up the private sector reacted strongly against them. The Minister of Tourism gave assurances in Parliament and at other forums that these undertakings were not intended to compete with the private sector but rather to fill the 'gaps', to develop new areas where private enterprise was not forthcoming, to provide services which were hitherto lacking. To quote the Jha Committee Report again, "on the whole, therefore, while we see no objection in principle to the public sector not only building hotels but also running them, as indeed it is doing in some instances, we feel it would be more advantageous all round for government to give the running and management of the hotel, once it has been built, on a suitable contract to people who are professionally competent in the field. Over and above what the public sector might do there would be clearly need for giving every encouragement to private enterprise."

The public sector enjoys certain advantages. For instance, it is able to secure suitable sites for hotels at concessional prices which are not available to private enterprise or available only at exorbitant costs. The public sector hotels also have the patronage of official guests and entertainment. At the same time it is vulnerable to political pressures with the result that the planning is not always on a selective basis, which is what it should be with limited resources. Investments have been made in certain places which have not much of tourist potential. Nevertheless, the developmental role envisaged by the Jha Committee has been partially fulfilled. Both the ITDC and State tourist development corporations have organised facilities and services in out-of-the-way centres rich in tourist attractions. However, it is rarely that they have handed over the management to 'people who are professionally competent in the field'. Also to disarm criticism for lack of profitability the ITDC have not merely filled the 'gaps' but also taken over or built hotels in large cities. Today in terms of room capacity it is the largest group owing or operating more than 15 per cent of total government approved accommodation in the country. It is continuously expanding both in remote areas as well as in high traffic cities like Delhi, Agra, Jaipur, Varanasi and so on. One could justify this strategy because the profits made in hotels in cities or transport services on popular routes provide a cushion for the losses incurred in low traffic areas.

In a country with a mixed economy such as India the performance of the public sector is inevitably compared with that of the private sector. If the quantum of profitability is not the right yardstick surely, the range and quality of services is. Where the public sector in tourism seems to have failed is in fact the quality of services, at the State level. The three main criteria by which an accommodation unit is usually judged are the confort that guest rooms offer, the quality and variety of food and the efficiency of services. Barring a couple of States the performance on the basis of above criteria of the State Tourist Development Corporations is sub-standard. The furnishings and furniture are usually of the wrong type with little regard to the size and shape of the room, or the needs of guests, the staff is untrained and there is no accepted drill that the staff should follow to make a room ready for a new guest. Elementary hygienic standards are not observed in kitchens and pantries. Half the gadgets like heaters, air-conditioning units, blowers, plumbing etc., usually don't function. I am speaking from personal experience because during the last five years I have had the opportunity of making a thorough inspection of hotels and tourist bangalows in three States run by State Tourist Development Corporations.

What is called for is a clear and comprehensive national tourism policy.

No doubt the performance of the ITDC, is far superior to that of State units. But even at the risk of being misunderstood I have to say that it is not as good as that of the units of comparable category in the private sector. No doubt the prices charged for the rooms and beverages are lower. But it is not a good enough excuse because what matters to the guest is value for money.

Lack of Professionalism

The public sector in the tourist industry has come to stay, if for no other reason because it can take the beating which the private sector can't afford to. There is no question that it is performing a highly useful function in opening up new areas and thus redressing regional imbalances. What it seems to lack is, professionalism and a proper functional structure. Professionalism requires trained manpower and secondly, experience which comes with continuity. Training is an educational process and is primarily the responsibility of the state. The state has failed to provide it. The four Institutes of Hotel Management, Catering and Nutrition and as many as 15 foodcraft institutions are not providing enough trained manpower required by the hotel and catering industry. Vocational training in tourism to meet the needs of official Tourist Departments and travel agencies is practically non-existent. A recent review by a Swiss expert nominated by the World Tourism Organisation of the training institutions in tourism and hotel management in India showed that they are mostly staffed with teachers who have had no formal training in hotel crafts or tourism themselves. The standard of teaching is rather poor and lacks practical training.

Continuity is lacking because the heads of Departments of Tourism and of Tourist Development Corporations are drawn from administrative services. They serve their terms of a few years and the experience thus gained is lost. The structure is hierarchical and not functional. Another serious defect is that at the

18DPD/80—6

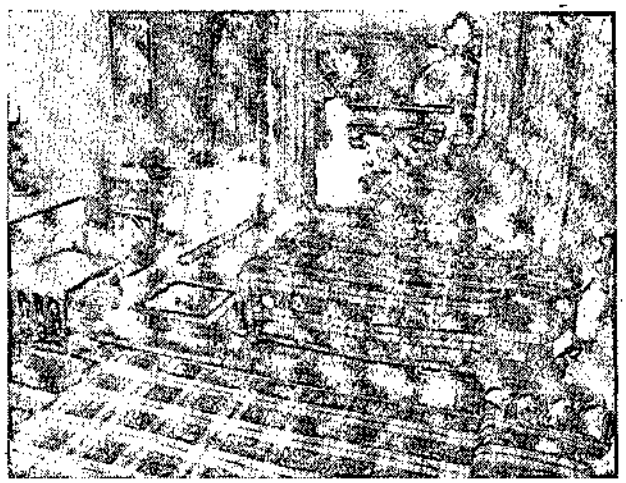
State level, there is considerable ambiguity in the functions between Tourist Departments and the Corporations. Well-defined areas of responsibility have not been fixed. Policy making regulation and monitoring of the travel industry, publicity and promotion, collection of statistics and analysis should be normally the responsibility of the official department, but in a majority of the States the Managing Director of the Tourist Corporation ranks higher in seniority of service than the Director of Tourism. For instance, instead of retail publicity of their own facilities the Corporatons have taken over the promotion of the State as a whole.

A UNDP Mission consisting of half-a-dozen foreign experts submitted a Report on the development of tourism in India almost 10 years ago. Referring to the ITDC it recommended that it should, "undertake in future the provisions of amenities and facilities of a developmental or pioneering character which private enterprise is not appropriate or not willing to provide even with the grant of certain incentives by the Government." It went on to say, "In measuring the effectiveness of the operation arm, the yardstick should be the return not in direct profit alone but should include the indirect and wider regional or national benefits." The Committee also observed that the division of responsibility between public and private sectors of tourism appeared to need clarification for the future. However, I doubt if the UNDP Report was even given serious consideration. Similarly, a Report submitted seven years ago by an expert nominated by UNDP, Prof. Robert McIntosh, Dean of the Faculty of Hotel and Tourism, Michigan University, on the setting up of a post-graduate Institute of Tourism and Research has not been implemented. What is called for is a national tourism policy which should place the role and functions of the public sector in a proper perspective and introduce comprehensive training programmes, both at the craft and management levels, in order to improve the quality of services in all segments of the tourist industry. □

Tourism Corporation

IT is fourteen years since India Tourism Development Corporation (ITDC) came into being. It is backed by the country's largest accommodation chain—the Ashoka Group. Over 3,000 rooms in 21 hotels, 3 forest lodges, 11 travellers lodges and 2 beach resorts extend from Jammu in the north to Kovalam in the south.

Existing properties have been reconditioned and expanded. In New Delhi alone the Akbar has 153 more guest rooms while the Ashok has an additional 104 rooms. A conference hall is being added to Lodhi. The travellers lodge at Bhuvaneswar has been converted into a 3-star 38 roomed hotel. To the Jaipur Ashok 44 rooms have been added. Khajuraho Ashok and Varanasi Ashok have both been centrally airconditioned. Work is on for the addition of rooms at the Hassan Ashok, the Varanasi Ashok and the Airport Ashok in Calcutta. The travellers lodge at Madurai is being converted into a hotel and will have

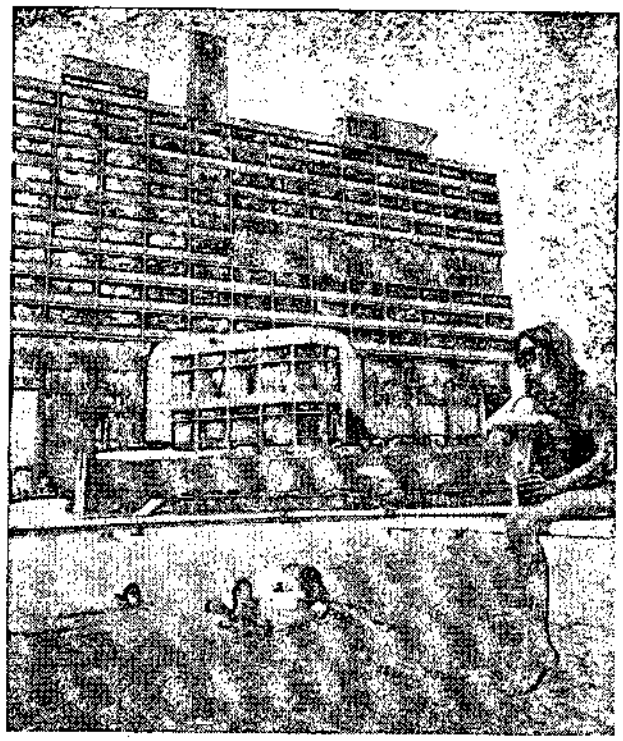


Bedroom, Kovalam Beach Resort Trivandrum

43 rooms and the Laxmi Vilas Palace, Udaipur, has 18 guest rooms added to its existing 34. The Lalitha Mahal Palace Hotel in Mysore now has a new wing with 32 rooms and 2 suites.

In Delhi, the new hotel Kanishka is nearing completion with 320 rooms. And for the budget tourists the Ashoka Yatri Niwas will soon be opening its doors. In time for the Asiad games in 1982 the ITDC plans to build two more five-star hotels in New Delhi.

With a fleet of 44 deluxe coaches, nine mini coaches, 150 luxury cars (20 of which are Mercedes Benz) and 55 cars of Indian make, the transport units of the Corporation are located in 17 centres through the length and breadth of the country. The fleet is being augmented wth more coaches, especially in yet unexploited eastern India. The ITDC organises package tours around various parts of the country.

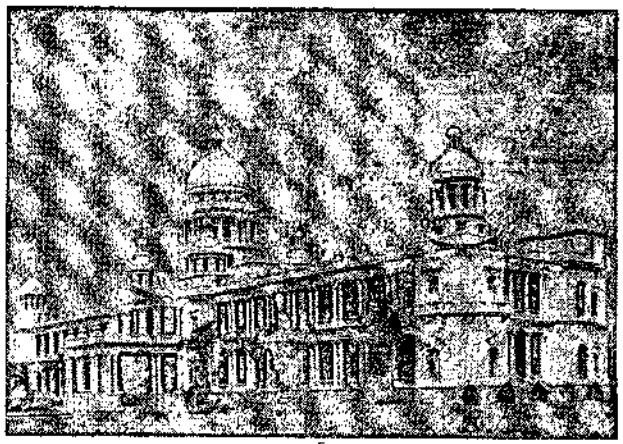


Akbar Hotel New Delhi

Convention and conference facilities to match international standards are offered at any of the Ashok Group hotels. The Ashok in New Delhi has been equated with the best convention facilities available in Asia. It can accommodate as many as 2500 people at a time, and offers secretarial services and simultaneous translation facilities, among others.

In each of its hotels, ITDC presents a wide range of India. Added to them are five duty-free shops at the International airports of Bombay, Calcutta, Delhi, Madras and Tiruchirapalli. The ITDC also arranges cultural shows for the tourists.

Two hotel projects in Iraq (Mosul and Dokan), are to be built by the ITDC as consultants. A joint venture with Lotus Hotel Limited in Limassol, Cyprus is ITDC's third overseas hotel project, which will also cover management.



Lalitha Mahal Palace Hotel, Mysore

Air India

THE Tatas were the pioneers in starting scheduled air service in India in 1932 under the name 'Tata Airlines'. It was converted into a public company called 'Air India' in 1946 and its services were expanded.

Towards the end of 1947, an agreement was reached with the Government of India for the formation of Air-India International Limited to operate international services. The Government took 49 per cent of the capital participation.

By 1952, the condition of all airlines in India had deteriorated to such an extent that the Government of India decided upon complete nationalisation, and the Air Corporations Act was passed in March 1953. The Act set out to create two Corporations, one to take over domestic operations and the other international operations. Accordingly Air-India was merged with six other domestic airlines to form the Indian Airlines Corporation, and Air-India International Limited was taken over by Air-India International Corporation. (The word 'International' was later dropped).

The scale of operations and the route system of the Corporation have expanded continuously since 1953, when it took over the predecessor company's Bombay-London and Bombay-Nairobi services. To these the Corporation added services to Singapore in July 1954, to Hong Kong in August 1954, to Tokyo in May 1955, to Sydney in October 1956, to Moscow in August 1958, to New York in May 1960, to Kuwait in October 1960, to Mauritius in August 1967, to Baghdad in April 1976, to Accra in December 1976, to Jeddah on April 13, 1977 and to Trivandrum on January 31, 1978.

From a total of four stations served in June 1948, Air-India now serves 43 online and 109 offline sales offices all over the world. From a fleet of just three Constellations, Air-India has now grown to have a fleet of nine Boeing 707s — four Rolls Royce Conway powered 707-437s, three Pratt & Whitney JT3D powered 707-337Bs and two P&W JT3D powered 707-337Cs — and ten Boeing 747-237 Bs.

Starting with just one weekly service to London in June 1948, Air-India now operates extensive scheduled passenger and cargo services from Bombay and four other Indian cities — Calcutta, Delhi, Madras and Trivandrum ; to Africa (Addis Ababa, Nairobi, Accra, Lagos, Seychelles, Mauritius, Dar-es-Salaam and Lusaka) ; to U.S.A. (New York) ; to Europe (London, Paris, Amsterdam, Frankfurt, Geneva, Rome, Zurich, Brussels, and Moscow) ; to West Asia (Doha, Abu Dhabi, Dhahran, Dubai, Bahrain, Kuwait, Aden, Muscat, Tehran, Baghdad, Jeddah, Ras al Khayma) and East Asia (Dacca, Bangkok, Hong Kong, Tokyo, Osaka, Kuala Lumpur, Singapore, Perth, Sydney and Melbourne).

An Air Hostess welcoming passengers on board the Boeing 747.

Finance

Since nationalisation, Air-India has reinvested Rs. 22.47 crore from its own internal resources to finance its growth and built up assets worth Rs. 277.88 crore. As against this, Government investment in Air-India amounts to Rs. 71.82 crore. This capital is divided into 50 per cent loan capital and 50 per cent equity capital.

In 1978-79, Air-India carried a total of 1,125,908 revenue passengers, 7.9 per cent more than last year. Operating revenue for the year was 348.67 crore, 14.1 per cent higher than the previous year. The capacity offered was 1,269.697 million ATKm, 8.9 per cent

greater than the previous year, whilst the capacity utilised rose by 8.0 per cent to 788.776 million RTKm.

For Air-India, 1978-79 was another remarkable year. For the fourth year in succession, Air-India made a record profit of Rs. 34.09 crore, far exceeding the three previous records of Rs. 28.45 crore in 1977-78, Rs. 17.59 crore in 1976-77 and Rs. 6.35 crore in 1975-76.

As far as cargo is concerned, Air-India carried 42,299 tonnes of cargo in 1978-79 and earned Rs. 63.32 crore, or 13.4 per cent higher revenue from it as compared with last year. Air-India's share of cargo traffic during the year was 42.5 per cent of cargo exported and 80 per cent of cargo imported into India.

A major milestone in Air-India's cargo operations was the inauguration of its first ever weekly all-cargo service from Bombay to New York via Europe on September 7, 1979. Air-India has two stretched DC-8-63F freighters on wetlease ; one from the U.S. carrier, Seaboard World Airlines, and the second from Cargolux, a European Carrier.

Air-India is entirely self-sufficient in engineering, operational and training facilities, which compare with the best in the world. Modern computer technology is being increasingly adopted in Air-India.

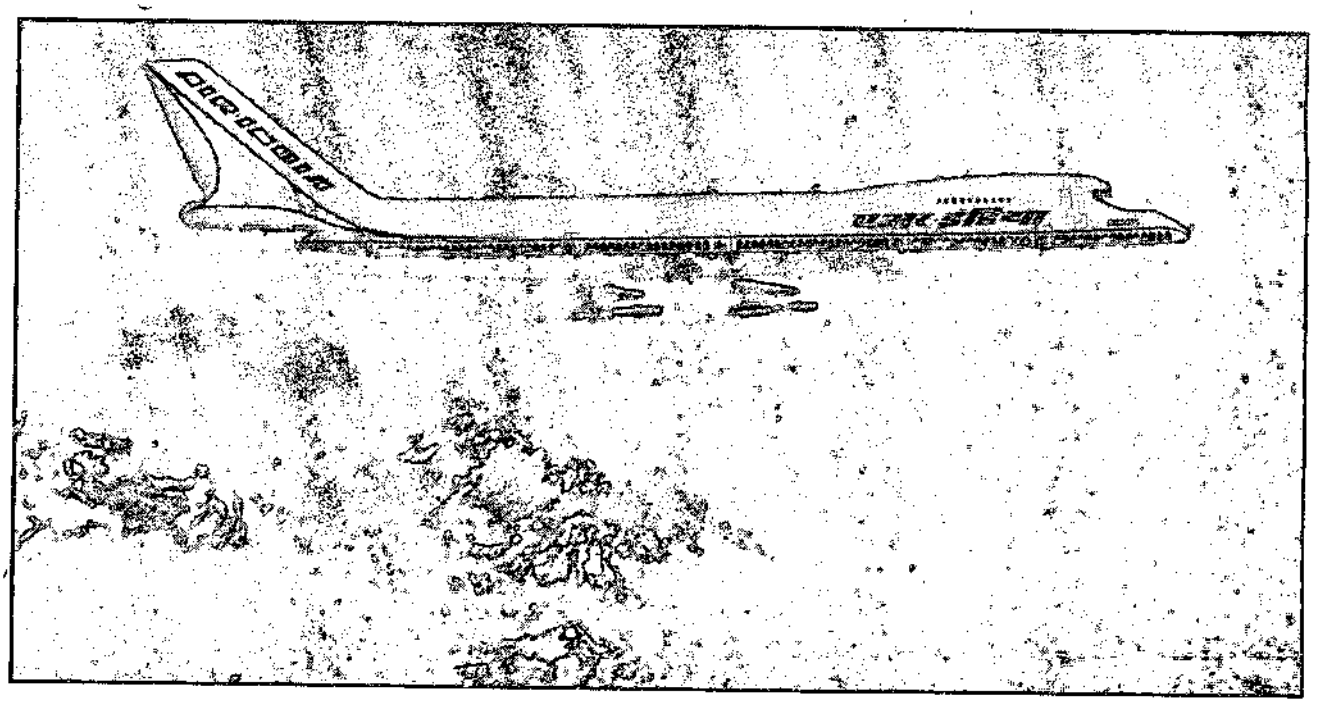
Air-India is playing a significant role in promoting tourism to India. The results of 'Operation Europe', 'Operation UK' and 'Operation USA' entrusted to Air-India by the Government of India have proved a marked success. Since April 1977, this scheme has been extended to cover Australia and West and East Asia. A number of special promotional areas between India and other countries have been introduced by Air-India which have generated large increase in tourist traffic.

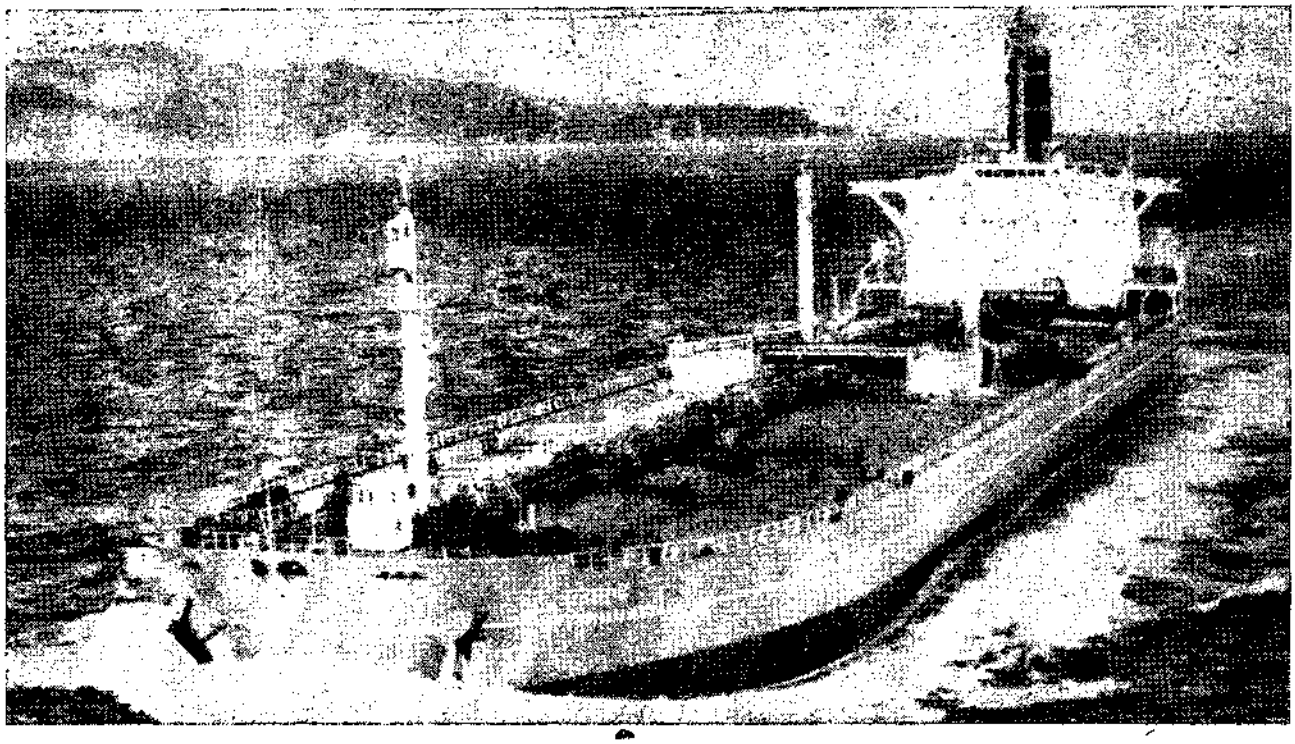
The 300-room Centaur Hotel at Bombay Airport is the first hotel built by the Hotel Corporation of India Ltd., a wholly-owned subsidiary of Air-India. The hotel built at a cost of nearly Rs. 7 crore, has all the amenities of a 5-star hotel.

The HCI proposes to construct a second 5-star hotel at Juhu Beach. Air-India is also planning to build a 275-room hotel in Srinagar. The HCI also runs two Beach Resorts, one in Lakshadweep Islands and the other in Andamans, the latter in collaboration with the Travel Corporation of India.

With the approval of the Government of India, Air-India set up on September 9, 1971, a wholy-owned subsidiary company called "Air-India Charters Limited". This company was formed to get back most of the ethnic traffic which was taken away by non-scheduled operators and by other airlines which consistently rebated fares on Air-India's routes. □

In 1978-79, *Air India carried a total of* 1,125,908 *revenue passengers. It has a fleet of nine Boeing* 707*s and ten Boeing* 747—237 *Bs.*





M.T. Satyammorti, SCT's Crude Carrier of 89,351 Dwt.

Round-up

Shipping Corporation of India

THE Government set up the Shipping Corporation of India (SCI) in 1961 by merging then existing two Shipping Companies in the public sector. At the time of its inception its fleet comprised of 19 vessels aggregating 0.26 million DWT. at present, the Corporation owns 146 ships aggregating about 5 million DWT. This growth, by any standards, makes the SCI as one of the fastest growing shipping companies in the world. A significant factor in the SCI's growth has been the changing nature of its business operation. Starting as a liner company, the Corporation has, over the years acquired bulk carriers and tankers in large numbers and at present over 78 per cent of the tonnage owned comprises of these type of ships. During the SCI's existence of 18 years, it could achieve the following objectives :

(i) The company's tonnage increased from 1.92 lakhs DWT as on 2nd October, 1961 to 48.80 lakhs DWT today.

(ii) SCI's share in Indian tonnage went up from 8 per cent to over 51 per cent.

(iii) The SCI had a consistent record of profit upto 1976-77 which aggregated to Rs. 111.66 crores.

(iv) During the last three years of unprecedented slump in the world shipping market, though the SCI suffered a loss of Rs. 53.60 crores, it generated a cash profit of Rs. 76.85 crores.

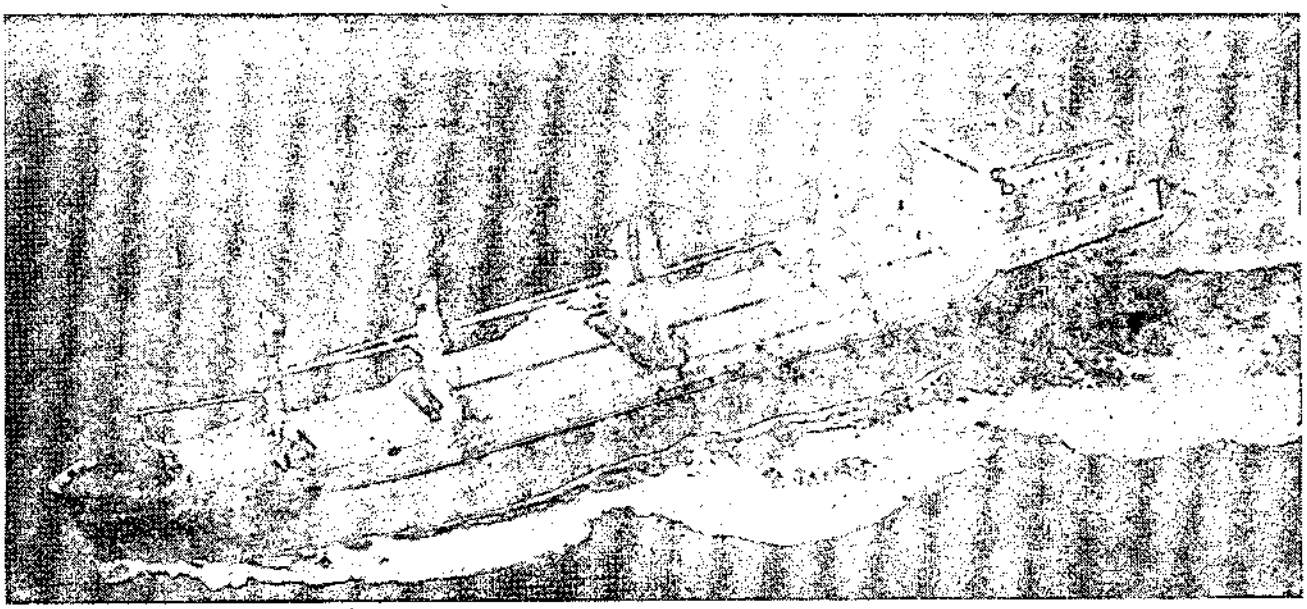
(v) Out of the investment of Rs. 1097 crores on fleet, the contribution made by the SCI from its own resources amounted to Rs. 365 crores.

(vi) The contribution of the SCI towards balance of payment position amounted to Rs. 1080 crores by way of foreign exchange earned/ saved.

(vii) The SCI contributed to the national exchequer, by absorbing losses to the extent of Rs. 17 crores for operating services to Andaman and Lakshadweep islands.

(viii) Till early seventies almost all crude imported into the country was carried in foreign flag vessels but in a short span of a few years, this position underwent a change. By 1978, almost all imported crude is carried in vessels flying the Indian flag most of them being SCI vessels. The country's 50 per cent import of products is on the SCI ships. Similarly the SCI has been able to obtain some share in the carriage of iron ore exported from India.

In addition to the above, the SCI has been operating several promotional services to assist our exports and have undertaken a programme of containerisation to



Vishva Parijat SCI's modern multi-purpose container oriented cargo vessel of 16,169 *DWT.*

meet the requirements of trade, particularly with the industrialised countries. From April, 1979 onwards till date the SCI acquired 11 container-oriented vessels, whose number in the company's fleet today stands at 27 with a capacity of carrying 8641 TEUs containers. With another four container vessels due to be delivered during the remaining months of the current year the container capability of the company will be 10449 TEUs. The SCI has developed expertise in shipping both in respect of ship and shore personnel whose competence is highly valued in the shipping world and greatly respected in the various forums of the United Nations.

The SCI's fleet today consists of 146 vessels of 48.80 lakhs DWT involving an investment of Rs. 990 crores. In addition another 13 vessels of 3.08 lakhs DWT of the aggregate value of Rs. 143 crores are on order. The Corporation has plans for further strengthening and consolidating its shipping services and for this purpose it has proposed to acquire 47 vessels involving a sizeable investment of about 800 crores during the Sixth Plan.

It is hoped that during the current financial year it would be possible to provide a container-oriented link for carrying Indian exports to West African ports, Carribean and Latin American countries. □

Inland Water Transport Corporation

CENTRAL Inland Water Transport Corporation Ltd. was incorporated as a Government Company under the Ministry of Shipping and Transport in February, 1967. The Corporation operates cargo services on the following routes :

(i) Calcutta-Gauhati-Calcutta, (ii) Calcutta-Karimganj-Calcutta, (iii) Calcutta-Bangladesh-Calcutta, (iv) Calcutta-Haldia-Calcutta, (v) Calcutta-Farakka-Calcutta.

The Corporation plays a vital role in easing the transport bottleneck of the North-Eastern states. In furtherance of this role, plans have been made to introduce rail-cum-river-cum-road services from Calcutta to the important trading centres of the N.E. States. An experimental service to Agartala has already been introduced successfully.

In addition to the river services, the Corporation has a well equipped dockyard, popularly known as "Rajabagan Dockyard". The vard in engaged for the maintenance and repairs of Company's own fleet and docking and also for the construction of new vessels upto 3,000 DWT. Its machines and foundry shops cater for building sophisticated equipment for Blast Furnaces of various steel plants. The dockyard also manufactures light house lantern casings, equipment for navigational aids and electric light buoys for different ports and harbour installations.

The company also have a fully equipped deep Sea Ship Repair manned by experts for undertaking all kinds of repairs to sea-going vessels, including dry-docking and afloat repairs of hull and machinery.

CIWTC has a small ship repair unit in Port Blair where running repairs are carried out to vessels of the ocean lines calling there.

The Corporation also undertakes several allied activities which go with water transport such as dredging, ferry services, etc.

Besides the above, the Corporation has an automobile workshop in New Alipur where bodies for buses|trucks| vans are built.

The Corporation has been running at continuous losses since its incention and its accumulated losses stands at Rs. 4322.35 lakhs as on 31-3-1980. In order to put the Company on a sound footing, the Union Cabinet has approved CIWTC's Rs. 34.20 crore investment proposals for the sixth Plan.

Nehru and the Public Sector

Dr. S. Chakravarty*

IN Jawaharlal Nehru's intellectual make-up, two things stand out very prominently, a profound sense of history and a deep commitment to a scientific secular outlook. His interest in planning was, therefore, not merely technocratic although he was aware that technocrats had an important role in carrying out a process of socio-economic transformation through planning. For him planning basically implied the extension of the domain of rationality from the individual to the area of social decision making. It has been argued by some historians that capitalism is the first socio-economic formation which is based on the principle of rationality But this concept of rationality was limited, to a large extent, to a concept of instrumental rationality, or to put it more simply, to the problem of minimizing means required to achieve a pre-specified end. In practice, it means the principle of maximizing money profits, which, in certain specific social and historical situations, may also be socially the right thing to do, even judged by the criterion of "social good", but adhering to the same principle may give rise to gross social injustice as well as to an inefficient allocation of resources in situations which are very often likely to prevail in a backward developing economy. In such situations, substantively rational action requires that we go beyond the limits of the principle of 'letting things alone' and try to channelize the motive force which shapes societies.

Nehru saw planning as a powerful motive force which could liberate the latent energies of vast masses of people and deploy them productively in bringing about which he called a 'socialist pattern of life'. What did he mean by such an expression? As he himself stated in introducing the Second Five Year Plan in the Lok Sabha, on May 23, 1956, "We mean (by the above expression) a society in which there is equality of opportunity and the possibility of everyone to lead a good life." He further added, "Obviously, this cannot be attained unless we produce the wherewithal to have the standards that a good life implies. We have, therefore, to lay great stress on equality, on the removal of disparities, and it has to be remembered always that socialism is not the spreading of poverty. The essential thing is that there must be wealth and production".

These sentences state, what I consider to be the essential premises on which Nehru's approach to planning rested. In more modern language, they contain what may be called the commonsense underlying the concept of 'redistributive growth', an idea which was sought to be concretized in framing the draft of the Fifth Five Year Plan. Nehru rejected basically two simple sequential approaches to planning. The first one says, "let us have growth first and then, we shall have time to take care of problems relating to distribution", while the second one says, "let us begin with distributive justice and we should be content with whatever growth rate comes out as a consequence". It should be noted that we should not equate these sequences with the capitalist and the socialist solutions, as in popular minds they often tend to be. For it is not at all clear that in a semi-feudal economy which has had a long colonial past, any form of capitalism is growth maximizing. Similarly, when we are dealing with a poor economy subject to population pressure, a simple minded distributive policy, even if it were to be practicable, will necessarily imply a quality life which can hardly lead to the full deveopment of human potentiality.

Due to the Public Sector, India has acquired the skill and competence which very few developing countries have. In addition import dependence in critical sectors has greatly diminished.

In working out the strategy of redistributive growth, Nehru attached a great deal of importance to the problems of capital accumulation. As he saw it, India had to invest vast amounts of resources in building up a large network of infrastructure such as energy and transport, initiate a break from almost complete dependence on a few agricultural commodities for exports, bring large areas of land under assured irrigation and, above all, equip its growing population with required skills and aptitude. He saw these investments as essential to break the 'vicious circle of poverty', even though he knew that this required placing some burdens and responsiblities on the present generation of India, especially amongst the more affluent ones. He approached the question of the public sector in this context as a possible instrument in rendering the transition more acceptable to large sections of our society.

Why Public Sector ?

Let us first consider what were the alternatives with which he was faced. India had inherited from its British rulers a certain legacy of underdevelopment with some characteristic features. There was virtually stagnation of agriculture which had extended over nearly half a century, a shrinking export market in relative terms

Professor, Delhi School of Economics and ormer Member of Planning Commission. This address was delivered as 'Nehru Memorial Lecture' organised by the Standing Conference of Public Enterprises at New Delhi on Nov 15, 1980.

an economy with very little consumption of modern forms of energy, and an infrastructure largely oriented to export activities. Undoubtedly, there was an Indian entrepreneurial class, largely with a trading background which had made some dents in sector of modern industry, largely textiles.

To place the entire burden of development on this class could not have conceivably meant a rapidly growing economy, let alone an economy which would have inbuilt features of an equitable social order. It is, of course, quite possible that some growth would have been possible if one could assume that there would be a massive inflow of foreign resources, capital, skill and technology all included, but quite apart from the goals of the national movement, it is extremely doubtful whether India was strategically or otherwise so situated which would have allowed such a solution to be worked out, not to mention the income distributional considerations.

My argument would seem to suggest that the approach adopted by Nehru could be justified on purely pragmatic considerations alone. I have no doubt that pragmatic considerations played a very important role. But there were more things involved than mere pragmatism. There was a whole theory of transition to a more humane social order which was behind the choice that Nehru made. To get some indication of the way Nehru saw the issues involved, I cannot do better than to quote once again from a speech which Nehru made at the annual meeting of the FICCI on March 5, 1955 : "Capitalism, socialism, Marxism, all these are children of the Industrial Revolution. We are on the eve of at least something as great as the Industrial Revolution, perhaps something bigger. It is affecting every thing—production, distribution, thinking and everything else. In this context. why was this decision for a Socialist Pattern of Society taken ? It was taken to give an indication of the objective and the approach. We have to fit India into the nuclear age and do it quickly".

Here, again we get a clear indication that for Nehru, the process of transition included not merely accumulation of physical assets which, no doubt, was extremely important but also building up of technological capabilities of the highest order. Furthermore, it is made abundantly clear that for Nehru none of the conventional modes of thinking as well as existing patterns of social organization were adequate to deal with the technological opportunities which were opening up. He, therefore, wanted the strategy of transition to be worked out in the context of changed times.

India's Second Five Year Plan was formulated precisely to take care of some major aspects of the transitional requirements. Simultaneous acceptance of emphasis on socalled heavy industry strategy along with emphasis on village and cottage industries, was given an analytical coherence by the late Professor Mahalanobis. But the basic idea was to make adequate preparations for changing the entire productive base of society while buying time by allowing for labour intensive activities to develop in certain sectors of the economy. In addition, Nehru and Mahalanobis both made it clear that agricultural development was to be brought about through small peasant proprietors whose deficiencies were to be remedied through a gradual adoption of cooperative methods of management. Nehru did not clearly envisage the growth of large scale mechanized farming based on wage labour-capital relationship. In implementing the heavy industry strategy, Nehru assigned a great deal of importance to the public sector. He himself gave several reasons which can be stated as follows : *First*, those industries were marked by long gestation periods, heavy capital investment and a high level of technology. Private sector in India was by and large not in a position to invest in these sectors, because their internal resources were small, Indian capital market much too small and imperfect. Furthermore, these required a very skilled labour force which could not be recruited from the rest of the economy without substantial investment in skill formation. In the nature of the case, the state was in a much better position to deal with these problems because it could afford to take a long view and not be guided by the criterion of (exclusive) private profitability. *Second*, many of these industries were marked by a high level of indivisibility and the Indian market could sustain at best a few large units at reasonable levels of efficiency. Hence, monopoly gains could be very large and this could adversely affect the distribution of incomes.

The scarce commodities and services of the Public Sector are often sold below their cost price, resulting in losses to it and a flourishing black market.

Thirdly, given the inter-industrial flow of outputs, these industries could be described as 'key industries', where command by the state run on democratic lines could ensure higher levels of public accountability and correspondingly dangers of discriminating treatment with regard to the rest of the economy could be minimized.

As I see it, Nehru's ideas at this stage were more heavily influenced by considerations of 'physical planning' as distinguished from financial planning. He was very much concerned that India should minimize its dependence on imported materials of a critical nature as well as speed up the process of indigenization of technology. Examples where vulnerability could be large were indicated when he talked about domestic production of mineral oils, machine-building, atomic energy, etc. Plan priorities also reflected this aspect of his thinking. Within the broad framework laid down by the Plan, Nehru was very categorical that private sector had a very major role to play. One can refer to his numerous speeches where he put the record straight by inviting private sector to do the best that it could by way of contribution to national wealth.

Achievements

Succeeding Five Year Plans have followed the example set by the Second Five Year Plan in as much as they devoted large sums of money to building up capacities in the public sector. However, have they succeeded in achieving the objectives which Nehru had in mind ?

Let us look at the industrial picture that India presents in 1980 and compare it with what it was when planning began. But a few highlights can be cited where India has acquired the

skill and competence which very few developing countries have. In addition, import dependence in critical sectors has greatly diminished.

Consider sectors such as heavy electrical equipment, oil refining, production and exploration ; heavy chemicals, ferrous metallurgy, transport equipment. These are all sectors where Indian industry has come of age. I am leaving out sectors such as atomic energy where full impact is yet to be felt or computers which have to go a long way even though a good start has already been made.

What has been the contribution of the public sector in all these areas ? Answer is that in each case its impact has been overwhelming. It may be said, however, that such an answer does not mean anything by itself in as much as their growth is due to government's policy decision to direct investible resources into public enterprises which were specifically set up in each sector. This is, of course, true but the facts remain that in many of these sectors Indian industry is very highly competitive. Furthermore, they demand a very high level of skill and managerial talent. Without labour and management inputs of a high order, mere investment of financial resources would not have yielded the results in terms of steadily growing production levels. I think that clearly there can not be any two opinions that without the mediation of the public sector, these sectors could not have developed at all or at least would have developed as completely dependent entities as the experience of many countries shows.

Shortfalls

There is, however, considerable criticism of the public sector in certain sections of the press and also in several elite circles. We should devote some time to these criticisms, not merely because in any democratic polity, responsiveness to criticism is necessary for survival, but also because further growth of the public sector as well as their ability to fulfil the objectives that Nehru and Indian planners had set before themselves may depend crucially on the adoption of certain crucial remedial measures.

I believe that misgivings about the functioning of the public sector stem in popular mind from two sources, one physical and the other financial. The physical performance of the public sector has been regarded as below the mark by many observers. I think, that a global approach in this context hides more than it reveals. Going by disaggregated statistics, the sectors whose performance causes considerable concern are power, railways, coal, transport equipment, heavy engineering, certain fertilizer units and, of late, steel. These are obviously sectors where shortfalls create very considerable problems for the rest of the economy.

What are the reasons for these shortfalls ? As far as I can understand it, these reasons are threefold. There is, of course, the quality of management, a point which is very often given the pride of place. This factor is much too important to be ignored and I shall come back to it at a later stage of the argument. But I believe that there are two other important reasons which are often overlooked. One of them relates to the role exercised by inter-industry linkages. Capacity utilization in several very important industries is an interdependent process. Coal, steel, power and transport constitute a complex, sometimes labelled as the 'fuel-metals' complex which cannot be run efficiently unless their planning and current operations are properly coordinated in time and space. This requires obviously monitoring and adoption of remedial action, if necessary at levels higher than the units themselves, some times cutting across industries. I believe that we have so far failed in evolving a viable organisational structure for this purpose. We generally oscillate in this respect between rather passive unitwise management and very high level intervention, none of which is adequate to deal with this job.

Public enterprises suffer from excessive centralisation, inadequate delegation of responsibilities, absence of adequate result-oriented management cadre.

The other factor that I have in mind is that of demand. It is generally well known that for heavy machinery production to remain at a high level, the overall level of investment must be growing at a sufficiently rapid rate. Any slackening in the rate of growth of investment, not to speak of absolute decline, is apt to create excess capacity in the higher order capital goods sectors. Economists have been long familiar with this phenomenon in their study of business circles. Answer to demand problem would lie partly in stepping up levels of public investment, partly in product diversification and partly in looking for possible ways of reorienting production for export purposes. It would also follow, *pro tanto*, that any significant liberalisation of imports in these areas can aggravate the demand problem very considerably.

I now turn to the discussion of the financial aspects of the problem, in so far as they are not a direct result of under-capacity utilization. I am assuming, at this stage, that physical and financial management can be treated independently of each other, which is not always true.

The main issue in this context is one of price fixation by the public sector. There was at one stage the idea that public sector should neither make profits nor losses. This was based on certain misconceptions regarding the role of the price system in the context of an expanding economy. Fortunately, these misconceptions are no longer prevalent among the professional economists. In practice, however, we have gone one step better. We are selling highly scarce commodities and services quite often below their costs of production. The result is accumulated losses by the public sector, a flourishing black market and a very negative image for the public sector.

The present practice is often supported by the argument that this way we help restrain the increase in prices. This, I believe, is a gross misconception. It is, of course, true that given the nature of the products produced by most public sector enterprises, a rise in price in any major industry has a cascading effect. But if costs are inflexible, then the alternative is some form of subsidization by the government, which, in the context of today, results in a larger volume of deficit

financing. I would maintain that for most practically relevant situations, the latter is the more dangerous course from the point of view of permitting an inflationary rise in prices.

There is also a somewhat deeper problem involved in terms of corporate management. A concern which is obliged to sell its product at a price which gives rise to less is, in many cases, apt to lose its initiative, particularly when it knows that its prime costs are not going to be covered in any case. Economies which are to be obtained by distributing overheads over a larger volume of output do not appear attractive when prices are kept at artificially low levels. This means, in effect, an additional cause for deficient capacity utilization. It is also interesting to note that in sectors such as coal, losses have mounted over the years partly for reasons indicated here.

These arguments constitute, in my opinion, a logically compelling case for greater price responsiveness on the part of the public sector. Considering the fact that public investment in crucial areas is a 'must' for this economy and also the fact that the usual avenues for mobilizing resources through taxation are getting progressively blocked, for reasons which are partly economic, partly administrative and partly political, there would appear to be no way out to treating the public sector as an *engine of accumulation* in the years to come. This is a dimension of public sector's functioning which was insufficiently stressed in the earlier years of Indian planning.

I now turn to the first reason, the question of managerial inefficiency. This is no doubt a factor of considerable importance. But I believe that it is not enough to point out its existence. It is also necessary to produce a proper analysis of the phenomenon. I am not an expert on the problem of organisation behaviour. But from my limited experience and study of the problem, I would be inclined to think that our public enterprises suffer from excessive centralization of top appointment decisions, an inadequate structure for delegating responsibilities within the organization, absence of an adequate managerial cadre oriented towards achieving goals which are supposed to correspond to the basic objectives of public enterprises. Above all, there is the greatest need to recognize that the job of public sector managers is entirely professional in nature, which in today's context also involves a high degree of exposure to relevant technical processes.

Wrong Remedies

While I believe that urgent action is called for in these respects without losing undue time, I hesitate to put forward 'snap' solutions. They are best left to be worked out by a group of specialists. Meanwhile, I can only comment on two solutions which have been suggested in certain quarters in fairly recent times. One relates to the question of private management with public ownership. The implicit idea here is that private management is necessarily more efficient. There is no clear test of the proposition which has been proposed by anybody. There are certainly some very well-run private units in the corporate sector. They deserve due recognition on their own merits, but then equally clearly there have been several cases of very well-run public enterprises. Such a comparison, therefore, does not, in my opinion, clinch the issue. In order to bring about strategic reorientation, one must have sufficient evidence that there is a very large reserve of professional talent available in the private sector, which can be tapped in large measure by the public sector for the types the product it produces. Such evidence at the moment is not available to the best of my knowledge.

A second suggestion is import liberalization in regard to capital goods industries. Here, I submit that compatibility with country's basic objective of self-reliance requires that we import suitable designs, if and when necessary, rather than products. Furthermore, even here, as Japan's technological policy shows, what is essential is adaptation and evolution of designs rather than mere imitation. In fact, one of the points that I shall strongly urge is that public sector should devote sufficient effort to building up significant design capabilities in the major sectors of industry. In this respect, one hears disquieting reports, which, if true, do not augur well for the future of the country.

Returning to Nehru's ideas on the role of the public sector with which I began, there are two major developments which make his arguments for the public sector even more compelling today than it would otherwise be. One relates to the world-wide turmoil on the energy front. Here, I believe that India has to mount very major efforts in regard to exploration, development, research and utilization of different forms of energy resources. Our economic survival as a growing self-reliant nation significantly depends on our success in this area. The other point is the paramount need of accumulation to which I have already made reference. In order to prevent disparities getting wider amongst classes and regions, public sector will have to be run very efficiently as well as profitably. All our policies will have to be reoriented bearing these two requirements in mind.

Nehru himself was well aware of what this implies. He said, "when one deals with a plant and enterprise where quick decisions are necessary, which may make a difference between success and failure, the way a government functions is not sometimes suitable. I have no doubt that the normal governmental procedure applied to a public enterprise of this kind will lead to the failure of that public enterprise. Therefore, we have to evolve a system for working public enterprises where, on the one hand, there are adequate checks and protection, and, on the other, enough freedom for that enterprise to work quickly and without delay."

I believe that these words possess the same amount of relevance today as they had when they were spoken. Instead of wasting much time and energy on relatively sterile debates, it is towards evolving such a viable framework that all our efforts should be devoted. For as Nehru added, we shall all be ultimately judged by the final results. □

Steel in the Public Sector

S. S. KHERA*

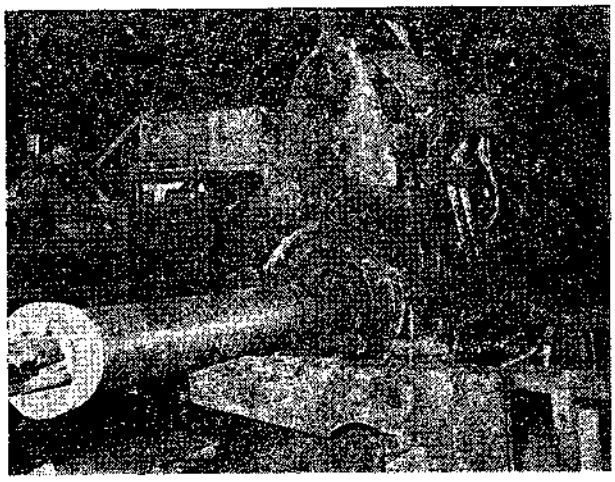
"WHAT will you do with all the steel you want to make, eat it ?" Thus, an emissary of a friendly western government, red-faced in his anger when he came to see me in my office in the Ministry, immediately after we had successfully negotiated and concluded the Bhilai Steel Agreement with the U.S.S.R. on Republic Day of 1955. I had sat with my Soviet counterpart in the negotiation for most of the previous night hammering out the final terms and conditions. (It would be a piece of false modesty not to say that this first major agreement relating to our industrial effort has proved to be about the best that we have been able to do in the past, and at a time when we were desperately ignorant, inexperienced, and saddled with doubters in and out of government). I asked in return of the western representative, as to what we would do in the nature, when we needed more steel, which is of basic importance in any industrial and economic progress for a nation of this size. His answer was that we would be wiser to leave these things to our friends in the west, who would always be willing to supply the steel and indeed all else like fertilizers, and the rest; of course at a price. Fortunately for this new nation, still amongst those at the bottom of the international economic pecking order, we had a Prime Minister who had been in the forefront of the independence struggle, knew the west intimately, for he had lived and been educated in one of their premier public schools, Harrow, no less, and he had the rare gift of vision into the future; and determination in setting this country on its way towards self-reliance, after centuries of foreign rule and foreign dependence.

The story of the steel industry in India since Independence is in many ways the story of the public sector as a whole. It illustrates the twists and turns, the shifts in governmental policy during the three decades and more since the first essay in a declaration of the nation's economic and industrial policy.

We do not dwell here upon the Directive Principles of State Policy which the Constitution prescribes, or the constitutional prescription towards an egalitarian, secular society, or the Constitution's directive against the concentration of economic power in a comparative few private hands; nor upon the Parliamentary declarations over the years setting out the national goal of a socialist state.

The extremely mixed composition of the population, the sheer size and complexity of the social and economic fabric of the nation, the inner conflicts of bias, of interest, of pressures, of ideology within the government that have ruled the country since 1947, have been continuing causes towards the defeat and the deflection of those directives and prescriptions, set at nought the very Parliamentary declarations.

* Cabinet Secretary (Retd), Govt. of India.



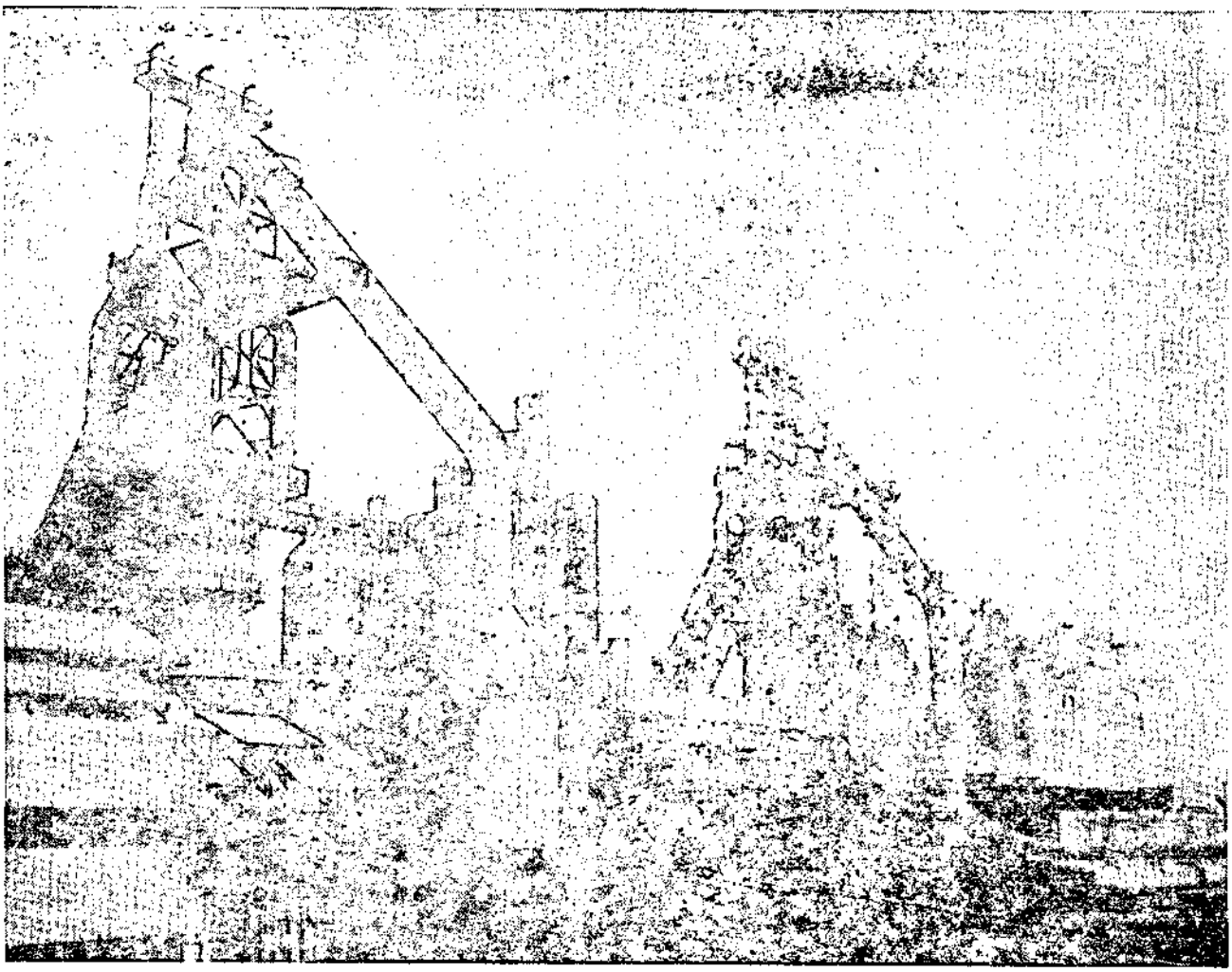
A Spun Pipe being extracted at the Ujjain Plant (Courtesy IISCO)

And amongst the governmental official echelons, in the field and in particular in the corriders of secretariat policy formulation and of power in the Central Government, socialism was a dirty word during the early years of the public sector; it was a dirty word too in the eyes of many of the powerful ministers in successive governments. Socialism still remains, in 1981, a word to be used with caution, with a measure of diffidence, defensively, when trying to make any progress towards the declared national objectives.

Thus, in this brief account of the steel industry in the public sector, any account relating to the policy, the planning, the setting up and running of the steelworks must be seen against the background and the total conjuncture within which the public sector steel industry had its birth, how it has been reared to its present maturity, and perhaps what the future might spell.

Policy

The first definitive resolution of industrial policy by the Government of India was made in April 1948. That was less than a year after Independence. The new government, despite the fact that it had the services of the greatest national leaders, who had fought and won the struggle for independence, were inexperienced in the art and the procedures of positive government and administration. Yet they were caught up in a major military conflict with the newly created Pakistan, and with the dreadful shambles of communal trouble, with vast movements of population both ways across the new political borders, and the sheer administrative load of receiving and settling the millions of refugees escaping into India from the savage butchery that was their fate in their homes across the boundary. As if that were not enough, the outgoing British government had added to the national confusion by simply declaring that the many hundreds of the so-called "Native States" were independent entities



Blast Furnace at IISCO, Burnpur (Courtesy IISCO)

now, to stand if they could (some tried, amongst them the largest and most powerful, Hyderabad) against the government of the newly independent former "British India".

That was the state of affairs in April 1948, when few if any dared to predict what the outcome of all this would be. It needed the courage and the vision of a Nehru, to make no delay in setting forth a declaration of policy in the confused and confusing economic and industrial scene on the country. But the declaration of April 1948 also bears the mark of all that was happening in more urgent demands upon the government's attention and resources.

Thus it came about that this first major declaration of industrial policy was somewhat tentative, somewhat compromising, something that came to mean all things to all people. It spoke of State participation in industry; of the need to let private industry go forward in creating national wealth; the State was to concentrate on new units of production, in fields other than those in private hands where the State could help by expanding their present activities; there was to be no taking over or running by the State of any existing units. The hard experience of the years has since then compelled the government to go for nationalisation in several of the most vital sectors of trade and industry.

In the matter of iron and steel, the State would be responsible for the establishment of new undertakings, but would also where the national interest so dictated ("national interest" would be seen in entirely different ways by different ministers, officials, planners when it came to taking decisions), co-operate with the private sector. Thus, a major expansion of a private steelworks was taken in hand even before there was any talk of having a major steelworks in the public sector. The government committed itself to allow private enterprises in iron and steel, amongst others, to be given all facilities for efficient working and reasonable expansion. Although the situation would be reviewed after ten years, the government felt it necessary, in the policy declaration, to assure the private sector against any future acquisition by the government. (In 1951 the government, in the agreements with the three foreign oil companies for setting up entirely new, not existing, refineries, not only gave several fiscal and other benefits, but also a categorical guarantee against nationalisation for a period of twenty five years).

Eight years later, in April 1956, Prime Minister Jawaharlal Nehru took a more direct hand in the drafting of the industrial policy of that date. He was also Chairman of the Planning Commission, although he left the planners mainly to their own devices. But when they produced a draft which once again promised all things to all people, he apparently had had enough. There was also the experience gained so far; and no less significant, the crucial issues arising out of the conflicts of bias, interest, ideology and the rest had crystallised out sufficiently to permit a more definite, clear-cut declaration of Industrial policy.

The 1956 policy declaration marked out a number of basic industries, amongst them iron and steel, in which the State would be exclusively responsible for the setting up of new enterprises. It was this that cleared they way for the future of the public sector steel industry at last. For there had been bitter controversy over the Indo-Soviet steel agreement for Bhilai; and the new declaration placed the whole issue beyond further dispute at least for the time being.

In February 1973, when Mrs. Indira Gandhi was Prime Minister, having first fought off an attack upon the policies that her father had initiated and had herself by now placed in a powerful position after the general elections of 1971 and the successful war with Pakistan of that year her goeernment issued a declaration of policy in the form of a press note, an elaborate restatement of the 1956 declaration. It referred expressly to the Directive Principles of State Policy of the Constitution, to Parliament's own resolution of December 1954 declaring the socialist pattern of society as the objective of social and economic policy, and stated that the 1956 policy statement would continue to govern the future policies of the government. Steel would be reserved to the public sector.

In 1978, a government of a very different texture was in office under a Prime Minister (Mr. Morarji Desai) who had been a bitter opponent of the public sector and whose stand against bank nationalisation had brought about his own removal from the office of Finance Minister and had in turn split the Congress Party down the middle in 1969. Nevertheless, there was by now no turning the clock back. The public sector was by now so well established, and so much was invested in the large number of public undertakings, both by the Central Government and by the governments of the different States of the Union, that it would have been futile for any government to try and reverse the process. And so, in that government's own declaration of policy, the dominating position of the public sector as the prime vehicle for the country's industrial development remained untouched.

After that government fell, in the general elections of early 1980, and that indomitable figure in the form of Nehru's daughter, Mrs. Indira Gandhi, was returned to office with an overwhelming mandate from the people, the position of the public sector, and the general direction of social and economic policy was more fully resumed. This is reflected in the Framework of the Sixth Plan, (1980-85) formulated by the Planning Commission in the latter half of 1980.

Since, it is this Framework that is to form the basis of the government decision making during the next five years, it is worth taking note of the categorical statement in it, that the leading role of the public sector in the industrial development of this country will be further strengthened. Top priority is to be given to the creation of adequate capacity in basic industries, such as steel. The public sector is to assume the major role in the expansion of the basic industries, and the Plan will provide increased outlays for this purpose in the public sector. Steel production is to be stepped up from 7.4 million tons in 1979-80 to 11.7 million tons in 1984-85. Not an over-ambitious target by any means; but already showing the rate of increase, so that the woefully flat curve of the earlier period is beginning to lift significantly.

Planning

From policy to planning.

In 1954, the sum total of the Planning Commission's provision for that plan period was some 200 thousand tons of pig iron. No steel at all, not in the public sector. This was apparently to be left to the existing steelworks, of which there were : the Tata Iron and Steel Company at Tatanagar in Bihar, the Indian Iron and Steel Company in Burnpur in Bengal, and a small charcoalfed steelworks in the south, at Bhadrawati in Karnataka. The stalwarts of the Planning Commission seemed to share the restrictive views of that same western emissary I have mentioned above.

The Prime Minister would not have it. He had set up a special Ministry, the Production Ministry, with the special purpose of increasing the scope of the public sector. This Ministry took under its wing a number of units that were already in the public sector. There were very few of them; the Sindri Fertilizer Factory, the Hindustan Machine Tools Factory in Bangalore, the small cable factory in Rupnarainpur in West Bengal and one or two others.

The Secretary of this Ministry was sent abroad, to see what could be done about setting up a steelworks in the public sector. In the natural order of things, he went first to London, and put the proposition before the concerned Ministry of the British Government, the Board of Trade. He was given a short answer : not interested. Then to West Germany, where the response was a little better.

A consortium of German firms undertook to set up a half million ton steelworks at Rourkela, to produce flat products. The whole project was to be set up on a turn-key basis, with little or no association with the German firms of Indian personnel during the designing or erection stages. Nor were any substantial number of Indians to be trained, so that they might be able to run the steelworks.

Then the Prime Minister went to Russia, on a friendly state visit. The visit proved of seminal import. Soon the Russians expressed their readiness to help this country in its industrial effort, in the public sector, and on a strictly mutual basis, with no strings attached. The first project was to be a steelworks. And the Bhilai Steel Agreement came about.

Not without further struggles. The Russian bogey was duly paraded, to kill the idea at conception. The "experts" whom the Government consulted advised a small half-million ton plant, with small blast furnaces, when the world was already going over to much larger blast furnaces, one of which was in fact in process of being built in one of the two existing steelworks in India. And for the product mix, the same experts

advised an impossibly uneconomic mix altogether, not omitting 75 thousand tons of "H" beams, which would have crippled the whole project both technically and financially. The details of these struggles need not detain us now. The future is always difficult to prove, as indeed it was at the time; when but for the determined backing of the Prime Minister the whole thing, as indeed the public sector, would have been still-born.

The Soviet specialists gave very different advice; and it was backed by their knowledge that this first project must succeed, must not be allowed to fail. They advised 1000 ton blast furnaces, instead of the 650 ton furnaces current until then. They told us that anything less than a million ton plant would be uneconomic; and they gave us the inside details of what a proper and balanced product mix is all about, and how this would better meet the needs of industry in other sectors, such as the railways, construction of factories and buildings, and so on.

In the end, this advice prevailed. The Bhilai agreement was concluded. Unlike Rourkela and other such turn-key projects, the agreement provided for the close association of Indian technical personnel at every stage from the earliest design stages, through construction at Bhilai, (the construction certificates for every detail to be cleared and signed by Indian technical personnel; and there was made provision for the training of a massive cadre of Indian technicians aand engineers in the different steel factories and associated enterprises in the Soviet Union.

And now a series of seemingly strange developments took place. They followed the return of the Indian Steel Mission to the Soviet Union in August-September of 1965, following the signing of the Bhilai agreement. The Mission was led by the Secretary in the Ministry of Production who had negotiated the agreement, and consisted of a number of top-level Indian technologists of various specialities and drawn from the existing steelworks and engineering undertakings in India. The Mission's report, giving a vast amount of cogent details about the Soviet steel industry and of their heavy engineering, machine-making, and heavy electricals plants. It set at rest many of the doubts and misgivings that had been expressed about the proposed Bhilai steelworks.

But that was not all. The German consortium working for the Rourkela project now found it necessary to request the scrapping of their own working plans for the half-million tons steelworks, and for the re-negotiation of their contract so as to provide for a million ton plant, and for the very same large size blast furnaces which the Russians had recommended for Bhilai. And so the Rourkela project was duly re-designed, and a new agreement with the Germans concluded. But it meant the loss of valuable time a loss that must inevitably fall upon the Indian exchequer and upon the speed of the overall industrial effort of the nation.

And now the British in their turn came forward, not to be left behind. They apparently now discovered that this country needed not merely the comparatively small amount of steel that would have been produced by the earlier plans and the approach to the Board of Trade; now they said India would need in quick time no less than three major steelworks, each of a million ton capacity, and all to be established at the same time. And of course, Rourkela and Bhilai having been pre-empted, the British proposed a million ton plant at Durgapur in Bengal, to be set up with their help. And so, yet another steelworks agreement was concluded, within that short time span, as against that 200 thousand tons of pig iron that was the sum of the Planning Commission's plan.

Some time later, the Americans too came forward, and a strong mission arrived from that country, to negotiate the setting up of yet another major steelworks, this time at Bokaro in Bihar and like Durgapur close to the large coal deposits in that area. These negotiations went up for a long time. The Americans insisted upon having control of the management of the steelworks while on the other hand, the Indian Minister of Steel had seen for himself the aptitude that Indian personnel had already shown in the setting up and management of steelworks, and indeed of by now a whole variety of major industrial enterprises. Ultimately the negotiations broke down, mainly on this single issue. Much time had been lost in the process. In the end, it was the Soviet Union once again that was called upon to assist in setting up the steelworks at Bokaro.

Performance

How have all these projects performed over the years? Except for the loss of time, it has been a fortunate circumstance that no major shortcomings got built into their planning, as nearly happened. On the whole, all the new projects were well designed, with scope for some expansion in due course, together with the supporting inputs of materials and services. But capacity utlisation has not been satisfactory, for a variety of causes, which have not always been the result of faulty management. During the year 1978-79, against an installed capacity of 9.4 million tons, the production was only 6.3 million tons of finished steel. It can be no consolation that even in America with all their modern systems, their steel industry worked for several years at less than sixty per cent capacity. The gap between capacity and output presents almost the most formidable challenge to the managements of the public sector steelworks. It is also futile to point to the failure and final breakdown of one of the two maior steelworks in the private sector, the Indian Iron and Steel Company, which went down the drain and took with it the hard-earned investments of large numbers of the public in the shares of the company.

A searching inquiry has been instituted during 1980 in the Planning Commission, into the working of the public sector undertakings. Why has capacity utilisation been so consistently low for so long. Between 1973 and 1979 it has stayed around some sixty five per cent.

It is not so much the structural arrangements for management and control that appear to be the main cause; although the system of a central holding company is probably the weakest of all arranagements for effective management. It is here that it is desirable to carry out a detailed investigation in the form of inter-firm comparisons all along the line. This would probably show more than any other method where the real weaknesses lie, and the way to overcome them.

The public investments in the steel industry are so large, and will increase even more during the coming years, that it should be seen as of the utmost urgency, to improve the productivity of these great undertakings. Even marginal improvements are to be welcomed, while the deeper, fuller investigation is in process. □

Steel Looks Up

K. C. Khanna

AFTER a steady drop in steel production for over two year there has been a considerable pick up during the months of October and November, 1980. The steady upward trend is being maintained. The plants under the SAIL aggregated to 5.37 million tonnes of saleable steel in 1976-77 with a monthly average of saleable steel in 1976-77 with a monthly average of 447,600 tonnes. This has been the highest level achieved by our plants so far. Production dropped to 5.29 million tonnes in 1977-78 with a monthly average of 441,100 tonnes. In 1978-79 the aggregate production was 5.08 million tonnes with a monthly average of 423,500 tonnes. In 1979-80 the aggregate production slumped to 4.59 million tonnes with a monthly average of 382,700 tonnes. In the first half of the current financial year the monthly average came down to 330,000 tonnes only falling to a low level of 319,000 tonnes in September 1980. In October the SAIL plants aggregated to 406,000 tonnes of saleable steel which went up further to 420,000 tonnes in November, thus registering an increase of 90,000 tonnes over the average production of first six months this year, an increase of 27 per cent.

Steel production suffered a setback due to a gradual and steep decline in the availability of coking coal and power. Alongwith the imbalances caused during 1978 and 1979 in these two very vital sectors which provide the life-giving energy to our industries, the third important link to support the industrial base i.e., the railways, also got trapped in the vicious circle. Inadequacy of these three vital inputs has had a crippling effect on our steel industry which in turn affected the steel consuming sectors.

To grapple with this very complicated problem, government took command of the situation at the highest levels. Problems of this magnitude and dimensions when allowed to persist for as long as over two years, they do assume serious proportions and focal points get multiplied. Then there has been a definite improvement in producion of coal and its transport to consuming centres as well as in generation of power in the DVC net work which is reflected in the upward trend in steel production during the last two months. It also shows that the steps taken by the government have started bearing fruits.

Constraints

The constraints of inputs and transportation create imbalances in operations of steel plants. Power restrictions on our rolling mills resulted in a pile up of ingots and slabs. Against a normal stock of about 100,000 to 150,000 tonnes of cold ingots which our plants can hold, the stocks went up to 737,000 tonnes by the end of July 1980. Stocks of slabs went upto 131,000 tonnes. Apart from choking up the storage yards this huge stock also meant block up of capital to the tune of nearly Rs. 75 crores plus added burden of high interest incidence. It is a serious financial burden on our resources which are already under great strains due to low production in the past and mounting cost escalation.

Inadequacy of three vital inputs like coking coal, power and the railways has had a crippling effect on steel industry which in turn effected the steel consuming sectors.

Faced with this ugly situation it was decided to change the operation strategies from August onwards. Instead of emphasising on tonnage production of ingots plants were asked to maximise pig iron production and to stagger operations of rolling mills depending on power availability to maximise conversion of heldover ingots and slabs to saleable steel. The plants at Bhilai and Rourkela were accorded preference for supply of imported coal for optimum utilisation of this costlier raw material. The strategy paid in triple advantage of reducing ingot stocks, making more saleable steel available to economy and increasing output of pig iron for sale. It had not been an easy task to bring down ingot stock holding from the level of 737,000 tonnes to less than 6 lakh tonnes in the course of just four months. Steps have also been taken to strengthen the steel cadre by filling up posts of Directors which had been vacant for two to three years. Groups of experts are being created with experienced personnel in different disciplines whose expertise and skill will be available to all the plants in times of crisis.

This year so far we have produced nearly 900,000 tonnes of pig iron for sale. Compared to the target, this is 63,000 tonnes in excess. Last year during the corresponding period production was just over 600,000 tonnes. We are planning to produce over 1.3 million tonnes of pig iron this year. With the emphasis on saleable steel production and continued efforts to reduce the stock of cold ingots and slabs in our own mills as well as through-re-rollers after cutting the slabs to cheeses we plan to further increase availability of steel for domestic consumers in coming months. Rourkela Steel Plant has picked up production substantially. With imporved power supply Bokaro can pick up much more. This would further improve availability of flat products, pace for which has already been set. In October, availability of steel for

* Chairman, Steel Authority of India Ltd.

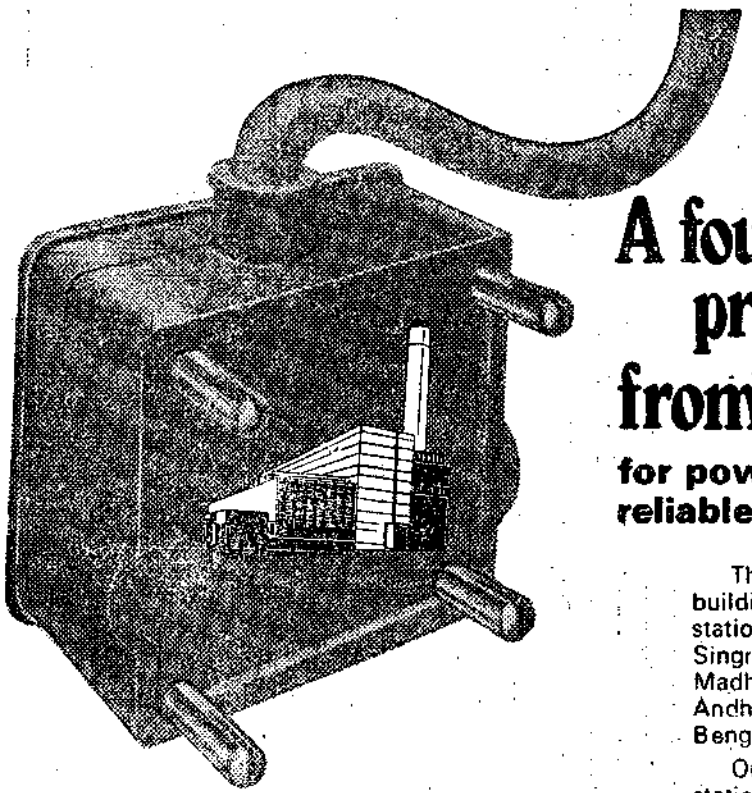
domestic supply was 8 per cent more than what it was in September. In November this has gone up further.

Trying Conditions

Those who are familiar with the operations of steel plants would appreciate the efforts that have been put in by our men of steel operating these complex and sophisticated plants. When going is good and rhythm is set with continuous supply of inputs in quantity and quality the equipment response is ideal and tranquility prevails in a steel plant. Productivity is at its peak then. A slight departure from the norms like a momentary tripping of a motor in a rolling mill or change of carbonisation period in coke ovens or a change in the quality of the blast furnace burden sets a chain reaction in motion. This calls for a steelman to strain his every nerve to keep control on the situation. It takes very long time to restore normalcy. When such instances become daily routine to adjust ever pushing rates, operate with ever changing blast furnace burden, face frequent trippings without warnings, one could imagine the chaos caused in the different shops of the plants. This has been the scene in our plants for quite some time now.

Under these trying conditions when they have been called upon to cope with frequent interruptions, carry out adjustments in operations, shut down and recommission frequently units of complex nature like blast furnaces and coke ovens, our men in the plants have shown a commendable spirit of endurance and application. They have kept themselves and their equipment in readiness to respond to improvements in supplies of inputs. The immediate pick up in October and November is indicative of this.

By the end of September 1980 our plants were trailing behind the previous year's production of saleable steel during the corresponding period by 210,000 tonnes. In two months we have narrowed this gap to 147,000 tonnes. We know this is quite a margin to be covered in next four months but we are confident that given steady and requisite supply of power to our plants at Bokaro, Durgapur and Burnpur and with current levels of supplies maintained at Rourkela and Bhilai we will be able to cover the gap substantially, and even level up with last year's production of saleable steel. The nightmare seems to be over. Our plants are looking up. The ground that has been lost is substantial, yet we move ahead with confidence that the pace set in now would enable us to contain the losses and pay dividends next year. □



A four-point programme from NTPC...

for power that's as reliable as it's economical

The men at NTPC are right now building super thermal power stations at four 'power points'— Singrauli in Uttar Pradesh, Korba in Madhya Pradesh, Ramagundam in Andhra Pradesh and Farakka in West Bengal.

Once commissioned, these power stations will meet a significant part of the power needs of the country : through a 5000 km, 400 kV transmission network, also to be built by NTPC.

A unique feature of these projects is that all of them are being built very near coalfields. A 'merry-go-round' railway system, tried for the first time in India, will feed the power stations with a constant, reliable and inexpensive supply of coal.

The first 200 megawatt unit at Singrauli is to be commissioned in 1981 followed by other units at Korba, Ramagundam and Farakka. By 1987, NTPC would be operating all the four power stations (in addition to Badarpur thermal power station in Delhi) with a total generating capacity of 8020 megawatts.

Admittedly, it's an enormous task. And at NTPC, we've evolved our own integrated project management system to meet our prime objective : to commission our power stations on time. With the best in equipment and with the least cost over-runs.

To generate power that's as reliable as it's economical.

A NATIONAL CONCERN FOR MORE POWER

NTPC

National Thermal Power Corporation Ltd.

(A Govt. of India Undertaking)
NTPC SQUARE
62-63 NEHRU PLACE
NEW DELHI-110 019

Problem of Coal and Power

Gopesh N. Mehra*

INDIA's economy is still reeling under the unprecedented power crises which erupted in 1979 and enveloped the entire industrial and power scene in their wide-sweeping octopus-like tentacles. The sudden fall in production of coal and accumulation of available stocks near pitheads for want of movement facility left an indelible mark on the productivity and output of almost all major public and private sector enterprises. The loss in terms of man-days lost was simply colossal since the paucity of power left industries, both big and small, at a standstill.

In the days of oil crisis when not only the availability of oil but its prices as well have put severe constraints on the resources of particularly the Third world countries, the world's attention has been focussed on coal as an alternative to the vanishing oil and it has been thought prudent even by the so-called developed nations to affect drastic technological changes to return to the coal-based character of their industry.

The abundance of coal reserves has been a heartening feature indeed but the constraints of movement and general sluggishness on the power generation scene have severely hampered quick recovery even in those countries where large reserves of mined coal existed.

This peculiar situation which inhibits the Indian scene also prompted the Prime Minister, Shrimati Indira Gandhi, to have a meeting of the Chief Coal executives convened in New Delhi in order to assess, analyse and demarcate areas of action to enable the country to achieve the required growth and development in various fields.

The main points Shrimati Gandhi raised at this high-level coal sector meeting were (a) the main reasons for stagnation in coal production, (b) the possibilities of mechanisation of coal mining with a view to optimising productivity, (c) re-inforcing the safety factor at coal mines, (d) stopping pilferages from pit-heads as well as during wagon movement and storages and (e) generally tightening the law and order situation in the collieries.

Among the top executives present at the meeting with the Prime Minister included Shri R.P. Khosla, Additional Secretary in the Department of Coal and Shri R. N. Sharma, Chaiman of Coal India Limited. These executives opined at the meeting that from Indications now available the coal production target during the current year may be met by Coal India subsidiaries as a whole. Individually, however, some problems persisted with the Bharat Coking Coal Ltd., and the Eastern Coalfields Ltd. These problems are hampering their normal functioning. The executives however assured the Prime Minister that production of coal in the Central and Western Coalfields had increased impressively. Coal India estimated its production to reach the 99 million tonnes mark this year as against 91 million tonnes produced by them last year. They expect the production to go up to 109 million tonnes in the coming year. The all-India production of coal was expected to be around 113.5 million tonnes this year as against the figure of 104 million tonnes last year.

As against these projections, a study on coal situation made by the Federation of Indian Chambers of Commerce and Industry (FICCI) points out that there has been no appreciable increase in coal production during past many months despite additional investments amounting to as much as Rs. 600 crores in the major coal undertakings. Analysing their output the FICCI survey points out that losses of these undertaking have been mounting. The quantum of losses accumulated by the Coal India by 1979-80 were of the order of Rs. 695 crores and the production had, even in 1979-80, fallen short of the target by almost 20 million tonnes—a target which had been originally fixed for 1976-77.

As against the production target of 113.5 million tonnes of coal, the demand by 1982-83 is expected to go up to around 150 million tonnes. The FICCI study team feels that the task ahead of the coal industry looks unattainable when viewed against the numerous probems that plague this industry and its very poor performance during past years.

Significant shortfalls in the production of coal at many of the collieries are attributed to : (i) Non-availability of power; (ii) Labour unrest; (iii) Inadequate availability of explosives; (iv) shortage of diesel; (v) Bad law and order situation in the Eastern region; and (vi) Difficulties in acquiring land for the development of new coal mines.

The uncertainty about coal position has been causing innumerable hardships to the consumers. In fact both the coal Industry and the Railways are to blame for these problems. The production of 103 million tonnes is hardly adequate to meet the total demand of various consumers and the wagon fleet at the disposal of railways is not adequate to move more coal. It is pointed out that both have suffered as a result of complacency after a period of achievements in 1975-76.

20 Year Projections

In the 20-year projections until 2000 AD the pattern of demand for various forms of energy for industrial and other use is estimated as follows :

Source of energy	1982-83	1987-88	1992-93	2000-2001
Coal (Million Tonnes)	150.4	208.3	273.5	427.00
Oil (Million Tonnes)	35.38	40.97	48.3	69.11
Electricity (Billion units)	155.2	207.9	281.0	457.6

* Chief Industrial Correspondent, United News of India.

Considering the performance of the power sector, the total electricity generation during 1979-80 was 105.45 billion units as against 103.32 billion units generated in the corresponding period during previous year. Thermal generation increased by 6.83 per cent while hydel generation dropped by 3.48 per cent resulting in an overall growth of only 2.12 per cent. The failure of the monsoon in 1979 undoubtedly curtailed hydro availability. However, shortage of power continues to be acute mainly due to the under-utilisation of the thermal capacity.

Some of the basic problems experienced in the power sector are : (a) Delays in project formulation and implementation. Completion of many super thermal power stations on present indications is likely to spill over well beyond the 1980-85 period. It is also doubtful whether the Bharat Heavy Electrical Ltd., on whom most of the orders for plant and machinery have been placed, would be able to adhere to delivery schedules.

(b) Under-utilisation of the installed capacity. The plant load factor for thermal stations had come down from 56 per cent in 1976-77 to 44.7 per cent in 1979-80. The availability factor has also come down from 77 per cent in 1976 to 68.9 per cent in 1979. The under-utilisation of the capacity is attributable mainly to the increase in the rate of forced outages from 8.8 per cent in 1973-74 to 18.8 per cent in 1979-80 and also to the non-availability of coal of the right quality.

(c) Increase in transmission and distribution losses which have risen to 19.8 per cent in 1979-80 as against 17 per cent in 1975-76, and (d) Poor financial health of the State Electricity Boards which among themselves have accumulated losses worth more than Rs. 1000 crores.

Energy Problem

The Energy problem in the country is further aggravated by the present state of health of the Atomic Power plants and the indifferent supply position of essential inputs such as enriched uranium. The total generation capacity of these plants today is 660 MW, barely 1 to 2 per cent of the country's total capacity, which should have gone up to 2,700 MW by now. The Department of Atomic Energy has projected in its 20-years perspective plan a total generation capacity of 10,150 MW by the end of the century. This would be about 16 per cent of the total generation in the country from all sources. To attain this objective the DAE proposes to set up 10 more pressurised heavy water reactors on the pattern of Kalpakkam by 1994. The plants at Tarapur, Kota and Narora have already been commissioned. Resources mobilisation for most of the DAE's future plans is perhaps the biggest constraint apart from availability of essential inputs. An outlay of Rs. 2,410 crores is envisaged for plans bracketed for execution until 1985 itself. This and the present state of most of the Nuclear fuelled plants cause serious doubts whether the atomic power generation would be able to adequately supplement other sources of power supply available in the country.

Energy conservation purports to be an important additional source of energy in line with power, oil or coal. Potential in this field is immense. Its two-pronged strategy is aimed at (a) economising the use of all forms of energy and (b) conservation of fossil fuels through greater and more intensive use of renewable sources of energy. □

Economy in the use of energy can be obtained by (i) Reducing the energy intensity of industrial technologies without sacrificing productivity and quality; (ii) by avoiding wasteful uses through proper insulation, monitoring of fuel consumption; (iii) evolving methods of recovering energy from out of the existing processes and (iv) by adoption of the total energy concept.

Deployment of Renewable Sources

A permanent solution to conservation of fosil fuels is provided by the deployment of renewable sources of energy and intensive research needs to be undertaken in fields such as solar energy, geo-thermal energy, micro-hydro projects, gobar gas and substitution of oil by alcohol to make optimum use of these alternatives.

The energy problems in the country are further aggravated by the present state of health of the atomic power plants and the indifferent supply position of essential inputs such as enriched uranium.

Efficiency in the distribution of coal can be injected by making coal meant for consumers to be free of shale, stone and other foreign materials. The ash concent of coal must be reduced to the minimum so as to lessen the strain on its movement. It is desirable to set up coal dumps all over the country. These could be used as a sort of buffer to hedge against the strain on either railways or on the stocks at the pit-heads during the busy season. Whenever possible coal should be despatched directly from the pit-heads. The working of the coal mines could also be vastly improved by introducing certain amount of competition. The existing organisation of Coal India could also be restructured in order to create competition.

In the power sector a better generation can be achieved by improving capacity utilisation through improvement of the plant load factor and the availability factor at thermal power stations. A 5-6 per cent improvement in the availability of power could be achieved through flattening of the load curve. To achieve this measures such as staggering of off-days, proper phasing out of annual maintenance in major industries, and introduction of night shifts in industries could be adopted. It is also necessary to bring down the transmission distribution losses to a maximum level of 15 per cent. Also drastic improvements in the performance of the State Electricity Boards, both operational and financial, would go a long way in impower for the coal industry.

To eliminate the constraints specially in the coal sector and to step up coal production still further the government has already moved in the direction of improving and augmenting power output to coal fields. In this connection there is a plan to set up five to 10 MW gas turbine sets in the coal fields and also to instal captive thermal power stations to supply 60 to 120 MW of power to meet the full demand of power for the coal-industry.

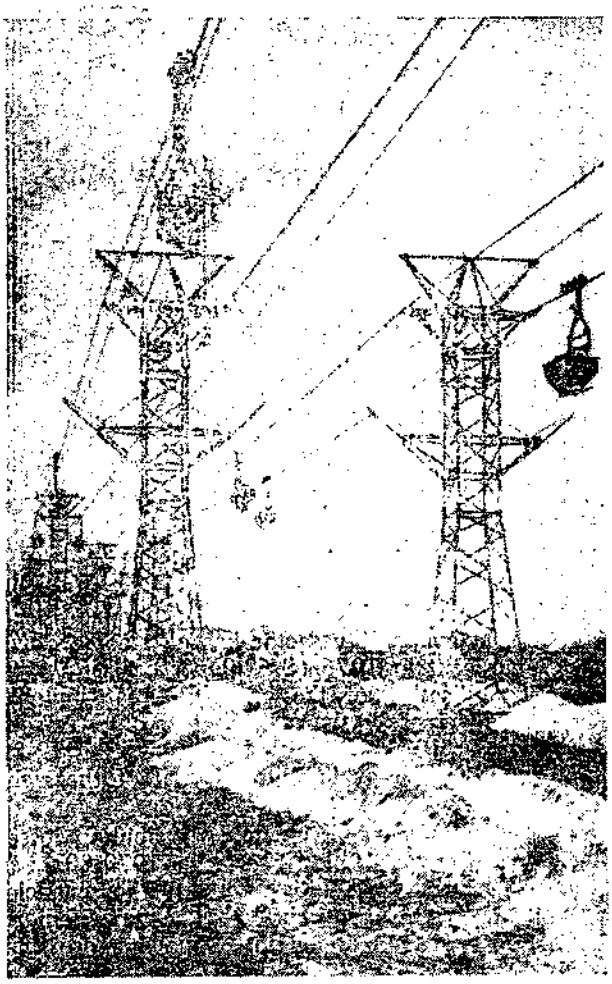
A total and well-coordinated effort is necessary to see that the existing constraints are speedily removed and the general state of economy of the country is again geared up to tackle the immediate objectives of planned growth. □

Coal India

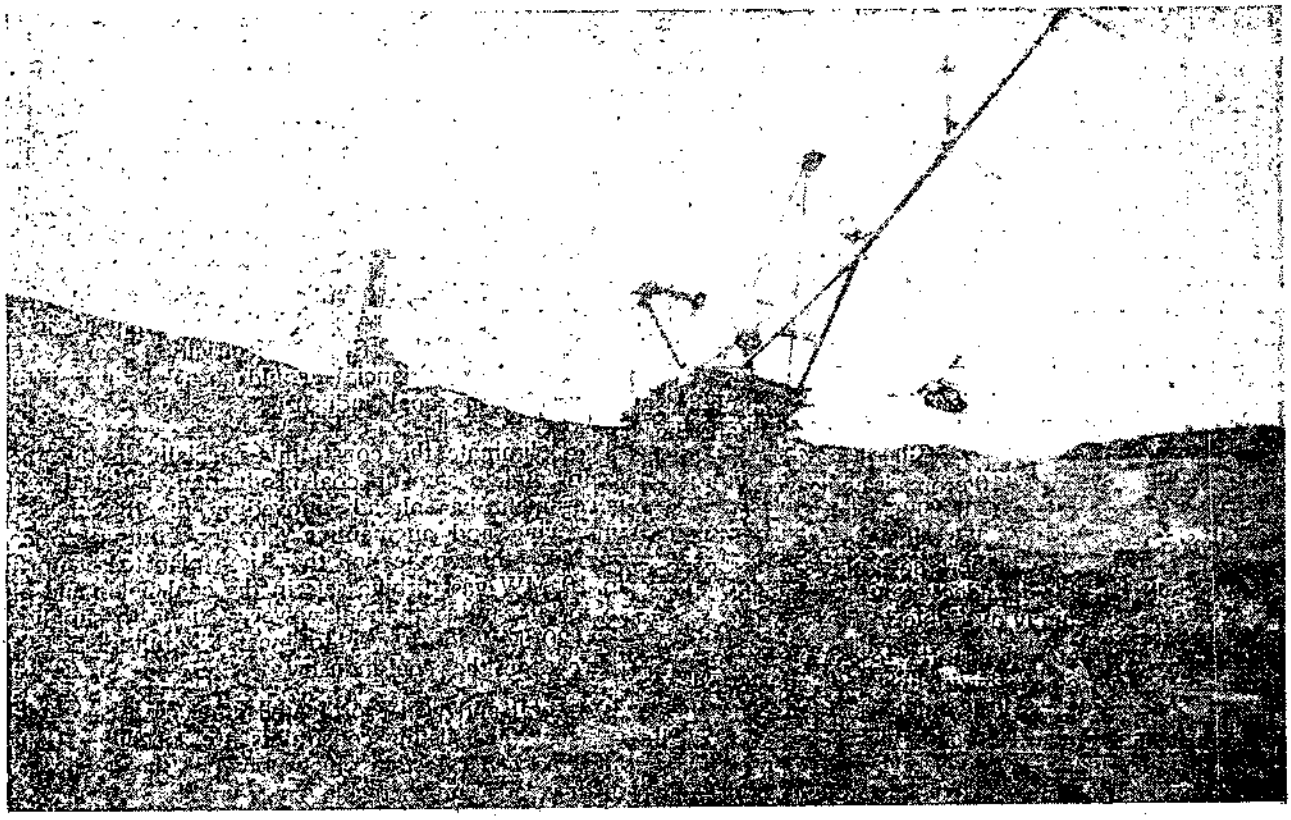
COAL India Ltd., (CIL) as a holding company, was formed on 1st November, 1975, which was made responsible for the management of the nationalised coal mining sector. The formation of the CIL created an opportunity for total planning on a scientific basis to exploit the country's coal reserves.

Today about 88 per cent of the country's coal production is from the CIL mines. Coal India has a work force of about 6 lakhs and its annual output is around 100 million tonnes against 70 million tonnes in 1973-74. The total demand on the CIL mines are to be 144 million tonnes by 1984-85 and 216 million tonnes by 1989-90 according to the Planning Commission. While the Company spent Rs. 832 crores upto 1974-79, it is working on a total investment of Rs. 1156 crores during the period 1974-80. The investments are envisaged to go up to Rs. 2273 crores by the year 1984-85. As far as the demand is concerned, the projections show that the growth of coal demand will be much faster in the power sector compared to others.

The new projects which have been taken up in the last two-three years will contribute about a fourth of total coal production in the country by 1982-83. By 1987-88, their contribution will increase to about 56 per cent of coal production.



Right : Ropeway carrying Sand from the river beds to Sand dumps of Eastern Coalfields Ltd. Below Umirer Open cast Coal mine of Western Coalfields Ltd.



The CIL anticipates a manpower increase of 15 per cent between the existing level and 1985 against an expected production increase by about 59 per cent during this period. This is attributable to improved productivity. In the year 1980-81, CIL would be training more than 61,000 persons from all levels which would go up to more than 68,000 by 1984-85. CIL is developing and appropriate stocking policy to ensure optimal distribution gradewise, sizewise and sectorwise. Adequate marketing service network throughout the country is being developed by the Company for promotional and advisory services to the consumers. New products like smokeless fuels are being developed and promoted.

Round-up

Punjab National Bank

PUNJAB National Bank (PNB) was established in April 1895 with Indian Capital, Indian Control and Indian Management. Since then, the Bank has weathered many a storm, including the devasting partition when about 100 offices in West Pakistan, with 40 per cent of the deposits were closed down.

On 19 July 1969, the bank was nationalised along with 13 other banks. The number of branches has jumped from 569 as on the date of nationalisation to 1620 as on 30 September 1980, besides 3 offices in U.K. About 43.3 per cent of the branches are in rural areas. Since nationalisation, the Bank's aggregate deposits have risen from Rs. 355 crores to Rs. 2242 crores as on 30 September 1980 registering a nincrease of about 532 per cent. In the matter of Indian deposits and credit, the PNB stands second amongst 14 nationalised banks.

The total credit portfolio of the bank improved from Rs. 243 crores as on the date of nationalisation to over Rs. 1300 crores by end of September 1980. The bank has financed diverse fields of activities. The outstanding credit to agriculture as in September 1980 stand at Rs. 202 crores. The priority sector credit and the agricultural advances formed 36.5 per cent and 16.4 per cent respectively of the total credit.

While promoting the priority sector advances, the bank has taken special care of adequate credit flow to the weakest of the weak at very liberal terms. For loans upto Rs. 5,000 no margin or guarantee or security other than that purchased from the loan given by the bank is asked for from weaker sections. Similarly for loans to artisans and small SSI units upto Rs. 25,000 the bank does not require any margin or surety. Punjab National Bank has been arranging mass loaning functions where intensive financing is done in an identified area. The effort is made to cover as many eligible borrowers as possible. Usually, in a function about 1000 loans are distributed, the amount of which vary from Rs. 50 to Rs. 100 lakhs. In the past few months, loans were disbursed to about 32,000 persons amounting to Rs. 29 crores. The bank has also assisted the

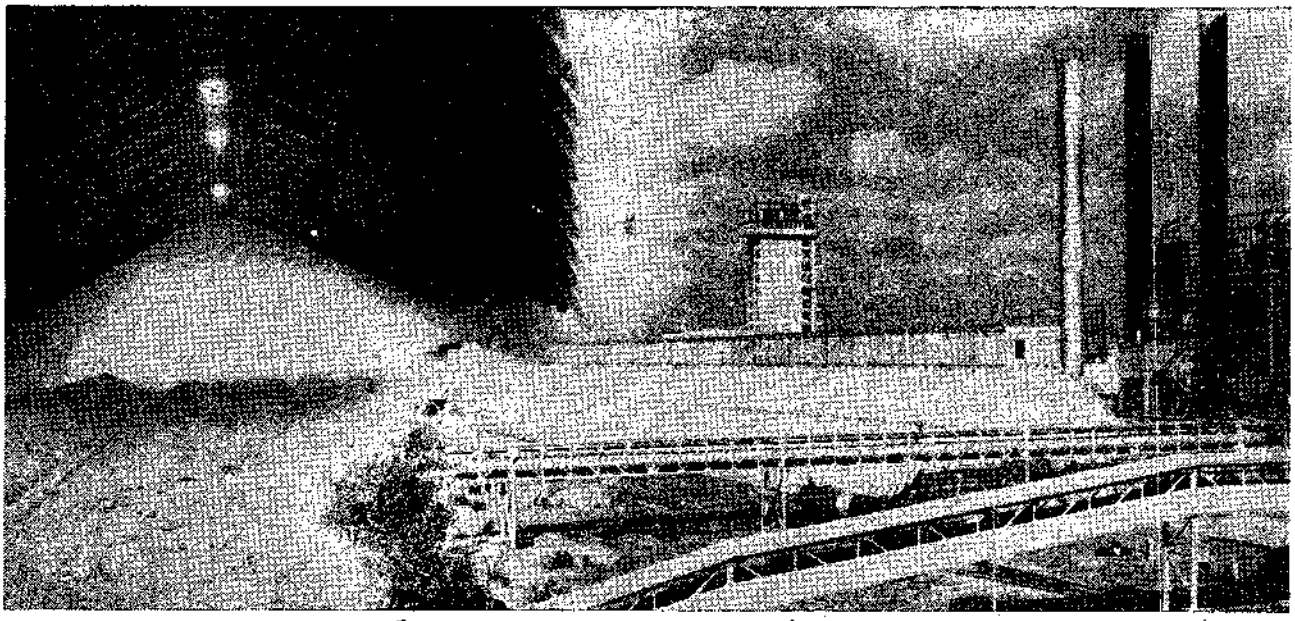
Chairman of M.D. of PNB giving away pigs to weaker sections

helpless and the weakest. About 250 nomads in Sunam (Punjab) were financed with a view to provide them regular income at a fixed place or work. Similarly to divert the beggers to productive activities, almost fifty of them were financed in Ambala. The organisations for the handicapped are also being encouraged to take up such manufacturing/servicing activities which can be handed by their inhabitants and the bank provides finance to them both for machines and the raw material. Housewives are also provided credit so that they can employ their idle time in activities like knitting, embroidery, tailoring, etc. and supplement the income of the family.

Under the Differential Rate of Interest Scheme loans are provided to the weaker sections of the society at concessional rate of interest of 4 per cent. The bank has so far advanced Rs. 1460 lakhs under this scheme.

Under the Lead Bank Scheme 41 districts have been allotted to the PNB in the States of Haryana, Bihar, U.P., H.P., Punjab, Rajasthan, M.P., and UT of Chandigarh. It has opened 616 offices in these districts. The PNB has sponsored seven Regional Rural Banks The PNB has sponsored seven Regional Rural Banks (one each in H.P., U.P., Rajasthan, Haryana and three in Bihar States.). Two more, one in U.P. and one in Rajasthan, are being opened shortly. Due to proper support these banks are developing very steadily.

The PNB established a special Defence Service Welfare Cell to provide banking facilities to defence personnel at liberal terms. It has also provided employment to ex-servicemen at various levels.



An interior view of Silo with Urea heaped in Neyveli Project.

Round Up

Neyveli Lignite Project

THE Neyveli Lignite Project is one of the biggest public sector enterprises, situated in South Arcot District of Tamil Nadu with an investment of over Rs. 250 crore. The various constituent units of the Complex are :—

1. an opencast lignite mine which is being developed to produce 6.5 million tonnes of lignite per annum,
2. a 600 MW lignite-fired thermal power station ;
3. a large fertilizer plant, manufacturing urea with a capacity of 1,52,000 tonnes per annum, and
4. a briquetting and carbonisation plant to produce 3,27,000 tonnes of carbonised briquettes and other important basic organic chemicals.

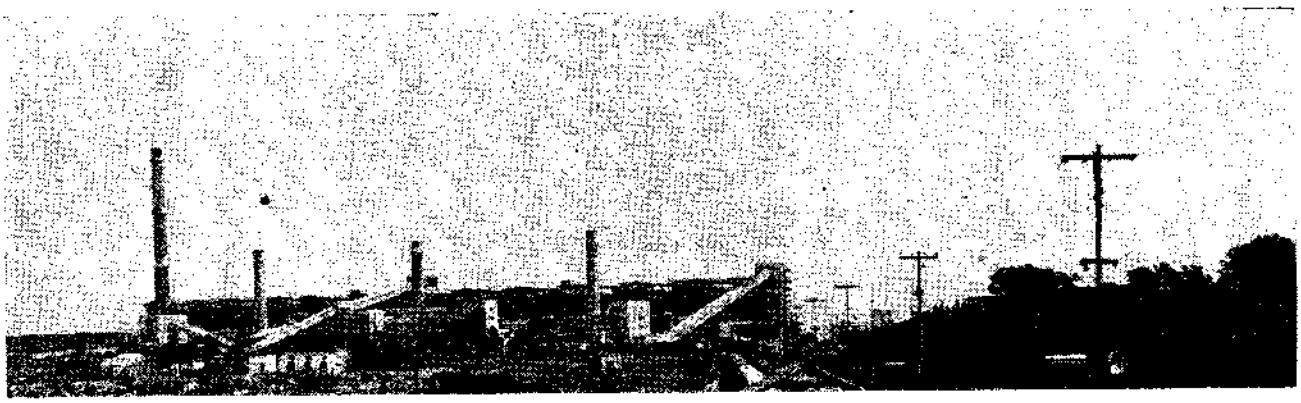
Lignite is an inferior form of coal. Extensive deposits of the order of 3,300 million tonnes, spread over an area of 480 sq. kms. in and around Neyveli are available for exploitation. An area of 15 sq. kms. has been selected for mining lignite now.

With a view to attaining the annual target of 6.5 million tonnes of lignite, as against the previous production of 3.5 million tonnes of lignite per annum, additional specialised mining equipment of higher capacities at a cost of Rs. 129 crore have recently been procured and their operation is in full swing. The lignite production has picked up in the current year and will stabilise in the next two years at 6.5 million tonnes per annum.

The 600 MW Neyveli Thermal Power Station was constructed in a phased manner and has been set up with Soviet financial and technical assistance. This station consists of six units of 50 MW each and three units of 100 MW each. The entire power generated after meeting the needs of the power station auxiliaries and the project, is fed into the state power grid. Neyveli supplies about 40 per cent of the needs in Tamil Nadu. The gross power generation in the year upto October 1980 at Neyveli is the highest for any power station in the country. The NLC is not only feeding increased quantities of power into the Tamil Nadu Grid but is also generating power at a cost which is very low-cheapest in our country.

The Neyveli Fertilizer Plant is designed to produce 1,52,000 tonnes of urea per annum. As the plant's optimal capacity utilisation could not be achieved, because of some technological problems in the gasification and purification stages, a scheme for the change-over of the feed-stock from lignite to fuel oil at a cost of Rs. 17.05 crore has been put through. This plant which switched over to fuel oil gasification ever since the middle of 1979 has stabilised its production within a short period and is giving a very good account of itself. The plant has been working above the rated capacity of 465 tonnes per day for long stretches and is thus well geared to optimal working.

The capacity of the B&C plant is 3,27,000 tonnes of "leco", carbonised briquenttes per annum, which is used as a domestic and industrial fuel. Further, the gas



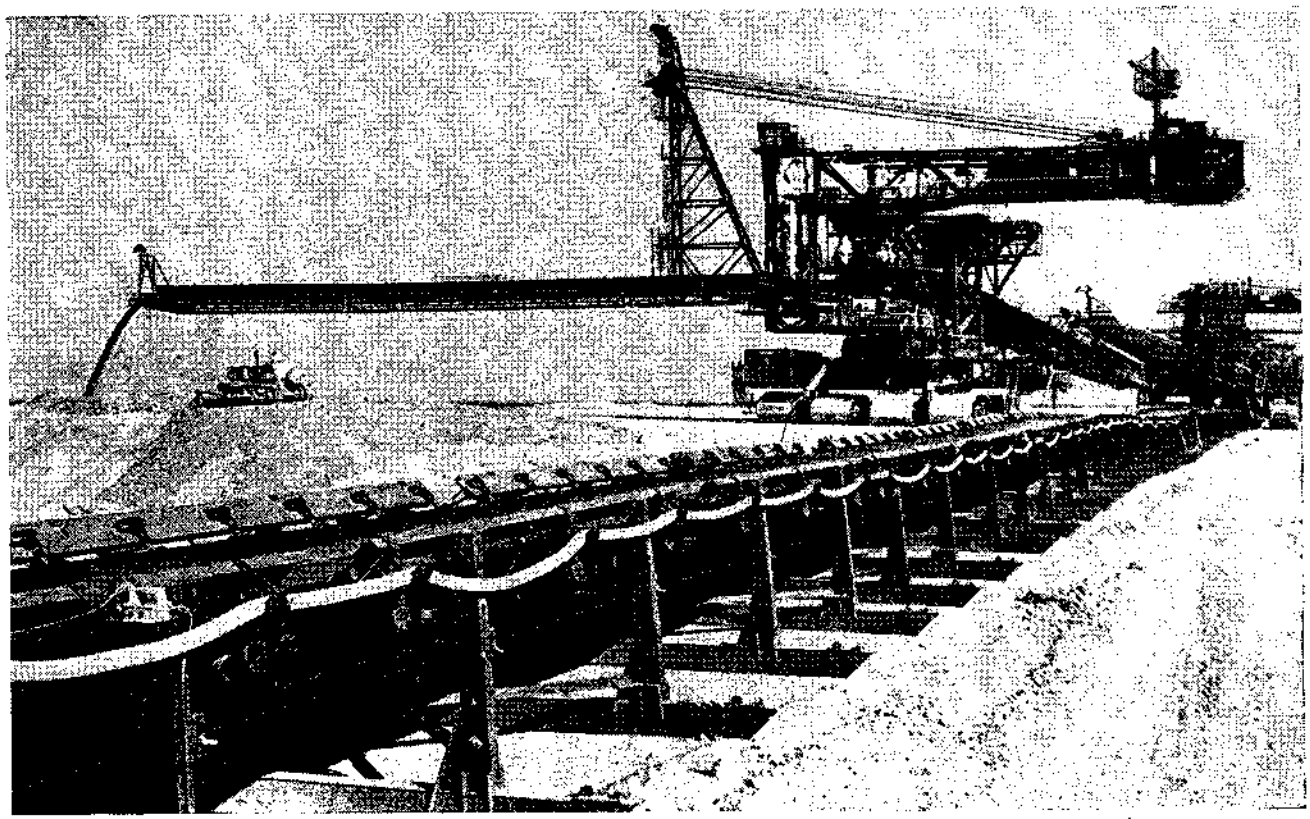
A view of the 600 MW Thermal Power Station at Neyveli.

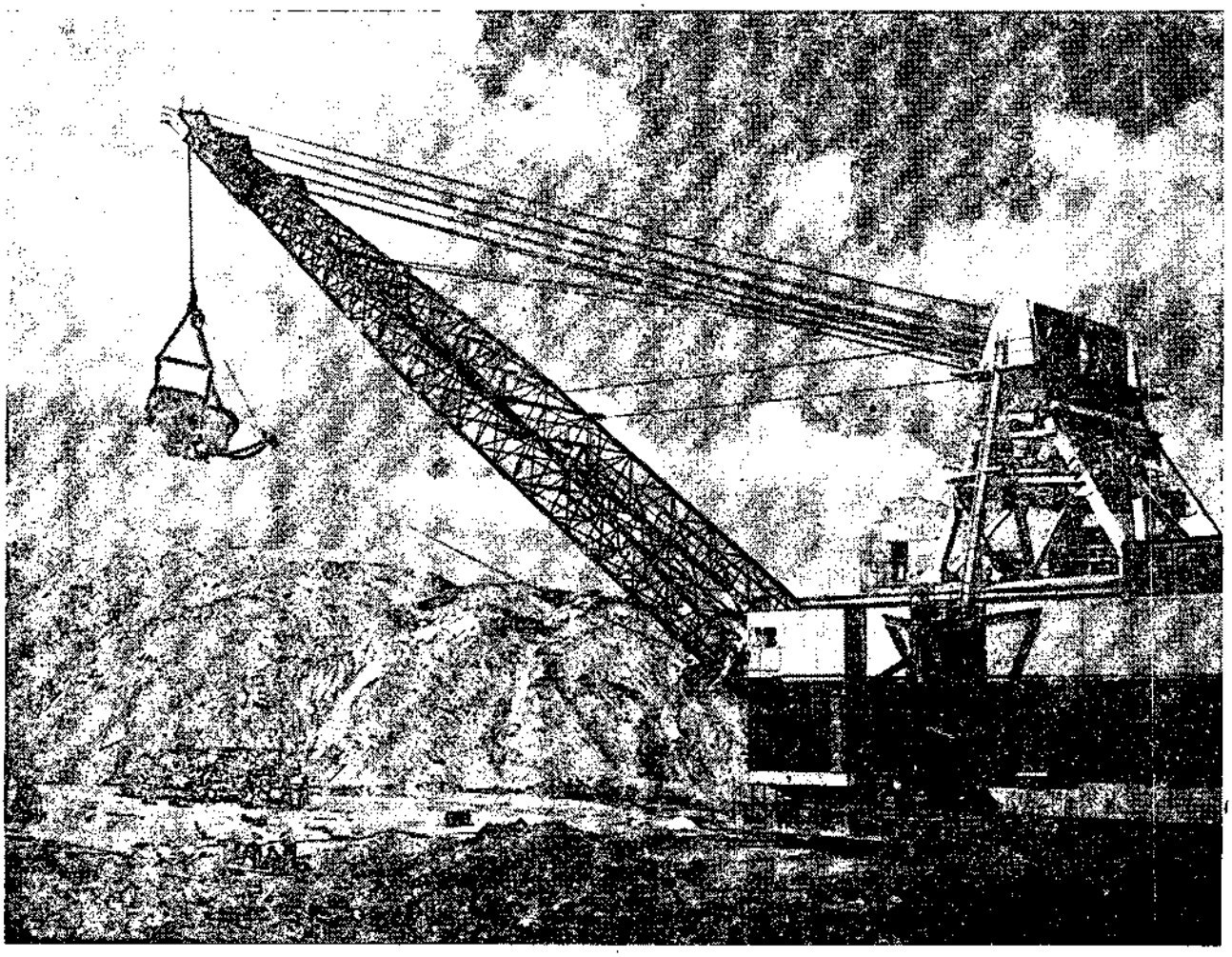
liquor obtained from the carbonisers is processed in the tar-products units to yield a number of valuable by-products such as tar, dephenolised oil, carbolic acid, ortho-cresol, meta-para cresol, xylenols and multivalent phenols. These chemicals are used in a wide range of chemical and plastic industries. The char fines that are obtained along with the briquettes are used mainly by cement factories and brick kilns. It is also used in the manufacture of calcium carbide and active carbon.

Taking note of the continuing power deficits in the Southern region, the Government of India have sanctioned in February 1978 the opening of a second mine of 4.7 million tonnes capacity linked to a thermal power station of 630 MW capacity. The work on these projects has been taken on hand. The second power station is stated to be put on bars progressively from early 1984.

The company has formulated proposals for consideration of the Government for expansion of the capacity of the second thermal power station from 630 MW to 1470 MW and steping up lignite raisings in the second mine from 4.7 million tonnes to 10.5 million tonnes per year. The NLC has also sent up a proposal for establishing a 1500 tonne per day urea plant which would use the existing infrastructure via the lignite gasification route with an attendant increase in the capacity of the first mine from 6.5 million tonnes to 8.5 million tonnes per annum. □

A giant spreader in operation at the Neyveli Lignite Mine.





A Dragline in operation in an open-cast mine

Round up

Central Coalfields Limited

CENTRAL Coalfields Limited is the new name of the erstwhile National Coal Development Corporation which was formed as the first Public Sector Coal Company in October, 1956 with eleven collieries taken over from the Railways.

By 1960-61, the NCDC has about 20 mines and a production of 8.05 million tonnes. A target of 13.5 million tonnes was set for the year 1966-67. The anticipated demand, however, not having arisen to that extent, production had to be pegged at 9.56 million tonnes in 1966-67. With the installation of new power houses and other coal-based industries during the subsequent years, however, the demand picked up and accordingly production also went up, reaching 14.37 million in 1971-72.

Non-coking mines were nationalised in 1973. The NCDC became a subsidiary of Coal Mines Authority, later re-named as Coal India Limited. Coal production of the CCL during 1973-74 was 15.55 million tonnes.

In 1979-80, it went up to 24.15 million tonnes representing over 800 per cent increase from 1956-57 and 56 per cent increase since 1973-74.

In 1980 the company had to produce 26.35 million tonnes and production during the first eight months had been according to the plan inspite of nagging problems of inadequate power availability, difficulty of land acquisition etc. As compared to the corresponding period of previous year, the production during the eight months of 1980 was 15 per cent more.

The challenge of production of one million tonnes extra coal has been accepted and the CCL's dedicated team of 1,10,000 workers, staff and executives has been working as one man to meet the target fixed by the Government for 1980.

In the next 10 years, the production programme of the CCL (in million tonnes) is as follows :—

80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
26.35	30.04	36.26	44.27	50.85	56.01	62.49	68.74	72.37	77.39

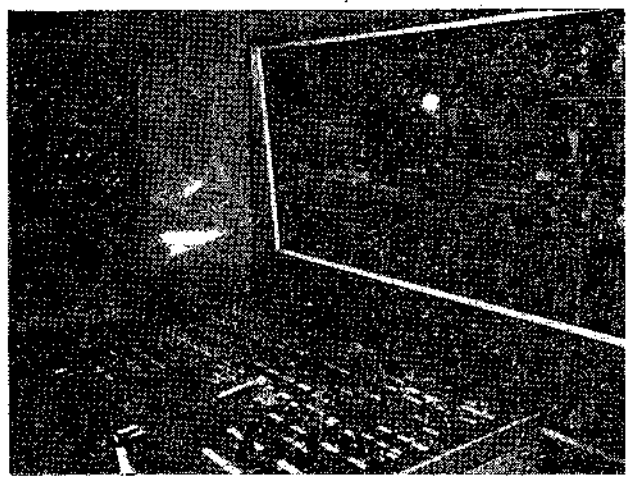
It aims at 193.7 per cent increase in the production during 1989-90 over that in 1980-81.

In the 23 years from 1956-57, the NCDC/CCL made profits for 12 years and incurred losses for 11 years. The cumulative losses for the 23 years was Rs. 36.02 crores. In 1979-80, the CCL earned a massive profit of Rs. 36.06 crores and wiped out the entire cumulative losses. During the first eight months of 1980 the CCL has estimatedly earned a profit of around Rs. 12 crores inspite of escalation of prices of all the inputs—stores, spares, oil and lubricants, explosives and so on.

To overcome continuous power shortages, the company has made arrangements for generating sets and is also exploring the feasibility of having captive power stations. Orders for plant and equipment has been placed. Critical inputs have been identified and long-range strategy for procurement has been evolved. A number of training institues have been opened up to impart training to various kinds of technicians.

The company has been able to achieve the targets and is confident about the future bacause of team work, horizontally and vertically. The trade union leaders both inside and outside the organisation, belonging to diverse political and non-political groups, are a part of the team. The State Governments have always been helpful.

The case of Kathara Washery can be cited as an example of the new spirit among all concerned. This Washery which was considered sick from its inception,



A Control panel in a coal washery.

was producing around 2000 tonnes a day. But recently representatives of management and workers met and charted out plans for improvement as a result of which the washery now produces an average of 4000 tonnes a day which is 95 per cent of its capacity.

A master plan has been drawn-up for the Singrauli coalfields (on the border of U.P. and M.P.) which is slated to produce 29.30 million tonnes in 1989-90 out of the total of 77.39 million tonnes of the CCL's target. Coal mines with annual production capacity of 10 million tonnes—the largest in the country—have been planned in this coalfield. Similar master plans are being worked out for the other coalfields to have integrated development of not only the mines but of all the infrastructural facilities including colonies, roads, railways communications, schools, hospitals, marketing centres, recreational facilities etc.

The production programme for the Central Coalfields Ltd. is the highest amongst all the subsidiaries with a projected growth of 194 per cent in 1989-90 over the production targets of 1980-81. In the wake of the global energy crisis, the coal production targets—the mainstay of our energy scenario—have to be achieved if our nation has to forge ahead. It will be the endeavour of CCL not only to meet the target but to exceed it. □

Functioning of Nationalised Banks Some Impressions and Suggestions:

S.L.N. Simha *

THIS article is qualitative, containing the impressions of one who has studied the progress and problems of Indian banking as an academician rather than as a practical banker, for over three decades. The writer's age, if not wisdom and any profound knowledge of banking and monetary theory, and experience as a client of banks give him some authority to express views and suggestions. Statistics will be avoided as far as possible, for, in the study of the, banking system, statistics can be misleading, both overstating and understating the performance, which remark holds good of many other sectors of the Indian economy. Also, while the focus of this article is on nationalised banks, the remarks hold good for all Indian banks, generally speaking.

It is also futile to discuss as to whether nationalisation was necessary to achieve progress in the banking sector. Happily, one does not come across much argumentation about it these days, except for a brief while in 1980 when six more private secter banks were nationlised. It is now mainly a question as to whether the remaning private sector Indian banks should be nationalised too. I feel that the balance of advantage lies in nationalising them. Coexistence of Private Sector and Public Sector banking is good, but when the Private Sector Portion is reduced to practically zero statistically, it is better we have de jure a wholly nationalised banking what is already so on a de-facto basis. The private sector banks cannot function with dynamism and innovation, when the Damocles sword of nationalisation is hanging over their heads.

Competition from Foreign Banks

This means that some competition in the banking field can only come (or mainly come) from foreign banks operating in India, not so much those which have been operating in India for a long time as the new ones that will be set up. It may be hoped that that Indian authorities will pursue a liberal policy in this regard, so that Indian banks may also have an opportunity to open branches abroad. This process is necessary in the broader interest of the Indian economy, which must get integrated progressively with the international economy. This is necessary for progress, if not survival. This will also call for a substantial dismantling of exchange controls. Our fiscal and monetary policies must be such as to keep the rupee reasonally strong, without the artificial proof of exchange controls.

* Former Deputy Governor, Rseserve Bank of India, and Former Chairman, Institute of Financial Management and Research, Madras.

Pace of expansion of branches has broughts in its wake numerous organisational problems, contributing to a general lowering of officiency.

We should not hope for much competition from among the Indian banks, especially the nationalised banks. In the last eleven years, since the nationalisation of the major segment of bankging, I have seen very little of what one might call constructive competition. There has been competition in deposit-stealing and misleading the public in regard to the interest rates offered on deposits of various maturities. Happily, the latter has been nearly (not wholly) given up, thanks to the lead of the State Bank of India which called, in an advertisement, the bluff of 'high' rates of interest offered by the other banks. Actually what we look for is a large measure of standardisation of procedures and forms, with a view to increasing operational effeciency and thereby reducing costs. This has happened in a small way only.

Nationalisation and After

With this preamble, let us look at the functioning of banks, following nationalisation of the major segment of banking in July, 1969. As everybody knows, the progress in the matter of opening branches has been spectacular since nationalisation, the average annual rate of growth being something like 12-13 per cent. The focus was on rural branches, which have recorded over 20 per cent growth per annum on the average, in the last 11 years.

This very pace of expansion has brought in its wake numerous organisational problems, contributing to a general lowering of efficiency. The locations vary a great deal in quality but at least in the urban areas there is tremendous congestion in bank offices. In most foreign countries, it is a pleasure to be in the premises of a bank, but not so in India, generally speaking. There is so much over-crowding that as a crude saying goes, two persons have to come out if one has to go in. It is impossible for bank staff to work with concentration, even if the inclination is there.

There was also not much preparation by way of having adequate staff at supervisory levels for meeting the challenges of a mammoth expansion of brauches. Brave efforts have been made to recruit staff and train them at all levels; the results are good as far as they go, but apparently they have not gone far enough. Having said this, I must add that as important as, if not more important than, training is motivation of the staff. Somehow, this does not seem to have happened. Apparently, contrary to expectations, nationalisation has not had much emotional appeal to the bank staff as an efficiency factor.

SBI's Dynamic Role

Among the nationalised banks, the State Bank has followed a dynamic recruitment policy of Probationary Officers through competitive examination and this probably explains, among other things, the generally high standard of efficiency observed in the functioning of the Bank. Recently, services boards have been set up on a regional basis for recruitment and promotions in banks and this should go a long way in raising the quality of entrants to banks and the supervisory staff.

If banks are to function as development agencies rather than moneylenders, they need a very much diversified staff-engineers, chartered and cost accountants, financial analysts, farm experts and psychologists. Happily, this has been recognised; only progress is slow. Also direct recruitment should take place at various higher levels, than that of a clerk/probationary officer. Not much new blood has been injected into the banking system.

One of the objects of nationalisation was mobilisation of deposits. In the urban and metropolitan areas, it is doubtful if much has been done to develop the banking habit, but it does seem that some results in this direction have been achieved in the rural areas; the rate of growth of rural deposits is substantially larger than the rate of growth of rural branches.

Benefits of Nationalisation

The benefits of nationalisation seem to lie largely in the deployment of credit rather than deposit mobilisation. Several good things have happened, partly as a matter of policy and partly by way of adaptation of bank lending to the emerging pattern and needs of the economy. In other words, not all the credit for the changed pattern of bank lending need be given to the nationalisation measure.

There is now far better appraisal of credit requirements, both macro and micro, than in the pre-nationaisation days. Credit planning and management have made strides. Naturally there has been much experimentation and probably for too frequent policy changes in matter of detail. But the basic objectives have been to link credit flows to the needs of the economy in accordance with the broad sectoral pattern of our plans and expanded availability to what are called priority sectors, in particular agriculture and small-scale industrial units, as also weaker sections of the community. These objectives are unexceptionable in theory, but in practice there are difficulties in their implementation. It is a question of reconciling the banker's caution, the impatience of the politician and the platitudes of the ivory tower economist. Adaptations and modifications are also called for, in the absence of thorough knowledge of the economic forces and trends, national and international.

Contrary to expectations nationalisation has not had much emotional appeal to the bank staff as an efficiency factor.

I feel that the progress in the matter of achieving a more balanced and healthy sectoral allocation of credit has been very good, all things considered. Lending to priority sectors, which was about 15 per cent in 1969 is now more than double, about 32 per cent, taking all categories of commercial bank credit into account. If credit for public food procurement is excluded from the total priority sector, lending is higher, at a little under 40 per cent.

While the authorities would have liked the progress to be even better, the fact is that in making the present progress, banks have taken risks. Overdues and defaults are on the increase. What the really weak sections need is grant rather than credit. Also the credit needs of other sectors of the economy have to be met in a reasonable way, especially of industrial units which supply directly or indirectly, inputs for the egricultural sector. After all, in a planned economy like ours, the distinction between priority and non-priority sectors should not be overdone.

Besides larger credit availability, the priority sectors also enjoy now concessional rates of interest on their borrowing. Naturally, the non-priority sectors have had to bear the burden of higher interest rates than would have been necessary. Of course, in this policy, there is very much the danger of excessive barrowing and diversion to non-priority sectors; it is not possible for banks to keep full vigilance in these matters. Undoubtedly this has happened, though how much, it is not known.

"Not So Happy Feature"

A not so happy feature of Indian banking, especially in the last 7-8 years is that it is over-regulated. There are far too many guide-lines, meetings, seminars, working groups and Committees. A lot of time of the senior executives of banks is taken up in arranging for the filling of forms and attending the conferences. The Credit Authorisation Scheme has also made vital contribution to needless paper work and consultations and administrative rigidity, whereas banking is a type of business where there must be a lot of discretion on the part of the lender. The Reserve Bank of India must not concern itself unduly with credit extension to individual units. Its role is to lay down broad guidelines. Occasional check is all right, but prior approved of the RBI to credit extension above a limit of Rs. 1-2 crores is unnecessary and diminishes the sense of responsibility of individual banks, if not their stature.

It is not as though the Reserve Bank has adequate expertise for doing an efficient job of screeing the accounts of individual business units. The Reserve Bank does not have banking experts in its top

echelons, with the result that a lot of what it dictates is either ineffective or unworkable. Committee after Committee has to be set up to modify things, whereas a good team in the Reserve Bank can accomplish much, with minimum effort to itself and the banks. It is time the Reserve Bank gave up the British tradition of appointing a Committee to postpone action or keep things in a state of confusion. The bankers themselves, it would appear, do not speak with courage about the practical difficulties of implementing many proposals of banking expansion, diversification and credit deployment.

A reason for the confused and timid approach to banking matters on the part of the top executives is the fact that the appointments are made by Government. There is much uncertainty and apprehension in this regard on account of the vagaries of policy. It is time that a fairly clear-cut policy was formulated and announced and, equally important, implemented. In this connection, it is helpful to set up a high-powered Banking Services Commission, comprising say 5 members, for making appointments to the positions of Chairman, Executive Director and General Manager, of the nationalised banks. A representative each of the Finance Ministry and the RBI should be ex-officio members, in addition to the five regular members. Some such arrangements should be made to reduce the political element in these appointments. Today, senior bank staff talk only of appointments and promotions rather than banking practices and innovations.

Diversification

All over the world, commercial banks are diversifying their operations and are entering fields which were considered unsuitable for banks. Sometimes, subsidiaries are set up by way of diversification. Indian banks have now more or less completed what one might call the first phase of their diversification, namely lending to the various sectors of the economy. Now the stage is set for their moving to the next stage of their becoming developmental agencies. In particular, their advisory role must be enlarged, especially for the benefit of small and new entrepreneurs. Without formally entering the merchant banking field, banks can do much to help clients on project preparation and, more important, financial estimates and the financing pattern. Working capital management is an area where the banks are eminently suited to help their constituents. This will be natural sequence to the increasing participation of commercial banks in medium term lending; which is of the order of 20 per cent of their aggregate lending.

Investment counselling is another fertile field for banks, to render services as well as augment their earnings. Investment counselling is required not merely when a person comes by lump sums of money on retirement, but on a continuing basis, including on matters like life insurance.

Commercial banks can also do much to raise standards of company management. They are in continuous possession of information on the performance of companies and they can alert, guide and discipline company management.

It would be good to entrust to commercial banks the work of issuing and transferring shares of companies. This will provide a check against the possibility of malpractices and generally enhance the liquidity of shares.

Measuring Performance

One of the ways of measuring the performance of a business unit even if a rough one, is the question of profit in relation to the resources employed. In the case of financial institutions, the profit item is even a more rough measure, since borrowed funds predominate in relation to owned funds-share capital and reserves. Also, it is nearly impossible to say from published figures whether the provision for bad debts is adequate or not and how the investments are valued. Finally, in the case of the nationalised banks, profit are restricted by official policies with regard to deposit and lending rates—the average spread between the two is probably narrower than the market situation warrants.

If banks are to function as development agencies rather than money lenders, they need a very much diversified staff.

Having regard to all these aspects one cannot say that the profitability is poor. Thus, in 1978, the latest year for which data are available, the 22 nationalised banks had a pre-tax (after bonus, gratuity and 'other' provisions) profit of Rs. 172 crores, in relation to share capital plus reserves of Rs. 312 crores. Taxation accounted for Rs. 139 crores. Beyond the above general remark, it is not possible to comment on the profit situation of banks.

Restructuring Indian Banking

We may conclude the paper with a brief consideration of the lines on which Indian banking can be restructured and banking regulation may be improved. The time is more than ripe for making the seven subsidiaries wholly independent of the State Bank of India. Secondly, regional bias must be consciously observed, as regards banks other than the State Bank of India. This should be observed mercilessly in the case of small and medium banks. This makes the promotional and regulatory role of commercial banks more efficient than now.

Although the State Bank of India's vast size has not come in the way of its being comparatively an efficient institution, thus far, it would seem desirable to go slow in the matter of its expansion from now on. The small and medium banks should be invited to expand more rapidly than hitherto; the same should be the policy with regard to regional rural banks.

On the other hand, I would like the responsibility of the State Bank to be widened, in ways other than branch expansion. The responsibility for standardising and streaming forms and procedures and for supplying senior staff to other banks could well be placed on the SBI. It is a matter of deep regret that even after 30 years of the operation of statutory banking regulation by the Reserve Bank, eleven years of the take-over of major scheduled banks and the presence of august bodies like the Indian Banks' Association,

the Indian Institute of Bankers, the Bankers Training College and the National Institute of Bank Management, forms, documents and procedures vary a great deal from bank to bank. Something should be done to correct the situation urgently. Standardisation is the key to progress, efficiency and convenience of the public. I feel that the State Bank must be made the overlord in this matter.

Efficient Functioning of RBI

The Reserve Bank of India ought to function far more efficiently than so far in the matter of banking development and regulation. It must curtail its routine inspection of banks a great deal and concentrate on raising the standards of efficiency and usefulness of banks. It must have in its organisation a large corps of presons very knowledgeable about banking. It can do a lot of quiet but solid work in taking Indian banking to to new heights, without appointing every day a committee or group to study the many specific issues that come up from time to time. In the Indian banking system ,there is enough scope for the Reserve Bank to consult banks without going through the ritual of a committee. There would also appear to be considerable scope for decentralising the RBI's operations in regard to banking development and regulation.

For toning up the efficiency of banks, it will be a good thing if new blood is introduced at various levels, the selection being made from industry as well as the administrative, economic and educational services. It is not at all necessary for a 'Professional' banker to be Chairman or Executive Director of a bank. A dynamic managing or finance director of a company may do very well as the head or a senior executive of a bank. I feel that the routine policy of bankers only has robbed the system of the availability of a lot of talent in the country.

I feel it is desirable to revive the National Credit Council, with some changes in its scope and composition.We should have a national forum for discussing monetary and credit problems.

Summing up

Summing up, we have in the country a very good banking base and with a proper combination of guidance and autonomy, our banks can develop into dynamic agencies, facilitating rapid economic development on an enduring basis, also observing the socialistic goals in the matter of deployment of credit. Nationalisation has definitely been productive of much good. More could have been achieved but for too many shifts in policy and procedure, undoubtedly dictated by good motives, but unfortunately slowing down the progress.

The authorities did not also keep in mind the motto 'hasten slowly', till recently. There is now recognition that number of banking offices and bank accounts alone do not matter. Quality is important. The Slowing down of the pace of expansion of banking offices is a welcome development. Consolidation and growth have to go hand in hand □

Development Banking at the Cross-Roads

R. K. Roy*

THE precise objectives of development banking in India need to be clearly set out in assessing the direction that should be imparted to the numerous development banks which disburse a vast sum of public funds to industry.

The network of development banks in India is extensive. At the all-India level are the Industrial Finance Corporation of India (IFCI) set up immediately after Independence, the Industrial Development Bank of India (IDBI), the largest, the Industrial Credit and Investment Corporation of India (ICICI), the only one in the private sector, and Industrial Reconstruction Corporation of India (IRCI), the smallest which is entrusted with the task of reviving sick industrial units.

Since their inception, IDBI, IFCI, ICICI and IRCI have lent and invested over Rs. 4000 crore in industrial ventures in the private and joint sectors which are the main areas of their operation. They have, of late, lent and invested over 650 crore rupees annually. Currently, their annual sanctions, tend to exceed 1000 crore of rupees.

A part of the project assistance of the all-India institutions is in the form of investment in shares and debentures of the assisted industrial concerns. The Life Insurance Corporation of India (LIC) and Unit Trust of India (UTI), are the other all-India institutions which assist and invest in shares and debentures of new industrial ventures. The assistance to industry, since the inception of LIC and UTI, adds up to over Rs. 480 crore. The annual assistance sanctioned by them to industry exceeds 100 crore rupees.

Industrial project finance is also made available by the State financial corporations and the State industrial development corporations. Nearly all the States have these twin agencies. These State agencies have lent and invested (since their inception) over 1,100 crore of rupees. Currently annual sanctions are of the order of 300 crores.

The annual disbursal of assistance to industry by the institutions currently adds upto to over 100 crore rupees. It thus seems that development banking in India has come of age. The development banks at the all-India and state levels will pump resources at a rate which is slated to rapidly escalate each successive year.

*Resident Editor, Economic Times.

The question is whether, ignoring for the moment the issue of rising project costs, a mere jump in the quantum of assistance by the Development Banks will be considered a satisfactory development.

Objectives not Served

The objective of development banking, simply stated, is to promote rapid industrial development. This objective has at least three important facets. First, to achieve development through a rapid spread of entrepreneurship. Secondly, and this follows from the first, to ensure a rapid spread of industrialisation by region. And third, which is linked with the preceding two, the promotion of medium, small-medium and small viable industrial projects.

Development banks play safe by lending to large industry.

On spread of entrepreneurship, the development banks in India have little to show. True, a large number and a variety of small and medium industrial units have spawned during the last two decades. But the basic thrust of investment in industry in the private sector has come, by and large, from the large houses, that is by those covered by the MRTP Act.

That in recent years the Government's preoccupation has been with relaxing licensing and other regulations with a view to securing quick increase in industrial output is indicative of the nature of entrepreneurship that is considered to have resilience in the Indian economy. The large official approach speaks volumes for the importance the large houses, that is, the traditional metropolitan-based etrepreneurs, have assumed under the aegis of development banking in India.

It would seem that the development banks, including the giant all-India institutions, have preferred soft-options. Their preference for large houses has not only stemmed from the pattern of industrial licensing. Their performance has been influenced by at least two other considerations.

One, the large houses have the command over and access to technical and managerial resources. However, is it not the function of development banks to provide support precisely in these two areas to the entrepreneurs who fall outside the group of traditional large houses ? The kind of selection the development banks did was, surely, loaded against diffusion of entrepreneurship.

Two, the development banks appear to have taken a cautious view on the financial resources capability of non-traditional, non-large entrepreneurs. The traditional large houses have their vast industrial investments to rely upon for resources generation. Especially with respect to expansion programme, their average costs tend to be lower than the costs that have to be incurred by new units of new entrepreneurs. The large houses, by and large, have been favoured by the development banks. It cannot be said that the caution was entirely justified, judging from the fact that the phenomenon of industrial sickness goes across the board by size-class of ownership.

In other words, the development banks have not been venturesome. Nor have they kept the principal objectives of development banking in view.

It is hardly surprising, therefore, that the development banks have failed to foster the regional spread of industrialisation. Development banking favoured, broadly speaking, the status quo in the pattern of entrepreneurship and followed the ventures of the traditional entrepreneural class.

Industry has remained confined to the traditional metropolitan belts and their hinterland. Barring some large projects at selected centres in the country, Western India, in particular, has been the major field of operation of the development banks.

The Missing Element

Further more, within this limited framework of industry promotion, it can hardly be said that the development banks have chosen projects which are internationally competitive. How many export industries have the development banks promoted ?

The quantum of annual disbursement of funds to industry by the development banks is slated to rise rapidly. The principal reason for this is the rapid escalation of project costs that continues unabated. If the old pattern of capital and energy-intensive projects continues to be fostered, the impact of burgeoning assistance on industry promotion will continue to be limited.

Can the escalating costs be covered through proper market pricing as is generally assumed ? Does the domestic market pose no limitations ? Will the country have to continue to subsidise these projects directly and indirectly ?

Development banks are not aware of the growth trends.

The implications of costs and pricing need to be fully realised. The principal one, in the present context, is their impact on the ability of the projects to finance their borrowings. To late, resources garnered through repayment of past loans and interest earnings on them are not a sizeable proportion of the total lendable resources of the development banks. This proportion is likely to decline and this, in turn, will sooner than later retard the growth of resources for industry promotion.

It follows, therefore, that the development banks need to review their strategy of industry promotion. They must be able to sense out growth impulses in different parts of the country and in new classes of the population.

Consider the fact of the recent rise in the rate of savings as a percentage of the national income. The rise is indicative of the fact that substantial incomes are accruing to certain groups of the population and these income earners are saving a sizable portion of their incremental income. It would not be unreasonable to presume that these savers are willing to invest. In any case, beyond a point these savings cannot be funnelled into the financial assets made available by the capital markets.

Because of the continuing preoccupation with traditional groups for industry promotion and with packages of technology and management practices already available the development banks do not seem to be able to sense out the growth impulses in the economy.

Development banks are innovators. Innovation is precisely the missing element in the kind of development banking that has been fostered so far.

(Courtesy : A.I.R.)

Save Energy—Switch Over to Bicycles

INCREASING environmental consciousness, rising fuel prices and a general health fad have resulted in making the bicycle a fast-selling item again in the past few years in the Federal Republic of Germany.

Three out of five people in the Federal Republic of Germany already own bicycle and the two-wheelers are continuing to sell in great numbers. In the first three months of this year some 1·13 million sports, racing and touring bicycles were sold, around 35 per cent more than in the first quarter of 1979. In view of these sales figures, the German Bicycle and Motor Industry Association figures that sales for the entire year will total more than 4 million bicycles.

The old image of the bicycle as the poor man's vehicle has disappeared and, quite the other way around, many models produced by the bicycle industry are now sold as status symbols.

There are still many people in the Federal Republic of Germany who would be willing to switch over from their car to a bicycle if this were facilitated for them through an appropriate public roads policy aimed at leading away from road planning that is oriented purely towards the needs of the automobile, the new road policy should aim at the expansion of the bicycle path network.

(German News)

GOVERNMENT OF INDIA

Department of Publications

MINISTRY OF WORKS AND HOUSING

Civil Lines, Delhi—110054

NEW ARRIVALS—NOVEMBER, 1980

S. No.	Title	Price
1.	Account Code Vol. I (General Principals and Methods of Account first edn.) 5th reprint Incorporating Correction Slip No. 1 to 304 (Print 1980) PAG. 27.I(Dig.)	Rs. 8.20
2.	Estate Duty for the Layman (Print 1980) PDI. 118	Rs. 3.05
3.	A Hand book on the Identification and Description of Trees Shrubs and Important Herbs of the Forests of the Southern States for the use of the Southern Forest Rangers College, Coimbatore by T.R. Somasundaram (Print 1980). PFRI. 104 (Rep.)	Rs. 41.50
4.	Tracks of Storms and Depression in the Bay of Bengal and the Arabian Sea 1877-1970 (Print 1980). PDGO.105	Rs. 295.00
5.	Indian Labour Year Book 1977 (Print 1980) PDLB. 19.77 year book 1977 (Print 1980) PDLB. 19.77 R. 65.p00	Rs. 65.00
6.	Rural Labour Enquiry 1974-75. Final Report on Wages of Rural Labour House Holds. (Print 1980). PDLB. 203.II.	Rs. 30.00
7.	Trade Unions in India 1972 (Print 1980). PDLB. 8.72	Rs. 40.00
8.	Report of the Task Force on Projections of Minimum Needs and Effective Consumption Demand. (Print 1980) PPC. 231	Rs. 4.60
9.	Sixth Five Year Plan 1980-85; A Frame Work, (Print 1980). PPC. 234	Rs. 2.35
10.	Bye-Election Brochure (1978) An Analysis. House of the People and Legislative Assemblies, Council of State and Legislative Councils (1-1-78 to 31-12-78). (Print 1980). PECI. 68	Rs. 20.00
11.	The Indian Electricity Rules 1956 (as amended upto March 1980). (Print 1980). PMIP 25	Rs. 4.25
12.	The Delhi Municipal Corporation Act, 1957 (as on the 1st May 1980). (Print 1980) Act 66 of 1957	Rs. 28.85
13.	Selected Decisions of the Company Law Board Benches. (Print 1980). PCOA. 14	Rs. 50.00
14.	Selected Tables on the Survey on Employment and Unemployment, State Punjab, Twenty Seventh Round October, 1972—September 1973). (Print 1980). PDOS. 40	Rs. 100.00
15.	Census of India 1971-Series 1 Pt. IX. Census Atlas, National Volume, (Print 1980). PRG. 82.71(N)	Rs. 275.00

For all your requirements of Govt. Publications released by the various Ministries/Departments of the Govt. of India, the Periodicals and Gazette of India (all Parts) Please address your enquiries and mail your order to the undersigned.

OR

Contact any of our Sales Depots/Counters for Purchase of Govt. Publications on Cash down basis :—

1. Kitab Mahal, Baba Kharak Singh Marg, State Emporia Unit No. 21, New Delhi Tele No. 343708.
2. Book Depot. 8 K.S. Roy Road, Calcutta Tele No. 233813.
3. Sale Counter, Udyog Bhawan, Gate No. 13, New Delhi Tele No. 372082.
4. Sale Counter, Delhi High Court, New Delhi (Room No. 264) G. Block Tele No. 385421/291.

These publications can also be had from our authorised agents all over the Country and abroad whose list appears in the Catalogue of Govt. of India Publications & Periodicals.

AMRIK SINGH, I.A.S.
Controller of Publications
Tel No. 252527

davp 80/372

Management Boards vis-a-vis Committee on Public Undertakings

Dr. C. R. Ananda Rao*

THE Public Enterprises should be accountable to Parliament, at the same time without affecting their autonomy and subjecting them to the public criticism on the floor of the Parliament. The effective method to ensure accountability of this nature would be that of a review by a Committee of the Parliament. The Committee on Public Undertakings (CPU) came into being in May 1964. The functions of the Committee are to examine the efficiency of the public undertakings and how far the undertakings are managed in accordance with sound business principles and 'prudent commercial practices'. Hence the role of CPU ensures public accountability. Further the CPU ensures autonomy of public undertakings as they do not examine and investigate matters of day-to-day administration.

Management

In this paper, an analysis of the recommendations of CPU on Management Boards of the Public Enterprises is attempted. The main thrust of recommendations of the Committee on Public Undertakings on Management Boards of Public Sector Undertakings concerns the empanelment of top post frequent changes in the Board, Secretary of the Administrative Ministry as Chairman, Chairman-cum-Managing Director, Structure of the Board, Functional Directors and non-officials on the Board. The Committee suggested that some broad principles should be laid down to determine the size and composition of the Boards of Directors of the Public Undertakings for the guidance of all the Ministries and consistent with the needs of representing the necessary talent, experience and interests adequate for effective functioning of the enterprises. In reply the Government stated that as regards the broad principles governing the composition of the Boards, these have already been laid down based on the recommendation of the Krishna Menon Committee and the recommendations of the Administrative Reforms Commission accepted by the Government.

The Committee in its recommendations pointed out that in spite of the acceptance of the recommendations of Administrative Reforms Commission they have not been implemented by the Government. But ultimately the recommendations had their impact and proved useful as the Government has come out with a policy for the management of Public Enterprises.

Empanelment of top posts

A Committee of Secretaries headed by the Cabinet Secretary was constituted in the year 1965 to consider various aspects relating to the manning of top posts in the public sector with special reference to remuneration, terms of service and relationship to the public services. Pursuant to its recommendations, panels for appointment to these top posts are maintained by the Bureau of Public Enterprises under the supervision of the Cabinet Secretary. The selections for appointment to these top posts are normally to be made by Government out of a panel of names drawn up by the Empanelment Selection Board consisting of Secretaries to the Government of India and Chief Executives of Public Enterprises. The B.P.E. services the Empanelment selection Board and ensures that the administrative Ministries are provided with panels of names finalised by the Board from time to time.

The delay in filling up top posts in Public Undertakings has been attributed to the reason that the Empanelment Selection Board consisted solely of Secretaries to Government and had no representative of Public Sector Enterprises on it. In 1970 the Empanelment Selection Board was reconstituted and since then it consisted of an equal number of representatives of Public Enterprises and Secretaries of the Ministries. Thus, the Committee on Public Undertakings viewed that this kind of composition would result in deeper understanding and greater confidence between Government and public sector enterprises. Instead of procedure of empanelment of top posts by Empanelment Selection Board, a high level selection Board known as Public Enterprises Selection Board was set up in 1974, with eminent persons, including Chief Executives from the public sector and private sector to recommend suitable names for specific vacancies at the top level for holding the post.

The Public Enterprises Selection Board was set up on the basis of recommendations of the Action Committee on Public Enterprises which was constituted by the Bureau of Public Enterprises in December

* Honorary Faculty Member, Institute of Public Enterprise, Hyderabad.

1971. Hence, it can be inferred that the Committee on Public Undertakings was not directly responsible for the setting up of Public Enterprises Selection Board.

The frequent change of incumbents of posts of Chairman and Managing Director is not desirable in as much as it results in a waste of experience and of intimate knowledge acquired by the individual. To ensure continuity of management, the Government should see to it that the Chairmen and Managing Directors of the Public Undertakings are not changed frequently.

The Committee recommended that the persons for appointment on the Board of Directors should be selected carefully and appointed for a minimum term of 5 years so as to enable them to fully implement the plans and programmes entrusted to them and to contribute to the efficient and economic working of the enterprise concerned. The tenure of Directors on the Board should be linked up with the performance of the individuals concerned so that it should always be possible to remove unsuccessful or inefficient persons before the expiry of their term. The reply of the Government has been that of 'noted' 'agreed' and 'the Government will take into account the recommendation of Committee on Public Undertakings'. In this context the impact of the Committee's recommendations seem to be ineffective as it can be seen from the replies of the Government. Perhaps the Government was not able to curb the tendency of frequent changes for political reasons.

Ministry's Secretary as Chairman

The appointment of the Secretary of the administrative Ministry on the Board of Directors of Public Undertakings would create some problems and anomalies. Firstly, his presence in a meeting would hamper a free and frank discussion of the issue involved. Secondly, the advantages of a second screening of the proposals of the undertaking at the Ministry level would be lost, because the officers in the Ministry would start with the opinion that it has the approval of the Secretary in his capacity as a Member of the Board of Directors.

The Committee recommended that the post of Chairman of the Board of Directors should be filled in by some suitable persons other than the head of the administrative ministry. The Committee suggested that Government should issue suitable instructions to see that not only Secretary but also Additional Secretaries should not be appointed on the Boards of Public Undertakings. The reply to this recommendation by the Government has been that of 'noted', 'accepted' and 'brought to the notice of Government for necessary action'. In the case of the Public Undertakings pointed out by Committee, the appointment of Secretary of the administrative Ministry, as Chairman has been discontinued.

The Committee commented upon the appointment of Sri N. N. Wanchoo, the then Secretary of the Ministry of Industries and Steel as the Chairman of Bokaro Steel Ltd. (B.S.L.) and his continuance as Chairman even after his transfer as Secretary to the Ministry of Industrial Development and Company Affairs. In reply, the Ministry has sought to justify the appointment of the Secretary of the Ministry on the ground that it was considered advantageous to have the Secretary as Chairman of the new company in its initial stages. It was also stated that even after the transfer of Shri Wanchoo to the Ministry of Industrial Development and Company Affairs, considering his past association with the project, it was not considered advisable to relieve him of his appointment as Chairman of B.S.L., particularly when the project was in its crucial stage of construction. The Committee are not satisfied with the replies furnished by the Ministry and reiterated their recommendation and desired that the recommendation of Administrative Reforms Commission which has been accepted by Government in respect of industrial undertakings, should be strictly followed.

The committee recommended that the persons for appointment on the Board of Directors should be selected carefully and appointed for a minimum term of five years so as to enable them to implement the plans and programmes entrusted to them.

The Committee which reviewed the working of S.A.I.L. reiterated the earlier recommendations of the Committee that "no Officer of Ministry should be made Chairman of a Public Undertaking nor the Secretary of the Ministry be included in its Board of Management". The Committee, however, added that "in view of the improvement noticed after formation of S.A.I.L. as a holding company, which is a novel experiment, the Committee would like to watch the functioning of this arrangement for some more time before they could give their observations in this regard".

The impact of the Committee's recommendations seems to be effective as the appointment of officers of administrative Ministry as Chairmen of the Public Undertakings has been discontinued. But again this issue was reopened in the case of Steel Authority of India Ltd. The Committee reiterated its earlier recommendation but reconciled with the situation in the case of S.A.I.L. and would like to watch the functioning as it was a new organisational set up.

Chairman-cum-Managing Director

The Committee suggested the desirability of appointing full-time Chairman as 'the Chief Executive' in the case of Oil and Natural Gas Commission as it will enable the Chairman to exercise better day to day control and supervision and lead to expeditious implementation of the policies and programmes of the undertaking. When the Chairman has no executive functions and is simply required to preside over the meetings of the Board, that would make the organisation top heavy without any attendant advantages. Hence the Committee recommended the desirability of combining the posts of Chairman and Managing Director as recommended by the Estimates Committee in their report on 'Personnel Policies of Public Undertakings'.

In their report on 'Public Sector Undertakings', the Administrative Reforms Commission too had recommended that the Board of Management of Public Sector enterprise should have a full-time Chairman/Managing Director. The Government considered the recommendation and decided that as a rule there should be a full time Chairman-cum-Managing Director and

in exceptional cases where the Chairman might be only a part-time one, there should be a full-time Managing Director. A full-time Chairman may like to justify his existance by taking over executive functions and hence may come in clash with the Managing Director. A part-time Chairman has no specific functions or responsibilities besides presiding over the meetings of the Board and the executive responsibility is vested in the Managing Director. Hence the Committee recommended that Government should explore the possibility and study the feasibility of combining the posts of Chairman and Managing Director.

In reply to the Committee's recommendation of combining the posts of Chairman and Managing Director, the Government's reply has been that of 'noted', 'under consideration', 'action being taken', and 'accepted'. In the case of the report on Bharat Earth Movers Limited (B.E.M.L.) the Government in their reply stated that the B.E.M.L. was still in a developmental stage, the presence of a senior experienced person as part-time Chairman of the Board who can provide superior guidance to the affairs of the Company was considered a distinct advantage. The Committee are unable to agree with the views of the Government that at the development stage it was considered to be advantageous to have a part-time Chairman. Quite apart from the above the Committee felt that as it had already gone into production in 1968-69, the Government should consider the desirability of combining the posts of Chairman and Managing Director in the B.E.M.L. In the case of the report of the Committee on Modern Bakeries (India) Ltd. also the reply of the Government has been that existing pattern of part-time Chairman and Managing Director may continue particularly at this developmental stage. As regards the Committee's report on Hindustan Photo Films Manufacturing Company Ltd., the reply has been that if Government have decided in consultation with the Public Enterprises Selection Board to continue the present arrangement of a part-time Chairman and a full-time Managing Director for the Undertaking it was because of the existing Chairman's enthusiasm which resulted in capacity utilisation of 80 per cent of the rated capacity and increase in production.

Structure of the Board

According to the existing policy decision of the Government, the typical structure of the Board (i) for large multi-unit enterprises and large trading organisations could be a full-time Chairman-cum-Managing Director, assisted by at least two functional Directors, one of whom should be incharge of finance, and part-time Directors, and (ii) for the smaller enterprises it could be a Chairman-cum-Managing Director with one and possibly even two senior officers of the undertaking itself as functional Directors together with some part-time Directors. There should be no bar to the appointment of part-time Chairman, if in a particular case this course appeared desirable, but in such a case, a suitable whole-time Managing Director should invariably be appointed.

To conclude, the policy seems to be accepted but the existing position in certain undertakings is sought to be justified as exceptional cases. The impact of the Committee's recommendation could be seen in the sense that the Public Undertakings, pointed out by the Committee, came out with explanations justifying their position in this regard.

Functional Directors

The Board should include a team of functional Directors which may be jointly responsible for the proper execution of the policies of the undertakings. Then there should be an element of heirarchy in this functional team included in the Board of Directors so that the Government does not get at the loose end whenever the Chief Executive of the project (Managing Director and/or Chairman) retires or resigns. The Committee in its report on Hindustan Steel Ltd. (H.S.L.) considered that the functional Board will be best suited to H.S.L. The difficulty in adopting such a Board immediately is paucity of men with adequate qualifications and experience of the industry to occupy the posts of Directors. Hence the Committee opined that it would be useful to appoint one or two full-time functional Directors and diversion of competent persons from the operations of the undertaking to the posts of functional Directors. The Government's reply for this recommendation has been that of 'noted'.

The part-time chairman has no specific functions or responsibilities besides presiding over the meetings of of the Board and the executive responsibility is vested in the Managing Director. Hence the committee recommended.....for combining the posts of chairman and Managing Director.

It would be advantageous to have a full-time Finance Director incharge of budget and accounts department and another full-time technical director to look after technical matters. These Directors would not only be a party to, and responsible for all the decisions of the Board with regard to the management and operation of the enterprise, but would readily identify themselves with the objective of the enterprise. Hence the Committee observed that such full-time Directors would also gain the necessary training and experience for ultimately taking over as Managing Directors. Hence the Committee further stressed that there should be more full-time functional technical Directors on the Board so that various aspects of the working of the Corporation are looked after adequately by the Board. The reply of the government has been that of 'noted' and 'accepted' for the above observation made by the Committee. This is because the Public Undertakings pointed out by the Committee either already have the functional Directors on their Board or have proposal for increase in the number of such Directors. In this regard, the Committee seem to be anxious about the association of functional Directors on the Boards of Public Undertakings without adequately looking into the existing situation in this respect.

Non-officials on the Board

Persons on the Board of Directors should mainly be those who have experience of industry or special knowledge of commercial, financial and administrative matters or of labour management. The Committee suggested that it will be useful to have fairly good proportion

of the members of the Board from among non-officials. The Committee repeated its suggestion that the Board of Directors be strengthened by inclusion of knowledgeable non-officials of standing to the extent of 50 per cent.

It is desirable to associate a few prominent non-officials who have the knowledge of the problem of the undertakings on the Board of directors. In this context it is of relevance to mention the Committee's recommendation to the Government that it should endeavour to appoint persons with knowledge and experience of hotel industry in the case of Ashok Hotels Ltd., with knowledge and experience of insurance in the case of Life Insurance Corporation and with knowledge of the problem of shipping industry in the case of Shipping Corporation of India Ltd.

In the case of National Building Construction Corporation Ltd and National Seeds Corporation Ltd. the Committee recommended the association of the research organisations on the Board. The Committee in its report on Heavy Electricals (India) Ltd. and Rural Electrification Corporation Ltd. recommended that representatives of Electricity Boards should be nominated on the Boards. The reply of the Government for these recommendations have been 'noted', 'under consideration of the Government' and 'accepted'.

The Committee reiterated their recommendation that participation of workers and their representatives should be at all levels beginning from the top level to the Board of Directors "with a view to promote Industrial harmony and maximising production".

The Committee attached importance to this recommendation and pointed out that mere appointment of workers' representatives on the Board of Management without "workers' participation" at all levels will have only a symbolic value.

So far as the appointment of workers on the Boards of Management of Public Undertakings is concerned, the Government have decided to try the scheme on an experimental basis in a limited number of Undertakings. As regards the workers' participation in management at other levels, the Joint Management Councils envisage labour management cooperation through consultations and mutual discussion at a joint Council consisting of equal number of representatives of the management and labour. This scheme is applicable to both private and public sector undertakings.

The Committee on Public Undertakings seem to be very persistent in this regard because the Committee noted that the appointment of workers' representatives even on the Board of Management has not been made in all the Public Sector Undertakings. Further, the voluntary scheme of Joint Management Councils has also not been introduced in most of the Public Sector Undertakings.

Regarding Management Boards, the Committee suggested that some broad principles should be laid down to determine the size and composition of the Boards of public undertakings. The Committee pointed out that inspite of the acceptance of the recommendations of Administrative Reforms Commission in this regard, they have not been implemented. The recommendations of the Committee in this area are, a minimum tenure of five years for the persons who have been selected carefully on the Board, discontinuance of the Secretary of the Administrative Ministry on the Board, feasibility of combining the posts of Chairman and Managing Directors, a team of functional Directors on the Board, association of non-officials who have the knowledge of the problems of the undertakings on the Board and participation of workers on the Board. The replies to these recommendations by the Government have been 'noted' or 'accepted'. These were the cases of non-implementations of the Government's policy which emerged out due to the recommendations of Krishna Menon Committee, or Administrative Reforms Commission or both. In this context, it may be pointed out that recommendations of the Committee on Public Undertaking are in the nature of reiteration and persistence in the implementation of the recommendations by the Government, as they are accepted by Government. □

A Boon to Indian Industry

ONE OF the major benefits of the development of atomic energy in India is the application of radioisotopes in the industry. The areas of industial application cover isotope radiography, nucleonic gauging, radiotracer technique and radiation processing. Isotope radiography for the non-destructive testing of castings, welds, forging and assemblies is one of the most widespread applications of radioisotopes. Unlike X-ray machines, isotope radiography units are cheaper, need little maintenance, are mobile, and do not require electric power. Nearly 700 radiography cameras are now being used in refineries, fertiliser plants, thermal and nuclear power stations, steel and electrical industries and defence establishments.

The nucleonic gauges, consisting of a small isotopic radiation source and a nuclear detector ensure non-contact measurement and control of levels, densities and thickness of industrial products.

The use of radiotracer in industry is yet another important application of considerable economic significance. Radiotracer techniques are used for locating leaks and obstructions in buried pipelines and in industrial components; determining efficiency of hydraulic turbines and tracer logging of oil wells.

In the field of radiation processing, the availability of high intensity gamma sources has stimulated the development and technology of industrial tradition processes. Areas of special interest are sterilization of medical products, radiation hygienisation of sewage sludge and production of polymer composites for industrial applications. □

Public Sector is Building up its own Cadre

Dr. C. S. Venkata Ratnam* & K. Ramu Naidu**

THE Government has delegated the powers of recruitment, training and promotions in respect of bulk of managerial posts in public enterprises, but it has retained the prerogative of appointment of the Chairmen, both part-time and full-time, and the members of the Board of Directors including the Managing Director. In order to evolve a sound managerial personnel policy for the public enterprises and in particular to advise the Government on appointments within its prerogative and also to contribute to management development, the Government of India has constituted a Public Enterprise Selection Board (PESB) with the following membership.

1. Chairman : Usually a Member of the Planning Commission.
2. Secretary of the concerned Ministry of Government of India.
3. Two Chief Executives, of which at least one is generally from public sector (at present both are from public sector).
4. Director-General, Bureau of Public Enterprises who shall also be the Secretary of the PESB.

It is open to the Board to co-opt the services of experts in industry to which the vacancy is related. In the case of holding companies, the Chairman is co-opted as a member of the Board for selection of Chairman of the subsidiary companies. The Bureau of Public Enterprises functions as the Secretariat of the PESB. The Board is responsible for selecting part-time and full-time Chairman and Managing Directors for all the Central Government Public enterprises, other than those in the fields of insurance and banking. In the case of a new appointment, the Board recommends to the Minister in-charge of the public enterprise concerned a panel of two or three names for consideration. The appointment is made with the approval of the Appointments Committee of the Cabinet. It is important to note that all the five members of the PESB, including its Chairman and Secretary, are part-time members. The Secretary of the PESB is also responsible for appointments below board level as a member of the selection committee.

* Reader, Deptt. of Commerce & Management Studies, Andhra University, Waltair.

** Post-Graduate Lecturer in Commerce, D.N.R. College, Bhimavaram.

There are about one lakh posts in managerial cadres in the public enterprises owned or managed by the Central Government.

The number of recommendations made by the PESB for appointments at the level of Chief Executives and functional Directors from 1st September 1974, to 31st March 1979, varied from 28 (1976-77) to 110 (1978-79). The selection policy of the PESB as stipulated in the RPE's guidelines envisages that unless markedly better candidates are available from outside, vacancies will be filled by promotions from within a public enterprise. If internal candidates are not available, preference is given to those working in other public enterprises so as to give career opportunities to those whose promotion opportunities are blocked in their own enterprises. If suitable candidates are not available within the public sector, selections should be made from other sources like Government and Private Sector.

Chairman

Fewer public enterprises seem to have provided for separate Chairmen, full-time or part-time, than is generally believed. And, the trend in recent years has been to have the same individual hold the post of Chairman and Managing Director. As on Jan 1, 1980, out of 170 public enterprises, only 55 had separate chairmen. Of the 55, 11 were full-time and 44 part-time. While all the posts of full-time chairmen were filled in 10 out of 44 (22 per cent) public enterprises they were kept vacant in enterprises in which there is provision for part-time chairman.

Chief Executives

In the 170 public enterprises studied, there were 163 posts of chief executives comprising 98 Chairman-cum-Managing Director's posts and 65 Managing Director's posts. The reasons for the difference between the number of enterprises and number of posts is that some enterprises do not have either CMDs or MDs. Such enterprises are usually headed by General Managers.

Five out of 98 CMD's posts and 14 out of 65 MD's posts were vacant on 1-1-1980. In all, 19 out of 163 posts of CMD/MD were vacant (11 per cent). Considering the fact that 14 out of 19 vacancies were for the post of MD, it can be inferred that barring a few exceptions, in almost all public enterprises either the post of Chairman or that of the MD was filled. Hence, it can be said that not many public enterprises were really 'top less'. Thus the available information indicates that the general impression

created among the public that a large number of public enterprises are topless is, to say the least, incorrect and misleading.

Salary Scales

A Committee of Secretaries headed by the Cabinet Secretary in 1965 considered the question relating to manning of top posts in public sector with special reference to remuneration, terms of service and relationship to public services. Under the recommendations of the Committee, as amended in 1974, the public enterprises were classified, on the basis of their importance to the economy and the complexity of their problems, into four schedules and the following salary scales were fixed for the Chief Executives in each :

1. For Schedule A	Rs. 3,500-125-4,000
2. For Schedule B	Rs. 3,000-125-3,500
3. For Schedule C	Rs. 2,500-100-3,000
4. For Schedule D	Rs. 2,000-100-2,500 (now revised as Rs. 2,250-100-2,750)

Of the 150 public enterprises for which data were available on scales of pay, 9 Chief Executives belong to Schedule A, 52 to Schedule B, 72 to Schedule C and 17 to Schedule D. Thus, while nearly half of the enterprises were placed in Schedule C, another one-third were placed in Schedule B.

Career Background

The popular feeling is that public enterprises are invariably headed by bureaucrats, usually those belonging to I.A.S., etc. But, this is far from being true. Out of 140 chief executives in different public enterprises as on 1-1-1980, only 13 were from I.A.S., 3 from I.P.S. and 5 from other Central Services. Two persons belong to State Services, 88 had prior experience in public sector and seven from private sector.

From the above, it can be said that top management in public enterprises is, by and large, comprised of people with rich professional experience in industrial enterprises, mostly in public sector itself.

Besides, the availablity of suitable candidates with the public sector improved during recent years with the proportion of candidates recommended from within public sector improving from 38 per cent (1974-75) to 79 per cent (1978-79). The relative share of migrants from private to public sector declined from 11 to 3 per cent and that of services from 51 to 18 per cent during the period. Thus, the emerging evidence reveals that the reliance on public sector for top level posts on private sector and services declined sharply during late '70s.

In 170 public enterprises 17.80 lakh persons are employed and of them 1.02 lakh are in managerial cadre. Thus, on an average out of every 100 employees, 5.75 persons are in managerial cadres. However, the proportion of managers among the employees of public enterprises under different ministries vary significantly. The proportion of the managers to total employees is the highest in the public enterprises under Defence Ministry (14.03 per cent) followed by those in the Ministry of Chemicals and Fertilisers (12.99 per cent) and Shipping and Transport (12.19 per cent). As against this, the corresponding proportion was the least in the Ministry of Food, Agriculture, Irrigation and Rural Reconstruction (1.54 per cent) and Energy (2.3 per cent).

The available information indicates that the general impression created among the public that a large number of public enterprises are topless is, to say the least, incorrect and misleading.

It is believed that the general notion about the public enterprises is that they are flooded with deputationists. But, the fact is that it is not so, at least in Central Government public enterprises. Out of 69,805 managers in 170 public enterprises there were only 1,726 deputationists (2.48 per cent).

Succession Planning

Considerable efforts have been made in the last two decades in the area of succession planning for top and senior levels of management in the Public enterprises. These efforts include schemes for spotting, servicing and selecting managerial talent to man senior and top level posts in public enterprises, evolving selection and recruitment procedures for those posts, reducing dependence on deputationists from the government and encouraging training and management development. Public enterprises are treated as the family and it is stressed that successful enterprises should not only build their own management cadres but also train people and throw up talent for manning responsible positions in other sister public undertakings. Mobility of personnel is achieved by lateral transfer from one unit to another. To facilitate this the Government has prepared 'Sectoral' and 'Functional' panels of managerial talent and decided that the persons moving from one public enterprise to another should get the benefit of transfer expenses and carry forward of leave, gratuity, etc.

The BPE has indicated in its latest survey of public enterprises (1978-79) that further refinements in the succession planning is one of the challenges that lie ahead. A system where the succession apointee is invariably placed in position as an under-study before the Chief Executive or a functional Director relinquishes charge should be introduced. Such a system exists in some of the most effieiently run private sector companies. Prolonged vacanices in top and senior posts in public enterprises, flight of high flier mangerial personnel from public enterprises to private sector/international organisations, achieving the desired level of vertical and horizontal mobility are some of the problems that persist.

The present system of maintenance of data on managerial talent scanning, retrieval and presentation of relevant information about the availability of sutable candidates for various vacancies, especially at the top level before the PESB leaves much to be desired. One may suspect whether the present set up and the organisation of data bank is based on who knows whom rather than a scientific and foolproof system. It is often difficult to say whether the PESB is enabled to focus on the best and the brightest always ; if not, whether anything can be done to ensure this and how and at what cost? □

Indian Railways : An Assessment

Satish Jha*

THE performance of Indian Railways needs to be assessed both in physical and financial terms. For, a comparison of the two may point towards certain anomalies in the policies regarding the role of the railways as well as the internal viability of the network.

The first striking feature in the development of this largest State sector network in the country has been that even though the total investments in book value terms have grown by over seven times the growth in the track route length has been only of the order of 13 per cent over a span of thirty years. Most of this growth occurred during the first three five year plans and this period witnessed an increase in the total route of about 9 per cent while the rolling stock grew by about 25 per cent. Most of the added capacity in locomotives was steam powered and diesel and electric driven engines still comprised only a minor fraction of the total locomotive rolling stock.

The coaching stock however witnessed an impressive growth at an average annual rate of 5 per cent both in the case of passenger and goods wagons.

The number of workers increased at an annual rate of over 3 per cent while the cost of staff in current terms escalated at the rate of about 11 per cent per annum.

In comparison to the above growth obtained in the railways' infrastructure, their output fared a little better. The output measured in terms of passenger kms rose by about 3 per cent annually while the goods traffic in ton kms witnessed an impressive growth at the rate of about 11 per cent. In terms of tonnage also the goods traffic during this period more than doubled.

But the beginning of the plan holiday marked a watershed in the railways' development. Since 1965-66, the pace of track addition programme came down to almost one third of the earlier phase. Similar trends were noticed in the expansion of rolling stock as well. Number of steam locomotives by the end of 1979 came down to the 1949-50 level as a result of the strategy to expand quickly in terms of carrying capacity of the locomotives which laid stress on acquiring more and more diesel and electric locomotives. Thus while the number of electric engines during 1965-66 to 1978-79 more than doubled, the number of diesel engines grew to almost three times. Coaching wagons, however, grew at a very slow pace. The number of passenger wagons rose at a paltry rate of 1.3 per cent and the growth of goods wagons was still meagre at well below 1 per cent. But unlike the pre-plan-holiday period, during this period the rate of growth of passenger traffic was quite high, about three times more than the goods traffic.

This picture of relative growth of various components of railways during the two periods of comparable span has been put forth to drive a few points home viz., that during the period of planned growth in the Indian economy expansion of the railways was substantial relative to the post 1965-66 period and during this period the goods traffic was given preference over the passenger traffic which apparently was the need of the hour. Later on even though diesel and electric traction capacity increased substantially, it could only marginally exceed the capacity lost due to laying off of steam locomotives. Adequate investments in the track expansion and track renewal programmes were not made while demand for the use of railways' existing capacities was still growing.

Lack of investment has left two striking effects—one on the transport policy in India and the other in the deteriorating performance of the railways.

This lack of investment has left two striking effects—one on the transport policy in India and the other in the deteriorating performance of the railways. Whereas since 1965-66 there has been a marked shift towards the diesel based road transport on the one hand, for the past few years a consistent decline in the total goods traffic carried by the railways is noticeable in the other. After having achieved a peak during 1976-77 at 212 million tonnes of revenue earning traffic it has levelled off to about 200 million tonnes per annum. What is striking is that even this level of goods traffic was achieved only after the oil crunch when after the total tonnage having stagnated around 170 million tonnes for six years suddenly shot by over 20 million tonnes during 1975.

Railways Productivity

The railways productivity measured in terms of capital-output ratios also conform to the above mentioned trend. As during a period when investments are being made in an enterprise while its full capacity is not being put to use the capital-output ratio naturally remains high, but with the show down in the investment and augmented use of capacity the ratio starts declining. This at least has been the case with the railways since independence. Since 1965-66 their capital-output ratio has been declining which need

* Assistant Editor, **The Financial Express.**

not be mistaken to be a simple indication of their efficiency. Rather it shows increasing use of machine and equipment in the absence of adequate investment.

Since the beginning of the plan holiday the railways investments have been only marginal while the passenger use has increased considerably. But laxity in opening new tracks and track renewal programmes along with poor maintenance of the old tracks has contributed a great deal to what we have been witnessing as a sudden spurt in the rate of accidents in the Indian railways. The prime reason for all these has been that the rate of growth of expansion programmes in the railways has not kept pace with the demand that a growing economy has been posing on it. Most of its capital stock is overaged and needs renewal. Besides there are demands for expansion of both its track-route and rolling stock. All these require heavy investment as what is represented by the book value of total investment is not the real value of investment. On the basis of replacement cost of machine and equipment the cost is easily four to five times higher than what is shown in the book value. But in the absence of adequate investment forthcoming the railways may have to increasingly bear with the situation of many more than just 36000 wagons—which are presently reported as sick—being sick. The proposed volume of investment in the current plan is going to pose still more pressure on the railways while given the present infrastructure the railways may find it difficult to maintain their share in the movement of traffic originating from coal belt alone.

To a considerable extent this situation has been brought about due to an outmoded financial system of the railways. Since they are organised as a department of the government they have certain advantages over other enterprises in that they do not have to pay any taxes on their income. Also as all the investment requirements of the railways are met from the General Exchequer they do not have to pay market rates of interests and even the burden of declaring dividends at the rates considered fairly normal in the commercial world is not there. This, however, instead of being used to the benefit of the enterprise has normally not been put to use towards this end. Generally the railways have been content with declaring less than 5 per cent of the dividend inclusive of interest during the best of the times and yet have shown net loss during eight years since 1966-67.

In order to grow, any enterprise must generate enough resources to keep itself going and over and above that it must also earn enough to maintain its health and finance its further expansion. The railways have at best been able to achieve the first of these objectives.

Depreciation

An important thing to be mentioned here is the depreciation provision in the railways. Normally an enterprise would be expected to contribute towards the depreciation the amount which may be considered as having been eaten in the process of operation. But in so far as this contribution is based on mere book value, on the original or the historical cost of the machinery and equipment, it would not represent a true value of the depreciation requirements. Similar has been the case with the railways and if depreciation allowance is made on the basis of replacement cost one would find to his dismay that the railways have been eating into their capital for over a decade now. Besides even at the book value rate the depreciation provision has been inadequate. This has contributed considerably to the lack of track renewal and rolling stock replacement programmes of the railways.

Even in the current plan the public sector outlay for railways is not in keeping with ever the National Transport Policy Committee's projection of the railways carrying about 650 million tonnes of goods traffic which would necessitate a three-fold expansion of the present goods coaching capacity of the railways.

Besides, even going by the annual reports based on the book value accounts the railways seem to have performed very miserably inasmuch as during the past 30 years they have earned a cumulative surplus of about less than Rs. 200 crores as has been shown by the Rail Tariff Enquiry Committee. During this period the railways showed a net surplus only till 1965-66. But with the beginning of the plan holidays they started incurring losses which continued for five years at a stretch followed by two years of marginal profit. The following year (1973-74) saw the beginning of a triennium of renewed losses. And by 1975-76 in book value terms the railways had earned enough losses to offset all the accumulated gains during the past 25 years of railways functioning. What is interesting to note is that these losses were incurred despite reasonably high gross revenue receipts in those years. Obviously the operating ratio had gone up due to increased operation and maintenance costs. This was made possible primarily because of the inadequate depreciation provision in the past years.

It is a generally accepted fact that in order to grow an enterprise must generate enough resources to keep itself going and over and above that it must also earn enough to maintain its health and finance its further expansion. The railways have at best been able to achieve the first of these objectives. But they have not been able to keep either their health as is reflected in the rising age of its capital-stock (which has risen from about 12 years during early 60s to over 16 years towards the end of the 70s). This has also hampered their further growth as in the absence of self generated resources funds for their expansion must come from some other surplus earning sectors.

Pricing of Services

This state of affairs has come about due to disproportionality in the pricing of services rendered by the railways compared to other sectors. During the past 30 years while the cost of all the inputs used by the railways has gone up by 4 to 5 times, the railways tariffs both for passenger and goods have risen at about half that rate. In essence it has meant that the railways have been subsidising the rest of the sectors of the economy at their own expense.

But the railways have to pay an increasingly significant role in the Indian economy particularly due to the oil crisis which is likely to not only outpace road transportation but make it less reliable also owing to the uncertainties in the supplies of fuel oil. The oil importing developing economies in general and India in particular may have to switch over to a railway system which will depend on an alternative form of energy other than oil. With currently available alternatives the most likely form seems to be the electric traction which would depend mostly on coal as a fuel though indirectly—as an input for power generation.

The task of expansion of the railways in India is all the more critical and gigantic considering the low level of track route per million of population which is only about 96 kms. compared to over 3000 kms for some developed countries and the increasing cost of laying new tracks. As stated earlier a large part of the railways track are overaged and need immediate renewal. All this will involve massive investments. On the other hand during the planning era the share of railways in total public sector outlays has been dwindling.

While during the first five year plan about 20 per cent of the public sector allocation was towards development of the railways it has steadily come down to less than 5 per cent during the plan 1978—83. Similarly plan outlay for railways as a per cent of total allocation for transportation sector has come down from over 60 per cent in the first plan period to about 30 per cent during the current plan. This itself shows the benign or not-so-benign neglect the railways suffered in the hands of our planners during the past three decades. And even in the current plan the public sector outlay for railways is not in keeping with even the National Transport Policy Committee's projection of the railways carrying about 650 million tonnes of goods traffic which would necessitate a three fold expansion of the present goods coaching capacity of the railways. Thus if the railways have to play a significant role which they must, considering that other alternative i.e. oil based road transport is increasingly will be beyond the capacity of even more developed nations, a new investment plan for the railways will have to be started. Further, their financial system must be improved upon to allow them to generate enough resources for not only just operating but also their upkeep and further growth. Issues relating to their ageing managerial practices will also have to be sorted out. But these issues will get resolved once the railways are accorded the priority they were given during the early years of planning process. □

Facts About our Petroleum and Petrochemical Industries

Demand

IT is proposed to discuss the subject in four main parts, viz., demand for petroleum products. refining and marketing, oil exploration and production and petrochemicals.

Demand

Petroleum products may be divided into three groups popularly called light distillates, middle distillates and heavy ends In the category of light distillates are motor spirit and naphtha. Middle distillates comprise kerosene, avaiation turbine fuel, diesel oil and light diesel oil. Heavy ends consist mainly of fuel oils. The following table gives their respective percentage shares in total consumption of production.

	72-73	74-75	76-77	77-78	78-79	79-80
Light distillates	15.2	15.7	16.8	16.6	16.3	15.0
Middle distillates	49.5	51.3	52.3	53.9	54.0	54.6
Heavy ends	35.3	33.0	30.9	29.5	29.7	30.4

Consumption of motor spirit has come down from 7% in 1972-73 to 5% in 1979-80 due to high excise duties to curb elitist demand. Consupmption of naphtha had gone up from 6% in 1972-73 to 8.9% in 1978-79 though in 1978-79 the consumption was only 8.2%. This depends on the functioning of the fertilizer units. Consumption of kerosene has been gradually declining from 16.2% in 1972-73 to 13% in 1979-80. This may be due to the increased use of LPG and high prices leading to lesser adulteration. On the other hand, consumption of diesel oil has increased from 22% in 1972-73 to 32.8% in 1979-80 reflecting the rapid growth of road transport, modernization of agriculture and conversion to diesel—electric railways. There has been a marginal decline in the consumption of fuel oil from 26.1% in 1972-73 to 23.5% in 1979-80 as a result of a deliberate policy to substitute domestic coal for oil wherever feasible.

The annual growth rate of consumption of petroleum products which was 8.2% in 1972-73 decreased to 3% in 1973-74 and was negative in 1974-75 because of steep increase in prices and has since been gradually climbing to 9.8% in 1978-79. It was however only 6% in 1979-80 partly due to non-availability of products.

Quantity-wise the total consumption has increased from 21.73 million tonnes in 1972-73 to 29.65 million tonnes in 1979-80.

Demand projections have been prepared by the Indian Institute of Petroleum for the next ten years in consultation with the concerned Ministries. These are projected as follows, together with the annual growth rates :

	Demand (Million tonnes)	Growth rate (%)
1980-81	33.27	12.2
1981-82	36.77	10.5
1982-83	39.62	7.8
1983-84	42.70	7.8
1984-85	45.84	7.3
1985-86	49.02	6.9
1986-87	52.05	6.2
1987-88	55.26	6.2
1988-89	58.79	6.4
1989-90	62.56	6.4

For the period 1979-80 to 1984-85, the average growth rate is 10.6% for light distillates, 9.8% for middle distillates and 7.1% for heavy ends. The overall growth rate is 9,1%. For the period 1984-85 to 1989-90, the growth rate is 3.5% for light distillates, 8.5% for middle distillates and 3.6% for heavy ends and the average growth rate is 6.4%. Middle distillates, which were 54.6% of the total consumption in 1979-80 rise to 56.3% in 1984-85 and to 61.9% in 1989-90. This group of products, therefore, determines our refining capacity.

In Western Europe, the consumption pattern is about 22.7% of light distillates, 31.8% middle distillates and 45.5% heavy ends. Ultimately the particular pattern of energy consumption and the role of petroleum products within any one country is likely to depend upon :

(i) the state of development of the economy and the style of living of its people ;
(ii) the pace of expansion enjoyed and anticipated ;
(iii) the size of the country, the dispersal of its population and economic activity ; and
(iv) the availability and relative cost of other energy sources.

Refining & Marketing

In the refining and marketing sector, Indian Oil Corporation (IOC), Hindustan Petroleum Corporation (HPC), Bharat Petroleum Corporation (BPC) and

* Joint Secretary & Financial Adviser, Ministry of Petroleum, Chemicals and Fertilizers.

18 DPD/80—12

Bongaigaon Refinery and Petrochemicals Ltd. (BRPL) are wholly owned by the Government. In the other two companies, namely, Madras Refineries Ltd. (MRL) and Cochin Refineries Ltd. (CRL), there is some foreign equity participation. Digboi Refinery is owned by Assam Oil Company with complete foreign equity participation.

The refining capacity is today 31.83 million tonnes. The details are :

	(million tonnes/annum)
Digboi (AOC)	0.50
Gauhati (IOC)	0.85
Barauni (IOC)	3.33
Koyali (IOC)	7.30
BPC, Bombay	5.25
HPC, Bombay	3.50
Cochin (CRL)	3.30
Madras (MRL)	2.80
Vizag (HPC)	1.50
Haldia (IOC)	2.50
Bongaigaon (BRPL)	1.00
Total	31.83

The Department had set up two committees to suggest on techno-economic considerations, secondary processing facilities and refinery expansions and grass-root refineries. As a result, Government has approved a FCC unit at Koyali Refinery, a second delayed coker at Barauni refinery, a FCC unit at Cochin and a FCC unit at BPC, Bombay. It has further been decided to expand Madras refinery from 2.8 million tonnes to 5.6 million tonnes, Vizag refinery from 1.5 million tonnes to 4.5 million tonnes. It is also under consideration to expand the Cochin refinery by 1 million tonne and Haldia refinery by 3 million tonnes. These projects are likely to be commissioned in 1984-85, raising the refinery capacity to about 49 million tonnes. This will still leave a gap in the refining capacity of 2.55 million tonnes in 1984-85 which will rapidly increase thereafter unless new refineries are established. Accordingly, Government has decided to set up two grass-root refineries of 9 million tonnes per annum capacity in 1985-86. Unless the demand is checked, we may require a 6 million tonnes/annum refinery almost every year from 1987-88.

The marketing organisations are IOC, HPC, BPC and AOC. Indo-Burma Petroleum Co. Ltd. (IBP), which was a subsidiary of IOC and now an independent company also sells some petroleum products which it obtains from IOC. IOC is responsible for the marketing of products of MRL, CRL and BRPL. Therefore, with the exception of AOC, the entire distribution of petroleum products is under public control. The marketing and distribution network of the oil industry is widespread. The industry had, as on 1-4-1979, a network of over a dozen main port/upcountry installations, supply pipelines and tap off points over 120 upcountry depots, 11,731 retail outlets, about 548 multipurpose centres and 58 farm fuel outlets. Broadly, the share of IOC is 60 per cent, of BPC 16 per cent and of HPC 17 per cent.

Exploration and Production

In oil exploration and production, the major institutions are the Oil and Natural Gas Commission (ONGC) (a public sector undertaking), Oil India Limited (OIL), presently owned 50-50 by Government and Burmah Oil but in the process of being fully nationalised. ONGC is by far the largest undertaking. Initially part of the Geological Survey of India, it became an independent statutory commission in 1959. ONGC made discoveries onshore in the 1960's in Assam and Gujarat and off-shore in the mid 1970's to discover the giant field of Bombay High. It is currently active in exploration both onshore and offshore. OIL's activities are restricted to small producing areas in Assam, Arunachal Pradesh and a small onshore/offshore concession, Mahandi basin.

India's refining capacity at present is 31.83 *million tonnes whereas the demand is over* 33 *million tonnes.*

Starting from 0.04 million tonnes in 1961-62, onshore production of ONGC is today around 5.1 million tonnes/annum. Although exploratory work has been carried out practically all over the country, production could be established only in Gujarat and Assam. Wells have so far proved dry in Bengal, Ganga valley, Himalayan foothills, Rajasthan and Cauvery. About 275 structures for drilling were identified by geological and seismic survey work. Drilling was done on 170 structures and hydrocarbons were found in 55. While the success ratio of discovery is good, much seismic survey work still remains to be done. On the offshore, commercial oil fields have been established at Bombay High, R-12, B-37, B-38 and North Bassein in the Arabian sea. Gas fields have also been established in the Arabian sea at South Bassein, B-55, Mid-Tapti and South Tapti. Recent discoveries of hydrocarbon bearing structures are Andamans, Ratnagiri, Godavari and Portonovo. Wells drilled Kerala, Cauvery, Kutch and Bengal offshore basins have proved dry. Out of 46 structures taken up for drilling, 21 were found hydrocarbon bearing. OIL has discovered oil in Arunachal Pradesh. The second well in Mahanadi is under drilling and has shown interesting data.

In the Five Year Plan commencing 1980-81, ONGC expects to step up production from offshore from 5.2 million tonnes in 1980-81 to 13.2 million tonnes in 1984-85. The production in the Western region will actually decline during the five year period because Ankleshwar crude has to be preserved for the IPCL and the production of North Gujarat crude cannot be increased till the secondary processing facilities in Koyali are ready. As regards the Eastern region, the production will be stepped up from 1.7 million tonnes in 1980-81 to 3.0 million tonnes in 1984-85 to make up for the declining production of OIL. In brief, OIL, will produce 14.4 million tonnes and ONGC will produce 79.0 million tonnes in the five year period. ONGC hopes to add more to its recoverable reserves than what it draws during the period. The gas discovered is sufficient to supply feed stock for 10 fertilizer units, 2 or more gas crackers and twice the current availability of LPG.

Sometime ago, a joint Soviet-Indian team had carried out a geological survey. According to this team, recoverable reserves are 1500 million tonnes of oil

and 5000 million tonnes of gas. Of these, proven recoverable reserves are about 366 million tonnes of oil and 352 million tonnes of gas. Over 60 per cent of the recoverable oil restrves are offshore. The most prospective basins are Cambay, West Bengal and Assam/Arakan.

Having regard to the organisational and technical capabilities of the two companies and in view of the steep increase in the price of crude oil since beginning of 1979, Government has decided to invite foreign parties to explore both in offshore and onshore areas. Not only will this help in knowing quickly our inventories of crude oil and gas, it will also update the technology of ONGC which will be actively associated with the foreign parties.

Imports

Given the demand and indigenous crude production as indicated above, our requirement of imported crude oil and products may be as follows :

	(Million tonnes) Crude oil	Products
1980-81	16.4	8.0
1981-82	15.3	7.1
1982-83	15.2	8.1
1983-84	14.5	11.2
1984-85	21.7	6.8

Though the index of self reliance (own production as a percentage of total requirement) has increased from 5.4 per cent in 1960-61 to 34.8 per cent in 1970-71 and to 35.9 per cent in 1979-80 and will be about 43 per cent in 1984-85, still foreign exchange outgo as a proportion of export earnings has been rising steeply and it may be about 70 per cent in the current year. In value terms, the import of crude oil and products during 1980-81 may be more than Rs. 5,000 crores as against Rs. 1551 crore in 1977-78.

We have a unique pricing system for crude oil and petroleum products. The prices of indigenous offshore and crude oil were fixed on the recommendations of the Oil Prices Committeee, allowing ONGC a reasonable return on the capital employed. The prices of petroleum products are based on a weighted average of the prices of indigenous crude and imported crude oil. Norms and parameters have been laid down for each of the refineries and marketing companies. Though these are administered prices and put simply on cost plus basis but the organisations are closely monitored with reference to the cost norms laid down. Examination of the working of the refineries reveals that their performance is as per international standards.

Conservation

In the context of great uncertainty over future oil supplies and high prices, close attention is being paid to energy conservation. A body called Petroleum Conservation Research Association (PCRA) comprising members of the oil industry, National Productivity Council and DGTD has been set up to make a systematic study of the use of petroleum products and suggest ways and means for their optimum utilisation. In the industrial sector, PCRA has studied nearly 950 industrial units consuming 27.8 lakh Kls of furnace oil and made recommendations on various aspects of fuel efficiency practices. These recommendations have identified a saving potential of 3.60 lakh Kls of furnace oil of which 1.61 lakh Kls have already been realised by the users. PCRA has completed diagnostic studies in 24 depots of various State transport undertakings in India. It is expected that the recommended measures throughout the undertakings would lead to an estimated savings of 6 per cent or 57,000 Kls of diesel oil per annum. In addition, PCRA conducts clinics and workshops and screen films on diesel conservation. In the agricultural sector, PCRA has conducted a survey on utilisation of LDO in lift irrigation pumps and diesel oil in tractors. Films and print material have been prepared to educate the farmers on measures to save diesel in tractors and lift irrigation pump sets. In the domestic sector, PCRA has through films, print material and nation-wide education campaign through the press media, sought to educate housewives, motorists and two-wheeler owners on the measures to save cooking gas, kerosene and petrol. These efforts have been further intensified through participation in exhibitions, etc.

In view of the steep increase in the price of crude oil Government has decided to invite foreign parties to explore both in off-shore and on-shore areas.

PCRA receives grants from the Government in addition to some manpower being made available by the Oil companies. Its budget currently is about Rs. 80 lakhs, out of which 50 per cent is spent on publicity.

Petrochemicals

Petrochemicals have registered a phenomenal growth in the world chemical industry in a short span of 25 years since 1950. The four main end petrochemical products—plastics, synthetic fibres, synthetic rubber and detergents—have recorded a growth of more than 20 times. However, the share of the developing countries in these products has been low. In India, a beginning was made in the late 50s and early 60s in the production of plastics and chemicals based on coaltar intermediates such as bezene and phenol as well as fermentation alcohol and calcium carbide. The first major petroleum based aromatics facility was established in 1969 in the Gujarat refinery of IOC for the extraction of benzene and toluene. A large scale olefins unit based on cracking of petroleum Naphtha was established at National Organic Chemical Industries Ltd and downstream chemical and polymer units were also simultaneously started in Bombay. Realising the importance of petrochemicals in national development, Goverment initiated steps in the late 60's towards their large-scale manufacture and established a petrochemicals complex near Vadodara in Gujarat in the public sector run by Indian Petrochemicals Corporation Ltd. (IPCL). Production of aromatics, namely, xylenes and DMT was started by IPCL in 1973 and consequently, the polyester industry could grow substantially between 1974 and 1979. A very large multi-unit olefins complex producing basic olefins such as ethylene, propylene and butadiene and many polymers such as low density polyethylene, polypropylene and poly-butadiene rubber and several

industrial chemicals and intermediates such as benzene, acrylonitrile, ethylene glycol and linear alkyl benzene as well as acrylic fibre was established at a capital cost of around Rs. 350 crores and commissioned in 1978-79. This complex has now made available large quantities of polymers, chemicals, fibre and intermediate products. A significant feature of the complex is the realisation of the Government's intention to maximise indigenous capability in various areas instead of establishing the complex as a complete turnkey or a partial turnkey project.

The discovery of Bombay High and Bassein gas has thrown up new and challenging possibilities of expansion of petro-chemicals industry. Government has decided to establish two gas crackers, one in Maharashtra and the other in Gujarat, at an estamated cost of over Rs. 1000 crores. Naphtha derived from Bombay High crude oil is ideally suited for aromatics production. It is, therefore proposed to establish three aromatics projects, one each in Mathura, Bombay and Cochin. A letter of intent has been issued for the establishment of haldia petrochemicals complex based on Naphtha. With the adoption of a multi-fibre policy for textiles, Government proposed to sanction additional capacity for the manufacture of synthetic fibres and their raw materials.

At a time when planning for the future is to be based on a careful use of resources, it is imperative that the industries involving the least consumption of energy are promoted. From the known facts it appears that the essential needs can be more economically met through petrochemical products in certain areas. In addition to these, new developments have demonstrated the potential for combining the virtues of petrochemicals with natural products to the advantage of both, in cost and in meeting specific needs for durability and variety.

As on 1-4-1980, manpower employed was 31,413 in the exploration/production sector, 15,334 in the refining sector, 19,920 in the marketing sector and 5630 in the other units, making a total of 72,297. Capital investment as on the same date of all the undertakings under the Department was Rs. 1630 crores. For 1979-80, all the units had made a gross profit of Rs. 431.20 crores. Net profit to equity was 23.5 per cent and profit on capital employed was 18.4 per cent. The performance of the units under the Department was most satisfactory. □

Threshing Mishaps

PUNJAB and Haryana, the states with the highest degree of farm mechanisation, have registered a large number of thresher accidents.

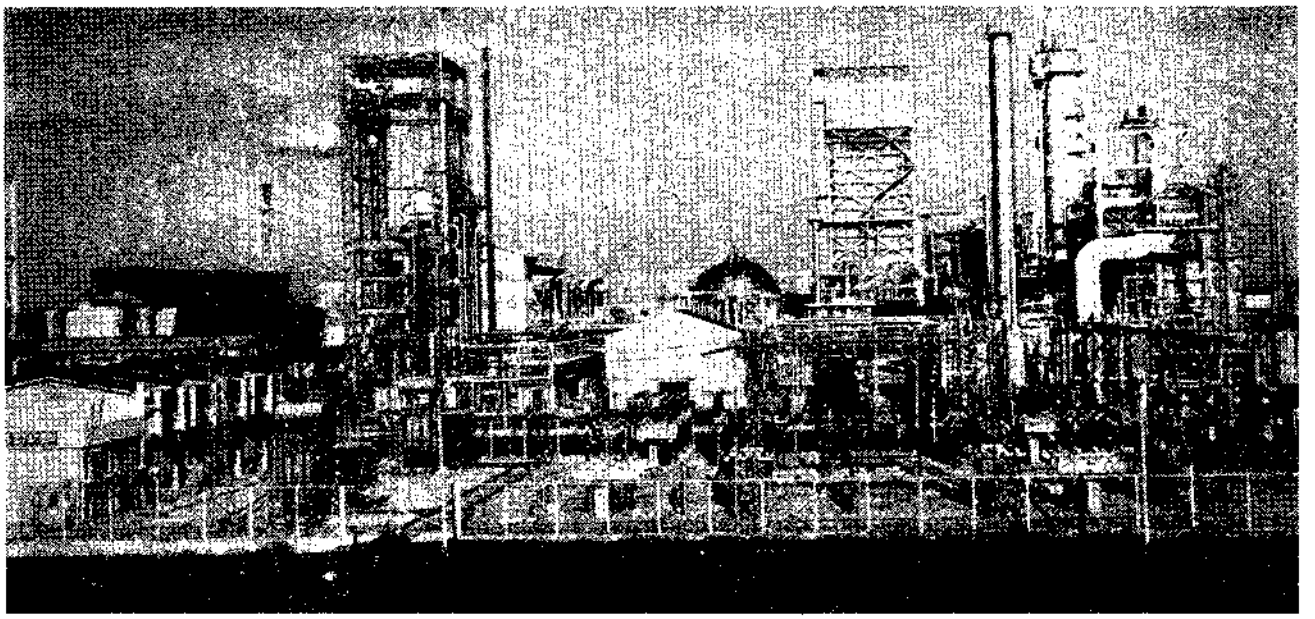
According to the statistics compiled by the Punjab Agricultural University (PAU), Punjab may easily top the 294 mark reached in 1976 when the university had conducted its first survey. In the State 230 accidents have already been reported while data from three districts are stil awaited. Similar, though less specific reports have come in from Haryana. These accidents, incidentally, are besides the limb-chopping by other agricultural implements like toka and cotton ginning machines.

Two major factors are responsible for the continuation of limb-threshing : the big landowners' callousness and the State Government's inexplicable hesitation in enforcing legislations on thresher safety. The Indian Standards Institute set up a committee led by PAU's Dr. S. R. Verma, and on the basis of its recommendations laid down certain guidelines for fitting safety devices in the threshing machines. The State Governments had been advised by the Centre to enact legislations making it mandatory for the manufacturers to fit these. But the State Governments have been sleeping over it. They only keep announcing from time to time that the legislation is in the offing.

It is revealing indeed that a large majority of the thresher accidents take place in the rich farmers' fields and most of the victims are migratory labourers from Uttar Pradesh or Rajasthan. In a number of Punjab villages these labourers are being given liquor and opium by the landowner to increase their stamina and efficiency. While the PAU's research attributes five per cent of the thresher accidents directly to intoxication, how many of the 57 per cent due to "inattentiveness" lack of skill and overwork" are basically caused by opium and alcohol is anybody's guess. Most threshing operations are done at night, due to summer heat and power cut during day time. So the PAU research team attributes about five per cent accidents to poor lighting at the threshing site.

Of the approximately eight lakh mechanised threshers in use in the country, two lakh are in Punjab and over a lakh in Haryana. The thresher which involves chaff-cutter blades for chopping the crop before threshing is the most prolific limb-chopper and over 50 per cent of accidents are believed to be caused by this type. This involves the machanism of feed-rollers to pull inward the crop fed through a chute. The result is that once a hand is stuck in the rollers it has little chance of being extrictated. The hand keeps getting pulled in and chopped into small pieces. In many cases the victim is known to have inserted the other, free hand as well to free the entangled one and lost it too in the bargain.

The PAU scientists and the Indian Standards Institution devised two simple devices to make the threshers with feeding chutes safe. It was laid down that the chute should be at least 90 centimetres long and halfway through, a construction should be put so as to prevent the hand from going in further. The second modification, slightly more expensive, is the feed reversing safety system where a knob is provided in the feeding chute which is automatically switched on once the hand goes beyond the safe limit. The feed rollers immediately begin functioning in reverse and expel whatever is stuck in the machine. This hikes the cost of the thresher by about Rs. 300. None of these devices affect the threshing capacity at all and all that the farmer has to put in is a little more initial investment. However, a majority of the farmers are still buying cheaper varieties manufactured in the small scale sector in Punjab cities, particularly Moga and Ludhiana. □



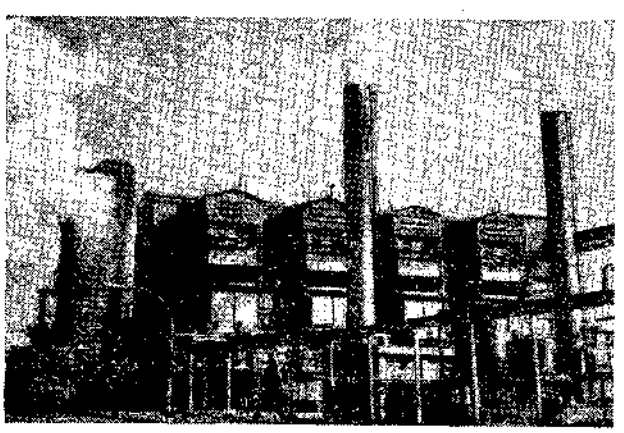
An overall view of Fertilizer Factory

Round-up

Hindustan Fertilizer Corporation

HINDUSTAN Fertilizer Corporation Ltd. came into being on April 1, 1978 when the Fertilizer Corporation of India Ltd. and National Fertilizer Ltd. were reorganised into five companies. It has three operating Units at Namrup (Assam) Durgapur (West Bengal), Barauni (Bihar) and a giant fertilizer-cum-chemical complex under construction at Haldia (West Bengal). An additional fertilizer project at Namrup is also on the anvil.

The installed capacity of the plants in operation is around five lakh tonnes of Nitrogen in the form of 10.2 lakh tonnes of Urea and 1 lakh tonnes of Ammonium Sulphate. With the completion of Haldia project and another unit at Namrup the installed capacity for Nitrogen will go up eight lakh tonnes along with 0.75 lakh tonnes of Phosphate and 0.75 lakh tonnes of Potash. Besides, the Corporation will also produce in its Haldia factory about 41,000 tonnes of Methanol and 60,000 tonnes of Soda Ash—two basic raw materials for the chemical industry.



Namrup Fertilizer Factory a sectional view

Natural gas was used as the basic raw material for fertilizer production for the first time in India at Namrup. The 24.20 crore factory has been in commercial production since January 1, 1969.

Further expansion of the Factory was made and Namrup II commenced commercial production since October 1, 1976. The combined total output of nutrients at the Namrup factories is 1,96,800 tonnes of Nitrogen annually. Durgapur Factory has the capacity to produce annually 1,,040 lakh tonnes of Nitrogen in the form of 3.05 lakh tonnes of Urea. The Plant has also started producing 15000 tonnes of industrial grade ammonia annually for the chemical industry.

Technologically, Barauni fertiliser factory has the capacity to produce 600 tonnes of Ammonia per day which in turn is converted into 1000 tonnes of Urea in two streams.

The proposed Haldia complex is designed to produce annually, 1,65,000 tonnes Urea, 5,00,000 tonnes N. P. K. fertilizer, 41,250 tonnes of Methanol and 60,000 tonnes of Soda Ash. The complex will also manufacture Nitric, Sulphuric and Phosphoric Acids, Ammonia and Ammonium Sulphate, surpluses of which can conveniently be taken up by the chemical

industry in the eastern region. Haldia will be one of the first Indian plants to use fuel oil as feedstock though there is the flexibility to change over to other petroleum products, including even lower grade crude, should fuel oil prove uneconomical.

Construction work for yet another plant at Namrup will commence soon : Location of the new unit, to be known as Namrup-III (Expansion) has been decided mainly on the availability of natural gas. Partially financed with British aid the plant will cost Rs. 173 crores and will have the annual capacity to manufacture 1.52 lakh tonnes Nitrogen in the form of 3,30,000 tonnes of Urea.

The HFC has also been entrusted with ensuring free flow of fertilizers from the factories to the farmers in the States of Arunachal, Assam Bihar, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Orissa Sikkim, Tripura and West Bengal besides the Union Territories of the Andaman and Nicobar islands and the neighbouring Bhutan through an elaborate marketing network.

The HFC has an extremely well-organised Fertilizer Promotion and Agricultural Research Centre where scientists and technologists work in close collaboration with the extension worker to transfer the fruits of research for gainful use by the farmers.

The Corporation has a well-organised training system with well-equipped training institutes at Namrup, Durgapur, Barauni and Haldia..

Modern housing accommodation is provided to the employees in all Units and Divisions. The Corporation maintains at every unit well-equipped hospital and dispensaries manned by well-qualified doctors. There are also primary, higher secondary and model schools in the township for providing free education to the children of the employees. □

Round-up

National Fertilizers

NATIONAL Fertilizers Limited (NFL) was set up in August 1974 and given the task of implementing two fertilizer projects at Bhatinda (Punjab) and Panipat (Haryana). On the restructuring of the Fertilizer Corporation of India and National Fertilizers Limited the Nangal Unit of the erstwhile Fertilizer Corporation of India was transferred to the NFL on 1-4-1978. The authorised capital of the NFL at present is Rs. 400 crores. With a production of about 2.48 lakh tonnes of nitrogen during 1979-80, the National Fertilizers has emerged as the largest producer of nitrogenous fertilizers in the country. The NFL's turnover during 1979-80 was to the tune of Rs. 142 crores. In terms of investment, the NFL is now the sixth largest company in the country, with a gross investment of Rs. 578 crores.

Nangal Expansion, Bhatinda and Panipat Plants are first of their kind in the country in respect of their size, technology and feedstock. They are based on the latest technology for amonia production by gasification and partial oxidation of heavy feedstock, sophisticated instrumentation and nearly complete automation for process control. Sophisticated modern technology has been adopted for gaseous and liquid pollution control. The old Nangal Plant is based on electrolysis of water and is producing the CAN (Calcium Ammonium Nitrate) as the main end product (fertilizer) and heavy water as main product.

The Nangal Expansion Unit went into commercial production on November 1, 1978. Since then the plant has been performing quite satisfactorily. It has a capacity of 900 tonnes of Ammonia and 1000 tonnes of Urea the balance 300 tonnes is sent to the Old plant for the production of the CAN.

The Panipat which is in commercial production since September 1979 has an installed capacity of 900 tonnes of Ammonia and 1550 tonnes of Urea per day. Bhatinda and Panipat projects have attained on an average about 80 per cent sustained capacity run and on some occasions even exceeding 100 per cent of the rated capacity. During the year 1979-80, the Nangal Unit produced 2.55 lakh tonnes of the CAN, 1.47 lakh tonnes of Urea and 1560 kg of Heavy Water. With an annual rated capacity of over seven lakh tonnes of Nitrogen, the NFL plants are now running on full stream. The NFL has also widened its network of dealers so that the marketing efforts can keep pace with the production efforts. The total number of main dealers now is about 640 and each dealer is having a number of sub-dealers, with the result that the family of dealers and subdealers with the NFL is around 2,500. Direct sale-points at the factory gates at Nangal, Bhatinda and Panipat Plants have also been opened. The Government of India have recommended this to other manufactures for adoption..

Atmospheric Ammonia Storage Facility of 5000 tonnes is being installed at Nangal and it is likely to be ready by the latter half of 1980-81. Ammonia loading and unloading facilities are being set up at Bhatinda and Panipat. Latest pollution control monitoring equipment is being procured for effective monitoring of anti-pollution measures at the NFL plants. For the by-product utilisation the government has issued letters of intent to the NFL for setting up a Methanol Unit at Nangal and an Argon Recovery Unit at Panipat. For Methanol Unit, bids have already been invited by the NFL. □

Fertilizer Corporation of India

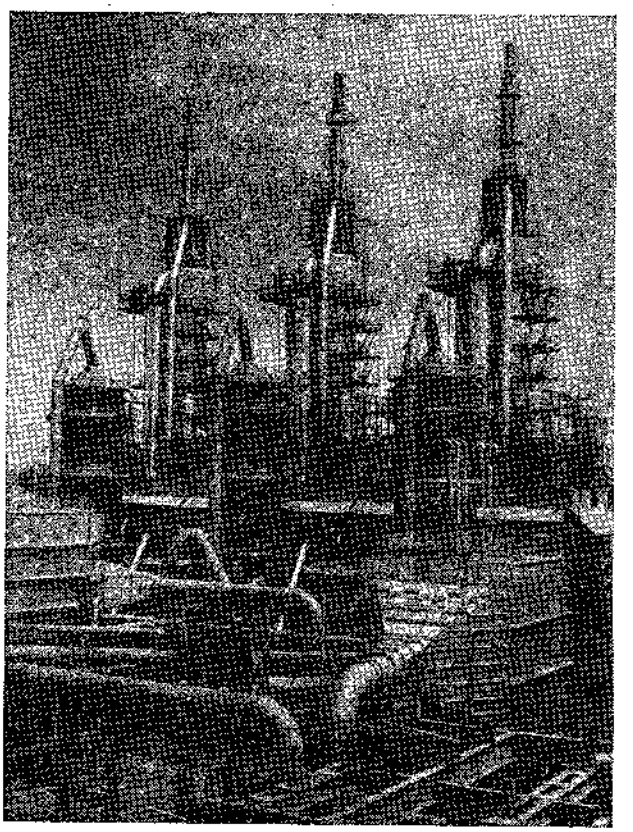
THE first large fertilizer plant in public sector was set up at Sindri in 1951. After nearly a decade in 1961 the second fertilizer factory was commissioned at Naya Nangal in Punjab. These later were amalgamated to form the Fertilizer Corporation of India Ltd. in January 1961 to give the country a proper lead in the field of fertilizers.

A gradual expansion followed and soon fertilizer plants were set up at Trombay (1965), Gorakhpur (1968), Namrup (1969), Durgapur (1974) and Barauni (1976). Simultaneously expansion projects in the existing plants at Nangal, Trombay, Gorakhpur and Namrup were also taken up.

Besides developing production facilities the FCI also started a full-fledged Planning and Development Division at Sindri to achieve self-reliance in fertilizer technology.

The need for indigenous feed-stock for fertilizer projects became evident after the World Oil Crisis of 1973 leading to the abnormal price hike in the cost of petroleum crude in the world markets. Following FCI's recommendation three major coal-based fertilizer plants, two of which are presently under commissioning trials at Talcher (Orissa) and Ramagundam (Andhra Pradesh), were sanctioned by the Government.

Implementation of the third project at Korba (Madhya Pradesh) will be taken up after the first two projects at Talcher and Ramagundam have been successfully commissioned and stabilised.



Coal Gasification Plant of Talcher Fertilizer Division of F.C.I.

Reorganisation

The Government of India reorganised the two existing public sector Fertilizer Companies namely Fertilizer Corporation of India Limited and National Fertilizers Limited into the following four new companies on April 1, 1978 :

1. The Fertilizer Corporation of India Ltd. (FCI)
2. The Hindustan Fertilizer Corporation Ltd. (HFC)
3. The Rashtriya Chemicals & Fertilizers Ltd. (RCF)
4. The Fertilizer (Planning & Development) India Ltd. (FPDIL)

The Nangal Unit of FCI was transferred to the NFL.

On the eve of reorganisation, the FCI had 7 operating units with an installed capacity of over 9 lakh tonnes of nitrogen and 36,000 tonnes of P_2O_5. In addition four new grassroot projects were under implementation at Haldia, Talcher, Ramagundam and Korba. Simultaneously expansions in the existing plants at Nangal, Trombay (IV & V), Sindri (Modernisation and Rationalisation) were also in hand.

After reorganisation, the Fertilizer Corporation of India Limited has taken a new form. It has two operating units at Sindri and Gorakhpur. The old Sindri plant at Sindri has been phased out and has given birth to the new Rationalisation and Modernisation projects both of which have commenced commercial production from October 1979.

The Gorakhpur Unit since 1975 has expanded and increased its capacity to 1,30,000 tonnes in terms of Nitrogen.

Besides Sindri and Gorakhpur, the FCI has also in its fold three of the world's largest coal based projects mentioned above.

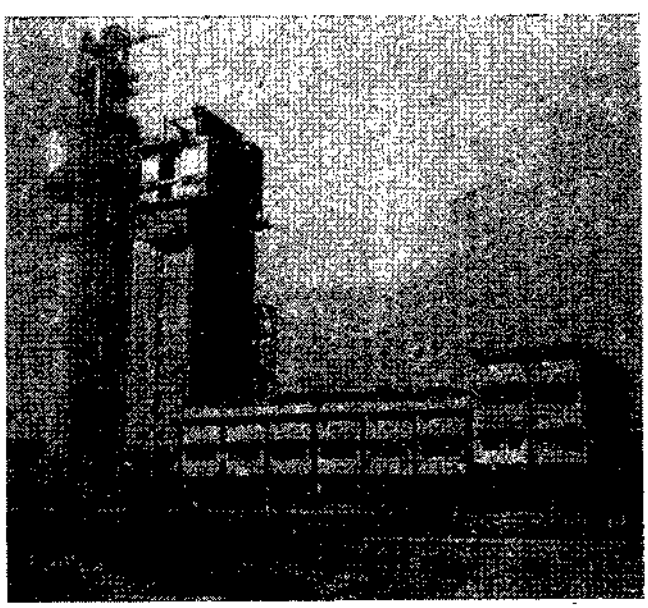
When all the projects in hand (except Korba) are commissioned the rated capacity of the FCI plants would increase to 8,05,000 tonnes in terms of Nitrogen and 1,50,000 tonnes in terms of P_2O_5 production being in the form of 16,05,000 tonnes of Urea, 3,20,000 tonnes of Ammonium Sulphate and 3,26,000 tonnes of Triple Superphosphate (TSP).

The Rs. 60 crore Sindri Rationalisation Project involves the creation of a capacity of 3,26,000 tonnes of Triple Superphosphate (TSP) equivalent to 1,50,000 tonnes of P_2O_5. A novel feature of the project is the availability locally of the by-product gypsum to replace the natural gypsum hitherto hauled all the way from Rajasthan.

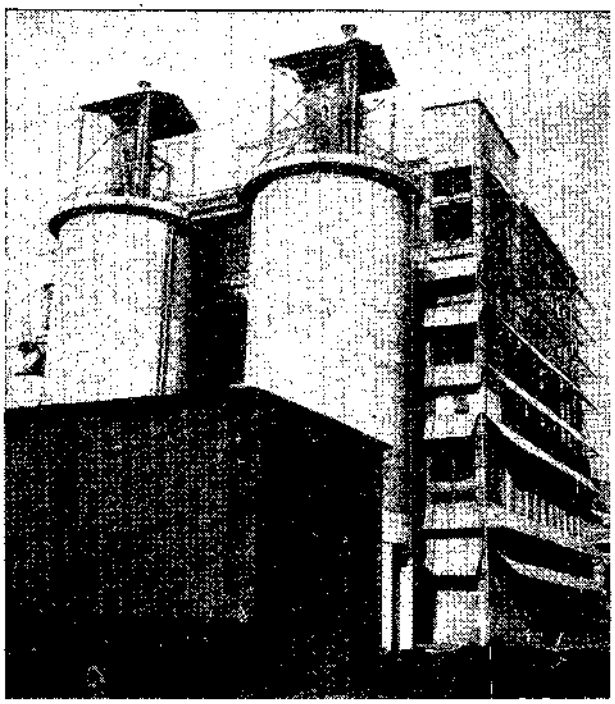
The Rationalization Project comprises a 880 tonnes day sulphuric acid plant in terms of P_2O_5 and a 1,100 tonnes/day TSP plant.

Construction work on Sindri Modernisation Project began in 1975. This World Bank-aided project has been built at a cost of Rs. 179 crore. It has a fuel-oil based ammonia plant of 900 tonnes per day capacity of which 600 tonnes is for conversion to urea in a new facility for 1,000 tonnes per day. The remaining ammonia is converted into Ammonia Sulphate for which the existing plant in the old Sindri complex has been renovated.

The Talcher and Ramagundam coal-based plants have gone into commercial production with effect from November 1, 1980. The Rs. 219 crore Talcher Project has an installed capacity to produce 900 tonnes of Ammonia per day with the end product —4.95 lakh tonnes of Urea per annum. The plant would consume about a million tonnes of low grade coal annually from the nearby South Balanda and Nandira Coal mines situated at a distance of 3 Km. The daily power requirement of 55 MW would be met by Orissa power grid while its daily requirement of 15 million gallons of water would be met from river Brahmani.



A view of Twin Urea Prelling Tower at Gorakhpur



Triple Super-Phosphate Plant at FCI Sindri Factory

The Ramagundam Project in the Telengana Region of Andhra Pradesh is identical to the plant at Talcher. Its daily requirement of about one million tonnes of coal would be met from Singareni Collieries. The Projects power requirement of 55 MW will be met by the Andhra Pradesh State Electricity Board while 15 million gallons of water per day would be drawn from the river Godavari.

The Corporation has developed a multi-channel distribution system for timely and efficient distribution of fertilizers. At present the Corporation's intensive marketing activities are confined to the State of Uttar Pradesh only. In other States the fertilizers produced by Units of the Corporation are handled by sister companies which have been created after the reorganisation of the FCI and the NFL.

Closely associated with the marketing of fertilizers FCI has developed wide ranging facilities for advising and educating farmers in the optimum use of fertilizer and efficient farm management. It is equipped with modern soil testing and research laboratories in addition to mobile soil testing units for on-the-spot free analysis of soil samples.

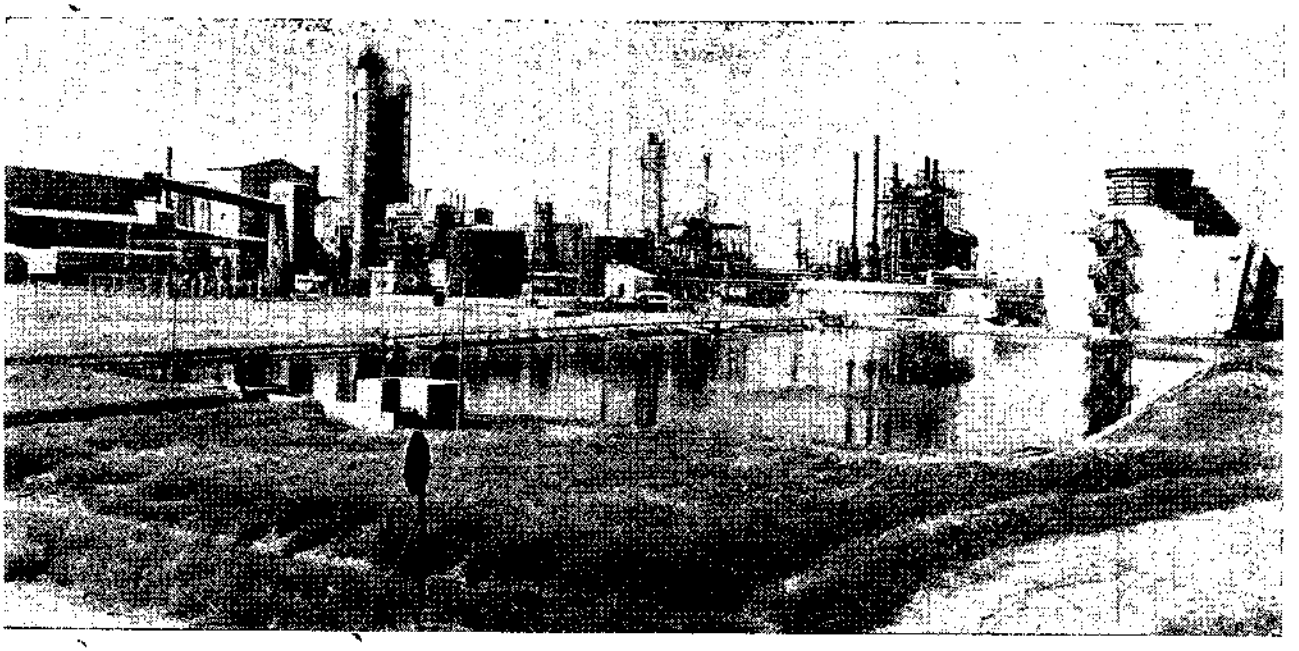
The FCI is operating gypsum mines located in five districts of Rajasthan. The Corporation has the capacity to mine about 4.5 lakh tonnes of gypsum per annum.

The use of gypsum in reclamation of alkali (Usar) soils, has been made recently on a large scale in the states of Haryana, Punjab and Uttar Pradesh. The Corporation has been able to procure a sizeable amount of orders for gypsum for agricultural uses in these states. The FCI is also exploring possibilities for exporting gypsum to Middle East countries and Bangladesh in a big way.

The FCI has a wide range of industrial chemicals, catering to the needs of various industries in the country.

The Corporation's institutes have been providing a large number of trained personnel in the field of fertilizer production to man top executive positions in the country. The Corporation has also trained a large number of trainees from European and South East Asia countries in advanced manufacturing techniques under different collaboration programmes.

Modern self-contained townships with their own schools, play grounds, markets, hospitals etc. have been established in places where FCI plants are located



A view of the Madras Fertilizer Plant.

Round-up

Madras Fertilizers Limited

MADRAS FERTILIZERS LIMITED is a public sector organisation established in 1966. The authorised capital of the Company is Rs. 14 crore. The subscribed and paid up capital is Rs. 13,64,68,000. The equity participation in the company is 51 per cent held by Government of India, 24,5 per cent held by Amoco India, Inc., and 24.5 per cent held by National Iranian Oil Company.

The construction of the plant was completed on May 7, 1971. Commercial production commenced from November 1971. The factory has a 750-tonne per day Ammonia plant and 885-tonne per day Urea plant both laid in a single stream. NPK production capacity is 1650 tonnes per day. The current annual capacity in terms of saleable product is 153,000 tonnes of Urea and 540,000 tonnes of NPK fertilizers.

The total MFL Project cost including NPK 'C' Train stands at Rs. 70.53 crore.

The production has been consistently very good all these years. The year 1978-79 has been the best year in production with the total production of all products exceeding seven lakh tonnes. The capacity utilisation has been very high and of the year 1978-79 it was 101 per cent of the rated capacity. The high production rate is continuing.

MFL is marketing its products in the Brand Name of VIJAY. It has surpassed the world safety record held by Mensanto Chemicals, Chicago, USA, in safe operation without any lost time accident. As of November 30, MFL has achieved about 13 million man-hours of safe operation.

MFL obtained the prestigious Management Contract from State Fertiliser Manufacturing Company of Sri Lanka. The contract envisages start-up and maintenance of their Urea Plant and training of Technical Personnel in running of the Plant. The contract is for a three-year period.

MEL has been consistently making profit. A net profit of 18.32 crores before tax for the year 1978-79 is the best since the commencement of commercial production. From the year 1975-76, the company has been paying dividend every year to the share-holders.

The total man-power is about 1100. The Employee-Employer relationship is very cordial. MFL has provided many welfare amenities to its employees Foreign exchange saving of Rs. 20.75 lakh has been achieved during 1978-79 and 1979-80, as a result of the company's research and development work. □

Petroleum and Chemical Enterprises: An Assessment

Navin Chandra Joshi*

THE petroleum and chemical enterprises of the public sector constitute the kingpin of our national economy. Both are engaged in the production and sale of crucial products without which perhaps all developmental activities would come to a grinding halt. And yet, it is true that the progress achieved rise very little compared to the requirements Todate there is no substantial alternative to the products of these enterprises and hence the optimisation of our resources in the creation of petroleum and chemical products becomes highly imperative.

Dealing first with pertoleum enterprise, we find that they are engaged in the exploration of crude oil and gas, refining of crude, blending of additives and marketing of petroleum products. As on 31st March 1979 there were ten such enterprises with a gross block amounting to Rs. 1718.28 crores. The effective capital employed during the year 1978-79 was Rs. 1347.51 crores as would be clear from the following Table.

TABLE I

Capital Employed in Petroleum Enterprises

(Rs. in crores)

	As at the end of	
	March 1979	March 1978
1. Gross Block	1718.28	1257.97
2. Depreciation (cumulative)	845.83	638.33
3. Net Block	872.45	619.64
4. Working Capital	233.11	181.43
5. Capital Employed	1347.51	801.07

The working capital of these ten enterprises (see Table III) is around Rs. 233.11 crores while the current assets are of the order of Rs. 1308.10 crores. It is heartening to note that the performance of petroleum enterprises in terms of financial results has been highly satisfactory. All the enterprises in petroleum sector have been showing profits which were Rs. 173.19 crores during 1978-79 as compared with Rs. 129.02 crores in the previous year. The amount of Rs. 173.19 crores is the net profit earned after providing for depreciation, deferred revenue expenditure, interest on loans and tax. A sector-wise analysis of the performance of major groups of public enterprises shows that petroleum sector continues to report profits at a still higher level though it is mainly due to the spurt in prices of petroleum products. The total sale turnover of these enterprises is around Rs. 6400 crores annually. The percentage of cost of sales to turnover works out to 96.4 per cent.

In the capital investment of these enterprises, the Central Government has given loans to the tune of Rs. 198.06 crores while loans from other parties amount to Rs. 257.08 crores. The interest earned by the Government on its loan is about Rs. 24 crores per annum. It would be instructive to know the position of important profitability ratios of these enterprises as a whole. They are as follows :—

(a) Percentage of net profit to paid up capital	37.1
(b) Percentage of net profit to net worth	16.6
(c) Percentage of gross profit to capital employed	21.8
(d) Percentage of value added to capital employed	57.9

Among the ten top Enterprises

In terms of turnover, four enterprises of the petroleum sector rank amongst the top ten enterprises of the Central Government. They are Indian Oil Corporation, Hindustan Petroleum Corporation, Bharat Petroleum Corporation and Oil and Natural Gas Commission. The Indian Oil Corporation's total turnover during 1978-79 was of the order of Rs. 3572.53 crores which comes to 20.08 per cent of the turnover of all enterprises put together. All the units under Petroleum group have recorded more than 75 per cent utilisation. The utilisation of capacity in refineries depends to a large extent on the availability of crude, arranged by Government and allocated by the Oil Coordination Committee. The Madras Refineries Ltd., has the highest utilisation made possible by operational improvements in company management. The Oil and Natural Gas Commission is also showing signs of increased production in the recent years.

The prices of petroleum products are decided mainly in the light of increasing difficulties in procurring the crude as also with the objective of containing the increasing demand for petroleum products. Further determination of prices of petroleum products has to take into account the fact that products like kerosene etc. are items of consumption for the common man and therefore, their prices have to be kept to the minimum. About 57,000 people are employed in the petroleum sector the annual wage bill of which is around Rs. 100 crores. The average remuneration per person employed comes to more than Rs. 17,500 per annum which is indicative of the fact that employees in the petroleum sector are very well paid.

*Reader, Motilal College, New Delhi.

Coming to the chemicals (including pharmaceuticals) sector of the Central Government enterprises, it may be mentioned that there were fifteen enterprises as on 31st March 1979. The total investment in them amounts to Rs. 2737.51 crores made up of equity and loans. The National Fertilizers Ltd., Fertiliers and Chemicals (Travancore) Ltd., Fertilizer Corporation of India, Madras Fertilizers Ltd., Hindustan Fertilizers Ltd., and Rashtriya Chemicals and Fertilizers are engaged in the production and distribution of chemical fertilizers like Urea, Phosphates as well as complex fertilizers. Hindustan Antibiotics Ltd., Indian Drugs and Pharmaceuticals Ltd., and Smith Stanistreet and Co., Ltd., produce and sell antibiotics pharmaceuticals and surgical instruments. While Hindustan Insecticides Ltd., produces D.D.T. and B.H.C. ,the Hindustan Organic Chemicals Ltd., is engaged in the manufacture of fine organic chemicals and intermediates. Hindustan Salts Ltd., and Sambhar Salts Ltd., (which is a subsidiary of the former) manufacture common salt and other varities of salt. Cement Corporation of India Ltd., produces cement and Indian Petro-chemicals Corporation Ltd., manufactures petro-chemicals based on feedstocks available from refineries in the public sector.

Out of the total investment of Rs. 2737.51 crores, the value of the gross block is Rs. 1251.81 crores. The value of capital work in progress and unallocated expenditure during construction as on 31st March, 1979 amounted to Rs. 1312.83 crores. This amount represents expenditure on various new projects and expansion schemes under construction. Obviously, this expenditure will give returns in future years when the projects are completed and production starts. Table II below gives an estimate of capital employed in these enterprises.

TABLE II

Capital Employed in Chemical Enterprises

(Rs. in crores)

	As at the end of	
	March 1979	March 1978
1. Gross Block	1251.81	931.48
2. Depreciation (cumulative)	385.33	383.16
3. Net Block	866.48	548.32
4. Working Capital	368.45	262.87
5. Capital Employed	1235.13	811.19

The current assets in the year 1978-79 were about Rs. 650 crores while current liabilities were Rs. 282 crores during the same period. The value of inventories held by these enterprises was Rs. 352.26 crores at the end of the financial year in 1979. The working capital of these enterprises comes to more than Rs. 350 crores. As for the financial performance of these enterprises, there is a net loss of Rs. 27.04 crores in respect of all the enterprises put together in the year 1978-79. The amount of net loss in the previous year was Rs. 54.39 crores.

While the total turnover was more than Rs. 800 crores, the cost of sales was more than this (Rs. 848 crores. The highest amount of loss was incurred by Hindustan Fertilizers Ltd., (Rs. 22.92 crores) followed by Fertilizers Corporation of India (Rs. 15.24 crores) in 1978-79. The maximum net profit was made by Madras Fertilizers Ltd., and it was of the order of Rs. 18.15 crores.

Capacity Utilisation

Capacity utilisation in fertilizer units ranges from 5 per cent to 106 per cent. It is much better in chemical units with a minimum of 52 per cent to as much as 114 per cent. The total number of employees working in this sector is about 65,000 with a wage bill of Rs. 7,335 lakhs per annum. The Government has been incurring expenditure on subsidy of fertilizers to the extent of about Rs. 80. crores per annum. Recently, fertiliser prices were rationalised on the basis of recommendations of the Bureau of Costs and Prices but the pricing of drugs has still defied a rational approach. Industrial relations have been good, by and large but for the Indian Drugs and Pharmaceuticals Ltd., which suffered from a strike for about two months in 1978. In the pricing of drugs the Government has to keep the interest of the consuming public upper-most in its mind. As such, the drug units cannot be treated strictly on a commercial basis. The increasing cost of inputs in fertiliser units has been responsible for escalating their loss to the tune of Rs. 121.4 crores during 1979-80 when the total loss of all public enterprises put together is around Rs. 149 crores for the year 1979-80. In view of this situation it is now high time that overall efficiency is brought about in the functioning of these units so that cost of production could be brought down. It is true that the products of fertiliser and drug units cater to the needs of the poor people in this country and such people constitute the majority of the population. As such, the scope for increasing prices is little. Improvement in production and demands can be effected only through better operational efficiency which must reflect in cost and quality.

Oil Production

The production of oil in India was just 0.5 million tonnes in 1961 and it increased to more than 12 million tonnes in 1979. The projections for output by 1985-86 are about 15.5 million tonnes per annum. Our domestic production figures fall far short of our present requirements of 20 million tonnes which are likely to rise to 36 million tonnes by 1982-83 depending on the progress made in improving fuel usage and developing substitutes, particularly coal. Foreign exchange spent on crude oil imports in 1975-76 was about Rs. 10,780 millions for about 14 million tonnes. Now this expenditure has gone up and is presently more than Rs. 15,000 million per annum as oil prices have been going up from year to year.

In view of the small quantity of the known reserves of petroleum in the country, there is a crucial need to crutail the use of oil wherever it is possible and we may depend upon alternative sources of energy provided by the public sector. Some of the major areas of saving could be (i) converting power stations using oil as the primary fuel to coal along with reduction of fuel oil as a supplementary fuel; (ii) expansion of rural electrification and rapid switchover to electric traction on railways; and (iii) appropriate pricing policies to curb the use of oil, e.g., the use of private transport, along with encouragement to mass transport.

The country has approximately 385,000 sq. kms. of off-shore shelf area (where water depth is within 200 metres). The ONGC has carried out survey in the Gulf of Cambay, Arabian Sea, Gulf of Kutch, Coromandal Coast, areas of Krishna-Godavari delta and the area South of Sunderbans extending westwards, and have discovered 18 structural features which are favourable for oil accumulation. Even if these and other measures give us more oil, the gap between production and consumption threatens to continue to widen. The Sixth Plan has provided for Rs. 1800 crores for Oil and Natural Gas Commission and Rs. 133 crores for Oil India Ltd. for an intensive programme of off-shore and on-shore exploration on the Indian Continental shelf. Foreign collaboration is also envisaged for carrying out oil exploration in other off-shore regions. The ONGC has already spotted potential areas for oil in the Arabian sea and the results of the wells drilled in Bombay High are very encouraging.

TABLE III

Serial No.	Name of enterprises	Year of incorporation
1.	Bharat Petroleum Corpn. Ltd.	1976
2.	Cochin Refineries Ltd.	1963
3.	Hindustan Petroleum Corpn. Ltd.	1974
4.	Hydro Carbon India Pvt. Ltd.	1965
5.	Indian Oil Blending Ltd.	1963
6.	Indian Oil Corpn. Ltd.	1959
7.	Indo-Burma Petroleum Co. Ltd.	1971
8.	Lubrizol India Ltd.	1966
9.	Madras Refineries Ltd.	1965
10.	Oil & Natural Gas Commission	1956

Drug Industry

The story of drug and pharmaceutical industry has been none-too-encouraging. There is not only an utter shortage of drugs and formulations in the country but the output itself becomes quite uncertain in some periods when the drug manufacturing units suffer from strikes or lock-outs. It is high time that strikes in the drug industry are totally banned. The statement of the Minister for Petroleum and Chemicals in the Rajya Sabha on November 24, 1980 is reassuring that the Government was doing its utmost to meet the situation of shortage by imports, increased production and by making available equivalent drugs. Apart from labour unrest, power cuts and capacity constraints have come in the way of *smooth* and regular production.

Unfortunately in our country there is a kind of cut-throat competition going on between private sector and public sector units of this industry. Presently only 6 per cent of the drug manufacturing units are in the public sector, 78 per cent in foreign sector and 16 per cent in the Indian private sector. Apparently, the public sector units are facing keen competition with foreign firms engaged in drug manufacturing. Therefore, our public sector units have not only to run smoothly, give continuous production and so on, but also to improve quality of their products without enhancing the price.

Research and development forms the backbone of the drug and pharmaceutical industry. In order to achieve self-reliance and to meet future requirements, a chain of laboratories like Central Drug Research Institute, Lucknow and similar other organisations have been set up. They have done some significant improvements in the existing technology by developing new processes. The public sector units have still to go a long way in bringing about some outstanding formulations so as to capture the foreign market as well. At the same time, they have to concentrate on supplying drugs of mass use in adequate quantity without any interruption. Since improvement in drug industry, unlike the petroleum industry, depends entirely on our domestic know-how, better management and sufficient research work, this aspect needs to be given all the emphasis.

Fertilizer Industry

As for the fertiliser industry, it has made rapid strides. Indigenous production in this sector meets about 53 per cent of the demand and the public sector units have mainly contributed to the increased production. With intensive farming, increase in the cropped area and other efforts to make the country self-sufficient in food, there is a commensurate increase in the consumption of fertilisers. It is common knowledge that the level of fertiliser consumption is quite low as compared with that of other countries. Besides, their prices have been going upmaking it quite prohibitive for small and marginal farmers.

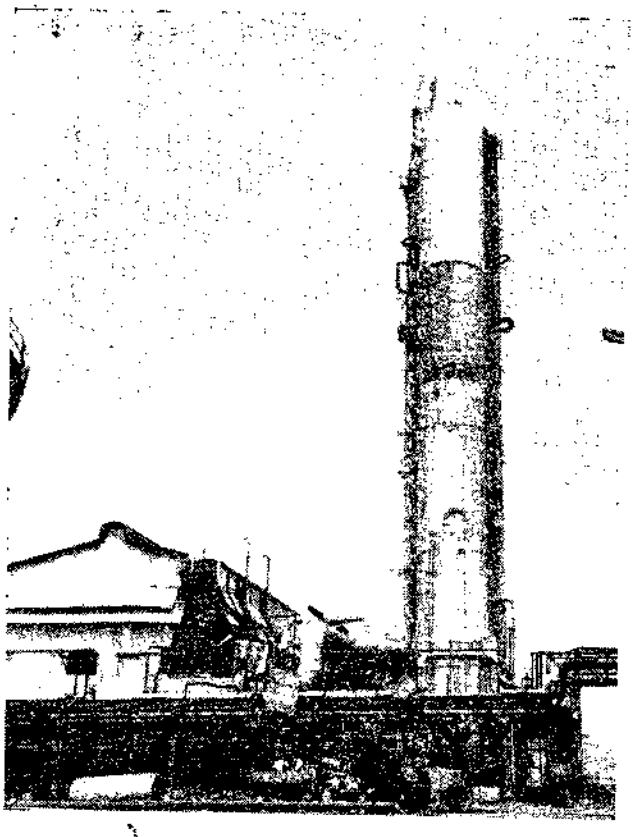
It is common knowledge that apart from inadequate marketing facilities and lack of purchasing power of the farmers, natural calamities and inadequate irrigation facilities, high prices, inadequate imports, inadequate promotion measures, lack of adequate credit facilities in several areas, and insufficiency of retail points at convenient distance from the various rural points have contributed to the decline in fertiliser consumption. Needless to say that the country is spending a lot of foreign exchange in the import of fertilisers from abroad. If this money could be saved, the pace of our industrial progress would be faster. Here again, intensive research needs to be done on the use of various raw materials, diversification of products and the lesser use of petroleum products. In fact today we need a massive programme for the development of organic manures in the country in view of its importance in building up soil fertility and also because of constraints in the availability of fertilisers. The programme should concentrate on preparation of rural and urban compost, distribution of sewage and sullage, intesification of green manuring and establishment of gobar gas plants.

To conclude, the petroleum and chemical industries, being the back-bone of agriculture and industry, need to be given a high priority in production programmes and their management. The public sector units have a very difficult role to play as they are faced with a number of constraints. They have therefore, to overcome them in such a way that the interest of the common man they serve does not suffer. Only then the public enterprises in these industries can justify their existence. No sacrifice should be too great in setting their own house in order.

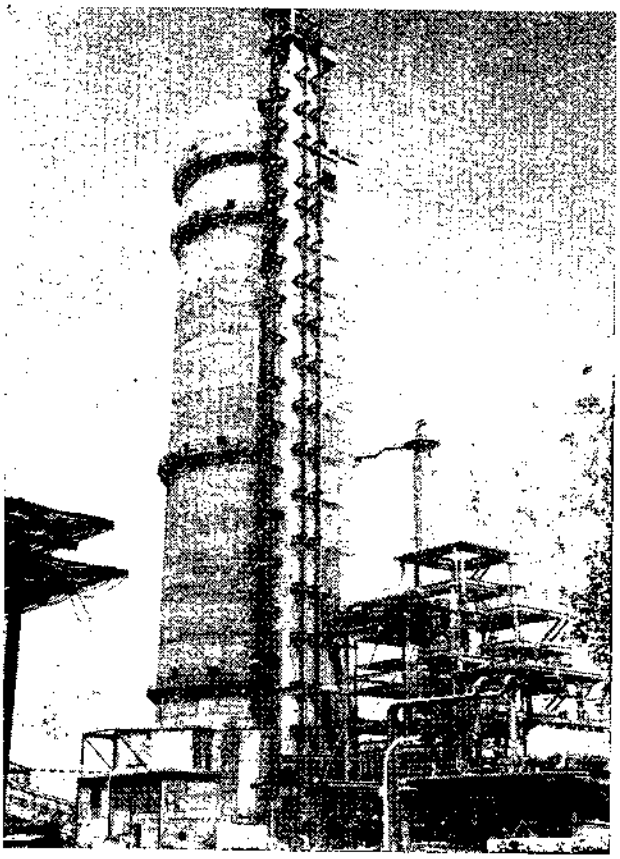
Rashtriya Chemicals & Fertilizers

THE Rashtriya Chemicals & Fertilizers Ltd. (RCF) was incorporated on March 6, 1978, on reorganisation of erstwhile Fertilizer Corporation of India Ltd. and National Fertilizers Ltd. The RCF is responsible for operation of Trombay Unit, implementation of new expansion projects and marketing of various fertilizers and industrial chemicals. Since 1965, when the first phase of plants were commissioned at Tormbay, several diversification and expansion projects have been successfully implemented at Trombay site itself and now it is a big chemical and fertilizer complex having twenty operating plants.

The Trombay Complex consists of the following plants : Ammonia, Urea, Suphala, Nitric Acid, Sulphuric Acid, Argon, Steam Generation, Water Treatment, Methanol, Ammonium Bircarbonate, Carbon Black Sodium Nitrate/Nitrite, Concentrated Nitric Acid, Methylamines, Phos. Acid Demethyl ether, Supplementary Gassification, NPK Debottlenecking Sulphuric Acid-DCDA Scheme, Phosphoric Acid, Nitric Acid, Ammonium Nitrate Phosphate.



Nitric Acid Plant at Trombay Complex



Urea Plant at Trombay Fertilizer Company

After the planned expansion of Trombay-IV and V and the Thal Project, the total plant nutrient capacity of the RCF will be 11,65,000 tonnes.

The Nitric Acid Plant is the largest single stream plant in India and second largest in the world with adequate in-built measures to curb pollution. With the commissioning of the ANP Plant, a new complex fertilizer with prilled granules has been produced first time in the country. The process adopted in this plant results in substantial saving in import of Sulphur compared to other coventional plants. Apart from this, the co-products Ammonium Nitrate and Chalk have significant industrial use.

The total capital outlay of the Trombay V project is Rs. 170 crores. The project is based on Associated Gas as feed stock and is expected to use 1.3 standard million cubic metres of gas per day from Bombay High.

The Government of India have entrusted to the RCF the Super Fertilizer Project at Thal, about 105 km. from Bombay, in Kulaba District of Maharashtra. This will be the biggest fertilizer plant in India and will be the largest single producer of Urea from any one location in the world. The process plants will be based on Associated Gas from Bombay High and Bassien

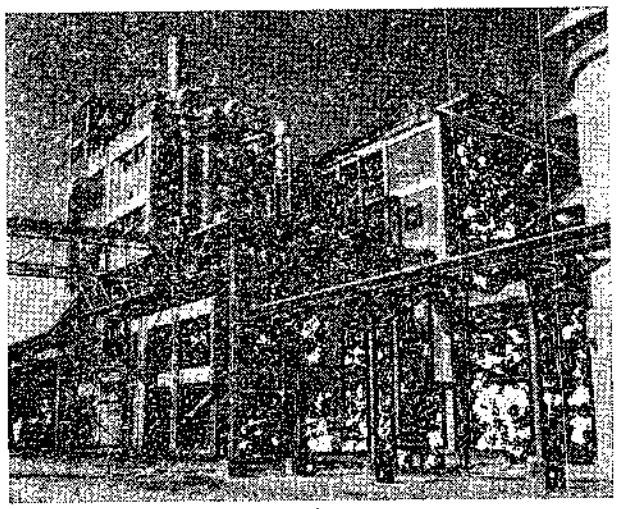
Off Shore gas fields. The project, estimated to cost Rs. 930 crores is to go into production in 1984.

Maximum farmer satisfaction and an integrated network of factory to farm services are the back-bone of the RCF Marketing strategy. The RCF provides a full range of marketing services including sales, fertilizer promotion, agricultural research and free agronomical services.

The following are the important industrial items produced by RCF : Methanol, Mono-Mehtylamine, Di-Methylamine, Tri-Methylamine, T. G. Urea, Ammonium Bicarbonate, Sodium Nitrate, Sodium Nitrite, Nitric Acid/Conc. Nitric Acid, Ammonium Nitrate (melt), Argon, Gypsum, Hydrofluro-Silic Acid, Carbon Slurry, Calcium Carbonate, Ammonia.

The R & D Cell of the company has developed the technology and complete know-how for ZIRUM, a Zinc salt of Dimethyl dithiocarbomate based on its product Dimethylamine. This chemical has a great potential for application in the use of pesticide, fungicide and rubber chemical industries.

Over the years the RCF has succeeded in bringing down its own emissions to match the World Standards. At the RCF, total systems approach has been adopted for greater efficiency of environmental management. The RCF's Training Institute provides training for various categories of its employees. The RCF township consists of over 2000 houses which accommodates over 80 per cent of the employees. A fully equipped 30 bed hospital takes care of the health of the employees and their families. There are 4 schools in the township.



Phosphoric Acid Plant at RCF

Round-up

Hindustan Antibiotics

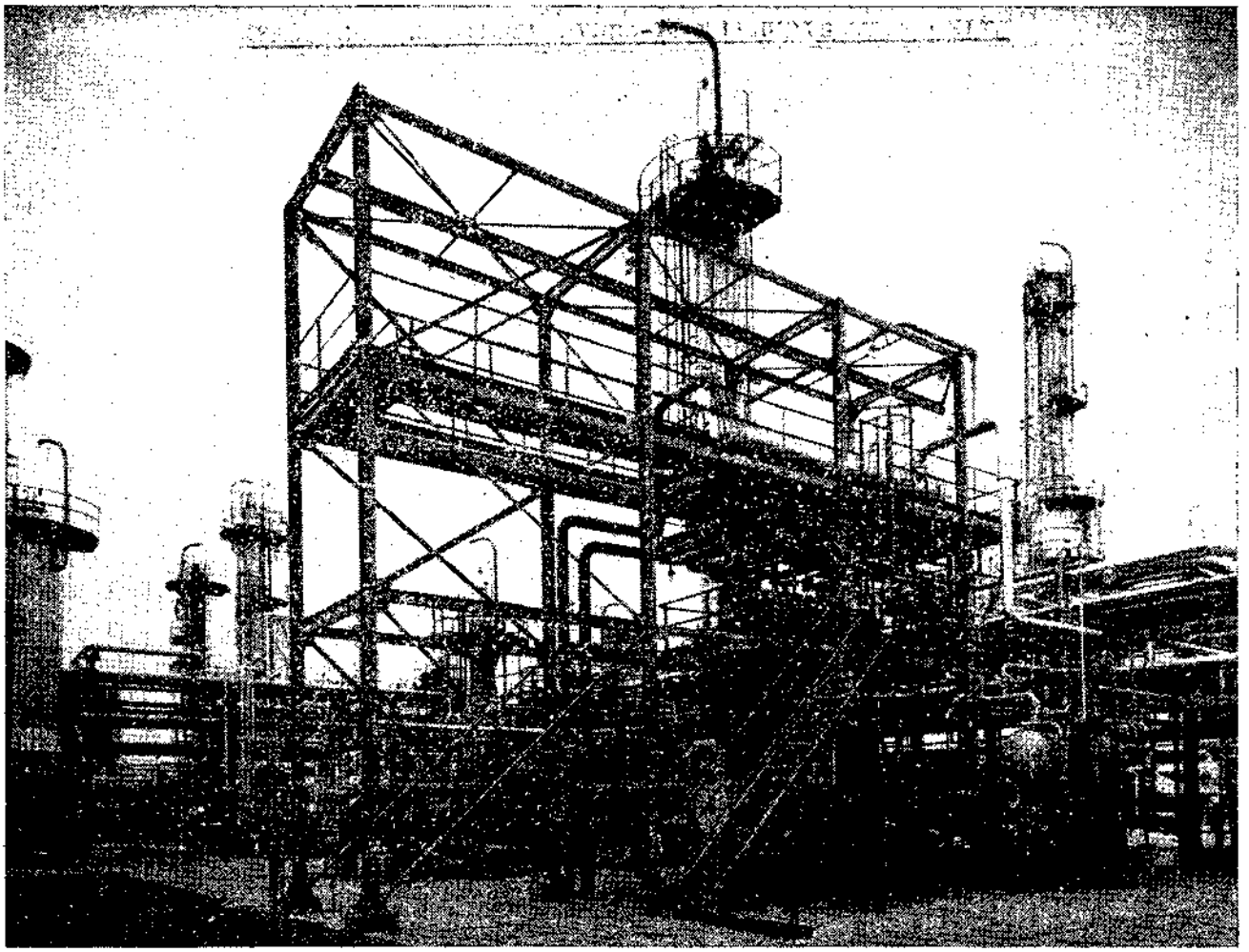
SOON after independence, realising the pressing need for producing pharmaceuticals, particularly antibiotics, the Government of India incorporated Hindustan Antibiotics Ltd. in 1954 getting the technical know with the aid of the WHO and the UNICEF. The plant at Pimpri, near Pune began manufacturing Penicillin. It has grown today into a vast complex supplying a wide array of life saving and life giving medicines. Hindustan Antibiotics has numerous firsts to its credit like its being the first company to manufacture Penicillin, Streptompycin Sulphate, Ampicillin Anhydrous and Gentamicin in India.

The range of formulations of Hindustan Antibiotics today further extends to cover plant protection chemicals and drugs for use in the veterinary field. Planned endeavour is being made to isolate compounds for increasing the yield from soil and also to boost-up milk production.

To surge ahead in the field of research in drugs and pharmaceuticals the company established a full-fledged Research and Development Laboratory in 1955. During the last quarter of a century of its functioning, the R & D Laboratory has added numerous laudable achievements to its credit. Perhaps, only Hamycin and Aureofungin would have given it the place of prominence. These two drugs, discovered in this Laboratory have found place in standard textbooks as very effective antifungal Antibiotics in human, veterinary, poultry and plant protection. The R & D Laboratory has innovated numerous other products and processes for development of Antibiotics and Specialities.

The company's produce, bulk and formulations are exposed to rigorous Quality Control tests at every stage of their production to build in the high level of excellence in them that customers world over appreciate.

Massive expansion and diversification schemes, involving investment of Rs. 30 crores are in hand. These include massive increase in the production of life-saving drugs and establishing formulation projects at Nagpur, Goa and Bangalore.



Kerosene and Diesel Hydro-DC Supplies Division Units

Round-up

Madras Refineries

MADRAS Refineries was formed in 1965 as a joint venture with an oil producing company of Iran and oil processing expert—Amoco India forming the partnership with Government of India. The company went on stream in 1969. The plant cost Rs. 43.2 crore.

From 1969-70 to 1979-80, Madras Refineries had a thruput of 26.62 million tonnes and a production of 23.97 million tonnes. Comparing with the All India refinery thruputs of 261.8 million tonnes crude and all India consumption of 241.9 million tonnes of products, it is evident that the MRL shares one-tenth of both refining capacity and product supply. The refinery was consistently surpassing its own production targets in all its products. The total production was also stepped up year by year effecting sizeable savings in its own fuel consumption.

The cumulative profits after adjustment amounted to Rs. 48.55 crore. The refinery started paying dividends to share-holders since 1971-72 and went on progressively raising the dividend until last year when it paid 15 per cent and the cumulative dividend was 117.5 per cent of the paid-up capital.

The last instalment of U.S. Dollar and Rupee loans of $ 22,320,000 and Rs. 20,25,31,000 respectively were already paid off.

Till date the refinery contributed Rs. 1230 crore by way of excise duty and income-tax to central revenue and Rs. 125 crore by way of sales tax to Tamil Nadu Government.

In 1978-79, two chemicals, 17 spare parts, 8 capital equipment were indigenised conserving foreign ex-

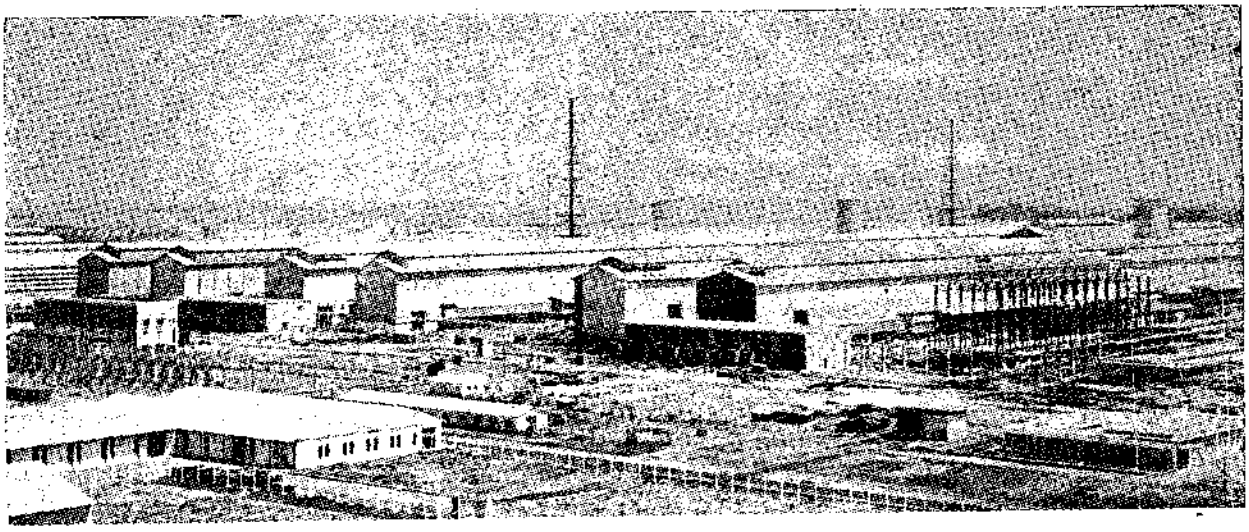
change. The cumulative foreign exchange savings so far work out to Rs. 625.68 lakhs for a total number of 1450 items.

From time to time Madras Refineries is exporting thru IOC petroleum products like naphtha, furnace oil and more recently high grade asphalts to Indonesia, Burma, Vietnam, Kuwait, Bangladesh etc. This amount to a total earning of Rs. 81.2 crore in foreign exchange.

During the year 1979-80, the product turnover was valued at Rs. 4,345 million which was Rs. 2,648 million in the preceding year. The gross profit was Rs. 124.18 million as compared to Rs. 106.2 million in the preceding year. The net profit before tax was Rs. 84.79 million which is the highest achieved so far.

The proposal for expanding the refinery from its present 2.8 million tonnes capacity to 5.6 MTPA has already the approval of Government of India and the company. Engineers India Ltd., have been chosen as the prime engineering contractor. All the facilities are expected to be completed by the last quarter of 1984. The investment cost is estimated to be of the order of Rs. 55 crore at 1979 prices.

Also a plant for 20,000 tonnes of paraffin wax per year is being set up. □



An aerial view of Korba Smelter Plant

Round-Up

Bharat Aluminium Company

THE first public sector company namely Bharat Aluminium Company Limited, (BALCO), fully owned by the Government of India, was incorporated on 27 November, 1965 with the main object of constructing, operating and managing Aluminium Projects. The authorised capital of the Company is Rs. 175 crores.

Korba Project

The Korba Aluminium Complex of the BALCO is based on bauxite deposits in the Amarkantak and Phutkapahar areas in Madhya Pradesh and on the power from the Madhya Pradesh grid. It has been designed to produce 200,000 TPA of Alumina to feed the Smelter, which has a primary metal capacity of 100,000 TPA with castiig and semis capacities of two lakh TPA.

The Alumina Complex, togther with the bauxite mines, was constructed with the technical collaboration of M/s. Chemokomplex of Hungary. Starting the construction work in October, 1969, the Plant was successfully commissioned in April, 1973.

For the Smelter and Febrication facilities, technical collaboration was provided by M/s. Tsvetmetprom-export of the USSR. The first cell house of the Smelter representing 25,000 tonnes per annum of primary metal capacity was commissioned in 1975 and the second cell in 1977. The other cell houses are yet to be commissioned because of non-availability of power, although they have been ready for operation for nearly 3 years now.

The Alumina Plant and potlines of Korba Smelter continue to be in operation. However, their production is low due to inadequate power supply.

The Properzi Unit, for the fabrication of electrical grade wire rods, is working satisfactorily. A new properzi mill of additional 25,000 TPA capacity, being

installed mainly to cater to the growing demand of cable and conductor manufacturers for power transmission was expected to be commissioned by December, 1980.

Work is going on apace in getting all the downstream facilities, such as Extrusion Presses and Rolling Mills ready by the end of 1980.

The Company has also plans on hand for product diversification such as foil, special grades of alumina for non-metallurgical uses, etc.

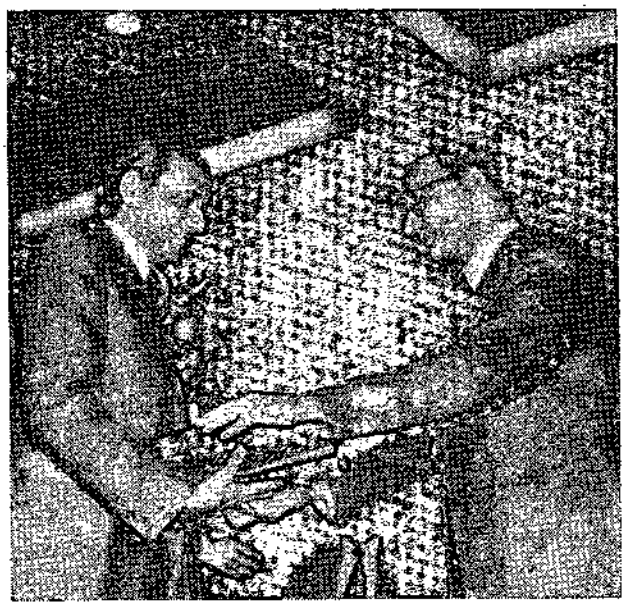
Due to non-commissioning of full Smelter capacity the BALCO has been exporting calcined alumina, surplus to its requirements. The total value of alumina exports from 1974-75 has crossed Rs. 35 crores. For its export performance during 1978-79 and 1979-80, the BALCO has been awarded the 'Top Export Awards' by the Chemicals and Allied products Promotion Council.

East Coast Projects

With a view to exploiting the low deposits of bauxite in the east coast, a feasibility report has been prepared for an Alumina-Aluminium Plant in Orissa, with the following rated capacities :

(i) A captive bauxite mine of 2.4 million tonnes p.a.
(ii) An Alumina Plant of 800,000 TPA
(iii) An Aluminium Smelter of 218,000 TPA and
(iv) A captive thermal power plant of 720 MW capacity with necessary infrastructure and allied facilities. The Government have recently sanctioned implementation of this project at an estimated cost of Rs. 1242.4 crores.

For establishing another plant with 600,000—800,000 TPA capacity in Andhra Alumina Plant.



Balco received Top export award

Balco's appraisal note on the Feasibility Report, is under preparation for submission to Government. The possibility of putting up aluminium smelting capacity based on this plant, is also likely to be considered in future. □

State Trading Corporation: A Pace Setter in Export Efforts

Dr. S. C. Bhattacharjee*

The State Trading Corporation of India Ltd. was set up in 1956 primarily to deal with the bilateral trading partners of East European countries. The pattern of trading and the growing possibilities of trade with this region necessitated creation of a focal point of trade with the State Trading Organisations in East Europe.

The role for STC as envisaged by the Government was related to the following areas :—

- To help reduce difficulties experienced in expanding trade with centrally planned countries ;
- To help maintain quantitative regulations of imports and some equilibrium of the price of imported commodities and the indigenous products ;
- To provide developmental finance to organise production and boost exports of small scale sector ;
- To check unhealthy competition and undercutting of prices in international markets ;
- To organise integrated development of production, transport and port facilities in respect of bulk commodities ;
- To promote export of non-traditional items and open up new fields of exports of traditional items ;
- To undertake internal trade as and when the situation warrants ;
- To ensure adequate and regular supplies at reasonable and stable prices of essential commodities to meet local demand ;
- To effect exports and imports at more favourable prices through increased bargaining power ;
- To stimulate production of essential agricultural and industrial commodities by means of price and other incentives :
- To facilitate the imports of goods under foreign aid programmes ;

Giant Size hands holding consumer goods. A feature in the STC Pavilion at IITF 1979

- To facilitate the implementation of trade agreements and barter deals and
- To act as a vehicle to implement government policies.

In the light of changing industrial and trading environment within the country as also the ever-changing international marketing scene, the Corporation at different points of time had to adapt itself to new and emerging situation. Apart from structural changes in the working of the Corporation, there has been marked diversification in the types of products handled for export besides significant variations in the pattern of imports.

Focal Point

STC today serves as a focal point in trading between India and over 100 foreign markets. Its vast and diverse range of commodities and products offered for exports include leatherweare, coffee, tobacco, gramophone records, rice, sports goods, light engineering items, construction materials, army software, tea, jute goods, textiles and readymade garments, processed foods, spices, meat and marine products, castor oil, shellac groundnut extractions etc.

STC undertakes import of vital raw materials for industry and consumers, maior among which are edible oils, newsprint, cement, rubber, chemicals, drugs, etc.

*Chairman, the State Trading Corporation of India Ltd

STC's turn-over has increased from a small beginning of Rs. 9 crores in the year of inception to Rs. 1529 crores comprising export turnover of Rs. 636 crores and import turnover of Rs. 884 crores besides domestic trade of Rs. 9 crores during 1979-80. The natural corollary of this growth was the formation of subsidiary Companies for undertaking specific activities in order to offer effective and comprehensive services to its customers.

The Corporation presently has five subsidiaries namely State Chemicals and Pharmaceuticals Corporation of India Limited (CPC), Handicrafts & Handlooms Exports Corporation of India Limited (HHEC), Projects and Equipment Corporation of India Limited (PEC), Cashew Corporation of India Limited (CCI) and Central Cottage Industries Corporation of India Limited (CCIC). The trnover of our Group, including subsidiaries during 1979-80 was Rs. 1752 crores. STC's share in India's trade is about 10 per cent.

Objectives of STC

The original objectives of the Corporation during all this period have not undergone any material change. However, in order to meet the challenges of the coming decade, the Government have further clarified these objectives as a result of a special study conducted by a professional Management Institute. The revised objectives have, thus, envisaged a new role for STC :—

(i) STC will have to undertake a substantial amount of actual trading on their own account including buying, selling, stocking, etc. which would involve undertaking greater risk than in the conventional back-to-back contract entered into by the STC at present.

(ii) It will develop new products and markets for export and initiate action to help strengthen and expand the supply base and infrastructural facilities.

(iii) It will need to organise their operations in such a way that these assist in the attainment of socio-economic objectives such as price stability, increase in employment, stoppage of exploitation by middlemen, etc.

(iv) It will continue to manage canalised items but on a relatively smaller scale than in the past.

(v) It will need to organise itself to monitor certain specified sectors of economy on behalf of Government as its field agencies in the market place and provide timely feed-back for appropriate corrective action.

(vi) It should acquire on the basis of performance a status of leadership within the trading community in the country and a position of strength in the international market.

A model in STC Jabnics

Measures Envisaged to Meet Objectives

In the light of the new role the Corporation has set for itself, STC is continuously reorienting its operations along new lines and directions and the emphasis in the 1980's on the STC's operations would be different from what it has been during the last 25 years. STC is envisaging the following measures to fulfil the objectives set for itself for 1980's :—

Expansion of trading activities : The Central objective of STC would be to organise itself as a leading international house and acquire capability for competitive international trading as has been set forth. From a subsidiary operation, the 'non-canalised' trading activities, primarily exports would be made the major thrust areas of STC's growth. Resource support shall be reoriented to bring these activities to the fore. The first check-point in planning long-term trading activities would be to become a self-supporting organisation based on profits earned in non-canalised competitive trading without dependence on any canalised operation. It will enable the gearing up of the STC's trading activity so that it can take market changes, product changes and the changing need for canalisation or otherwise in its stride.

Selection of business : As concentration is the key to success, STC has undertaken the exercise to narrow down its present range of non-canalised operation, select those where STC could develop in-depth capability of marketing and adequate supply base. The products identified and offering potential for growth where STC would give a major thrust in the coming years are as under :

(i) Processed foods, agricultural commodities, meat and marine products ;
(ii) Leather products and fashion garments ;
(iii) Textiles including readymade garments
(iv) Light engineering goods including electronic products.

Agricultural Commodities Export : In the field of agricultural and allied commodities, at present export markets are located on temporary basis whenever surpluses emerge after satisfying total internal needs. Continuity is an essential attribute of export marketing. In certain agricultural products where yearly variations lead to a swing from shortage to surplus and vice-versa, continuity of export would need organising production specifically for export and insulating the same from variation of domestic demand and supply. Therefore, areas of export development in the agricultural field taken up by STC are fresh fruits and vegetables; meat and livestocks; and selected items of spices and other products. STC is trying to tie-up with importing countries for long-term supply from India and produce the type of vegetables needed by working with State Corporations to organise export production base. In case of meat and livestocks, joint collaborations with long-term buy-back agreements are under negotiation. Towards this end, STC would gear itself to raise livestock for captive supply for meat export and livestock export on long-term basis. In case of spices and other agricultural products, STC is working in conjunction with State|Cooperative undertakings and Commodity Boards to assure exportable quality and supply base.

Manufactured Products Export : While price fluctuations are steep in case of commodities and markets, manufactured product exports show considerable stability in terms of market and price. It is, therefore, the long-term objective of the Corporation to increase export of manufactures. While small-scale sector has been playing a vital role in creating a wider production base for export the extensive dispersal of production facilities catering to the Corporation's manufactured products has led to problems in the maintenance of uniform quality and adherance to delivery schedules. When large orders are generated, supplying uniform quality products and providing assurance for meeting large requirements from a large number of small units become difficult. The Corporation has been able to overcome some of these constraints by organising consortia wherever possible and assisting them in various ways to ensure uniformity in specifications and timely delivery according to the buyer's requirements.

Development Export Ancillary : Careful selection of competent units, assessment of their technical and managerial ability, technical assistance in the upgradation of facilities and process control, supply of critical imported raw materials and financial assistance for capital investment and export production when the same is difficult to get from the normal commercial banking channels are the services which are essential for orderly generation of export production capacity in the small scale sector. In effect the concept of 'manufacturing ancillary' is to be applied for developing 'export ancillary' in the small scale. STC is in the process of organising for such ancillarisation for export on a much wider scale by setting up the necessary technical groups and modifying policies and procedures in this respect.

Facility and Quality Upgradation : STC in its own way has been endeavouring for certain mechanisation of small scale units to meet the rising quality standards for export. Steps have been initiated in respect of processed foods where STC's technical experts visit associates' units and render in-process quality control assistance and suggest measures for improving quality and productivity. Similar assistance for leather products manufactures has been practised for several years. Quality control laboratories established by STC in Delhi, Agra and Madras provided testing facilities for a number of small scale leather goods manufacturers. A R&D Centre for leather garments and Display Centre for textile garments are specially being created to help the manuacturers to keep the design technology continually up-dated.

Capacity Creation for Export : In addition to these efforts, setting up of joint venture production facilities with buy-back arrangement is considered necessary to increase manufactured products export in the long-term. STC, as a long-term policy objective, has decided to undertake capacity creation projects with or without foreign equity participation and also arrange foreign technical know-how and marketing collaboration. STC has a number of ventures under consideration in collaboration with producers|importers from different countries, e.g. Bulgaria, Germany, USA, France, Switzerland, Japan and Hungary.

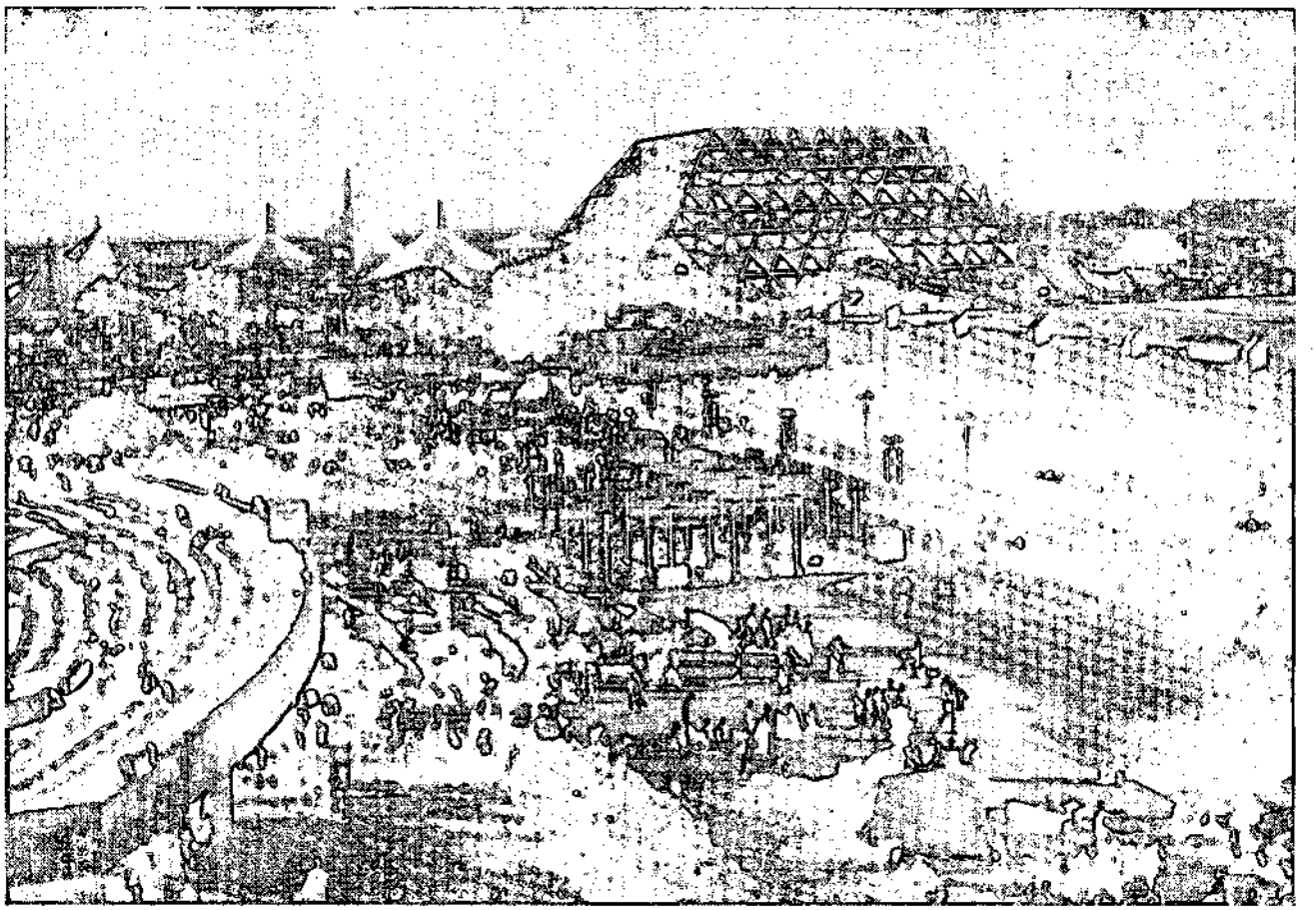
Marketing of manufactured products requires sustained selling activity in the identified markets, which in turn needs setting up of appropriate distrbution channels. Apart from planned utilisation of existing channels in different countries, STC is exploring possibilities of setting up marketing companies abroad, either directly or in joint collaboration as may be needed.

Better Import Management : The coin has also the other side and as the saying goes, a dollar saved is a dollar earned. Over the years, dimension of import management by STC has substantially grown in stature and now encompasses specific areas like creating improvments in facilities for handling of bulk imports like cement, edible oils, besides providing better customer services.

Restructuring of the Organisation : Towards achieving the goal, the Corporation has set for itself during 1980's, the Corporation has been restructured into homogeneous groups to provide indepth attention to its three major fields of activities namely commodity exports, manufactured product exports and import management requiring different types of skill and trading methods. Delegation of powers has been enlarged in order to provide authority with responsibility at various levels for decentralised operational decision making.

Management Service Group : With the object of providing supporting services to the operating divisions—Market Research, Market information, Trade Development, Systems, Procedures, Quality Control Surveillance, Advertising and Sales Promotion—Corporate Planning activities have been stimulated to to provide a package of indepth services to the trading divisions, Board of Directors and to Government (for policy making), among others. As a measure of export promotion, STC participates in a large number of Foreign & Indian Exhibitions.

Achieving a Status of Leadership : With the objectives of STC and the necessary organisation to achieve the same, backed by 25 years of experience, STC would not only retain its present pre-eminent position, but would become a pace-setter in India's export effort. In times to come, STC will become the premier International Trading House of India and take its place amongst world's trading houses with backward and forward integration for supply base and international marketing network. □



An aerial view of the Pragati Maidan

Round up

Trade Fair Authority of India

THE Trade Fair Authority of India (TFAI) is the country's national agency for organising and coordinating trade fairs and exhibitions in India and abroad. Set up in March 1977, TFAI has further developed the sprawling exhibition complex at Lal Bahadur Shastri Marg, New Delhi, known as Pragati Maidan, one of the best exhibition complexes in Asia.

For keeping Pragati Maidan active the year round, Trade Fair Authority of India has launched a multifaceted activity commencing with the inauguration of the National Handloom and Khadi Fair on October 2, 1980. This was the first fair in the series of three specialised commodity fairs successfully organised during October-December 1980. The other two fairs held during November-December 1980, were the National Handicrafts Fair (November 14—December 4) and the National Consumer Goods Fair (December 13—31, 1980).

Pragati Maidan has now become a prestigious trade and cultural centre in the country. Among the main attractions here for the visiting public are : daily cultural programmes in seven different theatres : art film shows screened in Shakuntalam theatre; audio-visual shows in Our India pavilion, shopping arcades in Anarkali and Meena Bazars ; a number of restaurants and kiosks ; youth corner ; Art Gallery ; Crafts Museum in Village Complex. Besides, there is permanent pavilion "Jawaharlal Nehru—His Life and His India". An exclusive Amusement Park for Children has come up with a mini-train, skating rink, racing cars, giant wheel, cheroplane, swings, laughing gallery, amphitheatre etc.

The Authority will organise the India International Trade Fair during November 14—December 4, 1981 in the Pragati Maidan Complex. The Fair will gradually be institutionalised as an annual event.

The TFAI is also planning to organise Six Commodity Fairs at Pragati Maidan during 1981-82 in addition to the India International Trade Fair.

It is also contemplated to set up a permanent Book Pavilion where books published in India will be on permanent display.

It is proposed to set up a National Centre with various facilities in Pragati Maidan. The Centre will be a meeting place for people concerned with international trade.

Trade Fair Authority of India participated in 17 International Trade Fairs/Indian exhibitions during 1977-78, 11 trade fairs/Indian exhibitions during 1978-79 and 14 International trade fairs/Indian exhibitions during 1979-80 and 13 International trade fairs/Indian exhibitions during 1980-81. The emphasis in the displays arranged at the various events has been on projecting industrial image and technological competence of modern India. The business finalised on the spot at the events held in 1977-78 totalled Rs. 1588.04 lakh, while the business negotiated stood at Rs. 2484.12 lakh. During 1978-79, the business finalised was of the order of Rs. 2168.58 lakh and the anticipated business as a result of negotiations was worth Rs. 3172.64 lakh. During 1979-80, the business finalised was of the order of Rs. 2042.97 lakh and the anticipated business as a result of negotiations was worth Rs. 163.34 lakh. During 1980-81, the business finalised was of the order of 1318.06 lakh and the anticipated business as a result of negotiations was worth Rs. 2017.50 lakh.

The TFAI extends various facilities, including release of foreign exchange, to Indian Companies which participate in fairs abroad. The Fair Authority will participate in many International fairs/Indian exhibitions abroad during 1981-82. TFAI is contemplating to set up trade centres/showrooms in selected centres abroad with a view to project India's export potential. TFAI also helps in organising promotion of Indian products through departmental stores abroad. It organised a major promotion in West Germany through the Chain Stores of M|s. KARSTADT, the leading Store there, during May, 1978. Similar store promotions are being planned in various other countries.

TFAI also organises commercial publicity through the media of the printed word and publishes journals in English and Hindi for the benefit of the trading community at home and abroad.

Public Sector Must Do Better

Baldeo Sahai

WITH AN INVESTMENT of over Rs. 15,000 crore in the public sector, each one of us has a stake of about Rs. 250 in its success. According to the latest report of the Bureau of Public Enterprises (BPE), in 1978-79 the public sector showed a net loss of Rs. 32 crore as against Rs. 91 crore in the previous year.

Soon after the present government took over, Prime Minister Indira Gandhi appointed a high-power Committee under the Chairmanship of Shri Mohd. Fazal, Member Planning Commission, to review the working of individual public enterprises and suggest methods to improve the performance of each. This exercise has already started showing results, especially in the steel and power sectors. A number of enterprises under the Heavy Industries Department have achieved more than 100 per cent of production target in November 1980.

Profits and Losses

The public sector for the first time showed a net profit of Rs. 18 crore in the year 1972-73. It had steadiy improved performance since, recording in subsequent years net profits of Rs. 64 crore, Rs. 184 crore, Rs. 129 crore and Rs. 184 crore. BPE should have analysed why it slipped again in the following two years incurring losses of Rs. 91 crore and Rs. 32 crore.

The coal companies doubled their losses in one year because, it is said, there were heavy rains in September|October 1978 submerging quarries and equipment. The Eastern Coalfields alone lost 94 underground working districts, seven opencast pits and all the 30 manual quarries. A fresh wage agreement came into force from January 1979 and cost the companies an additional Rs. 115 crore. It is really surprising that as the wages of coalmine workers have gone up, output per manshift has gone down, and while the cost of coal has increased, profitability has declined. More than mere rains seems to be responsible for poor showing by the coal companies.

What then are the reasons for losses in the public sector over the past two years ? In these years there was a sharp slump in the morale of public enterprises managers. The most important reason for this slump was the constant criticism of public sector at the highest level. One prime minister warned in March 1979 that if central enterprises did not show profit 'heads will roll'. Soon after, another prime minister threatened to hand over losing concerns to private management, ignoring the fact that due to different reasons even private companies incurred losses and some were nursed back to health by the public sector management.

How to Make it Work ?

Public sector management, in addition, is faced with peculiar problems. The most important problem is of procedural nature and could be set right straightaway. This pertains to decision-making. Most public enterprises are run as statutory corporations or as companies registered under the Indian Companies Act, 1956. In the early stages of public sector, government appreciated that commercial undertakings should be kept free from the trammels of fundamental rules and bureaucratic red tapeism. In practice, however, most of these undertakings even now are run as government departments. A project report prepared by a group of experts in a public undertaking passes through the portals of authority in not less than two years and generally takes longer in being finalised. This leads to time over-runs and cost over-runs.

The Public Sector executives should be spared the ordeal of constant questoning by a multiplicity of authorities. In fact the public sector is too public as the private sector is too private.

A time-bound programme must be devised to process such reports expeditiously. The controlling ministry should prepare a proforma seeking exhaustive information about a proposed project. Copies of the proposal should be supplied to all concerned and a month's time allotted within which each could seek clarifications and additional information. By the end of the second month a round table conference of all involved organisations should be held to discuss the proposal and take a decision, either way. Allowing another two months for departmental discussions, a four to six month period should be fixed to finally decide the matter.

The responsibility for putting up the plant on ground within a specified period should be squarely placed on the chief executive of the company. Necessary authority for day-to-day work must be delegated to him who, in turn, should pass it on to his juniors. Modern techniques like CPM and PERT are now well-known and should be strictly followed. It has been estimated by the chief executive of National Thermal Power Corporation, now also Secretary

* Public Relations Adviser, Standing Conference of Public Enterprises (SCOPE)

Ministry of Energy, Irrigation and Coal, that one day delay in commissioning a big power project costs the country Rs. 20 crore—one crore as electricity charges and the rest as loss in industrial production. The executives who complete the job on the dot or earlier, should be rewarded and those who do not, punished. The reward should be worthwhile and punishment deterrent.

The public sector executives should be spared the ordeal of constant questioing by a multiplicity of authorities. In fact the public sector is too public as the private sector is too private. In addition to questions from the controlling ministry, public investment board, BPE and the planning commission there are questions and short notice debates in Parliament and other forums. Parliament as the supreme national legislative body is well within its right to probe into the functioning of public enterprises, but the questions should be only on policy matters and in the national interest.

Public Sector Personnel

There should be a well-conceived personnel policy for the public sector employees. In the early stage managers for these enterprises were drafted from government. At one time, a minister was also the Chairman of National Industrial Development Corporation. Secretaries to the Government of India were chairmen of a number of corporations like Hindustan Steel and National Coal Development Corporation. It was natural for these personages, honourable exceptions apart, to import their bureaucratic culture into these commerecial concerns.

Later, a management pool was constituted to recruit top personnel. There was only one empanelment and the pool was replaced by a public sector enterprises board (PSEB). Even today there is no management development policy, nor a public sector service on the lines of other central services. Consequently, there is little security and even a chairman could be conveniently asked to quit if the minister incharge did not like his face. The solution lies in giving PSEB the status of the Union Public Sevice Commission.

All ab initio employees must be given thorough training in the rationale and philosophy of public sector as well as in their own disciplines. Public enterprises should have introductory pamphlets to be handed over to each new entrant serving the purpose of a warm handshake. It should preferably be in two parts : one giving the rationale and philosophy of the public sector; and two, giving the history, highlights, objectives and thrust of the enterprise concerned. In addition, there should be short-term refresher courses for on-the-job personnel. This job can be undertaken only by a national academy of management. The idea has been discussed at length at high level conferences but the academy continues to elude.

Contribution to Development

There is a lot of confusion about the social objectives a public enterprise is supposed to discharge. This raises the question of the rationale of public sector. If the rationale is to develop basic industries, remove regional imbalances discourage private monopolies, raise living standards and bring about harmonious management-worker relations, then the performance of public sector cannot be judged at par with that of private industry. V. B. Ramanadham, a UN Consultant, recommends that "the objectives of individual public enterprises must be specified, appropriate machinery to specify these objectives must be devised, and major problems encountered in the proceses must be identified and resolved." These objectives, he adds, must include some obligations to the society, where the enterprise is set up, and also to the nation as a whole. But, as pointed out by another UN consultant, Foud Sherif, "an open-ended obligation could be as eroding of profit making as excessive obligations prematurely imposed."

There is a lot of confusion about the social objectives a public enterprise is supposed to discharge. Care must be taken to see that inewciency and mismanagement are not perpetuated which discharging social obligations.

Care therefore must be taken that inefficiency and mismanagement is not perpetuated in the garb of discharging social obligations. Since public sector managers are not supposed to be actuated by motives of personal gains, nor do they lose if the company goes bankrupt, it is essential that the commercial nature of public enterprises is kept inviolate and they yield adequate return on investment. If the objectives of each public enterprise are clearly defined and its contribution to development is shown separate from the commercial balance sheet, that will help in conducting proper evaluation fo social gains on the one hand and commercial viability on the other.

With the objectives of public sector is related the question of its diversification and expansion. Presently, only 89 public enterprises are engaged in production and marketing. As many as 40 come under the category of service organisations of different types. The policy of taking over sick concerns needs to be discouraged. The emphasis should shift from opening new enterprises—ten are already under construction—to consolidating what is there, and making it work profitably.

The public sector has played an important role in building economic infrastructure of the country and it can play a still bigger role. In 1978-79, foreign exchange earnings of central enterprises rose by 17.2 per cent reaching the figure of Rs. 1,834 crore ; turnover of 159 operating units showed a growth of 5.1 per cent and profitability excluding coal companies rose from 8.61 per cent in 1977 to 9.84 per cent in the following year. It is too late in the day to wish it away or to think of handing it over to the private sector. We must make it work.

Public sector does not work in isolation. There are linkages and crosslinkages and each link must be strengthened. Prominent among the actors are government, parliamentarians and public enterprise managers. The responsibility for the losses or profits has to be shared equally by all the main actors. It is only when the entire cast plays its part properly and adequately that the public sector will do better.

How Mixed is the Indian Economy ?

M. R. Kulkarni*

INDIA is a unique case of state planning in a mixed economy. Whereas the role of the public sector is accepted as a matter of public policy, it is also affirmed that private enterprise has a positive, even expanding part to play in the country's development. Even so the relative roles of the two sectors have been a subject of keen controversy. Some two decades ago, when the role of the public sector in the process of modernisation of the economy was being hotly debated, Prof. Galbraith observed that even in the haven of free-enterprise, the USA, as much as 20 per cent of the domestic product originated in the public sector as compared with less than half as much in India. The issue was generating so much passion not because India was anywhere near a socialist society but because of the apprehension that a policy of deliberate expansion of public sector with a view of capturing the commanding heights of the economy would eventually spell ruin to free private enterprise.

The public Vs private sector controversy may no more be charged with the same emotional intensity but it still remains a sensitive subject. As a result the underlying issues are not often objectively analysed whether by the partisans or the critics of the public sector. For instance, a general feeling is sought to be created that the public sector had indiscriminately expanded in all directions.

Share in Domestic Product

But it may come as a surprise to many that the share of the public sector in total domestic product has not even doubled during the last two decades. The public sector accounted for nearly 11 per cent of the net domestic product in 1960-61. In 1977-78 this proportion was no more than 19 per cent. (See Table 1) However, what is significant is not so much the total size of the public sector as its share in different sectors of the economy. Obviously it was not the official policy to extend the public sector in any and every direction. As the Industrial Policy Resolution of 1956 stated : "The adoption of the socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require investment on a scale which only the State, in present circumstances, could provide, have also to be in the public sector. The state has, therefore, to assume direct responsibility for the future development of industries over a wider areas".

It must therefore be expected that the public sector is more dominant in certain areas and less so and even non-existent in certain others. For example, the large agricultural and allied activities in the country-side (accounting for close to half the national product) is almost totally untouched by the public sector. The public sector was not significant in mining also till, in 1973, the coal mining industry was nationalised. Coal mining being the most important mining activity in the country today, the State now accounts for two-thirds of the income originating in the mining sector.

The wholesale and retail trade and the catering industry are almost entirely in private hands. So also the construction activity. On the contrary, electricity, gas and water supply and railways, which are in the nature of public utilities, have traditionally been state-owned.

The real controversy seems to centre round the control and ownership of the modern sectors in industry and finance, particularly manufacturing. The

Table I

Share (Per Cent) of Public Sector in Net Domestic Product

(At current prices)

Industry	1960-61	1965-66	1970-71	1975-76	1977-78
1. Agriculture & Allied	1.14	1.57	1.45	1.88	2.06
2. Mining & Quarrying	11.94	14.93	23.85	77.17	68.10
3. Manufacturing	4.40	7.83	10.95	14.98	14.79
4. Construction	6.88	7.55	7.18	9.45	10.20
5. Electricity, gas & Water Supply	66.18	72.22	83.33	85.69	87.37
6. Transport, storage & Communication	64.93	65.39	60.29	57.54	62.32
7. Trade, Hotels & Restaurants	0.39	0.99	2.16	4.85	5.84
8. Banking & Insurance	38.75	44.80	65.53	76.70	80.12
9. Others	40.03	46.69	53.72	57.91	55.62
10. Total	10.66	13.19	14.51	18.30	18.85

*Deputy Adviser, Planning Commission.

private enterprise in the country looks upon the public sector as a rival and even as a menace not because it is going too far and too fast in all kinds of economic activities but because it is encroaching on what has been traditionally considered the exclusive preserve of free enterprise namely, manufacturing. In spite of the big lead taken by the Government in setting up steel plants, heavy engineering and heavy electrical equipment manufacturing, fertilizer factories, refineries and so on, the share of the public sector in value added in manufacturing has not exceeded 15 per cent. The entire village and small scale sector in industry is owned by private individuals or enterprises actively encouraged and assisted by government. This sector accounts for about 50 per cent of the total manufacturing output. The output of this sector is estimated to be Rs. 32,800 crores in 1979-80. The turn-over of the entire private corporate manufacturing sector in the same year may be estimated to be Rs.26,700 crores. The output of manufacturing enterprises of the Central government in 1978-79 was Rs. 12,137 crores. Allowing for a 20 per cent rise in prices and a marginal increase in output, industrial production in 1979-80 was stagnant as compared with that in 1978-79. It is unlikely that the turn-over of the central government manufacturing enterprises exceeded Rs. 15,000 crores in 1979-80. There are manufacturing units in the States sector, but their contribution is negligible.

"Commanding Heights"

It may be, however, more relevant to discuss the share of the Government in core sectors like energy steel, petroleum refining, fertilizers, papers, cement, etc. The share of the public sector in the installed capacity of selected industries is shown in Table 2.

It is clear from the table that the public sector is in command in almost all the strategic sectors of the economy. 85 per cent of the installed capacity for power generation is in the public sector. The predominance of the state sector in energy is further underlined by the fact that in coal and oil production, and petroleum refining government enjoys a near monopoly. More than 80 per cent of the steel capacity of the integrated steel plants is in public sector. The only integrated steel plant in the private sector is the Tata Iron & Steel with a capacity of two million tonnes. In the production of fertilisers, paper and paper board and newsprint also, the public sector accounts for the bulk of the capacity. In sugar production it is the cooperative sector that controls more than half the output. In case of non-ferrous metals, cement and cotton textiles the role of the State is still relatively modest but is expected to expand in the coming years in view of the projected plans and programmes in these sectors.

Employment

Employment, like relative shares in domestic product, can be another indicator of the relative importance of the public sector in different economic activities. With the expansion of the public sector the employment in this sector was also increased. From 7.0 million in 1961 it has increased to 14.7 million in 1978. (Table 3) Correspondingly the share of the public sector employment in the total employment in the orgainsed sector rose from 59 per cent in 1961 to 67.5 per cent in 1978. One of the sectors in which public sector employment has increased very fast is mining, mainly on account of nationalisation of the coal industry. The public sector share in agriculture and manufacturing also doubled between 1961 and 1978. In most of the other sectors such as electricity, construction, transport and services, the State had accounted for bulk of the employment in the past and continues to do so at present. The only areas where the organised private sector has a dominant role in providing employment are manufacturing and wholesale and retail trade.

It must, however, be remembered that these data leave out a large unorganised sector in agriculture, cottage and village industries and trade, transport and services. Of, the total labour force of 273 million in 1978 the organised public and private sectors employed 21.84 million or just 8 per cent and the share of the public sector was only a little over 5 per cent.

Table 2

Share of Public Sector Installed Capacity as on 1-4-1980.

1	Unit 2	Total 3	Public Sector 4	Share (Per cent) 5
1. Electricity°	(MW)	26175	22375	85.0
2. Coal (including lignite)	mt	106.3	104.0	98.0
3. Refining (crude throughput)	mt	27.47	27.41	98.0
4. Steel(ingots)£	m. tonnes	11.4	9.4	82.5
5. Alloy & Special Steel	'000 t.	800	180	22.5
6. Aluminium	'000 t.	331	100	33.1
7. Cement	mt.	24.3	3.5	14.0
8. Nitrogenous Fertiliser	'000 t.	4696	3425@	73.0
7. Phosphatic Fertiliser	'000 t.	1341	860@	64.0
10. Paper & Paper Board	'000 t.	1540	1465	95.0
11. Newsprint	'000 t.	75	75	100.0
12. Sugar	m. tonnes	6.0	3.5@	58.0
13. Electronics*	Rs. crores	655	239	36.0

°As on 1-4-1978.
£ Integrated plants only.
* Output during the year 1979-80
@ including cooperative sector.

Table 3

Employment in Public Sector in Major Industries and Services

('000 Nos)

Industries	At the end of the period			
	1961	1966	1971	1978
1. Agriculture, hunting, etc.	180 (21.18)	231 (20.8)	281 (25.4)	627 (41.4)
2. Mining & Quarrying	129 (19.0)	171 (25.9)	254 (42.8)	762 (85.9)
3. Manufacturing	369 (10.89)	693 (15.5)	862 (18.0)	1384 (24.4)
4. Electricity, Gas & Water	224 (84.85)	332 (88.5)	455 (90.8)	621 (95.0)
5. Construction	603 (71.53)	740 (77.6)	895 (84.6)	1013 (92.5)
6. Wholesale & retail trade, etc.	94 (37.01)	164 (32.4)	367 (55.5)	97 (25.8)
7. Transport Storage & Communications	1724 (95.57)	2109 (94.5)	2238 (96.0)	2561 (97.3)
8. Financing insurance, real estates, etc.	—		—	631 (76.5)
9. Community Social & personal Services	3727 (93.01)	5102 (85.7)	574 (84.8)	
Total :	7050 (58.31)	9542 (58.7)	11098 (62.2)	14727 (67.5)
Total organised sector (Public and Private)	12,360 (100.0)	16,257 (100.0)	17,832 (100.0)	21,832 (100.00)

Note :—The data are not comparable over time as industry classification was changed after 1974; Figures in brackets are percentage to total (Public & Private Sector)

Thus the overall position is that the public sector accounts for less than 20 per cent of the domestic product and employs 5 per cent of the labour force. The public sector cannot be said to be looming too large across the national economy.

Investment

Investment is often considered a more reliable index of the relative share of the public and private sectors in the economy. At the end of 1978-79 the following were the investments made by the public authorities in major publilc sector undertakings.

	Rs. Crores	
1. Central Government non-departmental undertakings	15602	
2. Railways	6186	
3. State Electricity Boards	7000	(Estimated)
4. Irrigation Projects (since the First Five Year Plan)	8744	
5. State Road Transport Undertakings	1044	
Total	38576	

The investment in the State Electricity Boards by the end of 1977-78 was Rs. 6252 crores. The investment as at the end of 1978-79 is not available, it is estimated tentatively to be around Rs. 7000 crores. Apart from the undertakings indicated above there are other Central and State Government Undertakings in which also significant investment has been made. These include Post and Telegraphs and other departmental undertakings of the Central Government, nationalised banks and Reserve Bank of India and the State Government industrial enterprises. No precise estimates of investment in these undertakings are available. It may, however, be indicated that the order of investment in these undertakings may be around Rs. 1500 crores making a total investment of Rs. 40,000 crores in the Central and State Undertakings.

It is not, however, possible to say how this investment compares with the corresponding private investment. In the following paragraphs some effort is made to indicate a relative picture wherever possible.

Manufacturing

The largest chunk of investment in the public sector is in the Central Government enterprises. They also employed nearly 19 lakh persons. As indicated above, the total investment in the Central Government non-departmental enterprises was Rs. 15,602 crores. A comparable estimate for the private corporate manufacturing sector is not available.

However, some information is available from the Annual Survey of Industries for the year 1977-78. The ASI does not cover the entire manufacturing sector as it is limited only to the units registered under the Factories Act. However, the relative shares emerging from the Survey may be of some interest. Of the total productive capital employed in the ASI sector, nearly 59 per cent was in the public sector, 6 per cent in the joint sector and 35 per cent in the private sector. Employment-wise and also in terms of gross output the position was rather reverse. Only 24 per cent

of the employment and 22 per cent of the output was in the public sector while more than 70 per cent of both employment and output originated in the private sector.

It is in the corporate industrial sector that the public and private sectors may be said to meet their match. And the real controversy also centres round it. The ASI data for 1977-78 are presented in Table 4. The share of the Government companies and corporations emerges as very modest in comparison with that of the non-Government Companies. The former was less than 35 per cent in productive capital and 16 per cent in employment and less than 12 per cent in output.

Banking and Insurance

The Reserve Bank of India, which is the Central bank of the country, was originally set up as a government bank. The entry of the public sector in commercial banking came about when the Imperial Bank of India was nationalised and converted into the State Bank of India nearly three decades ago. The next major takeover of private banks was in 1969 when 14 leading private commercial banks were nationalised. As a result the bulk of the banking operations was brought under State ownership. The objective of controlling the commanding heights of the economy was further promoted when, in April 1980, six more banks were nationalised. The number of public sector banks thus increased to 28 and the share of the public sector banks in total deposits and outstanding credits rose to nearly 91 per cent. Of the total deposits of Rs. 33,220 crores the public sector accounted for Rs. 30,220 and of the outstanding credit of Rs. 22,000 crores, its share was over Rs. 20,000 crores. At the end of 1978 the total assets of all the banks in the country added upto Rs. 33.398 crores or 84 per cent.

The total investment in the railway system has increased from Rs. 855 crores in 1950-51 to Rs. 6,186 crores in 1978-79. The employment has increased in the meanwhile from over 9 lakhs in 17.5 lakhs. The predominance of the railways in the transport economy of the country can be gauged from the fact that, despite the decline in their share over the years, the railways still account for over two-thirds of the goods traffic and two-fifths of the passenger traffic. Even in road transport, the state has emerged as the major partner in passenger haulage. The number of buses owned by State Road Transport Undertakings has increased from 8,000 or 17 per cent of the total in 1956 to 62,000 or 55.5 per cent in 1978-79. They also employed 4.62 lakh persons in 1978-79.

Air transport both domestic and international is totally in the public sector while in shipping (tonnage) the share of the public sector is around 60 per cent.

The Prospect

The contours of the emerging public sector in the national economy can be regarded as fairly clearly defined. The major thrust in the expansion of the public sector as dictated by the logic of the national socio-economic policy has been broadly achieved. An occasional takeover of a privately owned unit either on account of strategic considerations or, more often, to nurse a sick unit back to health would make little difference to the public sector profile that has emerged over the last two decades. In fact, the major consideration governing the future expansion of the public sector would be the need for installing fresh capacities in expanding sectors like steel, non-ferrous metals, fertilisers, petroleum refining, machinery and equipment, cement and paper. With the accepted policy to encourage private enterprise in a large area comprising the vast unorganised pursuits of agriculture and village and cottage industry, distributive trade and services as well as organised modern industry and wholesale trade and transportion, it is unlikely that the public-private mix will undergo significant change in the coming years. However, the public sector may be expected to enter a phase of consolidation and improved efficiency so that its contribution to national and sectoral incomes and output will go up commensurate with the resources and efforts going into it. □

Table 4

Public and Private Corporate Sector Shares in Manufacturing: 1977-78

Organisation	Factories (number)	Fixed capital (Rs. lakhs)	Productive capital (Rs. lakhs)	Employees (number)	Gross Output (Rs. lakhs)
1. Public Limited company	5974 (37.13)	764996 (53.86)	1164663 (58.26)	2771858 (64.60)	2017900 (71.40)
2. Private Limited company	8579 (53.33)	89548 (6.30)	146190 (7.31)	846624 (19.73)	476434 (16.85)
3. Private Corporate Sector (1+2)	14553 (90.46)	854544 (60.16)	1310853 (65.57)	3618482 (84.33)	2494334 (88.25)
4. Public Corporations	1535 (9.54)	565794 (39.83)	687994 (34.41)	671702 (15.66)	331774 (11.75)
5. Corporate Sector	16088 (100.00)	1420338 (100.00)	1998847 (100.00)	4290184 (100.00)	2826308 (100.00)

(Figures in brackets show percentage to total)

Both life and general insurance, after their nationalisation in 1956 and 1972 respectively, are wholly government owned.

Transport

In the transport economy of the country Indian railways play a predominant role. They are one of the largest systems in the world and the largest in Asia. Among state-owned railways the Indian railways are second only to the Russian railways.

Revamping Public Sector

P. D. Shrimali*

THE Public Sector in India has come to assume a significant place in the economy. From a low figure of 27 enterprises with an investment of some Rs. 29 crores in 1951-51 to some 500 enterprises with an investment of Rs. 15,602 crores in 1978-79 is a big leap forward. The area covered by the public sector has also spread out to encompass not only the traditional fields like transport, communications, irrigation, public utilities etc. but also banking and finance, petroleum metallurgy, mining machine-making,drugs, hotels and even some consumer goods. As a source of employment and output too, it has gained a significant place; some 18.71 lakh persons are employed in public sector enterprises and nearly one fifth of the net output is accounted for by it. The public sector has in fact, been exercising a determining role, a role of the pace-setter for the economy. Growth or decline, acceleration or deceleration in the pace of growth in the economy today are very much influenced by the investment, employment and production activity undertaken in the public sector. If India has emerged as an important industrial country in the world and gained a certain degree of self-reliance, it is due to the rapid building up of the public sector and its expansion and diversification during the last thirty years. The private sector too owes considerably to it for its own growth and profitability over the period.

Nehru Strategy

Credit for such spectacular growth of the Public Sector in India goes to Shri Jawaharlal Nehru, who is truly the architect of Modern India. It was as a part of his vision and strategy that a planned programme of accelerated development based on rapid creation of a technologically progressive and strong infrastructure and heavy capital goods industry was adopted. This planned programme of development was to be spearheaded by the public sector, because in the peculiarly adverse conditions prevailing in India, it was necessary for the State to assume the role of entrepreneur. The private sector, which is driven by the narrow motive of personal and quick profits, had neither the capacity nor the propensity to enter the fields of economic activity involving massive capital investments and long-gestation periods. But, besides this deep grasp of the development processes and requirements, Shri Nehru had a social vision too. He did not want India to take the path of development already treaded by the advanced capitalist countries, which resulted in the growth of powerful private monopolies, concentration of economic power in the hands of tiny groups of exploiters, emergence of belicose armament kings and gross economic and social inequalities. He wanted India to strike out a new course of development for itself which would lead it to a new socio-economic order called "Socialist Pattern of Society". In Shri Nehru's scheme of things, thus, public sector was conceived both as an instrument for rapid development of productive forces, as well as for ushering the country in the era of 'Socialist Pattern of Society." Public sector had, therefore, to be rapidly built up so that it acquired 'commanding position' in the economy and all fields of activities that were of 'strategic' importance were brought under its firm control and leadership. It has to go on expanding so as to be able to control the private sector at important points and 'determine the pattern of production, distribution and investment.'

Virile Instrument of Growth

During his life time, Shri Nehru succeeded in carrying the country through three successive plans aimed at building infrastructure, developing heavy industry and laying the base for attainment of self-reliance through import substitution. Public Sector grew up really as a virile instrument of growth in this period, though the period throughout was characterised by severe programmatic debates and struggles against forces of conservatism and status quo, the forces either had their understanding rooted in classical economics or represented the vested interest group of big business that feared the public sector might get beyond the scope indicated for it in the 'Bombay Plan' of 1944.

The Public Sector fulfilled its economic role, in spite of such odds, but failed in the fulfilment of its social role. Big business houses continued to grow into still more powerful private monopolies. Income disparities kept growing. Labour-management relations failed to improve and public sector did not show itself as a better employer. The country was in no way nearer the goal of the 'Socialist pattern of Society'.

Profitability

The effectiveness of any undertaking or sector may be judged either on the basis of its profitability calculated in terms of direct returns on capital employed in that undertaking or sector or on the basis of the social gains flowing from it. The latter, however, are not easily quantifiable since they are widely dispersed over the economy and several of them are qualitative in character. Still, the effectiveness of the public sector in India as the builder, promoter and sustainer of growth in the economy is best demonstrated by the economy's achievements in the 'Nehru era'. Shri V. A. Pai Panandikar, Director, Policy Planning Centre, New Delhi, in a study of the Indian Economy for the period 1950-76 published in 1978 makes the following observations about the 'Nehru Period :—

> ".....At constant prices of 1948-49, during Jawaharlal Nehru's thirteen years as Prime Minister, the average rate of growth for the period as a whole was 3.5 per cent ..... the industrial index went up by an average of 11 per cent for the period as a whole. This period certainly marks one of the most sustained rates of growth during the history

* Department of Economics, Lucknow University Lucknow.

of Indian Industrial progress.....In the Nehru period, one finds that the aggregate growth (in agricultural production) for the period was about 43 per cent over the previous (1949-50) base period, giving an average rate of growth of about three per cent per year. In other words, the agricultural production was generally on the upswing during the Nehru years ..... wholesale prices, which provide a good index of inflation, moved up by only 21 points over the period between 1950-51 and 1963-64. Most important of all, the savings rate moved up from 5.7 per cent of the national income in 1950-51 to 11.2 per cent in 1963-64 and the investment rate moved up from 5.6 per cent in 1950-51 to a record 14.5 per cent by 1963-64..... In fundamental and essential terms, therefore, the Nehru era was a period of significant discontinuity when contrasted with the pre-independence period. The foundation of India's economic regeneration were thus firmly laid..... overall economic performance is unparalleled in the economic history of India."

Restoring Nehru Perspective

After Shri Nehru's passing away from the scene, more concerted attacks and propaganda barrage have been directed against the public sector, attempts have been continuously made to reverse the Nehru strategy and derail the economy from the path indicated by it. During the period 1969-75, attempt was made to restore the Nehru Perspective. But from 1976 onwards the onslaught was renewed and has since then been increasing. Allocation of investment funds for the public sector have not grown in real terms as they should have in keeping with the requirements of a large and growing economy like that of ours. Attempts have been and are being made to dislodge it from the commanding height it had attained. Threats of denationalisation and reprivatisation have been constantly held out. Non-stop campign is being run that public sector must be kept confined to infrastructural sphere only and must not be allowed to diversify its activity beyond it. The industrial policy of 1956 has now been abandoned and replaced by a new one which abandons the entire Nehruvian concept of 'stratagically important' and 'core' sectors. Some collaboration agreements with the Multinationals have also adversely affected the public enterprises and prejudiced their further growth. Exposure of the public sector to a system of sub-contracting of work and contracting for supplies of variety of material has given rise to corrupt practices, pilferage, loot, sabotage, slow downs and substandard production performance to the advantage of the private sector at public sector's expense. In fact what is happening in the country is nothing short of an economic *coup-de-etat*, about which, the present author had warned several years back in his paper published in *Mainstream*, Vol. XIII, No. 11 & 12, November 16, 1974, and indicated that "mass sanctions have, however, to be simultaneously forged against any attempt at reprivatisation of any public undertakings, as was done in Japan during 1880's under the garb of which public assets built up through public money were handed over to friends, relations or paymasters of certain bureaucrats at dirt cheap prices."

Profitability

As for the profitability of the public sector, according to the 1978-79 data, of some 159 public commercial enterprises (including textiles and insurance) which are in operation, 88 earned profits, 2 broke even, and 69 sustained loss. Profits (before tax) amounted to Rs. 193 crores which gave 7.6 per cent rate of return of capital employed. In 1976-77, the profits were at the peak level of Rs. 412 crores and gave a return of 9.4 per cent. The nationalised textile sector, which comprised of sick units prior to takeover, have also broken even and started showing profits. Bulk of the campaign aimed at running down public sector is based on its low-profitability. But, it has to be noted that, the sphere of activity to which the Public Sector is currently confined is predominantly infrastructural in nature and as such highly capital intensive and low profit yielding. The adverse environment, fluctuating policies, sticky administered prices, rising costs, power and transport shortages and labour problems are additional problems that public sector has been facing and which have depressed their profitability While Private Sector has been found to have increasing profits even with lower production and sales, the public enterprises have often been found to have earned less profits inspite of increased sales and production. Because of pricing policy constraints on public sector, considerable part of profitability of the sector is passed on to private sector in the form of concealed subsidies and the latter cashes them as it is engaged in the production of final products.

Quite a large number of public sector enterprises are today reported to be topless. Appointments in key managerial positions have been held back for reasons best kuown to the government. The existing management is mostly bureaucratic and routinist in outlook and neither professionally trained nor committed to the ideals of public sector. Due to severe constraints, public sector enterprises have not been able to diversify into vertically or horizontally inter-connected branches of activity; there is also lack of coordination among them.

Return to Nehruvian Perspective

What the country, therefore, needs urgently is a bold return to Nehruvian perspective and strategy. The Public Sector needs revamping. The Industrial Policy Statement rightly observes that it is today 'nobody's sector'. Its management needs to be restructured and each enterprise needs to be placed under the management of a Board wherein professionally trained cadre, workers' elected representatives and Parliaments' representatives (representing public or the consumers) sit and work together in the best interests of the society. To begin with young cadres of the Indian Economic Service and Indian Statistical Service be assigned responsibilities of managing the public enterprises. But it is time now that an Indian Business Management Service is initiated so that the Public Sector has its independent professionally trained cadre. An integrated approach to the question of enterprise's autonomy and its answerability to the Parliament needs to be evolved. There should be strict adherence to the principle of 'Swadeshi' in respect of all such material and machinery which is produced and is available within the country and priority should be given to inter-enterprise transactions within the Public Sector for the purpose of supplies of materials, machinery and intermediate products. □

Performance of Public Sector Transport Undertakings

Dr. Mahesh Chandra Chaturvedi*

CONTINUING losses in public sector road transport have been subjected to criticism from all quarters. The total amount of such losses was estimated at Rs. 44 crores in 1976-77, Rs. 130 crores in 1977-78 and Rs. 56 crores in 1978-79. The number of these undertakings was 46 in 1978-79. The performance data of 33 undertakings are available in the reports of the Central Institute of Road Transport for three years from 1976-77 to 1978-79. Out of these 22 were in red, ranging from 1.95 paise per kilometre (Karnataka SRTC) to 134.04 paise per kilometre (Delhi Transport Undertaking) during the year 1978-79.

In a road transport undertaking profits directly depend upon its operational efficiency which in turn is a function of revenue and cost of operation. In this article problems relating to revenue have been analysed. There are different sources of revenue and these can be grouped under two heads : (a) Operating Revenue and (b) Non-operating Revenue.

Operating Revenue

Income received from transportation of passengers and incidental sources constitutes operating revenue. Generally more than 95 per cent of this revenue accrues from the following sources :

(i) Sale of passenger tickets ;
(ii) Passenger luggage ;
(iii) Casual contract service ;
(iv) Parcel service ;
(v) Postal mail service ;
(vi) Out-agency receipts ; and
(vii) Revenue from taxies, air-conditioned coaches, reservation etc.

Income from the sale of passenger tickets is the main source of operating revenue and the other sources indicated above are incidental and related to conveyance of passengers.

Non-operating Revenue

Income from sources not directly related to transportation of passengers constitutes non-operating revenue. It consists of advertising, rent, interest and miscellaneous receipts. The miscellaneous receipts accrue from the sale of scrap material, profit on sale of fully depreciated vehicles, receipts from publications lost property and work done for out-side parties and excess receipts.

Earning per Kilometre

The earning per kilometre is the ratio of total earnings to total effective kilometres. It is a useful ratio to indicate the earning potential of a route/depot/division/organisation. It is related to the carrying capacity of the buses, fare structure and marketing efficiency.

The earnings per kilometre of the state road transport undertakings for 1978-79 are given in the table on next page. They varied from 119.27 paise (Pepsu RTC) to 260 paise (Himachal RTC). The undertakings showing high rate of earnings were : Himachal RTC (260 paise), Pandiyan R/W TCL (249 paise), and Cheran TCL (245 paise). It ranged from 200 paise to 236 paise in case of Andhra Pradesh SRTC, Cholan TCL, Karnataka SRTC, Kattabomman TCL, Kerala SRTC, Maharashtra SRTC, Nagaland ST, Pallavan TCL, Tripura RTC and Uttar Pradesh SRTC. It was low (beow 200 paise) in the case of Bihar SRTC, CIDCO, Gujarat SRTC, Jammu & Kashmir RTC, Haryana SRTC, North Bengal STC, Orissa SRTC, PEPSU, Punjab ST and Rajasthan SRTC. It may be seen that there is great variation in earnings per kilometre among the undertakings. The performance of Companies stood better as compared to other undertakings in this respect. There is great scope for improvement in this respect in almost all the state road transport undertakings.

The daily earnings per bus on road of the state road transport undertakings have been shown in the table. They varied from Rs. 253 (Jammu and Kashmir RTC) to Rs. 765 (Pandiyan R/W TCL) during the year 1978-79. The undertakings showing high rate of daily earnings per bus on road were Pandiyan R/W TCL (Rs. 765), Kattabomman TCL (Rs. 761), Cholan R/W TCL (Rs. 749), and Pallavan TCL (Rs. 748). They ranged from Rs. 511 to Rs. 665 in the case of Andhra Pradesh SRTC, Cheran TCL, CIDCO, Gujarat SRTC, Karnataka SRTC, Kerala SRTC and Maharashtra SRTC and from Rs. 398 to Rs. 474 in the case of Haryana State Transport, North Bengal STC, Rajasthan SRTC and Uttar Pradesh SRTC. The daily earnings were low (below Rs. 377) in the case of Himachal RTC, Jammu and Kashmir RTC, Nagaland ST, Orissa SRTC, Pepsu RTC, Punjab ST and Tripura RTC. The existence of wide variations in daily earnings per bus on road indicates that there is ample scope for improvement in earnings in case of most of the undertakings. The performance of the companies stood better as compared to other undertakings in this respect.

* Lecturer in Accountancy and Business Statistics, Government Post-Graduate College, Bundi (Rajasthan).

Table : Revenue analysis of State Road Transport Undertakings for the year 1978-79

S. No.	Name of undertaking	Earnings per Kilometre (paise)	Daily Earnings per Bus (Rs.)	Earnings per Seat km. (paise)
	CORPORATIONS			
1.	Andhra Pradesh SRTC	220.14	665	4.49
2.	Bihar SRTC	182.91	398	3.52
3.	Gujarat SRTC	178.60	511	3.31
4.	Himachal RTC	260.00	376	5.71
5.	Jammu & Kashmir RTC	194.38	253	5.40
6.	Karnataka SRTC	232.33	605	4.90
7.	Kerala SRTC	222.64	599	4.28
8.	Maharashtra SRTC	222.33	555	4.47
9.	North Bengal STC	169.00	416	3.38
10.	Orissa SRTC	183.00	373	3.66
11.	Pepsu RTC	119.27	269	2.21
12.	Rajasthan SRTC	199.00	474	3.69
13.	Tripura RTC.	219.04	363	4.80
14.	Uttar Pradesh SRTC	204.00	451	4.00
	DEPARTMENTAL UNDETAKINGS			
15.	State Transport Haryana	184.20	469	3.50
16.	Nagaland State Transport	235.66	293	5.75
17.	State Transport Punjab	169.00	390	3.19
	COMPANIES			
18.	Cheran TCL	245.00	646	4.80
19.	*Cholan R/W* Corpn. Ltd.	218.00	749	3.82
20.	CIDCO	140.24	568	3.42
21.	Kattabomman TCL	232.40	761	4.01
22.	Pallavan TCL (Dist.)	230.87	748	41.12
23.	Pandiyan R/W Corpn. Ltd.	249.00	765	3.83

Earning per seat kilometre

The earnings per seat kilometre is a useful ratio indicating the revenue realised per seat kilometre offered. It is calculated as follows :

$$\frac{\text{Total earnings during the year}}{\text{Total effective kms. during the year} \times \text{Average carrying capacity of the buses during the year}}$$

The earnings per seat kilometre of the state road transport undertakings for 1978-79 have also been shown in the table. They varied from 2.21 paise (Pepsu) to 5.75 paise (Nagaland ST). They were high in the case of Nagaland ST (5.75 paise), Himachal RTC (5.71 paise) and Jammu & Kashmir RTC (5.40 paise). They ranged from 4.00 paise to 4.92 paise in the case of Andhra Pradesh SRTC, Cheran TCL, Karnataka SRTC, Kattabomman TCL, Kerala SRTC, Maharashtra SRTC, Pallavan TCL, Tripura RTC and Uttar Pradesh SRTC. They were low (below 3.83 paise) in case of Bihar SRTC, Cholan R/W TCL, CIDCO, Gujarat SRTC, Haryana ST, North Bengal STC, Orissa SRTC, Pandiyan R/W TCL, Pepsu, Punjab ST and Rajasthan SRTC. This indicates that there is enough scope for improvement in this respect in the case of all the undertakings. For improving this ratio, stress should be laid on improvement of earnings.

Factors responsible for low rate of earnings

Various factors responsible for low rate of earnings are summarised as under :

(1) Fare Structure : A review of fare structure of the state road transport undertakings indicates that there is great variation in rates of fare charged by them. The fare charged for ordinary services varied from 3.25 paise per kilometre (Punjab ST) to 10.00 paise per kilometre (Nagaland ST) during the year 1978-79. The rates of fare are low in case of most of the undertakings. Under the provisions of the Motor Vehicles Act, 1939, the fare structure is determined by the State Governments. Whenever there is increase in the cost of operation, a proposal for increase in fare is made to the State Government. The process of revision of fare is so lengthy and cumbersome that it takes too long and by the time sanction for revision of fare is received, necessity of further increase in fare is felt because of further increase in the cost of operation during the intervening period.

(ii) Nationalisation of Uneconomic Routes : After independence it has been the policy of the Government to maintain the trend for increasing state ownership of passenger road transport services in the country. There has been prolific increase in the number of routes due to political pressures and other reasons. Routes have been nationalised without proper appraisal. Some of the routes nationalised in rural and backward areas are unprofitable. Transport being a basic necessity for the development of an area, it has to be provided even if its operation may be uneconomic.

(iii) Operation of city bus transport services : The city bus transport services are running into losses in almost all the state road transport undertakings. These services are provided because of persistent public demand and instructions from the Government. The situation in regard to losses exists because of low fares, requirements of larger number of buses to clear the city traffic, employment of extra crew to run the buses, greater wear and tear of vehicles due to traffic congestions, ticketless travel and concession to students etc. Moreover, sometimes large number of buses are hijacked/damaged by the students whenever there is some conflict between the students and the crew.

(iv) Defective Scheduling : Due to unscientific planning and defective scheduling, city and mofussil services are overlapping on certain routes. Buses move over-crowded sometimes on certain routes and empty at other times because of lack of proper adjustment in scheduling. The occupation ratio is low in case of most of the undertakings and there is need for rationalisation of routes, schedules and bus stops etc. for making proper vehicle utilisation.

(v) Pilferage of Revenue : Pilferage of revenue is the most important problem in case of all the State road transport undertakings. The extent of loss through pilferage of revenue is estimated at 8 to 15 per cent of the revenue. The estimated total revenue of the state road transport undertakings was about Rs. 1000 crores in 1978-79. The amount of pilferage of revenue calculated on this figure, would range from Rs. 80 crores to Rs. 150 crores which is quite a substantial amount. The pilferage done by the conductors falls under the following categories :—

(a) Wayside booking and non-issue of tickets but collection of fare from the passengers ;

(b) Re-issue of used tickets in case of denomination ticket system ;

(c) Manipulation of entries in case of tickets in which particulars are to be inserted;

(d) Manipulation in opening and closing numbers of tickets and misappropriation of amount; and

(e) Use of forged tickets/tickets alleged to have been lost.

There is need to make systematic study in case of each undertaking to know exactly the extent, causes, methods of pilferage of revenue and devise measures to check this evil.

(vi) Curtailment of Trips : The percentage of curtailment of bus trips has shown increasing trend in case of most of the state road transport undertakings. When a trip is curtailed, it is a direct loss to the undertaking. The increase in the number of trips curtailed indicates inadequacy of workshop facilities, shortage of technical staff, shortage of tyres, tubes and spare parts, absenteeism of the crew and poor management.

(vii) Illegal operations by the private operators : Unauthorised operation of private vehicles is prevalent specially in States where cent per cent nationalisation has not taken place. Vehicles meant to transport goods carry passengers unauthorisedly and private registered vehicles are used like taxies or as contract carriages. Sometimes, contract carriage vehicles have been illegally operated as stage carriages by taking passengers en-route, thereby infringing the conditions of the contract carriage permits. The undertakings are losing heavily on this account and there is need to take effective steps to check this evil.

Suggestions

According to the Motor Vehicles Act, 1939 and Rules framed thereunder, the matter of revision of fares for the road transport passengers comes within the purview of the State Governments. The Act should be amended so as to exempt the public sector road transport undertakings from this restriction. These undertakings should themselves periodically review the fare structure in relation to rise in cost of operation due to various factors. While fixing the fare it should be borne in mind that fares cover costs and a reasonable return on capital invested.

On the basis of revenue contributed by each route the routes should be classified in three categories—A, B and C. The routes where the average earnings are more than total costs (variable cost plus fixed cost) are classified as 'A' class. The routes where the average earnings are equal to or less than total costs but are more than the variable costs are classified as 'B' class. The routes where average earnings are less than even the variable costs are classified as 'C' class ; these routes are uneconomic and are directly responsible for losses. The operations should be periodically reviewed on the above lines and efforts made to increase operations on 'A' class routes and to convert 'B' class routes into 'A' class routes. The operations on 'C' class routes should be minimised and every effort should be made to convert them into 'B' class routes.

Bus scheduling is an art of drawing out maximum earnings by proper vehicle utilisation. To optimise earnings the routes should be as direct as possible. Origin and destination surveys should be carried out regularly for assessing travel desires of the public and traffic potential of the route so as to locate sectors where the demand is more or less than the service being offered. Scheduling of trips should be adjusted to the traffic load at different times. The travel timings and halts on the route should be planned in such a way that it provides maximum comfort and convenience to the travelling public. For checking the evil of pilferage of revenue there is need to give attention to the selection, induction, training and promotion of conductors. It has been observed that by rewarding good and honest conductors, a significant improvement can be made in checking pilferage of revenue. The collection bonus scheme on the pattern of Pallavan TCL may usefully be employed in other road transport undertakings. The strength of inspecting and checking staff should be increased. Shri M. K. Joseph, erstwhile General Manager, Kerala SRTC has suggested a tentative formula for fixing the strength of inspectorial staff on the basis of $N=K/D\times P$. Here 'N' stands for the number of inspectors. 'K' for scheduled kilometres 'D' for distance normally covered by an inspector and 'P' for the percentage of check required. An analysis of tripwise earnings of each bus should be made regularly and where there is fall in revenue those areas should be checked thoroughly, Leakage is more likely to take place in rural and farflung areas than on the main routes and frequent inspection of such routes should be ensured.

Travelling without proper tickets should be made an offence punishable with fine or imprisonment or both as has already been done in Rajasthan. Action should invaribly be taken for prosecution of passengers found guilty. They should not be let off by merely charging penalty. Strict disciplinary action should be taken against any conductor found indulging in malpractice.

Quick action should be taken to get private vehicles operating in nationalised routes contiscated. It should be the duty of inspection and checking staff to detect such cases of unauthorised operations. Every effort should be made by the management to improve fleet utilisation ratio and daily vehicle utilisation rate. Buses with larger seating capacity should be employed for operations by the state road transport undertakings.

The percentage of non operating revenue in road transport undertakings is very small, to below 5 per cent. There is need for concerted efforts to increase revenue from advertisements, scrap sales, rents etc. The following measures are suggested for increasing the non-operating revenue of the state road transport undertakings :

(a) The facility of providing advertisement on buses, bus stands etc. should be fully explored.

(b) Effort should be made to charge adequately from the parties who establish canteens, bookstalls and shops at bus stands.

(c) Whenever there are surplus cash balances, the same may be invested profitably for whatever period these may not be needed.

(d) Scrap and obsolete materials should be disposed of at regular intervals.

It is hoped that the undertakings can improve their earnings substantially by adopting the above mentioned measures. Increased earnings will help them in covering increased cost of operation and enough surplus will be available to improve their financial viability. □

The State Farms

Smt. Anna R. Malhotra*

CENTRAL STATE FARMS were established starting from 1956. The first one at Suratgarh, on 30,000 acres was started from 5th August, 1956. The farm was assisted by Russian gift of agricultural machinery. The Farm was intended to demonstrate the advantages of mechanised farming and was to serve as a model. It was also expected to demonstrate that agriculture on scientific lines could enable substantial production on marginal lands like deserts, shrub forest etc. It was felt that these Central State Farms could assist in the building up of buffer stock of foodgrains.

Encouraged by the success achieved at the Central State Farm (CSF) Suratgarh, the Government of India decided to set up more Farms as a part of the Grow More Food Campaign in the country and an agreement was also reached with the Government of USSR, whereunder the latter agreed to gift the machinery and equipment for five additional farms, to be set up in Orissa, Haryana, Punjab, Karnataka, and Kerala.

With the introduction of high yielding varieties of cereals and fibre crops, hybrids of millets, maize etc., it was felt that these farms could play an extremely important role in the production of seeds of foodgrains, fibre crops etc. In the year 1969, the Government of India decided that instead of farms being managed as departmental undertakings they should be run by a commercial undertaking in the public sector. It is, thus, that the State Farms Corporation of India, a wholly owned by the Government of India undertaking, came into existence in 1969 to manage the erstwhile Central State Farms and the new farms established at Chengam (Tamil Nadu), Kokilabari in Assam, Bahraich in U. P. The Corporation was also entrusted with the management of two more farms in Mizoram which was to serve as steps towards development of these areas and it took up a reclamation-cum-farm project at Rae Bareli.

Foodgrains Production—Sole Objective

The rigid objective for setting up these large Farms was to produce foodgrains, fibre crops, plantation crops etc. after reclamation development and improvement of the lands. The initial concept of CSF, therefore, was one of the introduction of modern farm management practices specially mechanised farming to utilise vast tracts of uncultivated lands in semi-arid or shrub forest areas. The first farm at Suratgarh was spread over an area of 12000 hec. and was set up with farm machinery gifted by USSR. It was possible over a period of time to convert this desert area into a green belt producing vitally important inputs like seeds of various crops.

*Chairman, State Farms Corporation of India.

As of today the total area in possession at the various farms with the Corporation is 36671 hec. of which the culturable area is 27115 hec. Currently, irrigation is available for 11177 hec. and it has been possible to achieve a cropping intensity of 93 per cent.

With the introduction of high yielding varieties of cereals and other crops the State farms can play an extremely important role in the production of these crops. They also serve as models demonstrating the advantages of mechanised farming.

Ever since its inception the Corporation has sought to bring these arid or shrub forest areas into shape for cultivation of seeds. This meant suitable land reclamation, land development, land shaping, laying of irrigation channels, drainage systems etc. In the process, the Corporation has built up an expertise in sound farm management practices. One of the other objectives which had been thought of was to take up animal husbandry activity like breeding of cattle, poultry and sheep etc. Later it was decided to concentrate only on crop husbandry as specialised agencies were set up by the Goverment of India to deal with animal husbandry aspects.

With the Farm machinery and equipment available with it, in addition to meeting its own requirements for cultivation of its farms, the Corporation has been making available this machinery on custom hiring basis to farmers, and in the years to come it proposed to strengthen this activity. The Corporation made a small beginning in the reclamation and land development in command area of Chambal Project and it is likely that this activity would be strengthened and expanded.

An Ambitious Programme

In the mid-seventies, the Government of India took up an ambitious programme for ensuring availability of good quality seeds of a variety of crops at reasonable prices. Seed, as would be appreciated, is an extremely important input and it may not be wrong to say that a total transformation of agricultural scene in the country in the last two decades has been primarily due to the introduction of hybrid and high yielding varieties of seeds. The introduction of short duration highly fertilizer responsive dwarf varieties of cereals like wheat and paddy has completely changed the picture of cultivation and agriculture practices leading to a more optimum application of inputs, raising of a second crop where single crop

was grown during the year and simultaneously achieving higher order of productivity. This is reflected in significant increases and production of many of the cereals and fibre crops like cotton. The Agricultural Universities and the Agriculture Research Institutes have made unceasing efforts towards evolution of better improved varieties and thus as we go along one of the primary requirements of modern agriculture would be to carry the fruits of research to the millions of farmers by making available seeds of these improved varieties at reasonable prices. This would be a continuous phenomenon.

Accent on More Production of Oilseeds

With the country reaching almost a stage of self-sufficiency in cereal production much greater emphasis is now being laid on increasing the production of pulses and oil-seeds. The universities and research institutions are on the job and it is likely that improved varieties of oil-seeds, pulses would also be released in the years to come. This would, then call for a systematic attempt to produce high quality seeds of these improved varieties and for taking it to the doors of the farmers. And sound seed production system evolves a chain of activities like production of breeder seeds, foundation seeds and ultimately certified seeds for raising commercial crops. The SFCI has an important role to play in this entire system and has already been geared up for production of foundation and certified seeds. This is reflected in the growth of production of seeds from 1.34 lakhs qtls. in 1974-75 to 2.36 lakhs qtls. in 1978-79. This will be further consolidated and strengthened and the Corporation proposes to produce over 4 lakhs quintals of foundation and certified seeds by the end of Sixth Five Year Plan representig a fairly significant proportion of the quantities of seeds produced in the country.

Side by side with production of foodgrains or oilseeds or fibre crops a much greater emphasis is likely to be laid in the coming years on production of vegetables and fruits. The Govt. of India have contemplated a massive increase in the extension of areas under orchards of improved and high yielding fruit trees crops. This would mean identification of mother trees in addition to evolving improved and high yielding varieties of trees crops. Orchards have fairly long gestation period like the annual crops and the production and distribution of saplings, grafts of higher yielding fruit tree crops is not so easily amenable to quick returns and therefore the public sector with accent on service has to play an important role. The Corporation, therefore, intends to concentrate on production of seedling material for raising orchards and plantation. It has already concentrated on production of seedlings of hybrid coconut tree crops at its Aralam Farm. This will be expanded to other areas during Sixth Plan.

Diversification

It has also intended to diversify cultivation of other commercial crops which have export potenital. It is being envisaged that the Corporation could with the resources at its command play an important role in the export of agricultural and agro-processed commodities, for exports of such commodities would have to increase substantially as a part of maximising India's contribution in international trade.

Energy crisis is something which everyone is confronted with. The massive animal husbandry programme, has to be supported by efficient fodder and forage production programme. Shortage of good fodder is also being felt as its price is escalating. Fuel is another area where shortages are experienced in the country. The Central and State Governments in recognition of this have taken to a very ambitious programme to meet the fuel and fodder crisis which is being experienced, and may get accentuated in the years to come without a planned effort towards maximising availability of agro-based fuel products. In addition to the retention of forest as it exists new afforestation on the marginal lands have been taken up, and will continue to grow. Improved tree crops which can play an important role in meeting the fuel and fodder shortage like Leucaena and Sesbania have been introduced and the area brought under these trees expanded through socio-forestry programmes. The Corporation has commenced the production of seeds of these tree crops and will undertake raising of saplings for distribution under this socio-forestry programme.

The Corporation's farms are, therefore, being consolidated to play an integral role in the country's agricultural development programmes. It is being planned that there will be continuous review of the activities of the Corporation so that the role it is expected to play will be discharged in an efficient way and objectives are achieved with cost effectiveness.□

A Model of Modern Farming

Like any other progressive Punjab farmer, retired armymen turned growers in Khokhar Fauji village of Gurdaspur are taking up modern farming.

Since its adoption by Indian Farmers Fertiliser Cooperative Limited (IFFCO), the village's fertiliser consumption has increased manifold. The farmers now sow seeds and apply fertilisers by drilling method, technique considered far better than the traditional broadcasting method. Likewise, there has been a significant change in the use of farm implements.

Consequently, the farmers harvested 26 quintals of paddy an acre this year, compared to last year's yield of 16 quintals.

Mr. H. S. Bhatia, Area Manager (IFFCO), says that armymen-farmers are more amenable to technical advice than other growers.

While many village cooperatives in the country are going into the red, the farmers of Khokhar Fauji have turned their cooperative from a loss incurring body into one earning profit.

Central Heavy Engineering Units : Capacity Utilisation

Prof. M. Gangadhara Rao & Dr. B. Ramakrishna Rao*

THE latest survey on the working of Central Government Undertakings presented to the Parliament reveals that the heavy engineering undertakings have sustained a net loss of Rs. 46.20 crores in 1977-78 and Rs. 38.94 crores in 1978-79. In view of substantial investment required as well as its crucial importance to the nation, the heavy engineering industry in our country is mainly confined to the public sector. Among the 11 undertakings, in heavy engineering group, only four are earning profits and the rest are accumulating deficits due to perennial losses incurred as each year and surpassing even their paid-up capital. As a matter of fact, the incidence of poor financial results is disturbing as it comes in a year when similar undertakings in private sector are earning handsome profits.

The principal factor responsible for this poor state of affairs seems to be low capacity utilisation in these units. As an instance, the number of running units where the incidence of capacity utilisation is less than 75 per cent is reported to be 10 in 1978-79 as against only seven in 1977-78. While in 1977-78, six out of 16 manufacturing units had reported less than 50 per cent utilisation, in 1978-79, eight units out of 17 reported such poor performance. It is interesting to note that undertakings which are working at low level of their capacity have been incurring losses while those operating at a higher level of their capacity have been making profits. Thus, Bharat Heavy Electricals, Tungabhadra Steel Products, and Triveni Structurals Ltd., which are working at a high level of capacity are earnings profits while concerns like Bharat Heavy Plate and Vessels, Heavy Engineering Corporation, Jessop & Co., Mining and Allied Machinery Corporation etc., have been incurring losses on account of their poor capacity utilisation. It is distressing to note that all the three reporting units of Heavy Engineering Corporation, the biggest heavy engineering complex next to Bharat Heavy Electricals, showed capacity utilisation of under 30 per cent during the two years 1977-79 (See Table).

Factors for low capacity utilisation

The factors acting as operating constraints for low capacity utilisation in these undertakings are both exogenous and endogenous in nature. The former includes constraints in the form of load shedding, recurring power restrictions imposed by various State Electricity Boards, infrastructural bottlenecks such as non-availability of railway wagons, raw materials, transport facilities and poor order book position etc., while the latter comprise of poor industrial relations, poor maintenance of plant and machinery, technological deficiencies, product mix profile etc.

The principal factor responsible for this poor state of affairs seemed to be low capacity utilisation in heavy engineering undertakings.

It may be pointed out that the low capaciy utilisation in units like Bridge and Roof Co., Heavy Engineering Corporation, Jessop & Co. is mainly on account of constraints in the form of chronic power shortages, severe loadshedding and restrictions on power supply. In Mining and Allied Machinery Corporation, the low capacity utilisation is due to poor order book position. Deferment of mining equipment order from Coal India affected adversely the Company's operation during 1978-79. In Bharat Heavy Plate and Vessels, a major cause for underutilisation is the uncertain and falling demand for capital equipment which is in the manufacturing profile of the company. The Company has to compete with fabricators in the private sector whose capital investment and overheads are very low in regard to smaller equipment. Technological deficiencies in the form of low technology, poor maintenance, breakdown of equipment act as major constraints in the way of effective capacity utilisation in the case of Braithwaite and Co. Ltd. and Burn Standard Ltd. Poor industrial relations and non-availability of input materials from customers as free issues have also hampered the production programmes in Braithwaite and Co., and Heavy Engineering Corporation in 1978-79.

Efficient Operation Needed

In a capital-scarce economy like India, production performance of public enterprises in terms of the optimum utilisation of resources in the form of men, material, and machinery is of paramount importance. The success of public sector heavy engineering units and the real benefits to the national economy from it greatly depend on the efficient operation of the manufacturing sector and its ability to use as fully as possible the capacities created. While it is true that profit is not the sole criterion to judge public sector

*Professor, and Reader, Dept. of Commerce & Management Studies respectively in Andhra University, Waltair.

Table : Relationship between capacity utilisation and Profitability performance in Central Heavy Engineering Units during 1976-79

Name of the Undertaking	Capacity Utilisation (%)			Net Profit/Loss (Rs. in Lakhs.)		
	76-77	77-78	78-79	76-77	77-78	78-79
1. Bharat Heavy Electricals, Bhopal	106	89	91			
2. Bharat Heavy Electricals, Jhansi	—	85	102			
3. Bharat Heavy Electricals, Hardwar	71	115	94			
4. Bharat Heavy Electricals, Hyderabad	83	94	78	2812	2552	2515
5. Bharat Heavy Electricals, Tiruchy	108	107	101			
6. Bharat Heavy Electricals, CFFP, (Castings)	—	—	36			
7. Braithwaite & Co (India), Ltd.	49	32	45	(—)15	(—)194	(—)298
8. Bharat Heavy Plates & Vessels Ltd.	37	47	28	(—)66	(—)60	(—)538
9. Burn Standard Ltd., (Wagons)	91	86	62	(—)237	(—)923	(—)970
10. Bridge & Roof Co (Structurals)	—	71	49	17	2	5
11. Heavy Engineering Corpn. HMBP	37	19	28			
12. Heavy Engineering Corpn. FFP	10	17	25	326	(—)3026	(—)274
13. Heavy Engineering Corpn. HMTP	24	6	9			
14. Mining & Allied Machinery Corpn.	49	21	24	35	(—)2491	(—)1006
15. Jessop & Co	93	94	70	65	(—)502	(—)90
16. Triveni Structurals	73	82	93	7	3	17
17. Tungabhadra Steel Products	83	134	126	11	19	11

performance, but in view of substantial investment being made in these units each year as well as their paramount importance to the nation, the optimum utilisation of productive resources in these units is a matter of great importance to the national economy. The under-utilisation of production capacity will not only block up scarce and vital resources but also create contagious repercussions on linked industries and result in heavy avoidable imports. Further, in view of the necessity for these units to prove that they are run on sound lines and contribute not only to the economic development but also to the national exchequer by way of reasonable returns, they have to review many of their existing policies including those relating to capacity utilisation. There is at present an imperative and crying necessity to optimise the industrial productivity in the face of severe and chronic shortages persisting all over the country. As public undertakings are run with public money, they should bring to the exchequer a reasonable return on their investment. A time-bound plan for optimising capacity utilisation, maximizing production and reducing production costs is a must for improving the overall efficiency of these units. □

H.M.T's Gift to Small-Scale Sector

T. K. N. Nair*

HINDUSTAN MACHINE TOOLS has given another product knowhow to Qetcos—a medium scale machine tool unit in the cooperative sector in Kerala. Qetcos (Quilon Engineers and Technicians Cooperative Society) formed in 1972 had its first collaboration agreement with H.M.T. in 1973 for the production of "LT 20" lathe and the factory was inaugurated in March, 1975. The second agreement recently signed was for the transfer of technology of Qetcos to produce "II 20" a low-priced precision centre lathe. According to Shri B. Ramachandra, Chairman and Managing Director of H.M.T., this tie-up between HMT and Qetcos is the only one of its kind in India. A noteworthy feature of the agreement is that it was for the first time that HMT had given the right to manufacture one of its products to another Indian manufacturer. It was also for the first time that a cooperative society of engineers and technicians had successfully taken up the production of such precision-oriented products like machine tools in our country. According to the agreement, HMT will not charge any technical collaboration fee, as Qetcos is in the coperative sector. They will charge only a nominal royalty. HMT will also undertake the marketing of Qetcos products.

This knowhow transfer has been described as HMT's latest gift to the small-scale sector, with a view to making available its reputed expertise to accelerate the country's Rural Industrial Development Programme.

Production at Qetcos with about 200 employees has substantially increased to 170 machines a year in the last five years from 56 machines in the first year. Production so far is around Rs. 3 crores, Qetcos has successfully exported machines to Denmark, Federal German Republic, Dubai, Sri Lanka, Zambia, Kenya, Indonesia, Philippines Mauritius and Tanzania. Total value of exports so far is around Rs. 45 lakhs. □

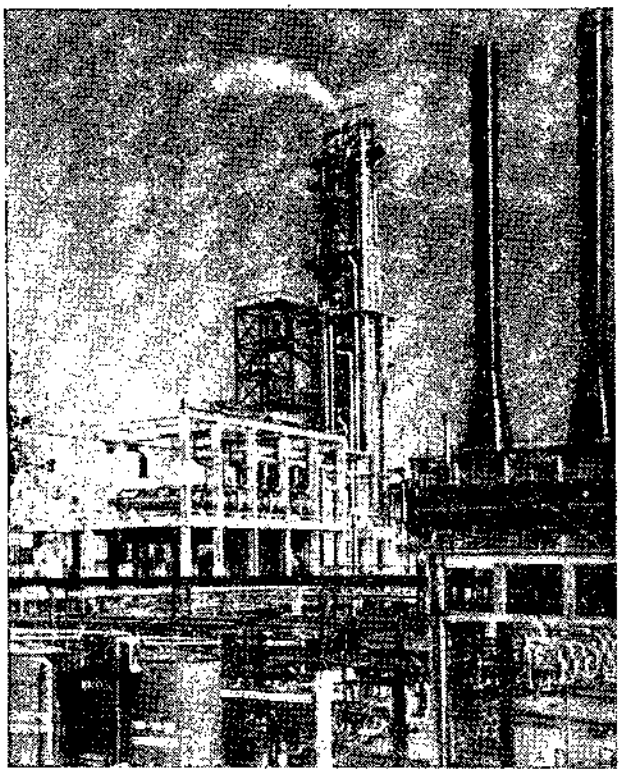
* Senior Correspondent, Yojana, Trivandrum.

Engineers India

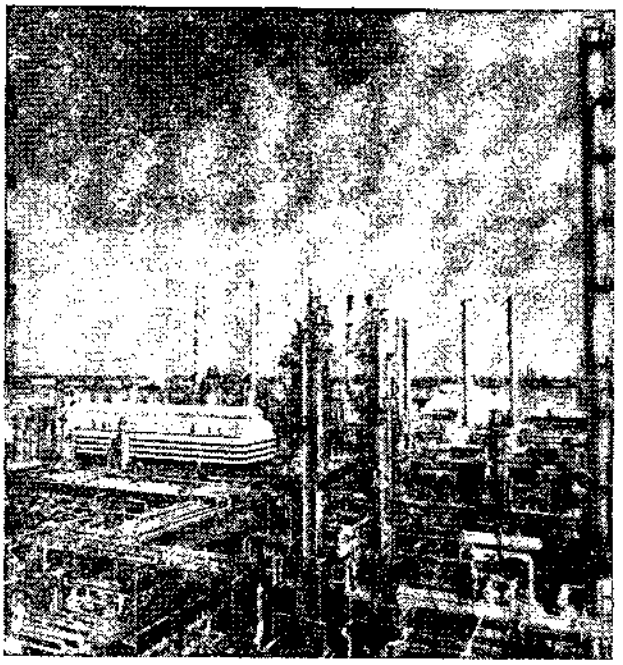
ENGINEERS INDIA (EI) was established in 1965 as a joint venture between the Government of India and Bechtel Corporation of the USA : "To establish, provide, maintain and perform engineering and related technical consultancy services for petroleum refineries, development of oil fields, oil and gas pipelines, petro-chemical facilities, chemical intermediates and all other types of industrial projects".

Initially the EI was managed by Bechtel Corporation. Many of its key personnel were trained in San Fransisco. In mid-1967, Bechtel's interests were taken over, by mutual agreement, by the Government of India. Fully Government owned thereafter, the Company has continued to organise itself and operate commercially along the lines of a typical international consultancy and engineering company.

Today Engineers India has grown into one of the largest consulting and engineering design organisations in South Asia and it provides expertise in a number of diverse areas such as : Pipelines, Petroleum Refineries, Petrochemicals/Chemicals, Fertilizers, Non-ferrous Metallurgy, Offshore Structures, Ports and Harbours, Cement, Paper, Power and Refractories.



A view of Naphtha Cracker in IPCL Complex



A view of the Baroda Refinery crude unit.

EI offers the entire range of services required for a project from concept to commissioning.

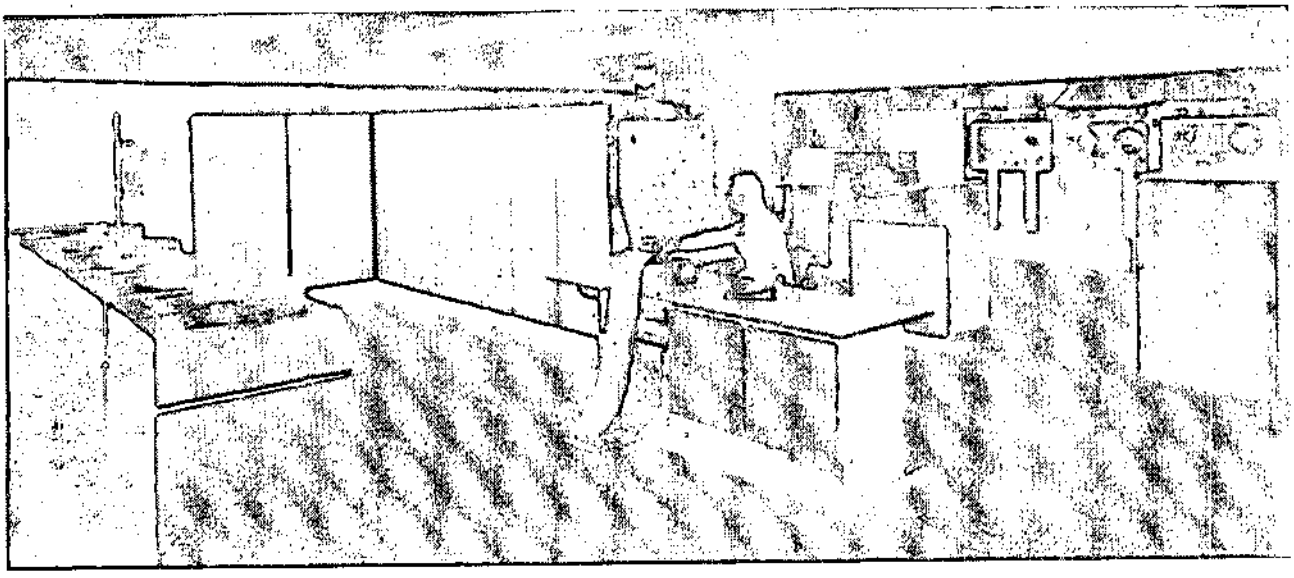
Over the years, Engineers India has grown from strength to strength. It has during this period implemented a number of projects worth over Rs. 2000 crores in its field of specialisation. Some of the major projects commissioned recently in India are a Rs. 450 crores petrochemical complex, a 3 million TPA petroleum refinery, two fertilizer plants of 900 TPD ammonia/1550 TPD urea capacities each, a number of offshore platforms and a 65 km. long slurry pipeline.

EI's total technical manhour availability per year is about 4 million, while its total strength is about 2900 people. On this basis EI has, at present, the capability to undertake annually design/engineering and management of projects worth about Rs. 400 crores in installed cost, in Indian conditions.

Following figures give an idea of EI's achievements during the last ten years :

	1970	1980
Paid-up Capital	Rs. 25 lakhs	Rs. 25 lakhs
No. of employees	554	2900
Fixed Assets (Net)	Rs. 9.58 lakhs	Rs. 377.5 lakhs
Current Assets(Net)	Rs. 38.35 lakhs	Rs. 593.5 lakhs
Income from services	Rs. 159 lakhs	Rs. 1815 lakhs
Net Profit	Rs. 22.25 lakhs	Rs. 203.5 lakhs
Reserves	Rs. 22.9 lakhs	Rs. 979.4 lakhs

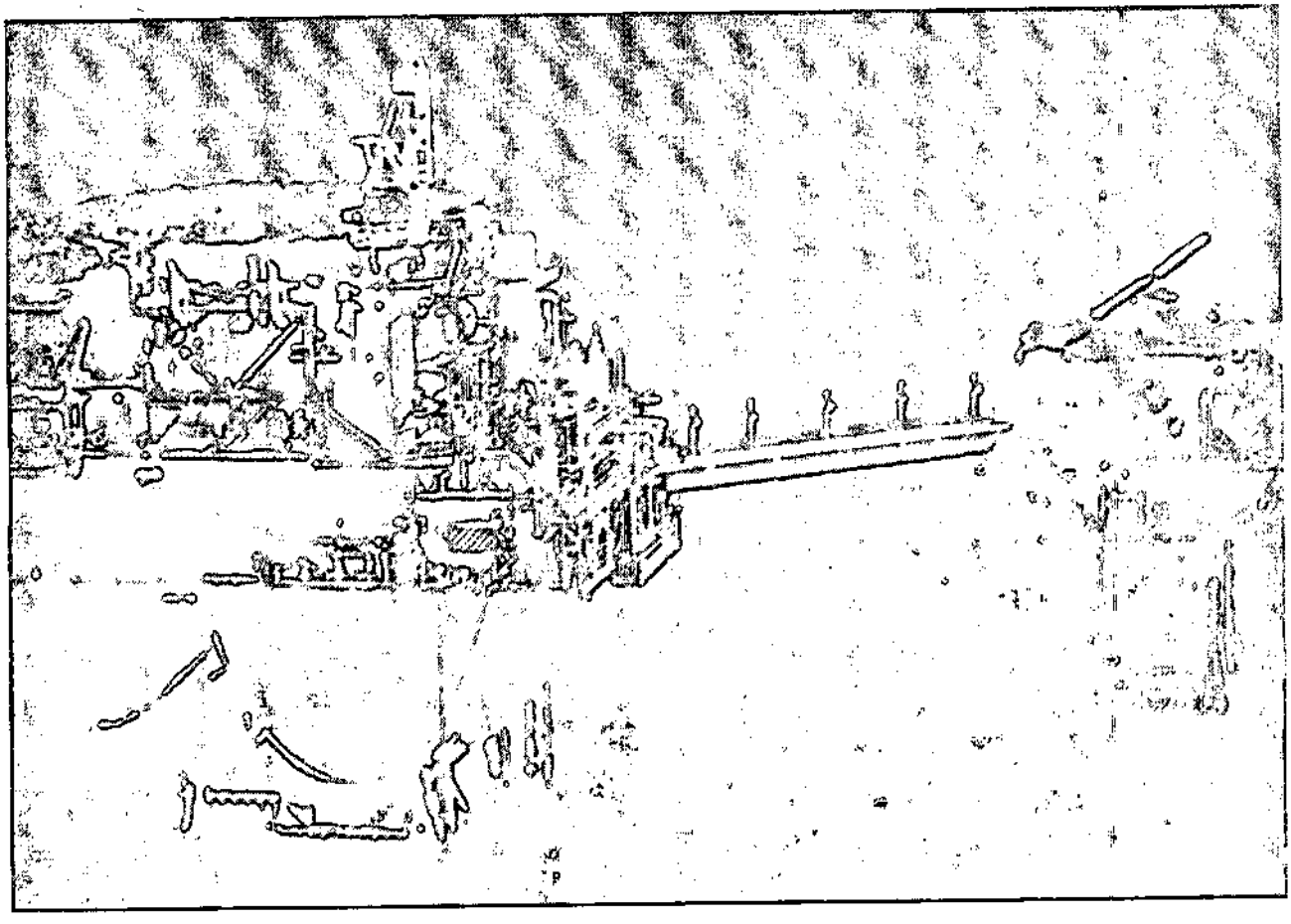
In the implementation of various projects of national importance the EI has significantly increased the indigenous contents of various technical services which were previously obtained from abroad. The contribution of EI is much more than the apparent



A view of ES-1040 Computer system.

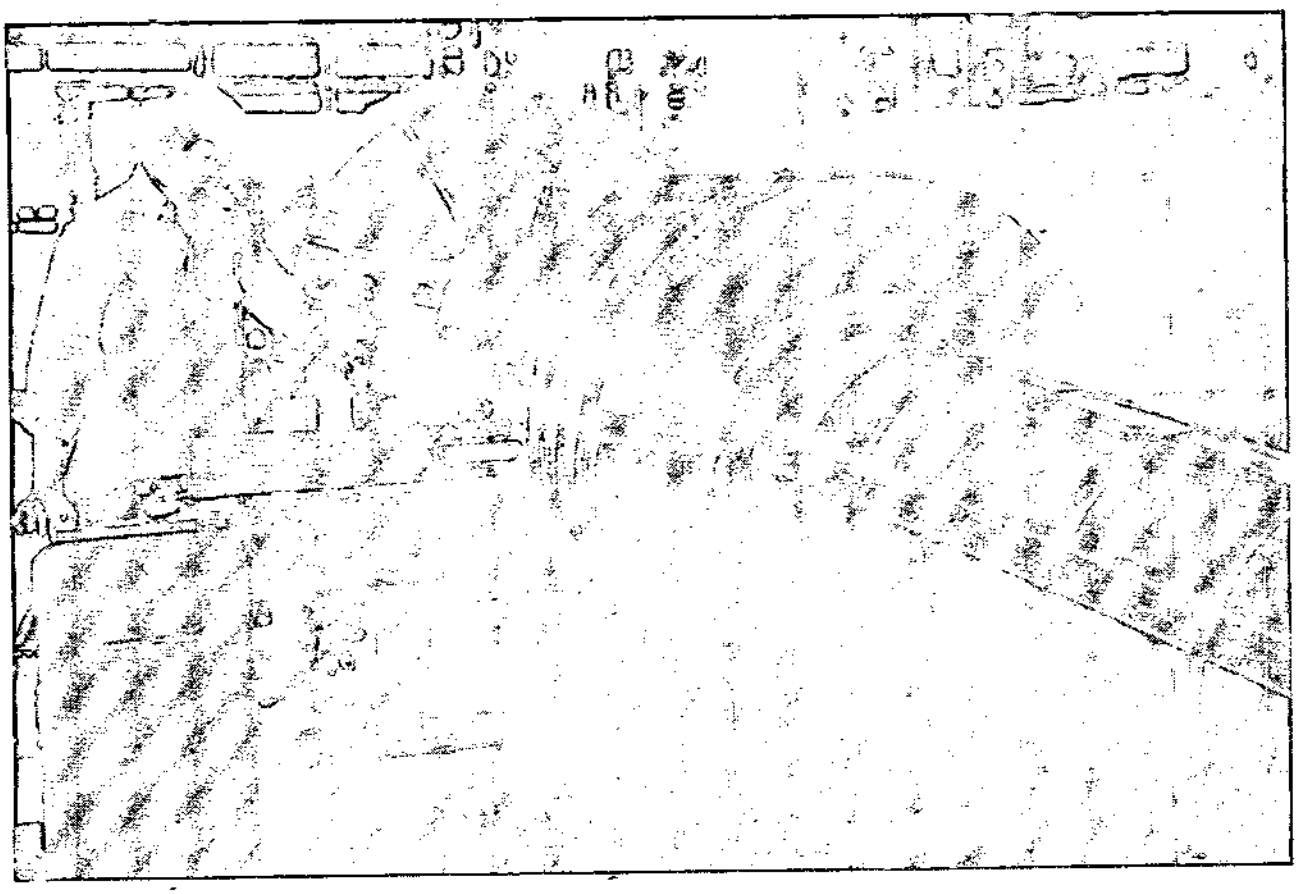
monetary benefits to the national economy. It has acted as an instrument for the transfer of technology for some of the most important and sophisticated segments of industry. The participation of EI in various projects has enabled its engineers to master and assimilate difficult technologies, thus avoiding repetitive import of technology and also raising the level of technological competence in the country. The EI

Offshore drilling platform in Bombay High.



has helped the country achieve self-sufficiency not only in consultancy, but also in sophisticated capital equipment manufacture especially for the process industry. Over the years of its working, EI has been able to reduce the import content of equipment for sophisticated projects from more than 80-90 per cent to less than 20 per cent at present.

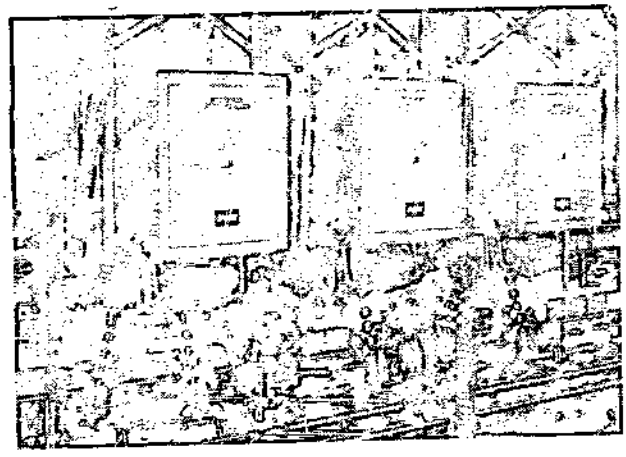
Engineers India have been operating in overseas market as well. In last ten years, it has provided services for projects in Abu Dhabi, Algeria, Iran, Iraq, Kuwait, Somali Republic and Sri Lanka. It has won contracts worth over Rs. 10 crores in services from SONATRACH of Algeria alone. It is currently providing engineering services for a pipeline and depot project in Abu Dhabi. It has already provided engineering and other consultancy services for Petroleum Refineries in Iran and Somali Republic, Fertilizers Projects in Sri Lanka and Pipelines and Petrochemicals Complex in Iraq. It has been providing technical assistance to State Organisation for Industrial Design and Construction and State Organisation for Oil Projects of Iraq for their projects. It has been recently retained by Kuwait National Petroleum Company for providing them with engineering consultancy services for a petroleum refinery. Engineers India's earnings in foreign exchange on account of consultancy services, which were Rs. 1.11 lakh in 1970-71 have touched Rs. 185.32 lakh in 1979-80. □



Machining of Turbo generator Rotor at BHEL Hardwar.

Round up

Bharat Heavy Electricals Ltd



Minimum oil Circuit Breaker at BHEL, Bhopal

BHARAT HEAVY ELECTRICALS LTD. ranks today among the top ten companies of the world which manufacture heavy electrical equipment. It offers products and services to the vital sectors of economy such as energy, industry, transportation etc.

The first Heavy Electrical Equipment Plant was set up in the country at Bhopal in collaboration with Associated Electrical Industries Ltd. of U.K. It went into production in July 1960. Later three more factories (one at Hardwar with Soviet collaboration and one each at Hyderabad and Tiruchi with Czechoslovak collaboration) were set up.

BHEL has grown to a position whereby it did a business of over Rs. 700 crore in 1979-80 and has set a target of Rs. 775 crore for the current financial year. The moving force behind this immense growth is its vast reservoir of human skills, over 66,000 employees.

Today BHEL has 19 divisions, out of which nine are manufacturing divisions. The new Seamless Steel Tube project at Tiruchi and Central Foundry Forge plant at Hardwar are vertical integration projects for supplying the components which were hitherto being imported. Radio and Electrical Manufacturing Company (REMCO) and Mysore Porcelain Limited at Bangalore are examples of acquisition for resuscitating the sick industries and providing expansion in the business of electronics and electro porcelains. A modern and well-laid out transformer factory, a second generation plant, has been established at Jhansi.

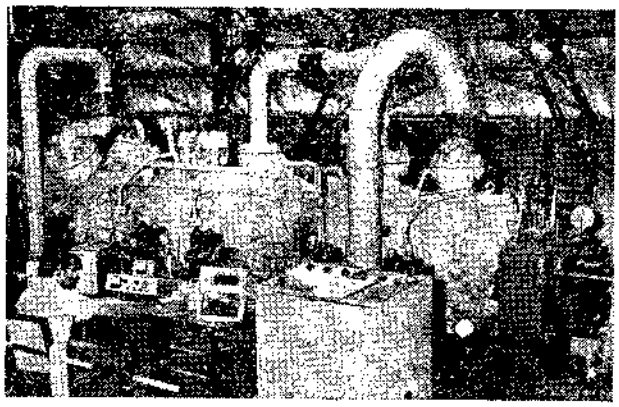
BHEL has for its employees five townships of more than 23,000 houses with a population of over two lakh.

Since its inception, equipment with an annual generating capacity of over 19,000 MW has been manufactured, out of which over 11,000 MW has been added to the country's installed generating capacity. During the current year alone it is envisaged that around 2170 MW of BHEL equipment will be commissioned which accounts for 86 per cent of the proposed addition to country's generating capacity during the year.

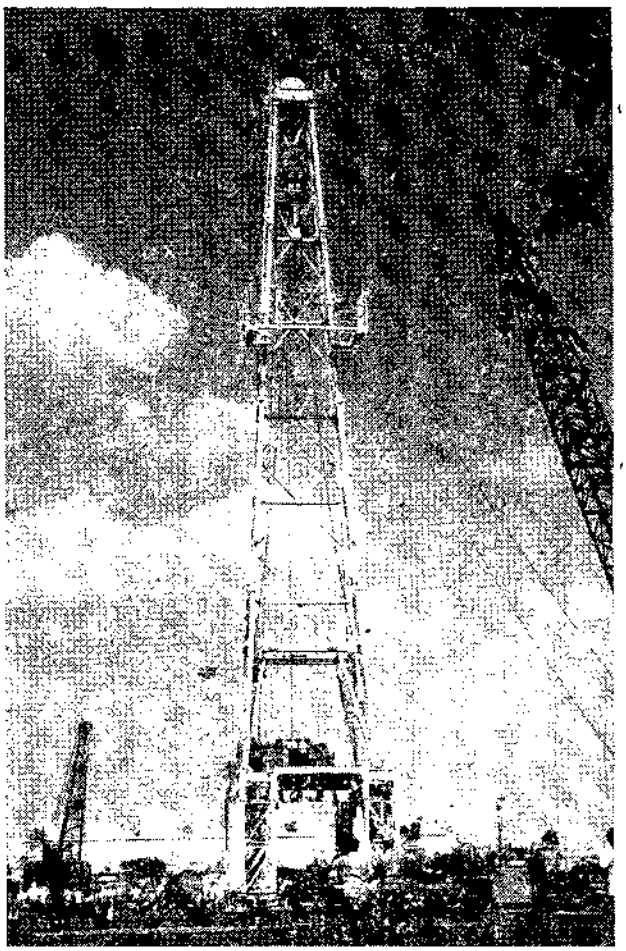
Since BHEL's inception, equipment valuing over Rs. 3700 crore has been supplied to the various customers. BHEL has so far exported its equipment and services to over 30 countries including South-East Asia, Africa and the Middle East.

BHEL has established a fully-equipped Corporate Research and Development Division which is continously engaged in modernising design and engineering.

Since its inception, BHEL has contributed more than Rs. 1000 crore to the exchequer by way of taxes, duties and dividend. BHEL has helped to organise the development of ancillaries around its manufacturing divisions as a result of which more than 130 ancillaries have come up.



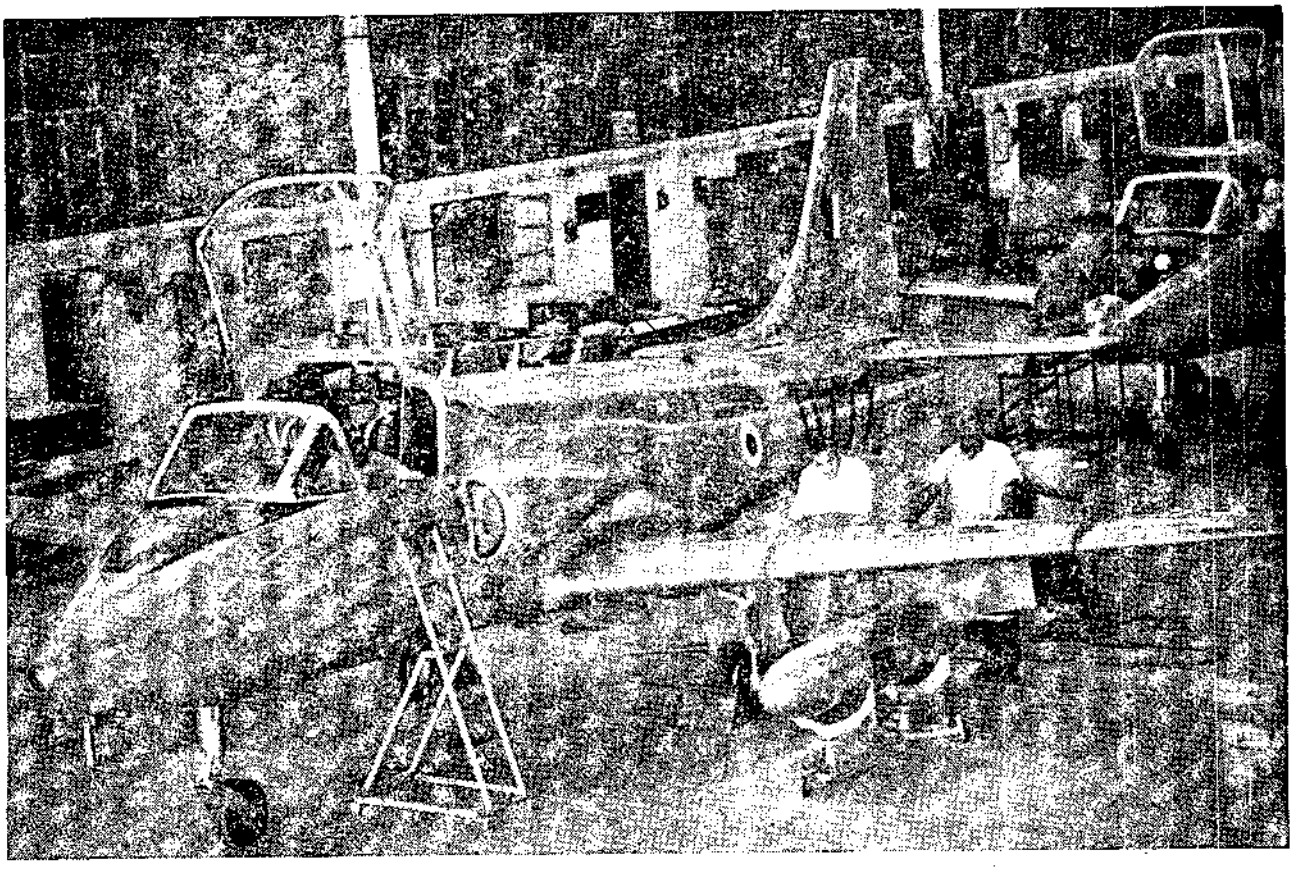
Tandem mechanical run test on a Three-casing syn Gas Compressor manufactured by BHEL, Hyderabad.



India's first on-shore diesel electric oil Rig, Type E-2000, manufactured, assembled and tested by BHEL stands 43.3 metres (142 ft) high from base to top and can drill up to a depth of 6000 metres (20,000 ft).

BHEL employees enjoy township, medical and other welfare benefits that compare favourably with other companies in the country. Today BHEL has 5 townships of more than 23000 houses with a population of over two lakh. The number of hospitals and dispensaries are 26 with approximately 800 beds. There are 74 schools imparting education to over 50,000 students.

The ambitious power development programme of the country offers immense opportunities for the growth of BHEL. With the various investment schemes amounting to approxiately Rs. 300 crore, BHEL's business level is expected to reach about Rs. 1,200 crore by 1983-84. □



An aeroplane under overhauling at HAL

Round-up

Hindustan Aeronautics Limited

THE aircraft industry made a modest beginning in India in 1940, with the establishment of Hindustan Aircraft (pvt.) Ltd., thanks to the vision of Late Shri Walchand Hirachand and to the State of Mysore.

During the Second World War, HAL became an overhaul and repair base for South East Asia command. After Independence, the Government of India acquired all the shares of the Company. In 1964, the Hindustan Aeronautics Ltd. was formed by merger of Hindustan Aircraft Limited with Aeronautics India Ltd. (set up for manufacture of MiGs) and the Aircraft Manufacturing Depot at Kanpur (set up for manufacture of HS-748 transport aircraft).

Over the past four decades, HAL has grown in size and range of activities which range from licensed production to design, development, manufacture and overhaul of aircraft, helicopter, power plants, avionics, instruments and accessories systems. HAL has 10 factories spread in five States in the country — viz., Karnataka, Andhra Pradesh, Maharashtra, Orissa and Uttar Pradesh. It has over 40,000 employees and the annual production is worth about Rs. 180 crore.

Over 2300 aircraft and helicopters valued at approximately Rs. 1050 crore, including HT-2, Pushpak, Krishak, Basant, Marut, Marut Trainer, Kiran, Ajeet, MiGs, HS-748 aircraft and Cheetah| Chetak helicopters have been produced. In addition, over 1500 jet engines, as well as a wide range of

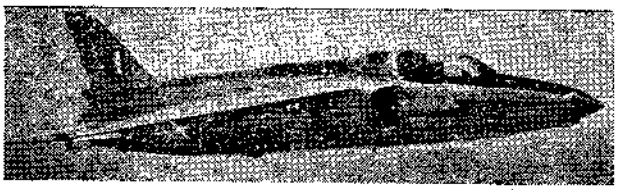
avionics, instruments and accessories have been produced in HAL factories. The latest addition to the range of products of HAL is the Jaguar International Aircraft in respect of which pre-production activities are in full swing.

Besides manufacture of aircraft, helicopter, engines, avionics, instruments and accessories, HAL has set up facilities for manufacture of jigs, tools and fixtures as well as high quality castings and forgings in support of these programmes.

The advanced technology and skills available in HAL have contributed significantly to the country's prestigious space programme. Components, sub-assemblies, inter-stage and shell assemblies for the Satellites and space launch vehicles have been fabricated and produced by HAL.

The growth of HAL has also spurred the development of metallurgical industries such as INDAL, BALCO, MUSCO, FISCO and MIDHANI. Besides, a number of sub-contractors and ancillaries are engaged in work for HAL and through their association with HAL, their level of technology in these has been upgraded.

The design offices of the Company are located at Bangalore, Hyderabad and Lucknow. The design office at Bangalore deals with design of aircraft, helicopter and small jet engines. HT-2, Pushpak, Krishak, Basant, Marut, Marut Trainer, Kiran and Ajeet are the notable major products developed successfully and put into production. Currently design and development work is in advanced stages on Ajeet Trainer, Kiran MK. II and HPT-32. Preliminary work on projects of Ligh Combat Aircraft, Armed Light Helicopter, etc., have also been taken up to meet the requirements of the 80's.



AJEET—one of the aircrafts in the range of 2300 crafts built by the HAL

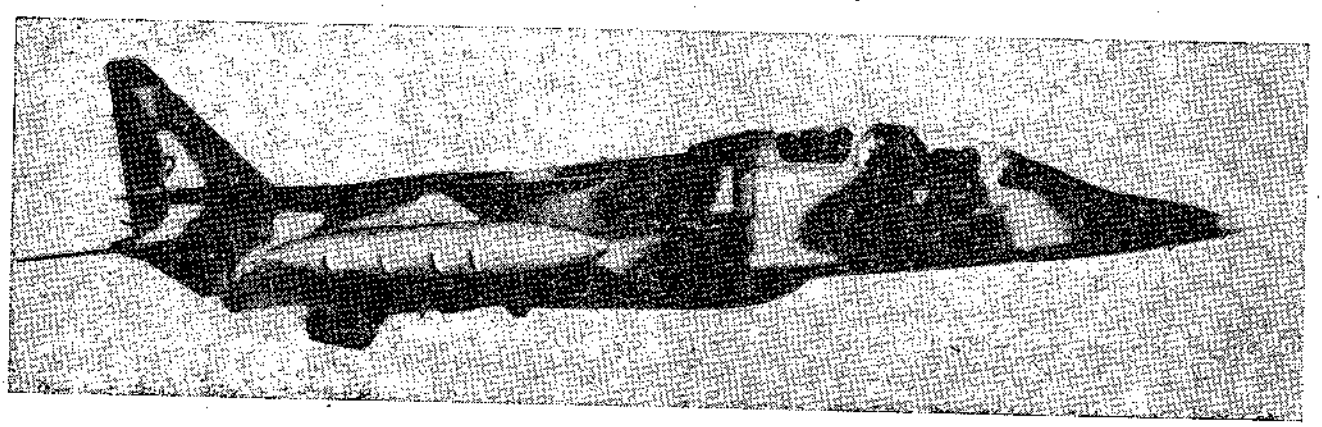
The Design Bureau of Hyderabad has successfully completed the design and development of airborne equipment such as IFF (Identification Friend or Foe), VHF and V|UHF communication sets and Radio Compass as well as ground-based Air Route surveillance Radar Precision Approach Radars. Further, projects on advanced airborne equipment such as Fire Control Radar, Radio Altimeter, High Frequency single sideband Comunication equipment etc., are in progress. The Bureau is well equipped with modern facilities for design and development of state-of-the-art electronic equipment including multi-layered printed circuit boards, thin and thick films, hybrid micro-electronics, etc.

HAL hasten factories in five states in the country and employs over 40,000 people. Its annual production is worth about Rs. 180 crore.

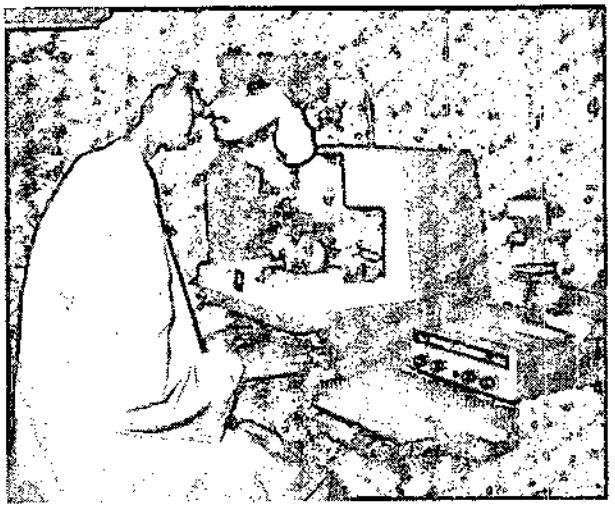
At Lucknow the design activities relate to development of wide range of accessories and instruments fitted to aircraft and fighting vehicles. A Gyro Land Navigation System for use in fighting vehicles (Tanks) has been successfully developed. Further, projects are being taken up to meet the ever growing needs of the modern aircraft.

The efforts of the several Design Bureaux will lead to progressive self-reliance and foreign exchange savings. □

The latest addition to the range of products of HAL is Jaguar International Aircraft in respect of which pre-production activities are in full swing.

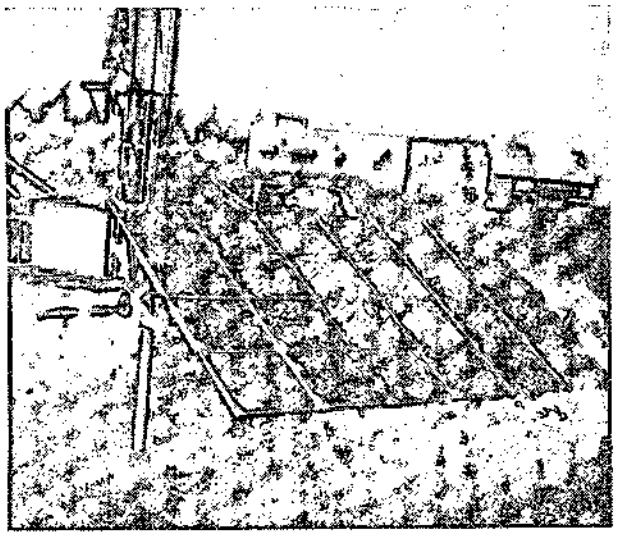


Central Electronics



A Solar Panel at CEL

THE factory of Central Electronics Limited (CEL) is located at the Industrial Estate in Sahibabad (UP). It was established in June 1974 (A Government of India Enterprise). It manufactures the following products : Professional Ferrites for Television, Communication and Power Electronic Applications viz. Potcores, RM Cores, E and I Cores, UU and UI Cores, memory Cores for Computers, Ceramic Capacitors for Radio and Television. Fluorescent tube Starters, piezoelements for ultrasonic transducers and gaslighter cartiges. High purity alumina ceramics for



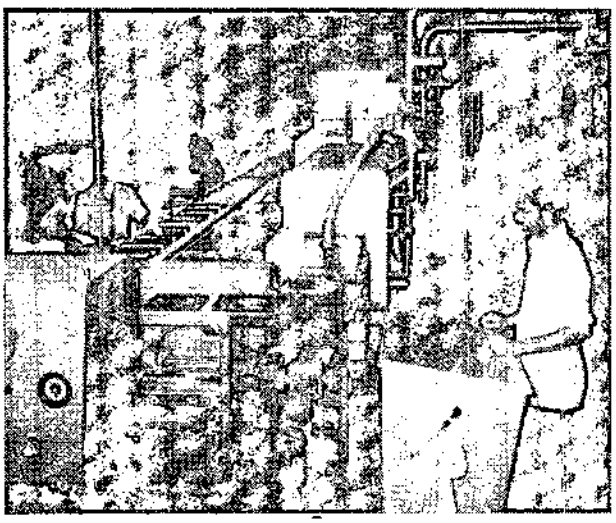
LED Assembly (Bonding) of CEL

power rectifier housing, substarte for cermet potentiometers and feedthrus for vacuum coating units, combustion boats, crucibles etc. Solar Photo-Voltaic cells, Solar Panels for power displays light emitting diodes and displays for Panel indicators, digital instruments, calculators and clocks etc., Nitrogen Laser for UV radiation, Holographic gratings for instruments, High Intensity Monochromators, Photon Counters, Automatic Slide Projectors, Synchronised Projection Systems for Audio Visual Aids etc.

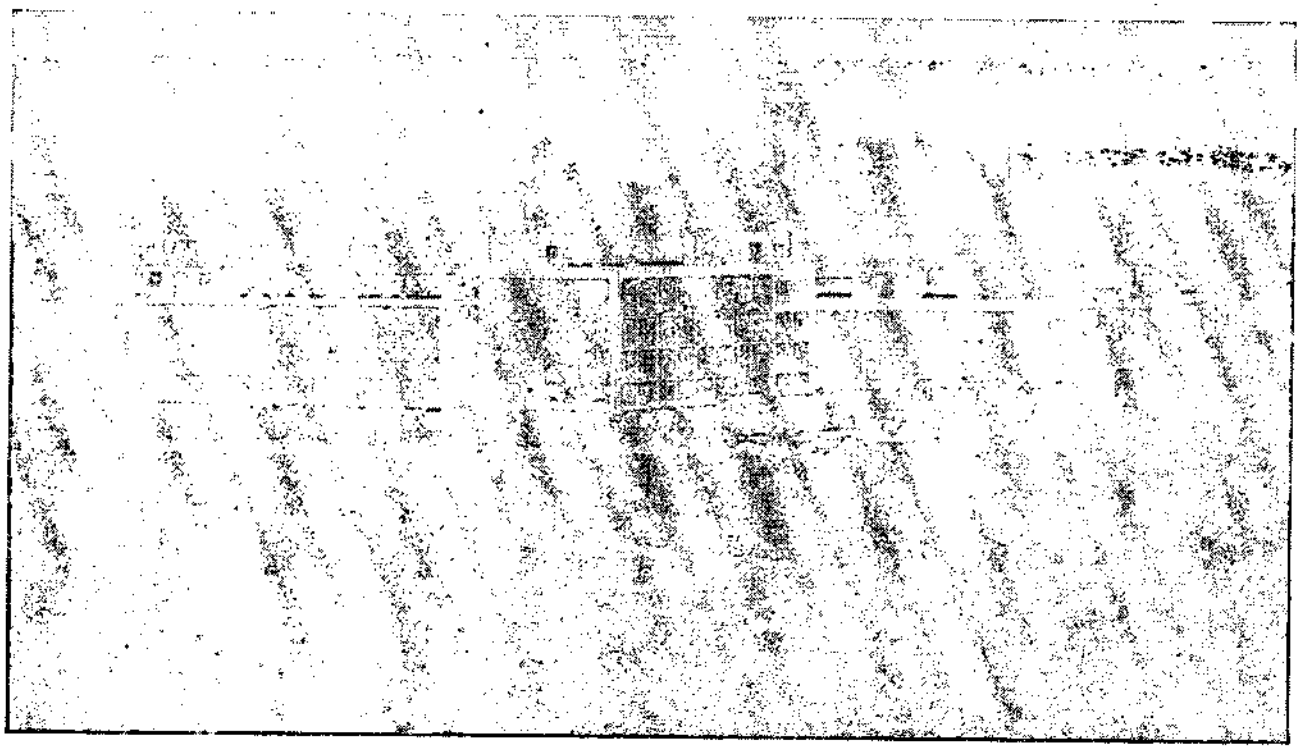
The CEL is India's seventh public sector unit manufacturing sophisticated electronic components, and systems using purely indigenous knowhow and technology Set up under the aegis of the Department of Science and Technology, it is the second public sector venture with a motto to produce items based on purely indigenous knowhow. It has been developing, expanding and diversifying ever since it started functioning in the newly constructed buildings in Sahibabad in April, 1977, taking knowhow developed in the CSIR Laboratories, BARC, IIT's and other R and D organisations in the country.

Central Electronics is also co-ordinating various developmental projects, sponsored by the Department of Science and Technology and the Department of Electronics. To mention a few Scanning Electron Microscope, Magnetrons, Halogen Lamps, Micro-wave ovens etc. Under the DST's sponsorship it is initiating and coordinating massive programmes on Solar Cells, Solar Panel sand Systems connected with solar energy conversion to meet domestic agricultural needs in rural areas in the country.

According to the revised project estimates approved by the Government of India in August 1977, the ultimate capital investment in the CEL by 1984-85 would be Rs. 70 million with a production target of Rs. 101.8 million, and a manpower of 2120.



Precision Sintering of Professional Ferites



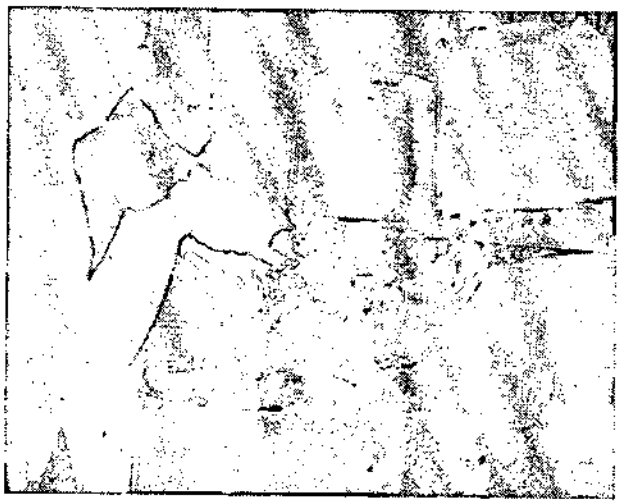
A view of the factory at Ootacamund

Round-up

Hindustan Photo Films

THE Hindustan Photo Films (HPF) took birth at Ootacamund as a wholly owned Government Company in the Public Sector in November 1960. It was established with French and later, American collaboration. The Project cost was in the order of Rs. 1,167 lakhs.

Emulsion deptt. of the HPF



The Company had been incurring losses in the initial eight years - a situation not uncommon in similar complex technology industries elsewhere too. It has been earning profit from 1975-76 onwards, in 1979-80 its profit was Rs. 267 lakhs. The value of its production has increased from Rs. 698 lakhs in 1973-74 to Rs. 4850 lakhs in 1979-80.

HPF is one of the six companies in the world manufacturing Photo, Cine and X-Ray films from the raw material to the finished product, the others being Agfa, Kodak, Orwo, Fuji and Ferrania. The country's entire requirements of Black and White Cine Positive Film of Cine Sound Negative are met by the HPF. The total requirements of Bromide Paper are met from indigenous sources, the HPF having major market share. Foreign exchange saved so far by the Company is about Rs. 30 crores.

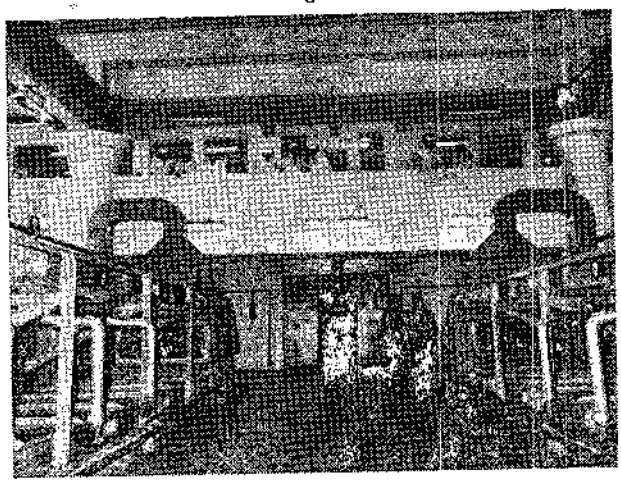
The Company has its chemical process plant at Ambattur (Madras) wherein, it has also recently set-up a Conversion Branch for two new products i.e. Industrial X-Ray, and Graphic Arts with technical assistance agreement with M/s. Dupont of the USA.

The Company takes care of its employees numbering 2800 as its most precious assets. Its attitude towards these assets is progressive consistent with the ethos of the Public Sector.

A Project for setting-up separate Research and Development Centre at a cost of Rs. 250 lakhs is contemplated within the next two years. The HPF has plans for creating additional coating capacity to the extent of 4-5 million sq. meters to meet the increase in demand for the existing products and also for the manufacture of amateur roll films at a project cost of Rs. 200 lakhs with a lead time of two years for completion.

Another venture being planned is to set-up new Coating Facility for Industrial X-Ray and Graphic Arts, which are otherwise only converted from semi-finished imported materials as is now done.

The Company has drawn plans for increasing the manufacture of cine colour positive in the VI Plan.



Raw Base Process in Film Base

Round-up

United Commercial Bank

IN 1943 United Commercial Bank was originally incorporated as the United Commercial Bank Limited with its headquarters at Calcutta. Shri S. D. Birla was its first Chairman and Shri B. T. Thakur first General Manager. Within 8 years, the Bank ranked among the first big five commercial banks in India.

The Bank was nationalised in 1969. During the next decade the number of its branches increased from 323 to 1066 (among them 439 rural); deposits have risen from Rs. 240.58 crores to Rs. 1236.22 crores and advances from Rs. 144 crores to Rs. 790.62 crores (advances to priority sector being Rs. 1790.05 crores). The net annual profit increased from Rs. 83.40 lakhs to Rs. 2.12 crores.

A Punjabi Weaver who received financial help from UCO Bank

At the end of 1979 the Bank had 1128 branches with the employee strength of 20,828.

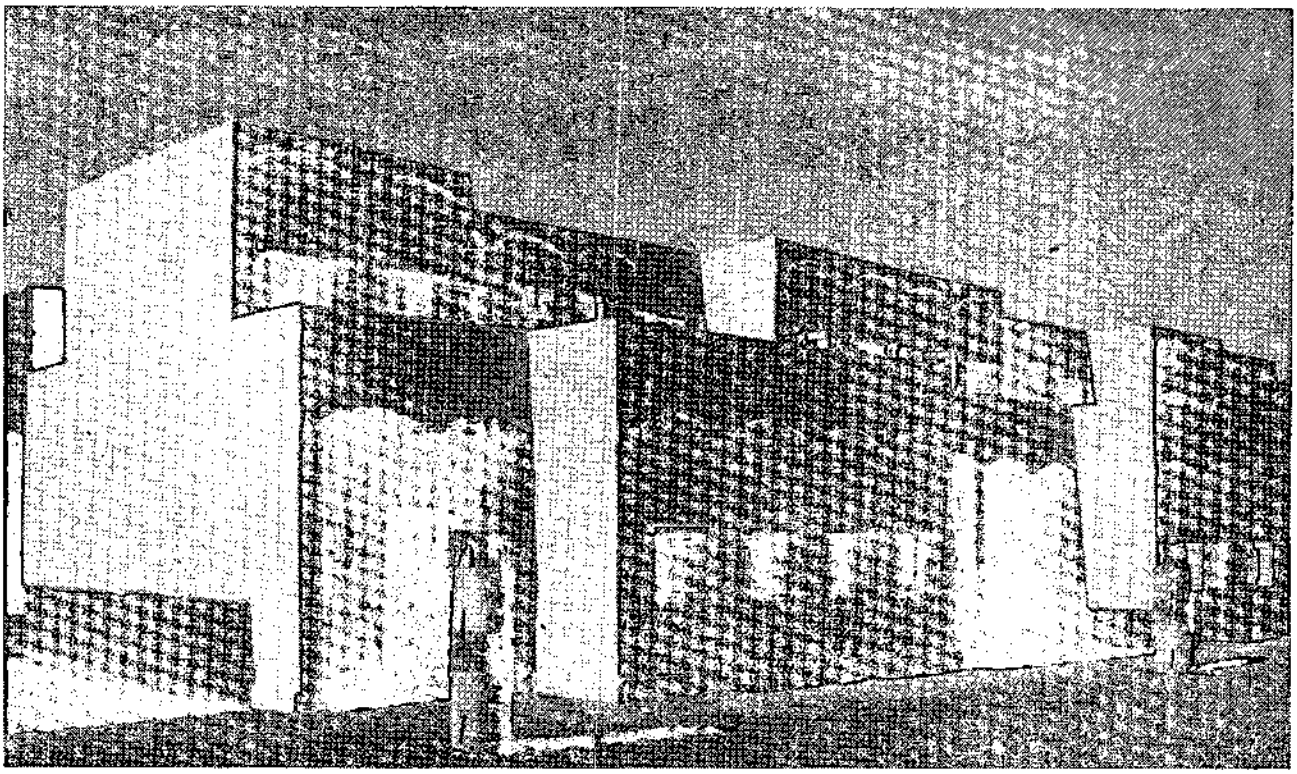
The Bank now has 24 lead districts in the Seven States of West Bengal, Assam, Orissa, Bihar, Rajasthan, Himachal Pradesh and Punjab. At the end of 1979, there were 390 branches of the Bank in these lead districts. Four Regional Rural Banks, with 167 branches, in Rajasthan, West Bengal, Orissa and Bihar have been sponsored by the Bank. In 1980 was sponsored another Regional Rural Bank in Balasore of Orissa. One more will be in Burdwan of West Bengal.

During 1979, the total outstanding in the Priority Sectors stood at Rs. 235 crore, forming 30 per cent of the total credit of the Bank. In the agricultural sector, the outstanding rose to Rs. 94 crores. The Bank's advances to small and marginal farmers with holdings up to 5 acre were Rs. 29 crores.

The Bank adopted, 3,548 villagers in most of the States by 1979. The villagers have been adopted in clusters and all development needs of the villagers were sought to be met. The Bank provided them credit assistance with outstanding at Rs. 21 crores.

The Differential Rate of Interest Scheme was implemented by 818 branches of the Bank. Total advances under the scheme were Rs. 4.5 crores covering 61,519 accounts.

Credit Plans were launched by the Bank in 1978. These plans had been drawn up on a survey of selected blocks in each lead district.



HUDCO's EWS housing at Rajkot, Rs. 700 per unit and below.

HUDCO

The Housing & Urban Development Corporation Ltd., (HUDCO) was established in the year 1970 by the Government of India as an apex organisation to finance and undertake housing in the country with primary emphasis on the promotion of housing for low income groups and weaker sections, who constitute the majority of the country's population.

In pursuance of its objectives, the HUDCO provides financial assistance for various types of schemes, such as urban housing, rural housing, houses for employees, cooperative housing, urban development, and manufacturing of building materials and also provides comprehensive consultancy services.

After having achieved the target of Rs. 139.20 crore for loan sanctions during the year 1979-80, the HUDCO had set a target of Rs. 160 crore for loan sanctions in the year 1980-81. During the seven months of the current year it has sanctioned 203 projects with a project cost of Rs. 154.56 crores with HUDCO's loan commitment of Rs. 98.73 crore. It has also set for itself a loan release target of Rs. 89 crore for 1980-81 as against Rs. 77 crore released last year. The HUDCO has adopted the strategy that 55 per cent of the funds committed for housing should benefit the lowest income categories with monthly household income not exceeding Rs. 600. Of the total 1,00,105 dwellings which came up with the sanction made during April—October. 85 per cent are meant for these lowest income categories.

The Corporation also started financing rural housing schemes from the year 1977-78. It has so far sanctioned loans to the tune of Rs. 3,437.15 lakh for building 2,55,920 dwellings.

From inception till 31st October, 1980 the loan sanctions of the Corporation have reached Rs. 647.40 crore for building 7,18,242 dwellings and developing 62,489 plots.

The HUDCO has, constituted a Sub-committee of its Directors to conduct high level talks with the Chief Ministers|Housing Ministers and other high ranking officers of the States which have not been taking adequate assistance from it to induce them to undertake more schemes with the HUDCO's assistance.

It has also undertaken direct implementation of a low cost housing project for the Delhi Development Authority in Delhi, involving the construction of 1180 houses for economically weaker sections and 875 quarters for Government employees.

The HUDCO has decided to build up a revolving fund of Rs. 200 crore for the achievement of its objectives. As on October 31, 1980 it has mobilised resources to the extent of Rs. 242.98 crore. □

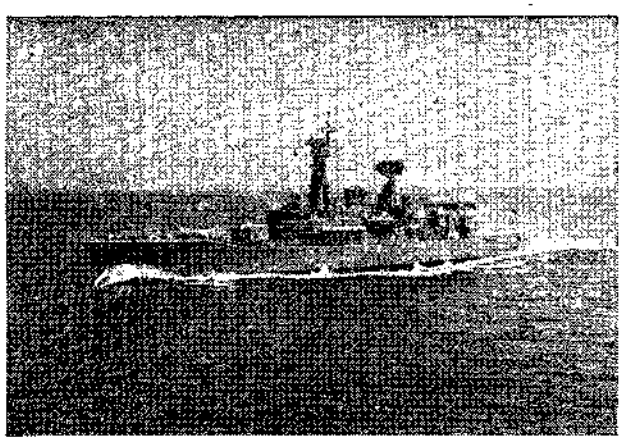
Mazagon Dock Limited

THE history of Mazagon Dock Ltd., Bombay, goes back to over 200 years and makes a fascinating study in the history of ship building in India. In 1774, the first dry dock was built. According to available records, Lord Nelson, hero of Trafalgar, visited Mazagon Dock on board H.M.S. SEAHORSE in 1775-76. In fact, some of the teak ships built in Mazagon Dock took part in the Battle of Trafalgar.

Mazagon Dock was jointly owned by Peninsular & Oriental Steam Navigation Company and British India Steam Navigation Company of the United Kingdom upto 1960 when it was acquired by the Government of India as a Public Sector Enterprise under the administrative control of the Ministry of Defence, Department of Defence Production.

At the time of the takeover, Mazagon Dock was primarily a ship repair yard. Subsequently, it was modernised and expanded for building warships as well as merchant ships and for increasing ship repair work.

Mazagon Dock is capable of building sophisticated warships such as submarines, destroyers, frigates and corvettes. It has already built and delivered Frigates to the Indian Navy. The fifth and sixth Frigates are being fitted out. Mazagon Dock has now embarked upon a more challenging venture, namely construction of Frigates of entirely Indian design.



The fifth Leander Class Frigate INS Taragiri built by Mazagon Dock.

The first Indian designed frigate Godavari built by Mazagon Dock.

As regards Merchant ships, Mazagon Dock can now build vessels up to about 27,000 DWT. Mazagon Dock can build cargo vessels, passenger-cum-cargo vessels, passenger vessels, dredgers, tankers, water tankers, tugs, fishing trawlers, barges, etc. It has built a luxury passenger-cum-cargo vessel for the Shipping Corporation of India, two Cargo Vessels for Singapore, six cargo vessels for United Kingdom, dredgers for various Port Trusts in India and other vessels for Indian Shipowners and export market.

Besides ship building, Mazagon Dock is fully equipped to carry out all types of major repairs to passenger ships, tankers and cargo ships.

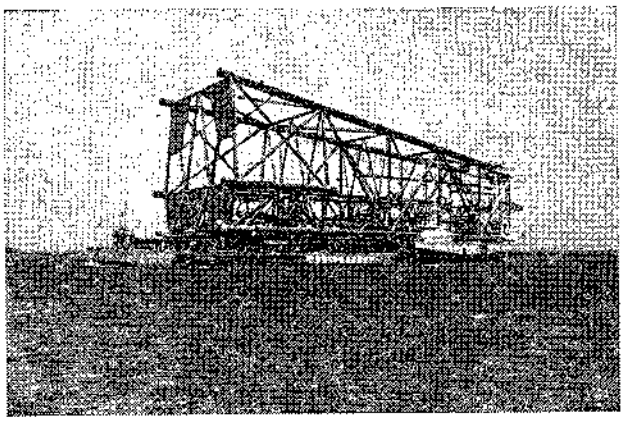
In view of the all round efforts being made for the exploration and production of oil from offshore resources, Mazagon Dock has diversified in the field of manufacturing offshore Fixed Platforms and other offshore structures. The Company has received an order for the manufacture of six offshore Fixed Platforms for the Oil and Natural Gas Commission for installation at Bombay high. Of this two platforms

have already been installed at Bombay High. The fabrication of the offshore platform requires sophisticated technology and it is a matter of pride that Mazagon Dock has taken up the challenge.

The company can undertake a variety of heavy engineering works such as the manufacture of large pressure vessels, precision machining, radiograph quality welding, overhaul of steam, diesel and petrol engines, etc. It can also manufacture port, dock and shipbuilding cranes.

Mazagon Dock successfully entered the export market in shipbuilding for the first time in India in 1974-75. During the short period since then, export orders worth over Rs. 45 crores have been secured from the U.K., Singapore, Iran, Saudi Arabia and Yemen. Most of the vessels against these orders have already been delivered and work on the remaining vessels is in progress according to schedule.

The Dock's activities are now being expanded further. In order to meet the requirements of barges and small cargo vessels for export and domestic, market, the Company assisted in the development of a number of small shipyards on the west coast of India. This step has helped in augmenting the country's ship building capacity as well as generating additional employment opportunities.



The Jacket of the Offshore fixed Platform built for Bombay High.

Mazagon Dock possesses an invaluable asset in the experienced and skilled manpower of 11,000 officers and workmen.

The Company has been able to maintain production and earn better profit inspite of world-wide recession in ship building and ship repair industry. The total production for the year 1978-79 was Rs. 52.11 crores and the profit before tax was Rs. 260.62 lakhs.

Some articles on the Public Sector could not be accommodated in this issue, as they were received late. They will be published in our next issue.

Editor

Vizag Shipyard

HINDUSTAN SHIPYARD, Visakhapatnam, owes its existence to late Shri Walchand Hirachand, who as Chairman of the Scindia Steam Navigation Co. Ltd., was responsible for the launching of this venture. The first 8,000 ton steam ship "JALAUSHA" was launched on 14 March 1948 by the late Jawaharlal Nehru.

After building eight ships of the 'JALA' series totalling 36,105 GRT, the Scindias found themselves unable to finance either the construction of ships or the development of the Yard without state assistance. The Government of India acquired a major interest in the Shipyard, in 1952 and fully took it over in 1961.

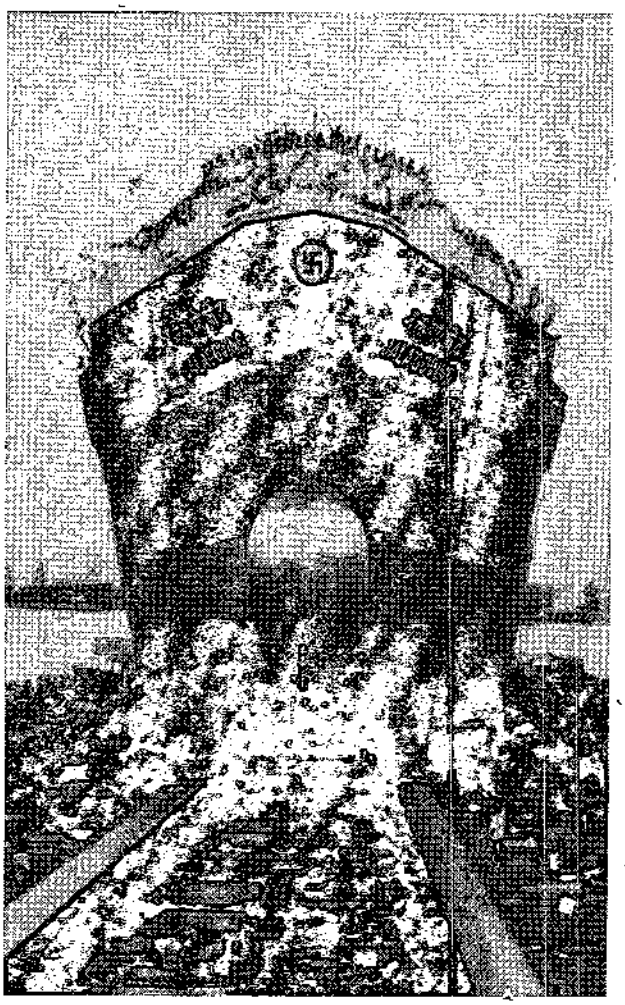
After nationalisation, with the assistance of a French firm of consultants, a development programme was implemented. This programme which cost about Rs. 297 lakh was successfully implemented in two phases in the First and Second Five-Year Plans.

With the tempo of production thus geared up, the tonnage of ships built rose to 1,00,000 GRT by July 1958. Since the expiry of the agreement in July 1958 with the French consultants, the Shipyard is manned entirely by Indian personnel. The Shipyard won the Presidential Award of "Certificate of Honour" for satisfactory performance during 1961-62.

The Shipyard has capacity to build all types of general cargo vessels upto 18,000 DWT and bulk-carriers|tankers upto 30,000 DWT. It can also undertake construction of Naval Vessels oceanographic Survey Vessels, big Trawlers, Supply Vessels, harbour craft of various types and other specialised vessels. The capacity of the yard may be reckoned at three ships per annum.

The Shipyard has built up a nucleus of its own technicians and engineers by a phased programme of intensive training in almost all the shipbuilding trades. Its payroll include more than 50 specialised trades and professions. The strength of the Yard comprises over 8,800 employees. In the matter of workmanship, the ships built in the Yard are second to none in quality and performance. and carry the highest classification assigned by the various Registers of Shipping or Classification Societies.

As on date, a total number of 79 ships (including small crafts aggregating to about 8,23,062 DWT 5,67,161 GRT have been built and delivered by the Yard. These cover a wide range from ocean-going cargo liners to all types of specialised craft, and include a sophisticated Naval Survey vessel, a modern training ship, two passenger ships and a good number of miscellaneous crafts.



Launching of a Ship built by Vizag Shipyard

The 'Pioneer' Class vessels patented by Messrs. Blohm & Voss, West Germany are different in many ways compared with the type of vessels built earlier in the Yard. These will be the largest vessels both in dimensions and in dead-weight ever built in India and are very sophisticated. The Shipyard has so far built and delivered 11 'Pioneer' Class Ships.

A new flexible basic standard hull form has been evolved in recent months. The novelty of the design is that it can be utilised in building different types and sizes of vessels while yet retaining to a very great extent many standardised features as 'common' and 'identical'.

Built at a cost of Rs. 5.32 crore, the Yard's, Drydock was commissioned in 1971. It is the biggest of its kind in India in its principal dimensions and docking capacity. The dock is capable of accommodating all vessels upto 57,000 DWT and some in the range of upto 70,000 DWT. Within the short period, the dock has earned a name for itself and has turned out intricate repair work on submarines, warships, naval survey vessels and a good number of merchant ships. Repairs to vessels, both Indian and foreign have started yielding savings|earnings in foreign exchange.

The wet basin of the Yard (costing Rs. 4.99 crore) was commissioned in March 1976., and is an active adjunct for afloat repairs of ships.

The repair complex is situated in an area of 30 acres immediately next to the ship-building area.

To set right the imbalance in the existing equipment and physical facilities and to replace the out-moded machinery, and to keep abreast of latest techniques and methods in modernising shipbuilding, Hindustan Shipyard has embarked upon ambitious plans of modernisation and expansion since 1969. The first phase, at an estimated cost of Rs. 6.09 crore, is almost completed. The second phase at an estimated cost of Rs. 3.66 crore, is on hand. These programmes have enabled the Yard to raise its capacity to three "Pioneer" Class Vessels per annum. Next phase of programme which is estimated to cost Rs. 49 crore will raise the Yard's capacity to seven or eight ships per annum. This proposal is currently under consideration of the Government.

Aerial view of Hindustan Shipyard Ltd. Vishakhapatnam

The Shipyard has a residential colony, known as "Gandhigram" situated close to the Yard. The colony which is 146 acres in extent, has 1744 residential units apart from public institutions catering to the need of the residents.

The turnover of the Company increased from Rs. 2680 lakh in 1978-79 to Rs. 3133 lakh in 1979-80. Consequently, the dividend payable was increased from 6 per cent to 7 per cent during the year. The keel-laying, launching and delivery of ships were doubled in 1979-80 as compared to the previous year.

The company has contributed to the National Exchequer during 1977—80, an amount of Rs. 1231.82 lakh by way of dividend, Income tax and excise duty. □

The Indian Iron & Steel Company

MODERN METALLURGY was introduced to India with the establishment of two open top blast furnaces at Kulti in 1875.. The Works at Kulti after changing hands several times was merged with the Indian Iron & Steel Co. Ltd. (IISCO) in 1936; IISCO itself having been founded in 1918 initially to produce pig iron at its Works located at Burnpur. The steel-making facilities at Burnpur were added in 1939. Burnpur Works was expanaded to produce one million tonnes of ingot steel in the late fifties. During the same period the iron-making facilities of Kulti Works were dismantled while the foundries and spun pipe making facilities expanded. The plant at Burnpur operated at the rated capacity for two consecutive years in the mid-sixties. Thereafter, as a result of the sharp decline in production, the management of IISCO was taken over by the Government of India in 1972. IISCO was nationalised in 1976 and made a fully subsidiary of the Steel Authority of India in 1979.

IISCO today is a multi-unit Company with its steelworks at Burnpur, in West Bengal. collieries at Chasnalla and Jitpur in Bihar and Ramnagore in West Bengal. It has iron ore mines at Gua and Chiria in Bihar and a coal washery at Chasnalla, a 54 Km aerial ropeway from Chasnalla to Burpur and foundries and spun pipe plants at Kulti in West Bengal Stanton Pipe and Foundry Co. Ltd., with a modern spun pipe plant at Ujjain in Madhya Pradesh is a subsidiary of IISCO.

A Plant Rehabilitation Scheme (PRS) with an estimated expenditure of Rs. 58 crores was launched in 1973. The PRS helped to restore the technical health of the plant to a large extent. Production of saleable steel which had declined to 43.4 per cent of the installed capacity in 1972-73 improved to 67.5 per cent in 1976-77, but thereafter declined to 53.7 per cent in 1979-80, primarily because of shortage of vital inputs like power and coking coal, and inferior quality of raw materials. These are being tackled and although shortages persist to some extent, it is expected that the plant will achieve more than 65 per cent capacity utilisation during the current financial year. In the immediate future major repairs to two old coke oven batteries and relining of one of the two large blast furnaces have been planned. A new coke oven battery at an estimated cost of Rs. 27 crores and a box wagon tippler are under construction.

To make IISCO viable improvements in the iron and steel making technology have been envisaged and the benefits of these are likely to accrue during the sixth Five Year Plan (1980-85). An investment of about Rs. 5 crore has been made to extract prime grade coking coal by open-cast mining at Chasnalla. Diversification of Kulti's products are also envisaged.

For Peaceful Progress of the North East

Indira Gandhi*

IN our system, the States are distinct units and each has its problems, but a regional approach helps each unit to solve its problems better. Even in the international sphere the regional approach is now being welcomed. Every one of the States and Union Territories of our North East has its own personality; yet, there is a family resemblance among them. That is why the expression 'seven sisters' came to be applied to them. The rest of the country holds the 'seven sisters' in special affection.

The complexities and diversities of India are many. They relate to language, to religion, resource endowments and the quality and pace of development. But we are an integrated whole, determined to survive unitedly in spite of differences. We are constantly trying to resolve these differences. All states and all regions must share burdens and contribute to the development of the country as a whole. The country's progress does not depend only on the speed of the fastest, but must take into account the pace of the weakest. This is why our schemes of development pay special attention on the redressal of regional disparities.

The North East is one of our lesser developed regions. Its resources—physical and human—must be better utilised. The people are impatient for development and we can understand this. The restlessness of the young people increases when they see the advance in other parts of the country. In the initial stages, the processes of economic development aggravates disparities.

Regions or countries which are backward and which have to run to keep in the same place start with big handicaps. A great deal of development has taken place, but we have to go a long distance still. The main sectors of development of the North Eastern region are : Transport, Communication, power management, modernisation of agricultural practices, marketing, institutional finance and training. In each of these there has been advance under the direction of the Council. In transport and communications, power and agriculture and in industrial development, many new projects have been taken up.

As soon as our Government took over office this year, we appointed a Committee of Ministers to give extra impetus to your development projects and programmes. A High Power Committee of officers under the Cabinet Secretary has been at work to determine areas where special attention is needed. The Committee has identified schemes requiring priority attention for the development of roads, railways, services and productive activities in agriculture, horticulture, water management, handicrafts, handlooms and small industries. The developmet of manpower has received special emphasis. The North-Eastern Council will have to dovetail this effect into a long-term perspective. While doing so, you have to keep in view the socio-economic needs of the different States in the region. You must also ensure that the weaker sections of society, particularly the tribals, get a fair deal.

*Inaugural Address at the Special meeting of North-Eastern Council, at New Delhi—December 22, 1980.

Development with Conservation

We are intent on completing the new Brahmaputra Bridge within the Sixth Plan and also taking up the Garo Hills Ropeway. We want the health and medical facilities in the area to be strengthened and a Working Group has been constituted to look into the proposal for an Institute of Medical Sciences. We want to strength the infrastructure of roadways. Recently roads are being converted to National Highway standards. We also want you to get greater benefit from your coal reserves. The Geo-technical surveys must be expedited. At present only 25 per cent of the area has been surveyed. This has to go up to at least 75 per cent in a short time. There is vast scope for diversifying agriculture-based industries. With more imaginative marketing the handicrafts will have far greater sale in the country and even abroad. Utmost care should be taken to conserve the authenticity of designs.

The Council must bear in mind the need for constant monitoring of the progress of projects. Enthusiasm in the formulation and sanction of projects is not always sustained in their implementation. While the primary responsibility of this will be on the State Governments, the North-Eastern Council must constantly be on the look out for delay, slackness and other problems which may arise. I am told that even simple matters like land acquisition for projects get delayed. It is possible that the regulations of land tenancy vary among the different States of the region. But the States should show more interest in their quick resolution. The projects are meant for their own development. I urge the Chief Ministers to evince personal interest in these matters which are said to hold up quick clearance of projects..

Another area where we must be vigilant is ecological and environmental well-being. All over the world, and in many parts of the country, common desire for immediate results has harmed the long-term interests of the State as well as the country. I have been told about the denudation of forests on the hill slopes in the North-Eastern region, because of road construction and other projects. Roads are to be made but they should be made in such a way that they do not ruin the ecology of the hill areas or encourage landslides and other such calamities.

I have been receiving complaints that many species of wild-life are now in danger because of indiscriminate felling of trees and poaching. The North Eastern Region is a rich repository of plant life. For ultimate prosperity the preservation of flora and fauna of this region is as important as starting of industries and agricultural programmes. Decision makers should always keep in mind their answerability to the future.

The Council and indeed all the Governments of the region should make the people aware of the common heritage of our country. This can be fostered in great measure by properly planned schemes of tourism. I refer not only to the inflow of tourists to this region, which no doubt has to be carefully fostered, but also facilities and encouraging of people of this region to visit other parts of the country. The North-Eastern Council could play a very useful role in this also.

Region and Nation

The region has witnessed a great deal of turmoil in recent years. The agitation in Assam and other parts of the region and the killings in Tripura have caused much disquiet in the whole country. They have also not helped national integration. Indeed the preaching of narrow loyalties is against the interest of us all. India is known for traditions of hospitality and goodwill as also our willingness over the centuries to assimilate all that is good everywhere else. Indian culture has followed an open-door, open window policy accepting many ideas and influences from other civilisations. The same spirit of tolerance has marked our attitude to people who came into our country and shared whatever we had to offer. We have also seen the heart-warming spectacle of Indians contributing to development abroad. They have become full partners in the lives of those countries.

The agitators unfortunately have not understood this vital ingredient of our national genius. We have shown a great deal of patience in spite of the strains, but divisive elements cannot be tolerated. And resort to violence has to be sternly dealt with.

In spite of the year long agitation, the blockade of oil and timber going out of the State and disruption of the administrative machinery, the Government was able to ensure adequate supplies of essential commodities to the people of the region. On occasions there were some shortages, but on the whole the people's needs are met. I should like to congratulate the officials who were responsible for this notable achievemet against heavy odds. However, without the right political and social environment, it is difficult to achieve development.

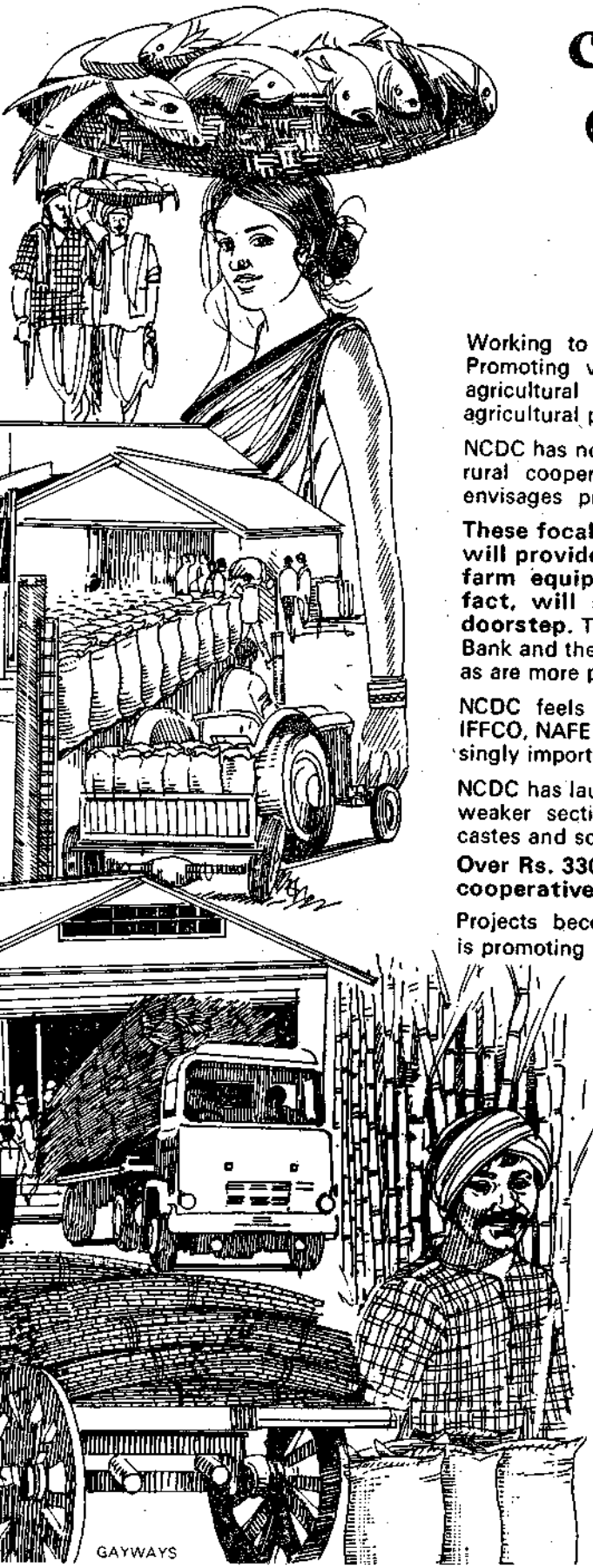
I don't have to tell you how much the economic loss the Assam agitation has caused to Assam itself and to the nation. In Assam and in Tripura, Manipur and Meghalaya, the development process has slowed down because of the diversion of the energies of the people and the Government. Although we have made special efforts at great cost to ensure essential inputs, important projects have been considerably delayed. It is ironical that there should be scarcity of petroleum products in the North East.□

A List of Public Enterprises (as on 1-2-1980)

1. Air India Ltd., Bombay.
2. Air India Charters Ltd., Bombay.
3. Andrew Yule & Co. Ltd., Calcutta.
4. Andaman & Nicobar Islands Forests & Plantation Dev. Corporation Ltd., Port Blair.
5. Artificial Limbs Mfg. Co. Kanpur.
6. Balmer Lawrie & Co. Ltd. Calcutta.
7. Banana & Fruit Dev. Corp. Madras.
8. Bharat Aluminium Co. Ltd. New Delhi.
9. Bharat Brakes & Valves Ltd. Calcutta.
10. Bharat Coking Coal Ltd., Dist. Dhanbad (Bihar).
11. Bharat Dynamics Ltd., Hyderabad.
12. Bharat Earth Movers Ltd., Bangalore
13. Bharat Electronics Ltd., Bangalore.
14. Bharat Gold Mines Ltd., Oorgum, Karnataka.
15. Bharat Heavy Electricals Ltd., New Delhi.
16. Bharat Heavy Plates & Vessels Ltd. Visakhapatnam (A.P.)
17. Bharat Leather Dev Corpn. Ltd. Agra.
18. Bharat Opthalmic Glass Ltd., Durgapur (W.B.)
19. Bharat Petroluem Corp. Ltd., Bombay.
20. Bharat Pumps & Compressors Ltd., Naini, Allahabad (U.P.)
21. Bharat Refractories Ltd., Bokaro Steel City, Bihar.
22. Biecco Lawrie & Co. Ltd., Calcutta.
23. Bharat Wagons Ltd., Muzaffarpur, Bihar.
24. Bongaingaon Refineries & Petrochemicals Ltd., P.O. Dhaligaon, Distt. Goopalapara, Assam.
25. Braithwaite & Co. Ltd., Calcutta.
26. Bridge & Roof Co. (I) Ltd., Howrah, West Bengal.
27. Burn Standard Co. Ltd., Calcutta.
28. Cashew Corporation of India, Cochin.
29. Cement Corporation of India, New Delhi.
30. Central Coalfield Ltd., Ranchi.
31. Central Cottage Industries Corpn. (I) Ltd., New Delhi.
32. Central Electronics Ltd., Sahibabad. (U.P.)
33. Central Fisheries Corp. Ltd., Howrah (West Bengal).
34. Central Inland Water Transport Corporation Ltd., 4, Fairlie Place, Calcutta.
35. Central Mines Planning & Design Institute Ltd., Rachi.
36. Central Warehousing Corp. Ltd. New Delhi.
37. Coal India Ltd., Calcutta.
38. Cochin Refineries Ltd., Ambalamugal (PO), Cochin.
39. Cochin Shipyard Ltd., Cochin-15.
40. Computer Maintenance Corp. Bombay.
41. Cotton Corporation of India, Bombay.
42. Delhi Transport Corporation, New Delhi.
43. Dredging Corp. of India. Visakhapatnam.
44. Eastern Coalfields Ltd., Asansol (W.B.).
45. Electronics Corpn. of India Ltd., Hyderabad (A.P.)
46. Electronics Trade & Technology, Development Corportion, New Delhi.
47. Engineers India Ltd., New Delhi.
48. Engineering Projects (I) Ltd., New Delhi.
49. Export Cedit & Guarantee Corpn., Bombay.
50. Fertilizer Corpn. of India Ltd., New Delhi.
51. Fertilizers & Chemicals Travancore Ltd., Udyogmandal P.O. Kerala.
52. Fertilizer Planning & Development (I) Limited, Sindri, Distt. Dhanband, Bihar.
53. Film Finance Corpn. Ltd., Bombay.
54. Food Corpn. of India Ltd., New Delhi.
55. Garden Reach Shipbuilders & Engineers Ltd., Calcutta.
56. General Insurance Corpn., Bombay.
57. Goa Shipyard Ltd., Vasco-da-Gama, Goa.
58. Handicrafts & Handlooms Export Corpn. (I) Ltd., New Delhi.
59. Heavy Engineering Corpn. Ltd., Ranchi (Bihar).
60. Hindustan Aeronautics Ltd., Bangalore.
61. Hindustan Antibiotics Ltd., Pimpri, Poona.
62. Hindustan Cables Ltd., Rupnarainpur Rly. Stn., Distt. Burdwan (W.B.).
63. Hindustan Copper Ltd., Calcutta.
64. Hindustan Fertilizer Corpn. Ltd. New Delhi.
65. Hindustan Insecticides Ltd., New Delhi.
66. Hindustan Latex Ltd., Trivandrum.
67. Hindustan Machine Tools, Bangalore.
68. HMT (International) Ltd., Bangalore.
69. Hindustan Organic Chemicals Ltd., PO Rasayani Distt. Kolaba, Maharashtra.
70. Hindustan Paper Corpn., Calcutta.
71. Hindustan Petroleum Corpn., Bombay.
72. Hindustan Photo Films Mfg. Co., Indu Nagar, Ootacamund.
73. Hindustan Prefab Ltd., New Delhi.
74. Hindustan Salts Ltd., Jaipur.
75. Hindustan Shipyard Ltd., Visakhapatnam.
76. Hindustan Steelworks Construction Corporation Ltd., Calcutta.
77. Hindustan Teleprinters Ltd., Madras.
78. Hindustan Zinc Ltd., Udaipur.
79. Hotel Corpn. of India Ltd., Bombay.
80. Housing & Urban Dev. Corpn., New Delhi.
81. Hydro Carbons (I) Pvt. Ltd., New Delhi.
82. Indian Airlines, New Delhi.
83. Indian Dairy Corpn., Baroda.
84. Indian Drugs & Pharmaceuticals Corporation Ltd., Gurgaon.
85. Indian Firebricks & Insulation Company Ltd., P.O. Murar, Distt. Hazaribagh (Bihar).
86. Indian Iron & Steel Co. Ltd., Calcutta.

87. IISCO Stanton Pipes & Foundary Co. Ltd., Burnpur, Distt. Burdwan (W.B.)
88. Indian Motion Picture Export Corporation, Bombay.
89. Indian Oil Blending Ltd., Bombay.
90. Indian Oil Corporation, New Delhi.
91. Indian Petrochemicals Corpn., Baroda, Gujarat.
92. Indian Railway Constn. Co. Ltd. New Delhi.
93. Indian Rare Earths Ltd., Bombay.
94. Indian Road Constn. Corpn., New Delhi.
95. Indian Telephone Industries Ltd., Doorvani Nagar, Bangalore.
96. India Tourism Dev. Corpn., New Delhi.
97. IBP/PL Group of Cos., New Delhi.
98. Instrumentation Ltd., Kota.
99. International Airports Authority of India Limited, New Delhi.
100. Jute Corpn. of India Ltd., Calcutta.
101. Kudremukh Iron Ore Co. Ltd., Bangalore.
102. Lagan Jute Mfg. Co., Calcutta.
103. Life Insurance Corporation, Bombay.
104. Lubrizol India Ltd., Bombay.
105. Madras Fertilizers Ltd., Manali, Madras.
106. Madras Refineries Ltd., Manali, Madras.
107. Mandya National Paper Mills Ltd., Belagula, Karnataka.
108. Manganese Ore (I) Ltd., Nagpur.
109. Mazgaon Dock Ltd., Bombay.
110. Metallurgical Engineering Consultants (I) Ltd., Ranchi.
111. Metal Scrap Trade Corpn. Ltd., Calcutta.
112. Mica Trading Corpn., (I) Ltd., Patna.
113. Mineral Exploration Corpn., Nagpur.
114. Minerals & Metals Trading Corpn. New Delhi.
115. Mining & Allied Machinery Corpn. Ltd., P' O. Durgapur, Distt. Burdwan, W. B.
116. Mishra Dhatu Nigam Ltd., Defence Metallurgical Research Laboratory, Hyderabad.
117. Modern Bakeries (I) Ltd., New Delhi.
118. Mogul Lines Ltd., Bombay.
119. Mysore Porcelains Ltd., Bangalore.
120. Nagaland Paper & Pulp Mills, Jorhat, Assam.
121. National Building Constn. Corpn., Ltd., New Delhi.
122. National Fertilizers Ltd., New Delhi.
123. National Hydro Electric Power Corporation Ltd., New Delhi.
124. National Industrial Dev. Corpn. Ltd. New Delhi.
125. National Instruments Ltd., Calcutta.
126. National Insurance Corporation Ltd., Calcutta.
127. National Mineral Dev. Corpn., Hyderabad.
128. National News Print & Paper Mills Ltd. , Neapanagar (M. P.)
129. National Projects Constn. Corpn Ltd., New Delhi.
130. National Research Dev. Corpn. Ltd., New Delhi.
131. National Seeds Corpn. Ltd., New Delhi.
132. National Small Industries Corpn. Ltd., New Delhi.
133. National Textile Corpn. Ltd., New Delhi.
134. National Textile Corpn. (Andhra Pradesh, Karnataka, Kerala, Mahe) Ltd., Bangalore
135. National Textile Corpn. (Delhi, Punjab and Rajasthan) Ltd., New Delhi.
136. National Textile Corpn. (Gujarat) Ltd., Ahmedabad.
137. National Textile Corpn. (Madhya Pradesh) Limited, Indore.
138. National Textile Corpn. (Maharashtra Noth) Ltd., Bombay.
139. National Textile Corporation (South Maharashtra) Ltd., Bombay.
140. National Textile Corporation, (Tamil Nadu & Pondicherry) Ltd., Coimbatore.
141. National Textile Corporation (Uttar Pradesh) Ltd., Kanpur (UP).
142. National Textile Corpn. (West Bengal , Bihar, Assam & Orissa) Ltd., Calcutta.
143. National Thermal Power Corpn Ltd., New Delhi.
144. New India Assurance Co. Ltd., Bombay.
145. Neyveli Lignite Corpn. Ltd., P.B. No. 1, P o Neyveli, South Arcot Distt. (TN)
146. North Eastern Electric Power Corpn. Ltd., Shillong.
147. North Eastern Handicrafts & Handloom Dev. Corpn. Ltd., Shillong.
148. Oil & Natural Gas Commission, Dehradun (U. P.).
149. Oriental Fire & General Insurance Co. Ltd., New Delhi.
150. Praga Tools Ltd., Secunderabad (AP).
151. Projects & Equipment Corpn., New Delhi.
152. Pyrites, Phosphates & Chemicals Ltd., Dehri-on-sone, Distt. Rohtas (Bihar).
153. Radio & Electrical Mfg. Co. Ltd., Bangalore.
154. Rail India Tech. & Economic Services Ltd., New Delhi.
155. Rastriya Chemicals & Fertilizers Bombay.
156. Rehabilitation Industries Corporation Ltd., Calcutta.
157. Richardson & Cruddas (1972) Ltd., Bombay.
158. Rural Electrification Corpn. Ltd. , New Delhi.
159. Sambhar Salts Ltd., Jaipur.
160. Semi Conductors Complex Ltd., Mohali, Near Chandigarh, Punjabi
161. Scooters India Ltd., Lucknow.
162. Shipping Corpn. of India., Bombay.
163. Smith Stainstreet & Co. , Calcutta.
164. Sponge Iron India Ltd., Hyderabad.
165. State Chemicals & Pharmaceuticals Ltd., New Delhi.
166. State Farms Corpn. of (I) Ltd., New Delhi.
167. State Trading Corporation, New Delhi.
168. Steel Authority of India Ltd., New Delhi.
169. Tannery & Footwear Corpn (I) Ltd., Kanpur.
170. Tea Trading Corpn. of India Ltd., Calcutta.
171. Telecommunications (Consultants) India Ltd., New Delhi.
172. Trade Fair Authority of India Ltd., New Delhi.
173. Triveni Structurals Ltd., Naini, Allahabad (U. P.) .
174. Tungabhadra Steel Products, P. O. Tungabhadra Dam, Distt. Bellary (Karnataka).
175. United India Fire & General Insurance Co. Ltd., Madras
176. Uranium Corpn. of India Ltd., P. O. Jaduguda Mines, Distt. Singhbhum (Bihar).
177. Water & Power Consultancy Services (I) Ltd., New Delhi.
178. Western Coalfields Ltd., Nagpur (Maharashtra).

Behind the vast network of rural cooperatives, is the dedicated work of NCDC



Working to give a firmer, stronger base to the cooperatives, is the NCDC. Promoting vital aspects of the agricultural economy, right from feeding agricultural inputs to storing and marketing the produce; from processing agricultural products to distributing essential goods.

NCDC has now embarked upon an intensive programme for multi-purpose rural cooperatives to strengthen the village societies. The programme envisages providing much-needed godowns for the surplus produce.

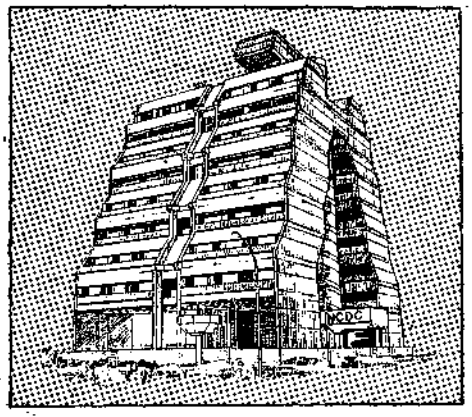
These focal-point storage godowns will serve as growth centres; will provide essential inputs such as fertilizers, seeds, pesticides, farm equipment, essential consumer goods, credit facilities. In fact, will strive to meet most of the farmers' needs all at his doorstep. This programme is already underway with aid from the World Bank and the European Economic Community. More aid is in the pipeline as are more projects.

NCDC feels proud to have promoted cooperative organisations such as IFFCO, NAFED, PETROFILS and many more, which are playing an increasingly important role in the national economy.

NCDC has launched special programmes to promote cooperatives for the weaker sections of the society such as fishermen, weavers, scheduled castes and scheduled tribes.

Over Rs. 330 crores have been pumped in by the NCDC into the cooperative sector so far.

Projects become realities mainly with people's participation and NCDC is promoting it.

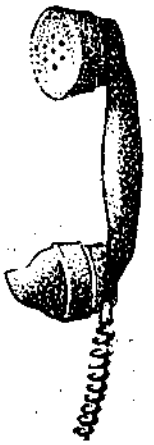


NATIONAL COOPERATIVE DEVELOPMENT CORPORATION
(A STATUTORY CORPORATION)

Head Office : 4-Siri Institutional Area, Hauz Khas, New Delhi-110016.

Regional Offices : Bangalore ● Calcutta ● Chandigarh ● Gauhati ● Jaipur ● Lucknow ● Poona

H.C.L. a major force in communication



The setting up of Hindustan Cables Limited, Hyderabad Unit, a Government of India Undertaking established with an outlay of Rs. 7.5 crores for manufacture of underground telecommunication cables required by the P&T Department is a major step forward in the all round industrial development of Andhra Pradesh.

This project was completed in a record time of $2\frac{1}{2}$ years and commissioned in 1974. In the 4th year of its production (1977-78) HCL not only touched full levels of production but exceeded the installed capacity. Today HCL provides employment to 1000 workers, more than 99% of them being local people.

HCL earned profits from the 2nd year and declared minimum ex-gratia of 8.33% in the 3rd year of its production in 1976-77 and has since paid ex-gratia of 20%, the maximum permissible.

HCL's performance at a glance :

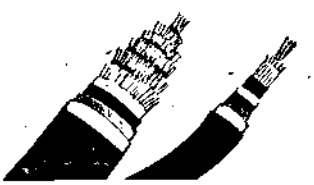
Production	**8.64 lakh conductor k.m.**
Sales	**19.74 crores**
Exports	**0.45 crores**
Profit	**1.82 crores**

HCL cables help the P&T Department reduce their imports of cables resulting in the saving of valuable foreign exchange of about Rs. 8.5 crores per annum. HCL cables are also being exported since 1976-77 and have been well received.

This industry is also helping the local small scale enterpreneurs by encouraging their products. 7 ancillary units have come up for its vital raw materials. Ancillary products with nearly Rs. 2 crores per annum are supplied by these units.

A Research & Development Unit for the Company is coming up at Hyderabad with an outlay of about Rs. 5 crores.

An expansion project of Rs. 3.18 crores is almost over and further expansion schemes include a Township costing Rs. 3.6 crores and a 30 lakh CKM Expansion Scheme of Rs. 50 crores which has an exployment potential of 1500.



HINDUSTAN CABLES LTD.

(A Government of India Undertaking)
Hyderabad Unit,
P.O. Hindustan Cables, Hyderabad-500 051.

mas HCL 80-81

TRENDS

Working of CIL

ACCORDING to Newspaper reports Fazal Committee on Public undertakings has recommended that Coal India Limited "may be wound up" and the current four subsidiaries of CIL should be reorganised to operate as independent companies. The panel, which studied at great length such problems as power shortages and deteriorating industrial relations, has suggested that captive power generation should be made a part of the future coal mining development programme and a Central Security Force on the lines of the Railway Security Force be created. The expert panel has further suggested that a high-level coal planning and monitoring panel should be immediately set up for monitoring and clearance of new projects.

In its report, submitted recently to the Prime Minister, the Union Finance Minister and the Planning Commission the panel has stated that Coal India Ltd., as a holding company concept has not proved to be satisfactory. If by the end of the Sixth Five Year Plan, the coal production is to touch a figure of 157 million tonnes and 400 million tonnes by the turn of the century, a comprehensive and responsible set-up would have to be established to fulfil the task. According to the concept worked out by the panel the new independent companies should be made fully responsible for production planning operations, sales and turn-over quality of production and profits.

On the power front, the panel has commented that coal companies have lost considerable production on account of power shortages. To avoid this, in the future all mining areas when developed should have their own power.

On industrial relations, the committee has suggested that central police force on the lines of Railway Police Force be created for the coal sector also.

NPCC Incentives for Family Planning

THE National Projects Construction Corporation, a Government enterprise, has launched an incentive scheme for the promotion of family planning among its employees. According to the scheme, the employees and workers borne on various cadres who undergo sterilisation after having two or three surviving children will be allowed a special increment. This increment will be in the form of personal pay not to be absorbed in future increases in pay either in the same post or on promotion to higher post

Rural Housing Survey

THE Housing and Urban Development Corporation Ltd. recently carried out an evaluation study of the houses constructed with its loan assistance at Horahally village near Bangalore, Karnataka. The total cost of house per unit provided to the allottees was Rs. 4000, the site was provided free by the State Government. Each house had a room, a hall, kitchen-cum-store, bath verandah in front, courtyard in front and rear. Of the allottees 67 per cent belonged to Scheduled Castes and Scheduled Tribes. Over 8 out of 10 allottees were agricultural labourers or workers in local Bidi industry.

All of them belonged to economically weaker section with average monthly family income of less than Rs. 150, though the eligible limit for allotment was, monthly family income not exceeding Rs. 350. As expected the allottees once allotted a durable house made their improvements in the house like cement flooring etc. and invested on an average Rs. 3000 per house. During the survey, overwhelming majority of allottees considered the street lights adequate though they complained about the kutcha drainage in the village and lack of street cleaning arrangements.

The HUDCO financed during the last three years over two lakh rural houses at a project cost of about Rs. 74 crore with a loan commitment of over Rs. 34 crore.

Postal Life Insurance Limit Raised

PERSONS who are eligible to take Postal Life Insurance (PLI) policies can now insure upto Rs. 75,000. So far they were eligible upto Rs. 50,000 only. The PLI is open to all employees of Central and State Governments, Defence Services personnel and employees of all Local Bodies, Universities and Government aided institutions.

The rates of bonus are the highest in PLI i.e. Rs. 40 per thousand of sum assured per annum on whole life policies and Rs. 31 on Endowment Policies. Bonus is paid on paid-up policies also. The value of PLI policies in force was over Rs. 385 crores and there were more than seven lakh policy holders at the end of March, 1980.

Consultancy Earnings Up

EXPORT earnings from consultancy services registered a sharp increase of 57 per cent during 1979-80. Against Rs. 14 crore in 1978-79, exports during 1979-80 touched record level of Rs. 22 crore. This was against stiff competition from well established consultancy organisations from the developed countries.

The range of services which the Indian consultancy firms provided include feasibility studies, project formulations, executive selection, detailed design engineering, project management, supervision of construction and commissioning services for projects like sugar, cement, thermal power, steel plants, textile mills, pulp and paper, irrigation and ground water development scheme, multi-storeyed complexes, management consultancy services and computer software.

Some of the maior contributors to the exchange earnings include EIL, Tata consultancy services, MECON, NIDE, Dasturs and Development Consultants. These and other agencies have covered a wide range of markets in South-East Asian countries such as Indonesia, Thailand, Burma, Sri Lanka, Philippines, Afghanistan; WANA region including Iran, Iraq, UAE, Oman, Algeria and Saudi Arabia and countries in Africa. Indian consultancy firms have also made a dent in the developed countries especially the USA, UK, West Germany and Holland. Consultancy export to these countries was mostly in the field of computer software. □

National Textile Corporation

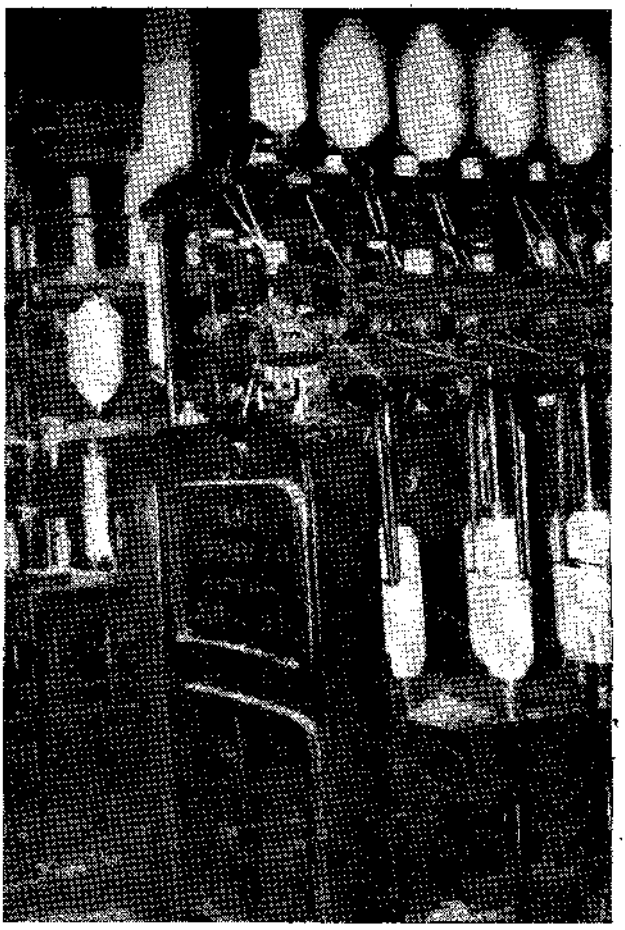
(*Contd. from cover II*)

These mills provide direct employment to approximately two lakh persons.

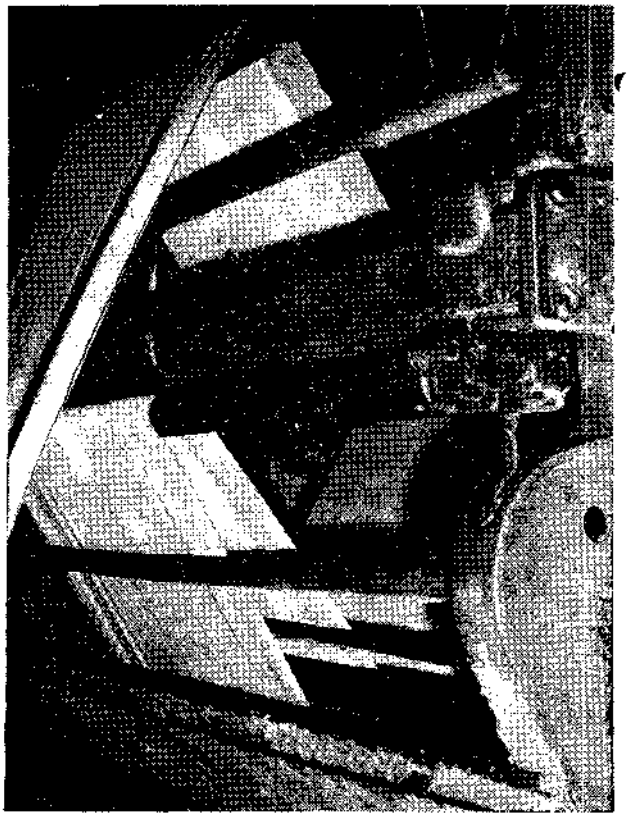
Presently, the NTC mills produce on an average around 80 million metres of cloth and 5.50 million Kgs. of market yarn for the market every month. They are expected to produce 65 million Kgs. of market yarn and 950 million metres of cloth during 1980-81. Production by the end of Sixth Plan is expected to be 1,100 million metres of cloth and 90 million Kgs. of market yarn.

Nationalised mills are producing about 97.67 per cent coarse and medium varieties which are used mainly by weaker section of the society and are supplied by the NTC at reasonable prices. These mills have also produced large quantities of controlled cloth to help the poor people.

The Corporation have a very crucial role in the development of handloom industry by ensuring supply of more and more quantity of yarn of improved quality at competitive prices. In the next five years, the NTC will be able to supply to decentralised sector 109 milion kgs. of yarn per annum against the present figure of 70 million kgs. per annum. Nearly 55 per cent of the sale yarn produced by the NTC mills is supplied to the handloom weavers. Nearly one million persons are working in the cotton handloom industry, on the yarns made available from the NTC mills. Another important area in which the Corporation is helping the handloom sector is in meeting some of their products through its directly managed showrooms.



The total installed capacity of NTC is 153.2 *million spindles and* 47,787 *looms*



The value of fabric exports made by the NTC mills during 1979-80 is Rs. 6.20 crores.

Due to various constraints the NTC mills have been incurring losses till 1979-80. During the first six months of 1980-81 they made a profit of Rs. 2.31 crores. The mills are being modernised in a big way

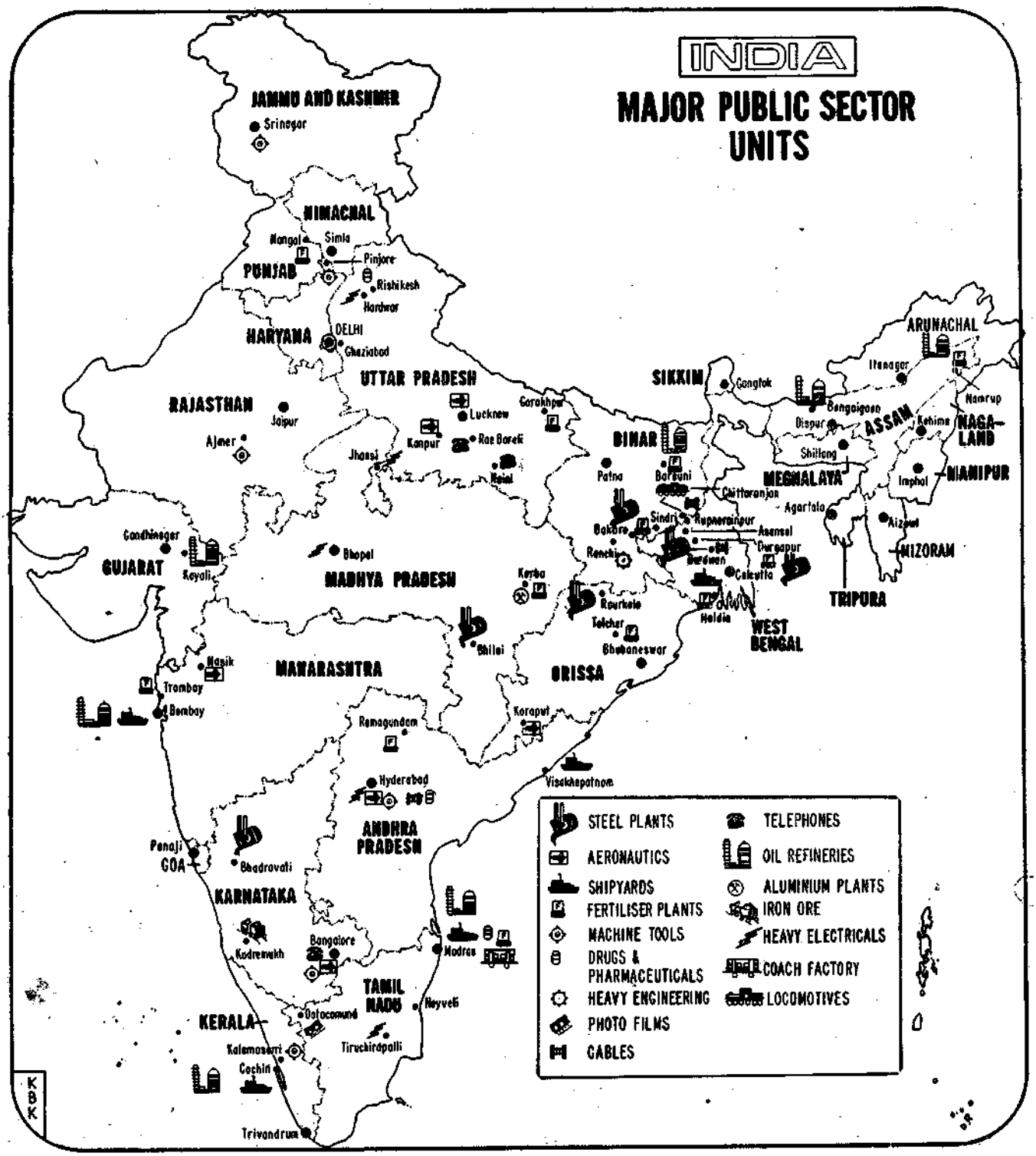
The mills pay excise duty of the order of about Rs. 20 crores every year. The NTC also pays back over Rs. 11 crores by way of interest on Government loans as on March 31, 1980 modernisation

The National Textile Corporation mills are expected to produce 65 *million kgs. of market yarn and* 9.50 *million metres of cloth during* 1980-81.

schemes to the extent of Rs. 100 crores have been implemented . An amount of Rs. 220 crores is proposed to be utilised for the purpose during the 6th Plan period.

There are 17 Divisions and 377 shops directly run by the NTC distributing to the public over Rs. 1.50 crores worth of fabrics every month. □

Regd. No. RN 949/57
P & T Regd. No. D (DN)/152
Licensed U (D)-52 to post without pre-payment at Civil Lines Post Office, Delhi



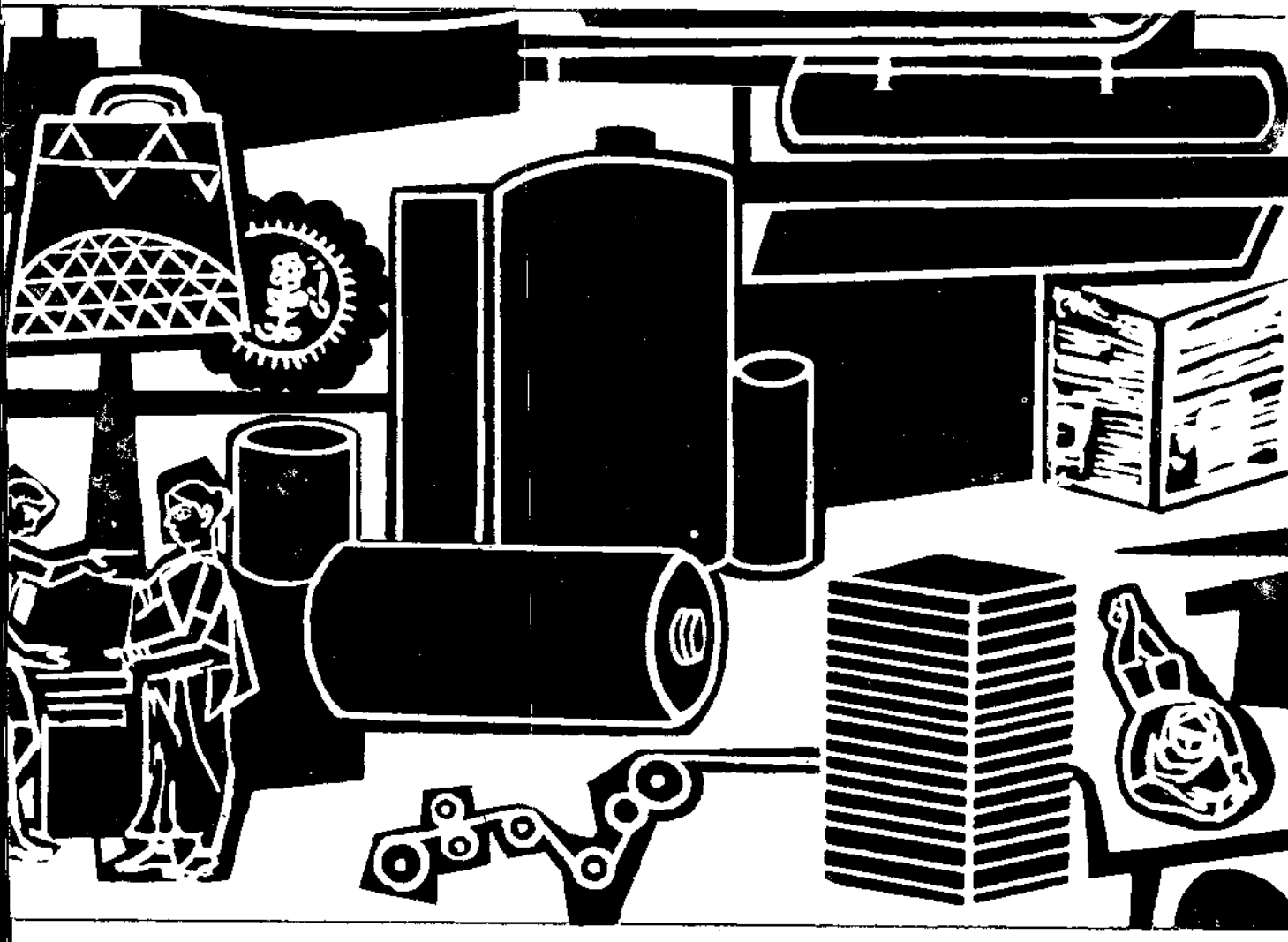
Printed by the Manager, Govt. of India Press, Ring Road, New Delhi-110064 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

Vol. XXV/24 1-15 January 1982

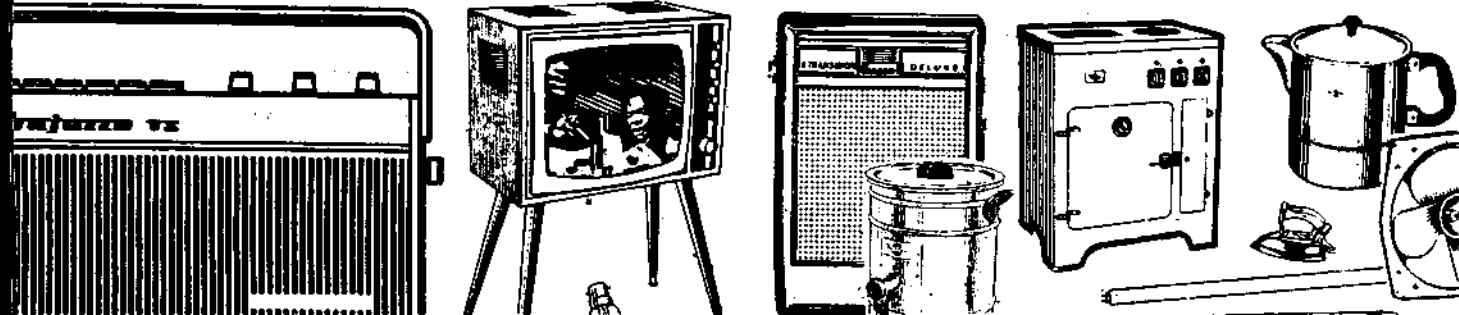
Yojana

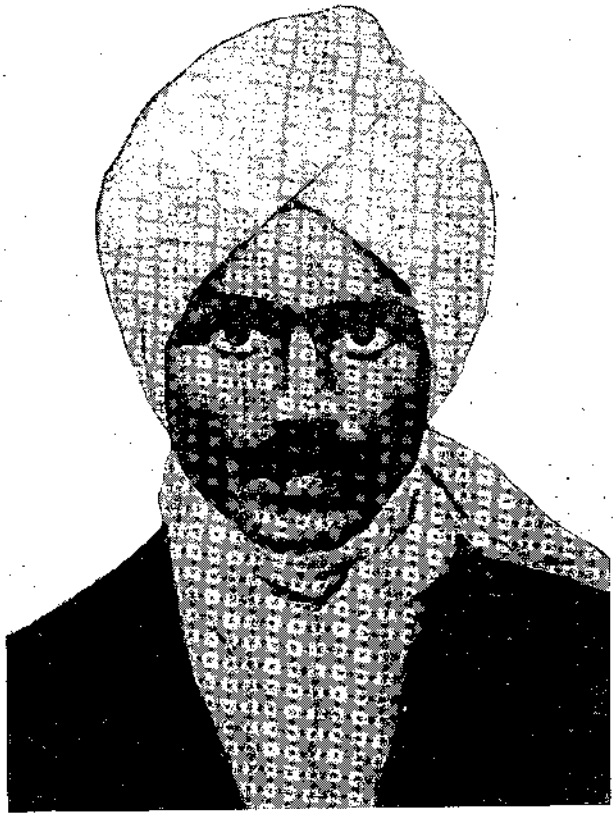
Rupee One

Working of Paper Industry



Bright Prospects for Electronics Industry





Subramania Bharati

Bharati's Memorial at Ettayapuram

Bharati—the Poet and Patriot

TAMIL POET SUBRAMANIA BHARATI, was the champion of liberty, equality and universal fraternity. He was born on December 11, 1882 in Ettayapuram of Tirunelveli district of Tamil Nadu. He displayed intellectual excellence far ahead of his age and earned the title "Bharati". Bharati was a scholar in Sanskrit, Hindi and English and knew Telugu, Malyalam, Bengali, Urdu and French.

He started his career in 1904 as a journalist in "Swadesamitran", the oldest Tamil daily, and later joined the freedom movement. He was inspired by Sister Nivedita—to whom he dedicated his patriotic poems in later years—who showed him the way to social regeneration of India. He launched a crusade against the British regime by inspiring the people through his political articles, editorials, poems and interesting skits in the Tamil weekly "India". Along with his friends, he started a "Bharat Bhandar" to sell Indian goods. Bharati's fiery speeches and patriotic songs aroused the people to boycott and burn foreign goods. In 1908 when his friends and other patriots were imprisoned, he published a series of poems criticising the British and infusing the spirit of patriotism in the minds of the people. The British authorities issued a warrant for his arrest. However, he escaped to Pondicherry and continued to publish the journal 'India' for sometime. During the ten years of his self-imposed exile in Pondicherry, Bharati rendered some of the outstanding literary works of his time. Poverty and unemployment forced him to leave Pondicherry. At Cuddalore he was arrested and imprisoned for sometime.

Later he continued his political and patriotic activity by delivering lectures and writing poems. He met Mahatma Gandhi in 1919 at Madras. In November 1920, Bharati once again joined "Swadesamitran". He displayed strong conviction in the non-voilent method to achieve freedom. Bharati was equally concerned with the freedom of spirit of all human beings and was eager to fight slavery in any form, in any part of the world. But, India lost him prematurely in 1921.

His literary works abound in patriotic poems which inculcate a sense of unity among Indians. He wrote that Mother India "has thirty crores of faces, but her heart is one! She speaks eighteen languages, yet, her mind is one". For Bharati, "We are of the same caste and race, we are children of Bharat all". This is the birth centenary year of freedom's poet laureate. □

Although a thousand castes may flourish here,

The alien shall have no quarter.

The Mother's sons may quarrel and wrangle,

Yet brothers are they still.

We'll bow to the Mother

—Subramania Bharati

YOJANA

Volume XXV Number 24

1—15 January 1982 11—25 Pausa 1903

Journal devoted to Planning and Development Published fortnightly, in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil, Telugu and Urdu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

IN THIS ISSUE

Editorial Office :

Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address : Yojana,** New Delhi. **Telephones : 383655** 387910, 385481 (extension 402 and 373) **Circulation :** Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription : Inland : One year Rs. 20. Two years Rs. 35 Three Years Rs. 50. Foreign : One Year $ 6 or £ 3 ; Two years $ 10.50 or £ 5.25 ; Three years $ 45 or

Yojana

Wishes its Readers a

Happy and Prosperous New Year

Editorial

On the Loop-line

THE announcement of the Railways Minister last month to raise the freight rates by 10 to 15 per cent, has come as an unpleasant surprise to the public for two reasons. Firstly, it was quite unusual to present a virtual supplementary budget just ten weeks before the regular railway budget. Secondly, it has contradicted the Minister's own hope, expressed till recently, that the railways might earn additional revenues to the tune of Rs. 800 crores. (It is now estimated that the increase in the revenues may only be in the order of Rs. 170 crores). The new hike in the freight rates may bring in about Rs. 80 crores in the last quarter of the current financial year.

The financial position of the railways has been progressively deteriorating in the past two decades or so. This is mainly due to the uneconomic tariff levied by them—uneconomic at their present level of efficiency and in the present state of national economy. Even though the rates have been continuously raised in the past two years, these increases have fallen short of the rate of increase in the general price level. The wage bill alone accounts for about 60 per cent of the operational costs of the railways and there has been an increase of 7 per cent on this count this year due to additional dearness allowances. There has also been substantial hikes in the prices of rails, diesel and components used by the railways.

In this way the working expenses have increased by Rs. 245 crores in only a part of the current year. This seems to be the pressing reason for suddenly increasing the freight rates now. This may also be in keeping with the government's desire that the public undertakings should earn their own surplus to pay for their expansion. Further, the World Bank, with whom the railways have been negotiating for loans, has been insisting on adequate returns on investments, which is unexceptionable as a business principle.

The Railway Ministry's action has been criticised on the count that the future increases in expenditure should have been foreseen while preparing the current year's budget. More than this, it is felt that instead of across-the-board increase—which will place heavier burden on common man's consumption articles—there should have been a selective increase in the freight rates. Higher class passenger fares could have also been increased so as to spare articles like foodgrains. It is also high time that the needs of the railways are assessed on a long-term basis and not in an ad hoc manner, and adequate provision is made in the remaining years of the Sixth Plan. It is equally important to increase the productivity and efficiency of the railways. Above all, the general economy of the country should be freed from the evils of inflation and black money which are undermining all sectors including the railways. Till then, the vicious circle of costs and price rise will continue to persist and upset our daily budget not to speak of the developmental work. □

The Yoga of Action

Acharya Vinoba Bhave*

ACHARYA VINOBA BHAVE'S knowledge of the world's main religions is phenomenal. He is always successful in introducing his ideas into the minds, into the hearts and into the actions of the people. His study and discipline of the Bhagavat Geeta is extraordinary. While he was at the Dhulia Jail in 1932, he delivered a series of talks in Marathi on the Geeta to the inmates of the jail. These talks became so popular that they were compiled in a book in Marathi and published. Now this book in Marathi has been translated into 22 languages.

Such a book is completing 50 years of service in February 1982. On the occasion of of the Golden Jubilee of the publication, Yojana is publishing now excerpts from his immortal work and an enlightening article by Dr. R. R. Diwakar, vetaran Gandhian, will be published in our Issue dated 16—28 February 1982.

THE great thing in *karma-yoga* is giving up the fruit of one's action. Yes, in *karma-yoga* one surrenders the fruit; but the question arises : Does the fruit come to one, nevertheless, or does it not? Thus the Third Chapter says that the *karma-yogi* by giving up the fruit of his action, does not lose it, but paradoxically enough gains it in infinite measure.

Here one is reminded of the story of Lakshmi (the goddess of prosperity). It was her *svayamvara* (the day when she was to choose her husband). All the gods and titans had come with hopes raised high: Lakshmi had not proclaimed her vow before. She came into the assembly and said, "I shall garland only the man who has no desire for me." But then, they were all covetous of her. So Lakshmi began to search for the desireless one whom she could choose. Now there appeared before her the form of Lord Vishnu lying peacefully on the serpent, Sesha. She put the wedding garland round his neck and to this day she sits there, stroking His feet. *Ramaa* (the goddess of beauty) becomes the slave of him who does not hanker after her. That is the wonder of it.

The ordinary man puts up a bristling hedge around his fruits; but by doing so, he loses the infinite fruit that should have been his. The wordly man, after endless toil receives a small reward: but the *karma-yogi*, though he may do little, receives immense benefit. The difference is due only to a *bhavana* (an inward attitude). Tolstoy says somewhere : People talk a lot about the sacrifice of Jesus Christ : but no one knows how much the worldly man runs about every day of his life and grows dry within ! He carries on his back the burden of two donkeys and capers about. Is not his suffering much greater, his plight far worse, than Jesus Christ's ?

*Excerpts from his book "Talks on Gita"

The worldly people also put in arduous labour; but it is in pursuit of low aims. We reap what we sow; as is the desire, so is the fruit. The world will not pay more for our wares than the price we ourselves mark on them. Sudama went to the Lord Krishna with a gift of flattened rice. The handful of rice may not be worth even a pie, but to Sudama it seemed invaluable, for his devotion went with it. It was charmed rice. Every grain of it was charged with his love. However cheap a thing may be, the mantra, the charm (words charged with power), increases its value, its power. What after all is the weight of currency note ? If we burn it, we might perhaps, be able to warm a drop of water. But the stamp on it gives its value.

This is the whole beauty of *karma-yoga* also. Action is like the currency note. Its value is that of the *bhavana* (the feeling behind it), the stamp it bears, not that of the *karma* or outward action, the piece of paper. In a way, what I am telling you is the secret of image-worship itself. There is great beauty in the idea of worshipping an image. Who can break this image? This image in the beginning, was merely a piece of stone. I put life into it. I filled it with my *bhavana,* my feeling. How can anyone destroy my feeling? Stones can be smashed, but not feeling. When I withdraw my feelings from the image, then what remains will be mere stone, a thing which anyone can break to pieces.

In other words, then, action is a piece of stone, or a piece of paper. My mother scribbled three or four lines on a piece of paper and sent it off to me; another gentleman sent me a long discursive fifty-page letter. Now, which is more weighty? But the feeling in my mother's few lines is beyond measure; it is sacred. The other stuff cannot stand comparison with it. Action must be moistened with love, filled with feeling (*bhavana*). We set a price on the labourer's work, and pay him his due wages. But a ritual gift (*dakshina*) is not given like that. One sprinkles water on the *dakshina,* before giving it away.

Here, one does not ask how much is given. The important question is whether it was moistened or not—whether there was love in it or not. There is an entertaining passage in the *Manusmriti,* Code of Manu, the Law-giver. A student lived twelve years in his master's house. He went there as animal, and came out a man. Now what fee was he to give his master ? In olden days, the fees were not collected in advance. After studying for twelve years, one gave the teacher what was proper. Manu says, "Give the master one or two leaves and flowers, a fan or a pair of sandals, or a water-pot." Don't think this is a joke; for whatever is to be given, should be given with the knowledge that it is a symbol of faith. What, after all, is the weight of a flower? But in the eyes of devotion, it is equal to all creation. "With a single leaf of *tulasi,* Rukmini weighed Giridhar, the Lord who lifted up a mountain." Satyabhama's ponderous jeweller was of no avail. But when mother Rukmini laid a *tulasi* leaf, filled with devotion, on the scale, the thing was done. The *tulasi* leaf was charged with magic. It was no longer a common leaf. This is true of the action of the *karma-yogi* too.

Suppose two men go for a bath in the Ganga. One of them says, "What is this Ganga that people talk so much about? Take two parts of hydrogen and one of oxygen; combine the two gases—it becomes Ganga. What else is there in the Ganga?" The other says, "The Ganga flows from the lovely lotus-feet of Lord Vishnu. She has dwelt in the matted hair of Siva. Thousands of seers, both ascetic and kingly, have done penance near her. Countless holy acts have been performed by her side. Such is the sacred Ganga my mother." Filled with this *bhavana* (feeling), he bathes in the river. The other man, regarding it as combination of hydrogen and oxygen also bathes. Both derive the benefit of physical purification as well. Even a buffalo, if it bathes in the Ganga, will achieve physical cleanliness. The dirt of the body will go. But how to wash the mind of its stain? One got the petty benefit of physical cleanliness; the other, in addition, gained the invaluable fruit of inward purity.

When, after bathing a man performs *Suryanamaskar* (a strenuous form of Sun worship), he will, of course, get the benefit of physical exercise. It is not for the sake of bodily health that he performs *Suryanamaskar,* but he does it as worship (*upasana*). Of course, he gains good health, but the brightness of his intellect also increases. While he grows healthier, God as the Sun (*Suryanarayan*) also grants him greater awareness and imaginative power.

The action is the same; but a distinction arises from the difference in *bhavana* (in the inward attitude). The action of the man who seeks spiritual good promotes the growth of the soul; the action of the worldly man serves to bind it. If the *karma-yogi* is a farmer, he will till the land, considering it his *svadharma.* His stomach will, of course, be filled; but he does not work for filling his stomach. He looks upon food as a means by which he keeps his body fit for the task of tilling the land. The end is *svadharma* and food is the means. But to the farmer who is not a *karma-yogi,* filling his stomach is the end, and his *svadharma,* farming, is the means. The two attitudes are thus reverse to each other.

In describing the qualities of the *sthitaprajna* (the steadfast seer) in the second chapter, this distinction has been brought out in a striking way. When others are awake, the *karma-yogi* is asleep; and when others asleep, the *karma-yogi* is awake. Just as we take good care to keep our stomach filled, the *karma-yogi* is watchful lest even the moment should slip past without action. If he too eats, it is out of necessity. Because there is no help for it, he puts some food into his stomach. The worldly man finds joy in eating; the *yogi* finds it a hardship. So he does not enjoy as he tastes it. He eats with self-restraint. The night of the one is the day of the other; and the day of the one is the night of the other. In other words, in what one finds joy, the other finds pain, and *vice-versa.* Though the actions of the worldly man and the *karma-yogi* look alike, the *karma-yogi's* distinction is that he has given up attachment to the fruit of his action, and finds joy in the action itself. The yogi, like the worldly man, eats, drinks, sleeps. But his *bhavana,* his attitude to these actions, is different. That is why, though there are sixteen chapters of the Gita left, still, at the very beginning, the figure of the steadfast seer, the *sthitaprajna,* the embodiment of self-control, is placed before us.

The similarity and the difference between the action of the worldly man and those of the *karma-yogi* are

immediately apparent. Suppose the *Karma-yogi* is engaged in the care of cows. With what outlook does he do it ? His *bhavana* (attitude) is that by his service to cows, society will get its fill of milk; and that, through the cow, he will forge for himself a link of love with lower order of creation. He does not do it for his wages. The wages come to him all right; but the real joy and pleasure are in this pure *bhavana*, this spiritual outlook.

The *karma-yogi's* action unites him with all creation. If we will not eat without first watering the *tulasi* plant, we create, by this resolve, a bond of love between ourselves and the vegetable kingdom. How can I eat, while leaving the *tulasi* hungry ? Learning in this way to identify ourselves with the cow and the *tulasi*, we must attain oneness with the whole universe. In the Mahabharata war, everybody, at sunset, leaves the field for evening prayer, but Lord Krishna unyokes the horses from the chariot, gives them water, rubs them down, removes the burrs from their bodies. What a joy the Lord finds in this service ! In describing this, the poet knows no weariness. Picture it to yourself. The Lord Parthasaratni (the Lord as Arjuna's charioteer) feeds the horses from his yellow silk (*Pitambar*), which he has filled with gram. And thus you will experience in imagination the joy of *karma-yoga*. Take it that every act is a noble, spiritual, consecrated act. Take Khadiwork itself. Does the man who hawks Khadi in the streets, with bundles on his back, never get tired ? No, because he is absorbed in the thought that he has to feed the millions of his brothers and sisters in this country who are naked and starving. This selling of yard of Khadi makes him one with *Daridranarayana* (God in the form of the poor).

In the *Yoga* of desireless action, there is a miraculous power. By such action, both the individual and society are richly blessed. The life of the man who follows his *Svadharma* runs the even tenor of its course. But, because he is always absorbed in action, his body keeps pure and healthy. And, as a result of his action, the society in which he lives prospers too. The *Karma-yogi* farmer will not cultivate opium or tobacco just because it will fetch a lot of money, for he has related his work to the welfare of society. Action done as *svadharma* confers nothing but benefit on the community. The trader who believes that his business is for the good of the society will never deal in foreign fineries. His business advances the welfare of the society. The *karma-yogi* forgets himself and lives in identity with the community around him. Any society into which such *karma-yogis* are born will maintain order, prosperity and goodwill.

The result of the *karma-yogi's* action is that while his life goes on smoothly, his body and mind are radiant; and society too prospers. Besides these two benefits, he also receives the great gift of *Chitta-suddhi*, purity of mind. "Purity through action," it is called. Action is a means to inward purity, but not the routine action of everybody. What brings about inward purity is the "charged" action of *karma-yogi*. The *Mahabharata* tells the story of the merchant Tuladhar (the balance-hoder). A *brahmin* called Jajali goes to him to find true knowledge. Tuladhar says to him, "Brother, it is necessary to keep the beam of this balance always even." By constantly doing this external action, Tuladhar's mind too had become straight and sensitive. Whether a child comes into the shop, or a grown up person, his beam retains level for all, leaning neither this way nor that. One's action transforms one's mind. The *karma-yogi's* work is a form of prayer (*japa*). His mind is purified by it, and the clear mind receives the image of *jnana* true knowledge. From the arm of the balance Tuladhar got mental poise. As Sena, the barber, cleaned other people's heads, but have I ever removed the dirt from my own head, from my own mind ? The language of the spirit came to him through his work. As he weeds his field, the *Karma-yogi* gets the idea of removing the weeds of habit and passion from his heart. Gora the potter kneads and moulds the raw clay and gives baked pots to the people; from this he learns the lesson that his own life too is a pot that needs to be baked. He can test with his fingers if a pot is baked or raw; he thus becomes a judge of saintliness. From this it is evident that *karma-yogi*, through the terms of his own trade or occupation, gains knowledge of perfection. What was their trade but a school of the spirit? These actions of theirs were nothing but worship, nothing but service. Viewed from without, these actions looked wordly, but inwardly, in reality they were spiritual.

Another great benefit flows from the actions of the *karma-yogi* : Society has before it an ideal. In a community, it happens that one man is born before and another after. It becomes the responsibility of the one who was born earlier to set an example to those who come later. It is the responsibility of the elder brother to the younger brother, of the parent to the children, of the leader to his followers, of the teacher to his pupils, to set an example through his actions. And who but the *karma-yogi* is unceasingly devoted to his work, for in work only he sees joy. Thus false vanity loses ground in society. Though the *Karma-yogi* is contended within himself, he cannot live at all without work. Tukaram says, "What if I have found God by singing his praises, by devotional songs *bhajan*? Should I, therefore, give up my *bhajan* ? After all, *Bhajan* has now become my nature."

> "Having first kept company of the saints
> Tuka merged into Pandurang (god).
> Even then his devotional songs do not cease.
> One's nature does not change.

The *Karma-yogi* has climbed up the steps of action and reached the top; but he does not even then lift his foot off the step. He cannot shake off action. Work has become second nature to his limbs. In this way he continues to show to society the great use and value of the steps—service through performing *svadharma*.

It is indeed a great thing to rid society of falsehood. Through hypocrisy and deceit, society decays. If the *jnani*, the man of wisdom, were to sit in silence, others too would follow his example and sit with folded hands. The *jnani*, ever content, loses himself in inner happiness, and remains quiet; but the other, though inwardly weeping, becomes inactive. One is at rest because he is happy at heart; the other too is at rest though his mind is shrunken ! This state is terrifying. It encourages vanity and hypocrisy. That is why all the saints, even after reaching the heights, have, with good reason, held on to the means, the apron strings

of action, have kept on performing their *karma* till death. The mother delights in her children's games with their dolls. Though she knows that it is only make-believe, she joins in and creates in the children interest in the game. If she takes no part, the children would find no fun in it. If the *karma-yogi*, because he is contented, gives up action, others, even though they have the need for it, will also give up action and therefore remain hungry, joyless.

Therefore, the *karma-yogi*, like the ordinary man, goes on working. He does not think that he is in anyway an exceptional person. He exerts himself infinitely more than other men. It is not necessary to put a stamp on any action and mark it as spiritual. There is no need to advertise one's action. If you are a perfect *brahmachari* (a seeker of the real), then let your actions show a hundred times more zest than other men's. Even though you get less good, do much more work, let society get more and more out of you. Let your *brahmacharya* be seen in your conduct and dealings, as the fragrance of sandal spreads far and wide.

The essence of the matter is that the *karma-yogi*, by surrendering the desire for fruit, receives endless rewards. His life proceeds evenly. He is radiant in body and mind. The society in which he moves is happy. He attains inward purity and also *jnana*. And society being rid of hypocrisy and deceit, the ideal of a perfect life comes within our reach. This experience proves the greatness of *Karma-yogi*.

The *karma-yogi* does his work much better than others, because work to him is prayer, worship, ritual; work itself is a mode of worship (*puja*). I performed *puja*. After the *puja* I received the food offered during the worship, as *prasada* (a token of grace). But is this the reward, the payment for my *puja* ? If a man performs *puja* for the sake of good, he will, of course, get immediately this part of *prasada*. But through the act of *puja*, the *karma-yogi* seeks to get the reward of the vision of God. He does not estimate his action so cheap that it can merely fetch him a portion of the food offering. He is not prepared to mark such a low price on his action. He does not apply such gross measure to his actions. When a man's outlook is gross, the fruit he received will also be gross. There is a proverb among farmers— "Sow deep, but sow moist." It is not enough to sow deep; there must be moisture in the soil too. With both depth and moisture in the soil, the yield will be enormous. So, the action should be "deep", i.e. well cultivated. And, it should also be moist with the love of God, with a sense of dedication. The *Karma-yogi's* actions are sown deep and surrendered to God.

We have developed some absurd ideas about the spirit. People imagine that once a man has become spiritual, there is no more need for him to move hand or foot, or do any work. They say, "What sort of religious man is who ploughs the fields and weaves *Khadi* ?" But nobody asks how a spiritual man can eat food. The God of the *Karma-yogi* brushes down horses. At the Pandavas' *Rajasuya* sacrifice He cleans the leaf-plates after the feast. He goes out into the forest to graze cows. If the Lord of Dwarka went back to Gokul again, He would tend cows, playing on His flute. So the saints have pictured a *karma-yogi* God who rubs horses down, takes cows out to graze, drives a chariot, cleans dishes and mops up floors. And they themselves have done the work of a tailor, or a potter, or a weaver, or a gardener, or a trader, or a barber or cobbler. Doing these things, they have found themselves and become free.

People slip from the religious observance of *karma-yoga* for two reasons. In this connection, we must remember the specific nature of our *senses*. Our senses are caught up in dualities, such as likes and dislikes. For the things we want, we feel an attachment or fondness, and an aversion for other things. This attachment and aversion, desire and anger gnaw into a man and eat him up. How noble, how beautiful,how infinitely rewarding *karma-yoga* is ! But desire and anger tie round our necks this perpetual rattle, "Take this, and leave that," and we trail this behind us day and night. That is why, at the end of this Chapter, the Lord rings the warning bell, so that we may shake off this encumbrance and save ourselves. The *karma-yogi* should become, like the *sthitaprajna*, an enbodiment of self-control. □

18 DPD/81—2

Taming the River and Tilling the Soil

G.B. Deodikar*

PRIMITIVE human communities mostly settled along river-banks. Much of the human habitation still clings to rivers and minor waterstreams. Progressive human interference with the natural riverine vegetation has accelerated bank erosion, silting of beds and recurrence of floods causing damage to riverside habitations. Valuation of flood damage in India may exceed Rs. 1000 crores annually. River-training and flood-control are essentially problems of restoration of normal riverine vegetation along raised banks so as to accommodate river flows even during recorded peak flood levels with some additional safety margins for precaution.

River banks can be protected by species of trees and shrubs anchoring deep by profuse fibrous roots and trapping eroded soil from higher contours to form ridges growing into small embankments gradually. Annual flood damage can be minimised by raising bank-heights out of the material excavated from adjacent river-bed itself. Progressive erosion and gully formation converts fertile river-side areas into uncultivable wastelands with ravines and ridges (Fig. I). If these river-side wastelands are developed, they can support intensive irrigated farming by lifting water either from the river itself or from wells all along the river-banks to tap the underground water from the riverbed itself.

Each river has its own hydrodynamic or rheological features imposed by its catchment areas, precipitation, gradient, geology, soil-types etc. Therefore, certain common protective measures have to be augmented with special measures to deal with such local situations.

Protective Measures.

On the basis of recorded peak flood levels, cross-sectional area for the reorganised pan-shaped river bed may first be estimated with an additional safety margin to carry flood flows at local velocities. This cross-section should be flat-pan-shaped with sides sloping gently towards both banks symmetrically on two sides of the median line of axial flow. Material needed for raising side embankments should be excavated from the river-bed itself so as to lower the bed levels in the same operation. The central section of the redesigned pan-shaped river-bed should accommodate the normal river flow and should carry inland water transport by boats of graded carrying capacities.

* Professor Emeritus, Maharashtra Association for the Cultivation of Science, Poona.

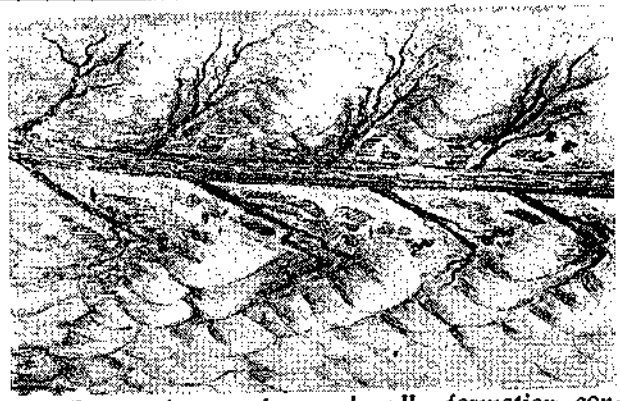


Fig-1. Progressive erosion and gully formation converts fertile river-side areas into uncultivable waste lands

Sloping sides of the redesigned river-bed should be terraced to stabilise embankments and trap the broaded silt drifting from higher contours, thus plugging ravines and gullies by gradual accretions during each rainy season. After the embankments get stabilised at desired heights their crest lines should serve as contour roads, running along both river-banks continuously.

Terracing of embankments may be stabilised by stone-pitching. In alluvial and black soil areas if stones are not available within easy reach, locally cast concrete T-plates with fins (Fig. 2) may be useful. For curves and turbulent sections locally cast hollow concrete blocks (Fig. 3) filled with local sand-silt from river bed, may be useful. But T-plates and concrete blocks are costly. So some fast growing species of reeds, bamboos, palms and other plants may serve the purpose at very nominal price.

Choice of Trees and Shrubs

Profiles of the terraced embankments may be differentiated into three zones, namely, zone exposed to partial submergence under annual floods, sections rarely exposed to submergence and sections not exposed to submergence normally. Choice of local or exotic tree species for these three zones may vary for different areas. The outer sides of the embankments should carry plants with deep penetrating fibrous soil binding roots. This should be extended beyond the outer base of the embankment so that width of the two green belts on both banks is nearly equal to the width of the reorganised river-bed. River-banks will thus be strongly supported by the two green belts which may also accommodate floods of unforeseen intensities. The figure 4 roughly indicates a cross-sectional view of the new river-bed reorganised as above.

River Sections as Operational Units

River section from its source through hills is normally not easily amenable to training as above. Any programme for river training with land-use planning indicated above, should therefore start at a point where a river leaves its hills and just enters the plains. At its mouth, a river splits into a number of channels and then merges with the sea. A considerable part of the river delta is thus converted into saline marshes with scattered islands as at Sundarbans in Bengal. River-training project in this last

section should treat the entire river delta as integral unit so as to reduce the number of channels to a few navigable courses only. River training in upstream sections should increase the stream velocity with some self-dredging effect. This self-dredging action can be further enhanced by an appropriate design of the channel mouths opening into sea. For bank stabilisation of river deltas through vegetation alone, we may use appropriate species of arboreal mangrove trees which naturally grow along coastal saline marshes.

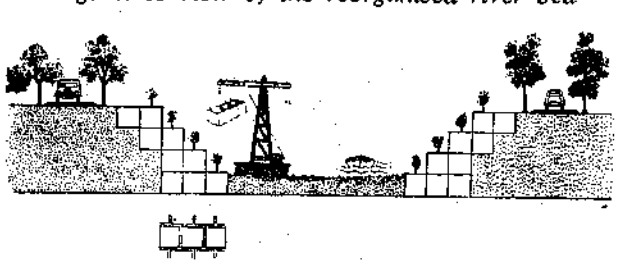
Land-Use Planning for Catchment Areas

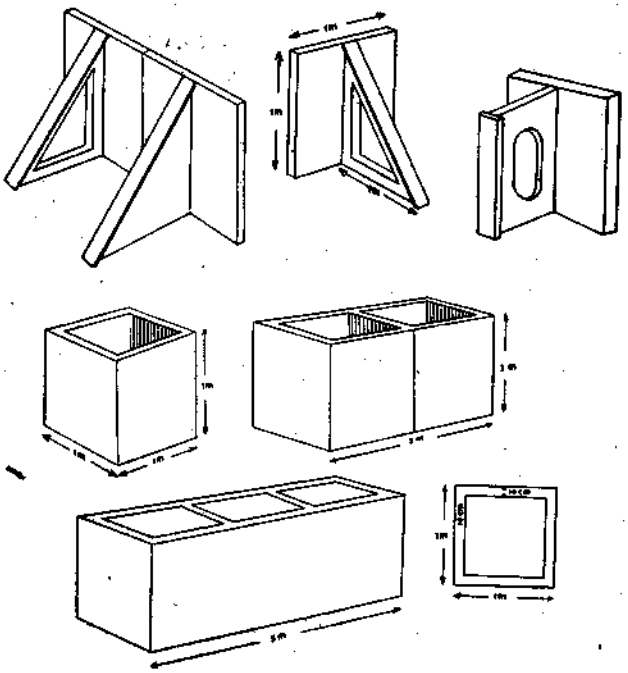
River-training as above has necessarily to be combined with integrated land-use planning of the catchment areas and reclamation of ravine infested wastelands all along river-banks. This implies gully-plugging, contour terracing, levelling of individual farms, their bunding, integrated arrangements for irrigation, drainage and approach roads along contours so that such contour roads may also serve as major bunds which should prevent lateral extension of gullies to higher plateaus by vertical cuts as in the case of reclamation of ravines of Chambal river. Figure 5 indicates alignment of new farms each approachable by such contour road-cum-bunds.

Sub-marginal farmers on very small holdings have hardly any purchasing power to support industrial growth. For each cluster of villages in each catchment area, new well-designed small townships should be established for locating small scale and cottage industries processing agricultural products, construction and repairs of agricultural implements etc. The new townships may reduce the pressure of excessive population depending on land. In view of the volume of capital investment implied in such an integrated development, the state himself should execute this programme through a specially created autonomous body. Transitions from old to new farming patterns have to be smooth to avoid any drastic dislocation in existing productivity. For this purpose, we may take at a time, a strip of just one kilometre width along both banks of a river for development as above. Such one kilometre wide strips along right and left banks have been indicated as R1, R2, R3 and L1, L2, L3—in Fig. 6. These strips on both banks should be taken in serial succession as (R1L1), (R2L2), (R3L3) etc. for phasing the long-range programme.

To begin with, only the first strips on two banks R1L1) each about a kilometre wide, should be acquired by the State at reasonable price. Its development should include terracing, levelling, irrigation, drainage, approach roads and contour rectangulation of individual farms of about 4 to 6 hectares. Each of these farms should be equipped so that improved technology for higher productivity can be translated into actual development on these new farms through the media of a new cadre of extension services specially created and trained for the purpose. It is due to absence of these essential infra-structures that the extension agencies cannot have any real impact on productivity.

Fig. 4. A view of the reorganised river bed

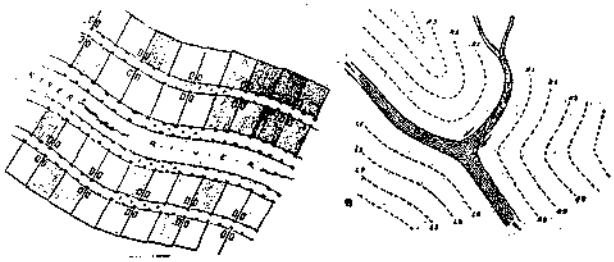




Figs. 2 & 3 concrete T-plates and hollow blocks to stabilise the terraced embankments

These new well-equipped farms may be distributed among earlier cultivators on R1L1 strips whose lands had been acquired and among of the cultivators on R2L2 strips in adjacent locations to facilitate its acquisition for the next phase and among agricultural graduates preferably from the same or adjacent villages so as to provide at least one graduate or diploma holding farmer for every ten farmers settled on these new farms. Each of these graduate farmers, while managing his own model farm will also function as an extension leader for about ten progressive cultivators in his compact neighbourhood.

After establishing farm managements on R1L1 as above the same procedure should be relayed for R2L2, R3L3—and so on. It is true that such river-training combined with land-use planning implies an enormus expenditure. But it is obviously a sound capital investment that can yield speedy returns to be ploughed back for successive phases and will generate employment both for rural and urban growth. Other direct and indirect benefits will include (a) vast potential for employment of un-skilled, skilled and educated youths on sound productive projects yielding speedy returns, (b) accelerated self-employment for cultivators on new farms with



Figs 5 & 6. Alignment of new farms each approachable by contour road-cum-bunds. One kilometer-wide strips on either bank of the river

psychological incentives for higher productivity, (c) assured sources of higher revenues for the State with a built-in accelerated capacity to plough-back such revenues for the next serial phases of the programme, (d) enhanced capacity to translate research into development and higher agricultural productivity, (e) provision of essential infra-structure for socio-economic, cultural and aesthetic rehabilitation of the rural sector neglected so far.

Bunding and soil-protection measures normally start over ridges and then proceed to valleys from higher to lower contours. It may appear as if we are reversing this normal sequence by starting at the river-banks and then proceeding towards higher contours. Therefore, some explanation is necessary.

Bunding operations aim at erosion control through soil-stabilisation on a given farm or a given contour strip. As against this, river-training operations indicated above aim at trapping at the last front along river-banks, the eroded soil drifting from higher contours which may or may not be bunded. This helps to raise river-bank heights, prevent river silting and to fill in the river-side depressions of waste lands infested with ravines and convert them into fertile farms.

Several decades of operations have not covered even a fraction of the vast areas that need bunding. Even bunded areas are not yet free from erosion. Until we are able to do this bunding from ridges to valleys let us prevent river-silting and reclaim river-side wastelands as above. Thus it is necessary to have both (a) bunding from ridges to valleys and (b) trapping of the eroded soil at the last-front along river-banks as above.

Pilot Trials

In order to have an objective assessment of technical and economic feasibility of these programmes, it may be useful to locate some pilot-trials on about 5 to 10 km. river sections through different soil types in northern, central and southern India. Some minor tributaries of Brahmaputra and some of the coastal rivers with shorter lengths may be particularly useful for such trials. □

Rural Roads : Need for Central Scheme

The national seminar on rural roads has recommended that in view of the serious imbalance among the different States and Union Territories in the matter of rural roads development the Government of India should introduce a Central Sector Scheme for rural roads on the lines of the accelerated rural water supply scheme. This scheme should be operated by the Ministry of Rural Reconstruction and funds allocated to the States on the basis of criteria related to backwardness in rural roads development and other relevant factors.

Organised by the Ministry of Rural Reconstruction the seminar was attended by Chief Engineers and Secretaries in charge of rural roads of various States and Union Territories. It emphasised the need for coordination between the rural roads programme and other development programmes like IRDP, NREP, Market Development etc. and suggested that the States and Union Territories should draw up a master plan for the development of rural roads taking into account all relevant factors including the requirements generated under IRDP.

The seminar felt that the provisions made for rural roads under MNP in the State Plans will prove to be inadequate because of cost escalations and recategorisation of villages on the basis of the 1981 census. It suggested that the Planning Commission should take note of this fact while finalising the annual plans of States/Union Territories for 1982-83 onwards. □

We've learnt that this is our own land,
It will for ever be ours;
No nation shall enslave us again;
We'll prosper serving God, our sole Lord.

—Subramania Bharati

National Institute for the Visually Handicapped in Dehra Dun

N.K. Rai*

Blind person being trained in weaving

AS early as 1943 an organisation known as St. Dunstan's Hostel for the Indian War Blinded, was set up in Dehra Dun. The main purpose of this organisation was to offer training facilities to soldiers, sailors and airmen, blinded in the Second World War. By 1949 the training of the war-blinded ex-servicemen had been completed. The ministry of of Education took over the training Centre from January 1, 1950, and renamed it as "The Training Centre for the Adult Blind". Subsequently, the concept of a national centre for the blind was evolved. Several other units like the Central Braille Press, the Workmen's Wing, the Model School for the Blind Children and the like were added to it over the years.

In 1973 the Government of India appointed a group of experts to review the role and functions of the Centre and make recommendations about the future pattern of its functioning. The Group recommended that the centre should become a Research Institute meant primarily for conducting research and training personnel. It should only undertake the provision of national level services. The major recommendations of the group were accepted and the centre came to be known as 'The National Institute for the Visually Handicapped' from July 2, 1979.

* Psychologist, National Institute for the Visually Handicapped, Dehra Dun.

Objectives:

In its new role the Institute is expected to realize the following major objectives :—

1. To conduct of sponsor research ;
2. To conduct the training of personnel ;
3. To undertake the production and distribution of Braille Books and appliances ;
4. To experiment with new occupations which could be practised by the blind ;
5. To develop new areas of work like the education of the partially sighted ;
6. To operate a library service ;
7. To conduct research through extension work especially in rural areas ;
8. To develop assessment and evaluation services for the visually handicapped ; and
9. Generally to promote the education and rehabilitation of the visually handicapped.

Model School for Blind Children

The institute now has a model school for blind children. Established in 1959, it offers education to blind boys and girls upto the 10th class. Students are provided free board. lodging clothing and tuition. A pocket money of Rs. 16 per month is also provided.

Braille Books and recorded materials are made available to the students to enable them to pursue their studies effectively. Human reader services are also provided free of charge.

18 DPD/81—3

The blind persons getting training in chair caning

School for Partially Sighted Children

The Institute operates a primary school for partially sighted children. Those children whose vision is anywhere between 20|200 to 70|200 are eligible for admission. They should normally be between 6 and 14 years of age.

Like others partially sighted children are also provided free board, lodging, clothing, tuition and pocket-money of Rs. 16 per month.

Training Centre for the Adult Blind

The Training Centre for the Adult Blind offers training in a wide range of engineering and non-engineering crafts. The duration of training varies according to the type of craft chosen. However, the maximum period allowed is two years.

Training is offered to adult blind men and women between 18 and 40 years of age. They are provided free board, lodging, clothes, tuition and pocket money of Rs. 20 per month. Trainees are given rail fares for coming to the centres and for the return journey on the completion of their training.

Training is currently offered in such major subjects as light engineering, radio engineering, chair caning, weaving, candle making, chalk making, soap making, rexin bag making, Hindi and English braille Shorthand and typewriting, Standard English and Bharati braille, English and Hindi typewriting and music.

Central Braille Press

The Central Braille Press set up in 1951 publishes Braille literature largely in Hindi. The publication of school textbooks is its primary concern. However, some general books are also published.

The press publishes a monthly journal entitled "Nayan Rashmi". This is a digest containing wholesome articles selected from well-known Hindi journals. A few original articles are also included.

Library for the Blind

The Institute operates a library for the blind with about 25,000 braille volumes in English, Hindi and some other languages. Any blind person over 16 years of age can avail himself of the library services free of cost. Braille literature is carried through the Indian post free of cost.

At present the library has about 1500 members. Roughly 500 volumes are sent out every month. The library is now in the process of starting a recording service. Books will be recorded on special cassettes and loaned to institutions and members.

Workshop for Making Braille Appliances

One of the tasks of the Institute is to undertake the manufacture, distribution and development of tangible appliances for the blind. Currently the workshop manufactures such simple items as braille slates, pocket frames, abacus, tailor frames, chessboards, playing cards, walking sticks etc. In the next year or two it is proposed to widen the range of these products. Some steps have already been taken in this direction. For instance, the Institute has developed a recreation kit. A certain number of recreation kits are proposed to be distributed free of cost to institutions for the blind in the country during the International Year of Disabled Persons. A special geometrical kit is now ready in the prototype stage.

Sheltered Workshop

Attached to the Institute is a sheltered Workshop offering short term employment to about 40 blind men. They are engaged in such occupations as chair caning, weaving, candle making and the manufacture of certain engineering components.

Ex-trainees of the Training Centre of the Adult Blind are taken in the workshop. Every effort is made to find alternative employment for them in the open market as soon as possible. Further they are not forced out of the workshop until they obtain a satisfactory alternative form of employment.

Teacher Training

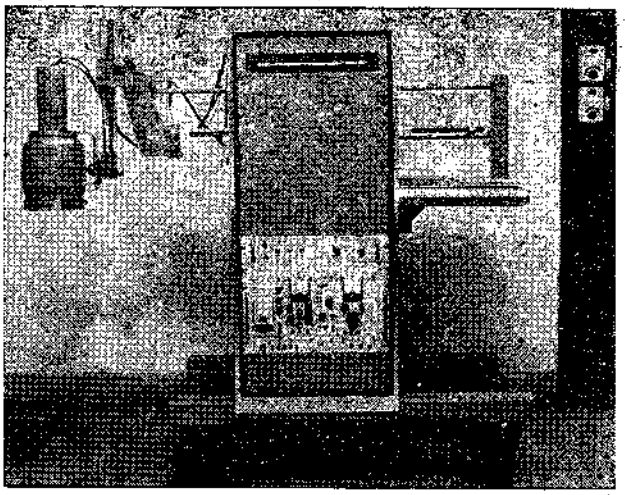
The Institute operates four centres for the training of teachers for the blind at Delhi, Bombay, Calcutta and Madras. These Centres offer one-year diploma course to teachers sponsored by institutions for the blind. While matriculation and a certificate in education are the prescribed qualifications, graduates are preferred and certificate in education is often relaxed in favour of blind candidates.

The Institute is hoping shortly to start a master's degree level course in the education of the visually handicapped. The course when started will be affiliated to the Garhwal University.

A blind trainee operating power press

Bright Prospects for Electronics Industry

Dr. V. P. Batra*



Fast Medical Scanner made by the ECIL, Hyderabad

THE rate of growth of electronics industry in any country is considered to be a barometer of the industrial and social progress. A nation desirous of getting into the forefront of industrialisation can ill-afford to neglect this vital industry, strengthening of which would give a direct impetus to economic growth. In India the development of electronics industry has been quite fast, with the result that today we are in a position to manufacture quite a number of electronic equipments for various uses.

Employment Potential

The electronics equipments may be classified as entertainment electronics (radios, televisions and tape-recorders), telecommunication equipment (micro wave, trans receivers, multiplexing equipment etc.), defence equipment (radar etc.), consumer electronics and office equipment like computers, calculators, computer peripherals and medical electronics e.g. X-rays, ECG, pacemakers. In India, the manufacture of tele-communication equipment and equipments required by the defence departments are reserved for the public sector, entertainment electronics, medical electronics and power supply systems have been allocated to the small and medium scale sector. Moreover the electronics industry has the largest employment potential and accelerating capital formation. There are 150 units in the organised sector and 1800 units in the small scale sector in the country providing employment to more than 1,78,000 workers.

A study of the performance of the electronics industry as a whole reveals that in 1977, the total value of production of all electronics goods was Rs. 508.5 crores and it increased to Rs. 590.5 crores in 1978. Of this, as per the annual report of the Deptt. of Electronics, components registered the maximum growth (29 per cent) and consumer electronics, a growth of 22 per cent (about 71.30 crores). Again the small scale sector's contribution in the manufacture of components has increased by 23 per cent. It has been observed that as a consequence of all round increase in the production of electronic components, the production of consumer items like television receivers, radio receivers and tape recorders received the highest priority. It is revealed that the manufacture of radio receivers in the small scale sector again registered a good performance from 47 per cent in 1977 to 57 per cent in 1978.

Despite the progress made by the electronics industry in the last 10 years, India's share in the total world production of electronic goods is only 0.5 per cent, though, we have the world's third largest trained manpower : engineers, doctors, technical and administrative workers and a perennial team of skilled, semi-skilled and unskilled labour.

Growth of Electronics Industry

(Production in Rs. Crores)

Item	1976	1977	1978	1979	1980
Equipment	327.0	414.0	466.0	499.0	623.0
Components	80.0	90.5	117.0	136.0	163.0
Export (Equipment and Components)	3.0	4.0	7.5	11.5	16.5
Total	410.0	508.5	590.5	646.5	802.5

It may be pointed out that the electronics industry has the highest employment to investment ratio i.e. large scale employment can be provided with the lowest capital investment. It has been assessed that an investment of Rs. one crore leads to employment of 320 persons. The consumer character of most electronics product calls for extensive marketing and after sales service through network of distributors, dealers,

* Writer, New Delhi.

retailors, which in turn, creates added employment potential. Moreover electronics industry responds to small scale and medium level operations thereby allowing the benefits of growth to percolate downward with the widest spread.

Need for Loan

The manufacture of electronics involves an extremely sophisticated components technology which is changing very rapidly. Therefore, the obsolescence is the highest, as compared to other industries. Hence there is an urgent need for modernisation of plant and equipment both for indigenous production and export. The modernisation will result in the production of more sophisticated items at competitive rates. Accordingly, it is suggested that the electronics industry may be considered sympathetically for the IDBI's soft loan.

A higher depreciation allowance enables the industry to rejuvenate itself periodically so that the industry can invest in essential machinery and new processes to give production at economical rates. It is, therefore, all the more important to give electronics industry a fillip by way of higher depreciation allowance. This will build enough resources to plough back and invest in new products and new technologies. Unfortunately, the electronics industry is awaiting for government's final decision in respect of higher depreciation on capital equipment.

Incidence of Import Duties

An important problem bedevilling the industry is the high incidence of import duties on all raw materials used in the manufacture of electronic components. These duties push up the prices of finished components and render them incompetitive in the home market. The import duties on capital equipment and instruments are also quite substantial. It is, therefore, felt that reduction in the import duty on raw materials, components, machinery, dies and tools etc. will help in the rapid growth of the industry.

The production of TV sets is not showing a healthy growth rate as the price of television sets so far produced in the country is on the higher side. It reflects an unhealthy sign for the growth of the industry. The primary need is, therefore, to make sincere efforts to produce low cost television sets by tapping improved technology and management techniques etc.

Recently there was a sharp fall in electronics exports. According to the latest annual report of the Department of Electronics, exports declined to Rs. 42 crores in 1980 from Rs. 47 crores in the previous year. The alibi of the department is that the decline has been caused essentially by one group of products, namely aerospace and defence equipment.

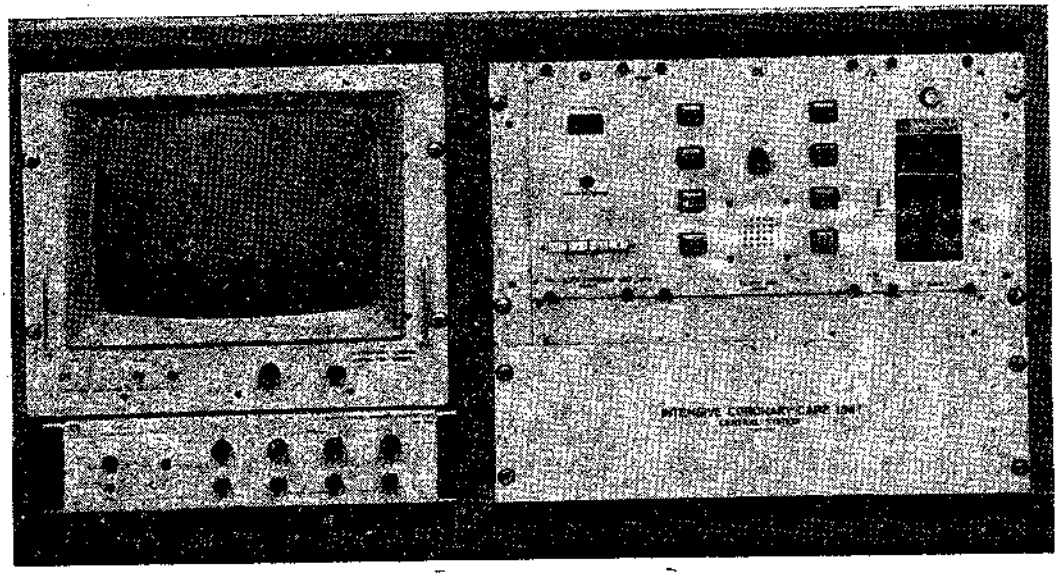
Boosting Export Market

In order to boost the export market, we have to adapt to the changing trends in these countries, satisfy their rigorous testing procedures and improve reliability and performance of the exported items. The task force has concentrated on consumer electronic items for immediate build-up of exports. Besides its high employment potential, a substantial growth of consumer electronic exports would give the much needed boost to the indigenous electronic components industry. There is a need to evolve a single point clearance for projects relating to electronic components and large export oriented equipments.

Moreover standardisation of electronic components would go a long way in raising exports. In order to make our projects more competitive in the foreign markets, the industry has to utilise its skilled manpower more effectively. Waiving the excise, import and other duties on items meant for export may also be considered so that our products become competitive.

It is a matter of satisfaction that European manufacturers of electronics items and components have evinced keen interest in joining hands with their

Intensive Coronary Care unit made by ECIL, Hyderabad

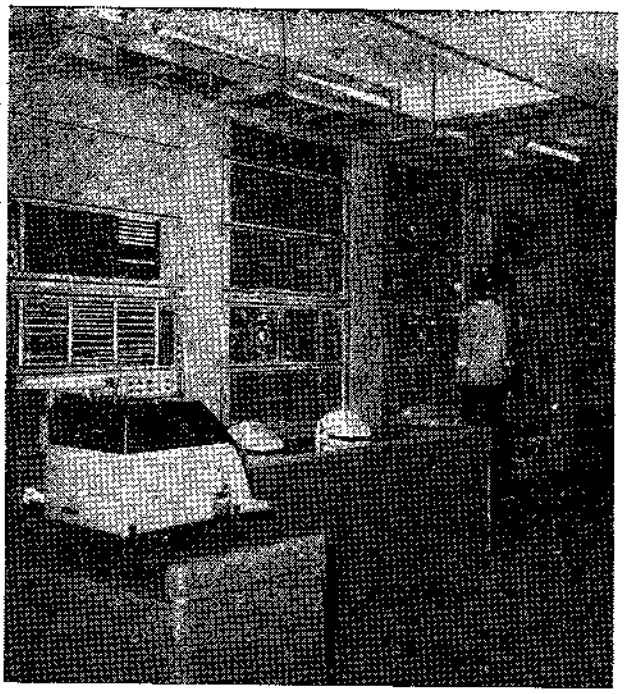


Indian counterparts. It has been reported that the European electronics industry is agreeable to setting up joint ventures with Indian companies and pushing up exports of components manufactured in India. As indicated in earlier paragraphs India has the advantage of an abundant supply of trained manpower and a well developed engineering base. Our country will certainly gain from tie ups in electronics in terms of both the creation of job opportunities and the transfer of technology. Earlier, it was rightly remarked by the Sondhi Committee that Indian technology in electronics needs to be up-dated. This has to be a continuous process not only as the electronic technology becomes obsolete rapidly but also because the indigenous industry's research and development activities are not yet on sound lines. So, there is everything to be said in favour of the induction of foreign technology.

In Sixth Plan

During the Sixth Plan period 1980—85 the electronics production is targeted to reach Rs. 1866.5 crores, consumer electronics Rs. 522.5 crores, industrial electronics Rs. 350 crores, professional electronics Rs. 464 crores, computer system Rs. 90 crores, components Rs. 395 crores free trade zones including bonded factories Rs. 45 crores. The Department of Electronics has planned a number of measures aimed at export promotion, import substitution, large volume production of components and generation of additional employment for 2,17,000 workers.

It is learnt that the new policy on electronics industry will give a major thrust to the use of electronics in the development of agriculture, irrigation facilities, education, energy saving devices and medicines. □



Electronic Telephone Exchange, New Delhi

Air Services Earn Profits

AIR India has earned a net profit of Rs. 3.10 crore as against the budgeted profit of Rs. 1.22 crore for April-September 1981. During the corresponding period of 1980 the Corporation had suffered a loss of Rs. 17.16 crore. Indian Airlines has also earned a net profit of Rs. 37 lakhs during April-September, 1981 as against a net loss of Rs. 6.17 crore during the corresponding period last year.

The turn-over of ITDC during the first two quarters of the current year is of the order of Rs. 13.55 crore as against Rs. 12.15 crore in 1980-81. The operating profit during the corresponding period has also increased from Rs. 195.04 lakh in 1980-81 to Rs. 233.68 lakh in the current year.

ITDC is now going in a big way for joint venture projects in collaboration with the State Governments for setting up hotels.

During January to September, 1981, a total of 6,01,319 international tourists visited India thereby recording an increase of 7.2 per cent in international tourist arrivals over the corresponding period of last year.

Radio paging service in Pune

Shri Vijay N. Patil, Union Deputy Minister for Communications formally inaugurated recently the Radio Paging System for the first time in the country at Telephone Bhavan in Pune by receiving the first paging call. Radio paging service will enable telephone subscribers to be in touch with their offices or establishments with the help of a pocket receiver. The system will be on trial for a few months. Radio paging system consists of a small sensitive high frequency radio receiver which can be clipped into a pocket. Each receiver has an individual calling code.

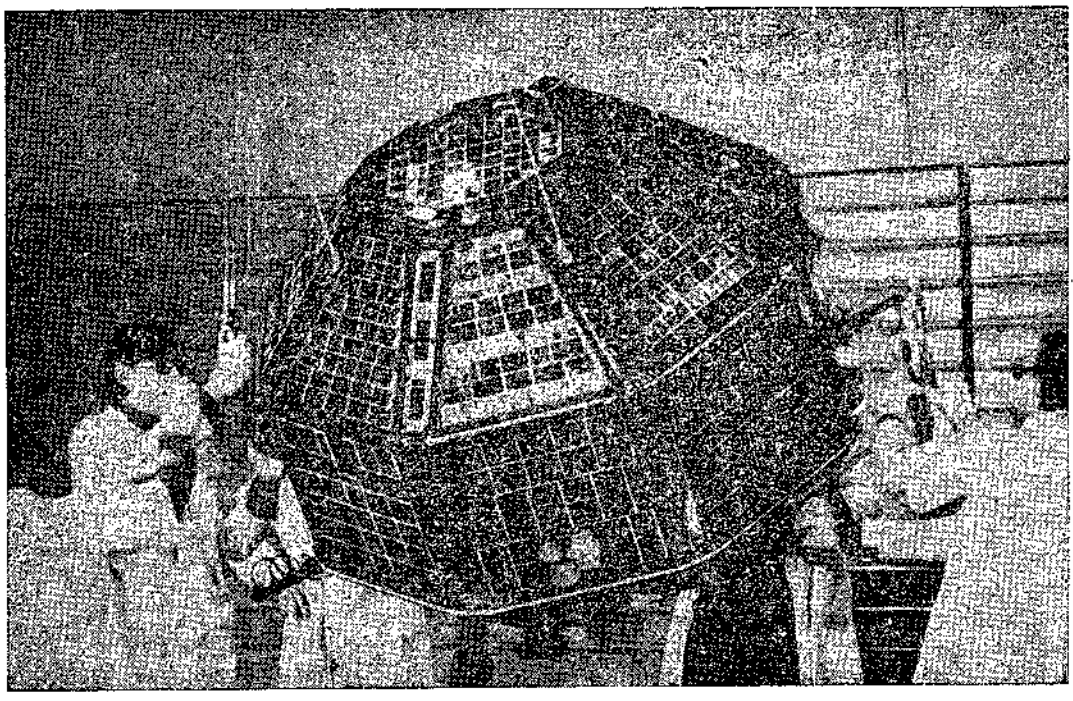
The paging receiver is like a telephone line with a pocket bell. Subscribers to the paging system get their paging calls routed by a paging operator in the city telephone exchange. The paging receiver produces a sharp continuous beep tone when called by the paging operators at the exchange. The receiver is powered by a rechargable, self-contained battery.

New T.V. Centres

DURING the Sixth Plan period, four full-fledged T.V. centres and eight T.V. relay centres are proposed to be set up. The full-fledged T.V. centres are to be located at Bangalore, Ahmedabad, Trivandrum and Gauhati.

The relay centres will be set up at Kasauli, Murshidabad, Madurai, Asansol, Vijayawada, Cuttack, Panaji and Varanasi. The relay centres at Murshidabad, Madurai, Asansol, Vijayawada, Panaji and Varanasi will be linked with the P & T microwave system.

18 DPD/81—4



Bhaskara II being tested before launch

Bhaskara II

A Landmark in Indian Space Research Programme

John Churchill*

INDIA'S another earth observation experimental satellite Bhaskara II has been successfully launched. It is yet another landmark in the history of Indian Space Research Programme. Three cheers to the dedicated band of Indian scientists who have placed India on the space map. They have demonstrated beyond doubt India's capability in building space-worthy objects. The story of research, particularly in India, is fascinating. For man has ever been mysterious, and the Space science is as old as man himself. In India, the Space science history can be traced to the Vedic period. There are numerous descriptions of various planets and phenomena in the sky in the Vedic Texts. Even though space science is not new to India, the country joined the modern space club late. Till the past few years the membership of this club had remained an exclusive preserve of a few advanced countries like the United States, the Soviet Union, France and Japan.

In 1961 when Yuri Gagarin of the Soviet Union became the first man to go into the space, people all over the world watched the event with admiration and astonishment. Eight years later in 1969, when with Neil Armstrong of the United States demonstrated that his small step in space and that too on Moon was indeed a big leap for mankind, the world looked towards the space not only with admiration but also expectations.

There was a wider realization among the countries that much can be achieved for the benefit of mankind through space research programmes. Well, space research has progressed at an astounding pace since then. In the meantime, India also had made a humble beginning to explore the outerspace. But to many it was only a costly hobby and there was an air of scepticism whether India could seriously afford to take up any space programme. The answer to this was

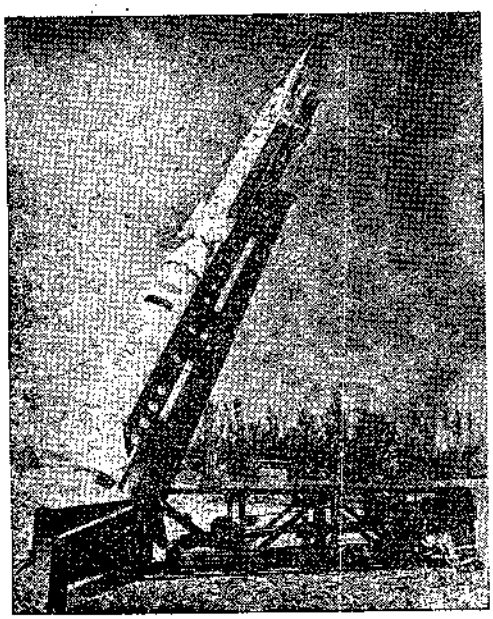
*AIR Correspondent

given by the doyen of the Indian Space Programme late Dr. Vikram Sarabhai who said "there are some who questioned the relevance of space activities in a developing nation. To us, there is no ambiguity of purpose. We do not have the fantasy of competing with the economically advanced nations in the explorations of the moon or the planets. But we are convinced that if we are to play a meaningful role nationally and in the community of nations, we must be second to none in the application of advanced technologies to the programmes of man and society which we find in our country".

So, when the Indian space programme was formally organised its objective was to initiate, develop and master space science and technology to exploit its potentialities for the socio-economic development of the country.

In 1957 when the world's first earth satellite was launched by the Soviet Union India had already established an optical tracking station at Nainital in Uttar Pradesh to watch it. The following year, the Tata Institute of Fundamental Research, Bombay, started launching altitude plastic balloons to collect data about high altitude conditions. The real beginning of space research activities in India however started in 1961 when the subject was brought under the department of Atomic Energy. The very next year, the Indian Council for Space Research was formed. Then began India's earnest efforts for using the outer space for experimental activities. A team of experts selected the altogether quiet and remote fishing village of Thumba, 16 kilometres north of Trivandrum city of Kerala, as the site for a rocket launching station.

RH-560 Sounding rocket ready for launching



Thumba

Located on the magnetic equator of the earth, Thumba in no time became an ideal site for experimental work. Luckily the area was free from major shipping activities. The modern Indian Space Research Programme got its formal baptism in an old dilapidated St. Joseph Church building. It was in this deserted place of worship that the pioneering work of Indian Space Research began. A technical force of about 20 young Indian scientists assembled there an American made Nike Apache sounding rocket with a locally developed sodium vapour payload. It was launched on the 21st of November, 1963. That was the debut of Indian space research, which simultaneously marked the birth of the Thumba equatorial rocket launching station. Realising the importance of Thumba's location, the United Nations Organisation sponsored this launching station for experimental work. India in turn graciously dedicated the Thumba range to the world scientific community for conducting their experiments. The United States, the Soviet Union, the United Kingdom, France, West Germany and Japan subsequently used the facilities at Thumba and carried out there over a dozen different types of sounding rocket experiments.

From such a humble beginning at Thumba, India's space programme has made phenomenal progress in the past two decades. In 1969, the Indian Space Research Organisation was formed to plan, manage and execute the nation's growing activities in the space science and technology and in the field of space applications. With its headquarters at Bangalore it now carries out its activities at four main centres, the Vikram Sarabhai Space Centre at Trivandrum, the Shar Centre at Sriharikotta Island in Andhra Pradesh, the Space Application Centre at Ahmedabad, at the ISRO Satellite Centre at Bangalore. The ISRO Centre however is the main research development laboratory for satellite technology. It was here that the Indian Satellites ARYABHATA, APPLE Communication Satellite, and ROHINI I and BHASKARA I as well as II were fabricated.

Aryabhata

The first major achievement of the Indian Space Research Organisation was the launching of Aryabhata in April 1975. Built by Indian Space scientists with indigenous technology that 360 kilogram satellite was essentially a technological one. Aryabhata demonstrated that India had the basic capability to build space-worthy objects. Encouraged by the success of Aryabhata the Indian Space Research Organisation undertook the designing and fabrication of experimental earth resources satellites and communication satellites as a first step towards achieving its objective of utilising the space technology for practical benefits of the country. Thus Bhaskara, India's first experimental satellite for earth observation was designed and fabricated and successfully launched on the 7th of June, 1979, from a Soviet Cosmodrome. Weighing over 440 kilograms, it carried two TV cameras and 3 microwave radiometres as its primary pay loads. The TV cameras were intended to take pictures covering an area of 325 by 325 kilometres as the satellite passed over India. One of the TV cameras did not operate satisfactorily due to high

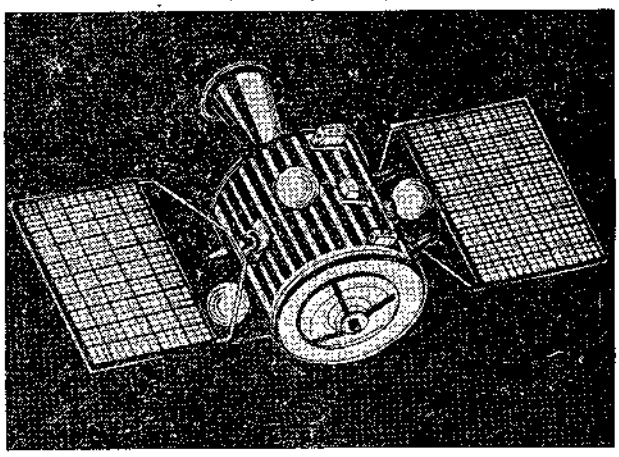
arching, but in May last year, it was successfully activated. With the help of those TV cameras, the entire Indian subcontinent has already been mapped several times. More than one thousand imageries have been obtained which provided useful information about the forests, hydrology, land bodies and snow covers. The data has been extensively used for several studies in meteorology, monsoons and cyclones. Besides, the data has helped in the computations of rainfalls over oceans and mapping of flooded and non-flooded areas.

Bhaskara-II

In Bhaskara II all the draw-backs noticed in the Bhakara I have been rectified, it has been subjected to twenty-one days of intensive tests including Thermo-vacuum and vibration tests, creating exactly similar conditions in which the satellite has to function in the space. The system of Bhaskara II has been designed to provide valuable information on India's crop formation, mineral resources, forests, floods, Himalayan snow-cover and land mass. It will also help in forecasting monsoons by accurately monitoring the surface and the temperatures of the Ocean around India. Bhaskara-II is a near earth orbit satellite circulating the earth once in every 95 minutes at a height of 525 kilometres. It will be visible over India for about 15 to 25 minutes.

To prevent the high voltage arching, as it happened in Bhakara-I, a direct connection of the high voltage to the TV tube in the camera system has been established in Bhaskara II. Besides the two TV cameras, Satellite Microwave Radio meter system called SAMIR pay load is provided for use in the near infrared region. While the TV camera system will operate during the day, SAMIR will operate at night. The main function of SAMIR is to record the ocean temperature profile and construct information on it. It is a highly temperature senstitive camera and can detect even point one degree Celsius difference or less. With the help of this type of information, scientists can work out when the monsoon will set in or when a cyclone will strike and how it will progress. Bhaskara-II has also an X-ray camera to identify location and characteristics of X-ray sources in outer space. The satellite has been designed to last for one year, About forty public and private sector organisations have produced various sub-systems that have been integrated into this spacecraft. Nearly 700 technical personnel and space scientists have participated in its building and testing. It took about two and a half years to fabricate the Satellite.

Well, Bhaskara II is the last experimental earth resource satellite of the Indian Space Programme. India now plans to enter the operational satellite era. Now the Indian Space Research Organisation has drawn up a ten-year perspective plan which include among other things launching of an Indian Remote Sensing Satellite IRS-One. The estimated budget for the perspective plan is over eight hundred crore rupees. Under the plan an advance satellite launching vehicle called ASLV and the Polar Launch Vehicle called PSLV will be developed. India is also acquiring two multi-purpose satellites from the United States called INSAT one, and INSAT two for communications and other purposes. They will be utilised for domestic telecommunication, TV relays and All India



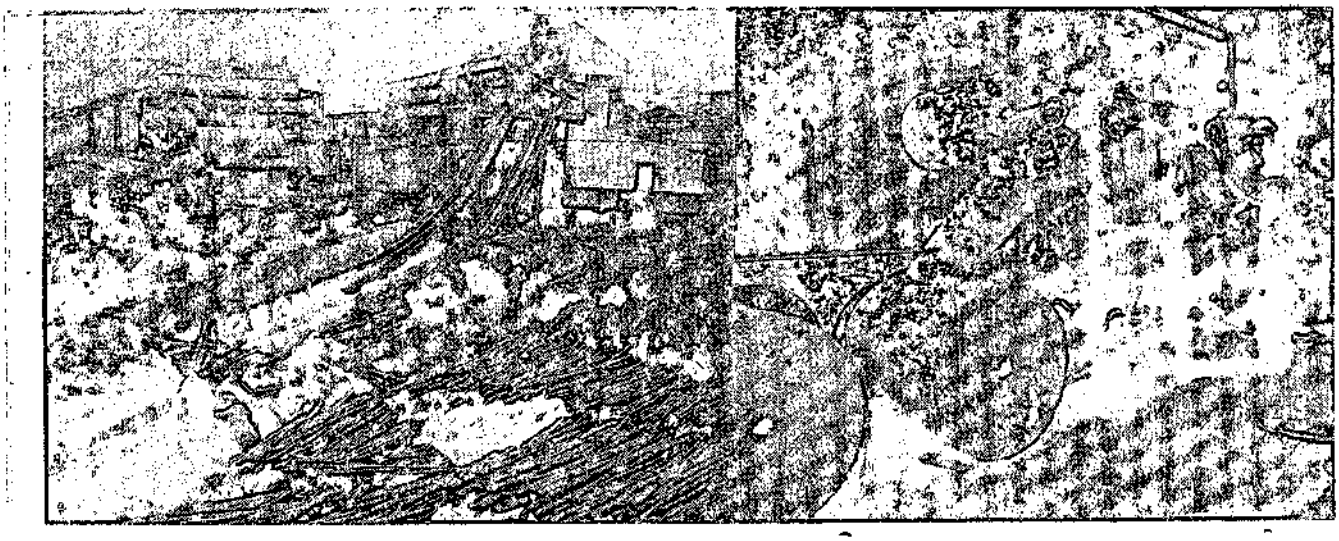
Apple

Radio broadcasts. The satellites will provide over eight thousand two-way long distance telephones accessible from any part of India. Nation-wide direct TV telecast to the rural areas will also be then possible. Their meteorological components will provide round-the-clock half hourly synoptic observation of weather system including cyclones, sea-surface temperatures, the water bodies and snow. INSAT meteorological data will also benefit agricultural operations, power generations, irrigation planning and regulation of resources. INSAT one is expected to be launched in February this year. With the help of the satellites anything happening in any part of the world can be seen and forecast. It would be interesting to know that the 1971 Indo-Pak conflict, the floods at Morvi in Gujarat and the Circus fire in Bangalore were first recorded by an American Satellite and broadcast in the United States even before the news could reach other parts of the world. Satellites can be used for the benefit of mankind. But can also be misused. However, the Indian Space Research Programmes have demonstrated that they can be utilised for the benefit of mankind and the country's policy in this direction is well defined. In the words of the Prime Minister Mrs. Indira Gandhi, "Indian science is dedicated to peace and its motive is development. All the major achievements of Indian science so far have occurred in its search for peaceful uses and not as a spin-off of defence requirements. This is true of Pokharan and of Sriharikota".

(Courtesy : All India Radio)

What is life without unity ?
Division can only spell ruin.
Could we hold fast to this truth,
What more shall we need ?
We'll bow to the Mother.

—Subramania Bharati



(Left) Feeding bamboo and (right) roll loading at the sheet cutting machine, Nepa Mills

Paper Industry : Progress and Prospects

P. K. Kotia and J. P. Sharma*

THE origin of paper industry in India dates back to 1832, when the first paper mill was established at Serampore in West Bengal. As on the 1st April 1979, there were 106 units functioning in the country with a total installed capacity of 13.94 lakh tonnes. Now India ranks 20th among the paper producing countries in the world.

Initially, the industry had to depend mainly on imported raw materials. It obtained sabai grass from North Africa and paper pulp from Canada and Finland for the manufacture of paper. With the development of bamboo as a source of paper pulp during the First World War and the imposition of a protective tariff in 1925, economic environment for the growth of paper industry improved considerably.

The Second World War gave a fillip to the stabilisation and expansion of the industry. As a result of cessation of imports, indigenous production rose considerably and the industry attracted sizeable investment because of the post-war economic boom. The industry made further progress under the successive Five Year Plans.

Location Pattern

In the pre-plan period, the industry was predominantly localised in West Bengal. This was because of the availability of coal, supply of labour, water from the Hoogly river and the proximity of a large market for finished products. With the development of alternative sources of power, particularly hydro-electricity, and increasing usage of bamboo for paper manufacture there has been considerable dispersal of the paper industry during the last thirty years. The location pattern of the industry at the beginning of the First Five Plan (1951-52) and as on the 1st April 1979, is shown in Table I on next page.

It will be observed from the table that geographically, the installed capacity is distributed all over the country with a slight concentration in West Bengal, Maharashtra, Andhra Pradesh and Orissa. Although Maharashtra has the largest number of mills, their installed capacity is small. While the location of large-sized mills is influenced by proximity of raw material sources, that of small units is guided by nearness to markets.

Capacity and Production

Trends in production and growth of installed capacity of the paper industry can be seen from Table II, on the next page.

The installed capacity of the indsutry has increased tenfold since 1951. However, the annual rate of growth of installed capacity, which was of the order of 11.8 per cent in the decade ended 1961, declined to 9.1 per cent in the subsequent decade. In the next eight years, the average growth rate was only 5.1 per cent.

Production of paper has also followed more or less a similar trend. The annual rate of growth in production declined from 10.9 per cent during the decade ended 1961 to 8.4 per cent in the subsequent decade. Since 1971, the annual average growth has been around four per cent.

Initially, the industry maintained a fairly high degree of capacity utilisation. However, since 1971, the capacity utilisation ratio has tended to decline. From 98.8 per cent in 1970, it declined to 80.1 per cent in 1973 and further to 76.0 per cent in 1975. Thereafter, it has been fluctuating between 78 and 81 per cent during the last four years. The relatively

* Department of Economic Administration and Financial Management, University of Rajasthan.

Table I Paper Industry— State-wise Distribution of Units and Installed Capacity

State	In 1951-52		As on 1st April 1979	
	No. of units	Capacity ('000 tonnes)	No. of units	Capacity ('000 tonnes)
Assam	..	..	4	51
Andhra Pradesh	2	7	4	156
Bihar	1	11	3	76
Gujarat	1	2	16	74
Haryana	1	8	11	91
Karnataka	1	4	8	111
Kerala	1	4	2	36
Madhya Pradesh	..	..	4	110
Maharashtra	2	5	24	183
Orissa	1	31	3	129
Tamil Nadu	1	1	5	84
Uttar Pradesh	2	6	10	74
West Bengal	4	58	12	219
Total	17	137	106	1,394

Table II Installed Capacity and Production of Paper Industry

('000 tonnes)

Year	Installed capacity	Production	Capacity utilisation (%)
1951	137	132	96.4
1961	410	365	89.0
1971	901	781	80.7
1978	1,264	986	78.0
1979	1,394	1,112	80.0

low capacity utilisation during the 1970s was due to a number of problems faced by the industry. The major problems were the shortage of raw materials, inadequate supply of power and coal and transport bottlenecks.

Imports and Exports

Almost all the common grades of paper are now manufactured in the country. A number of special types of paper like grease proof, glassine, natural tracing, security and certain grades of filter paper and electrical insulation press boards, which were previously imported, are now manufactured in the country. However, a few special varieties such as photo base, industrial filter, stencil base and vegetable parchment paper and ivory boards are still imported.

There has been a steady fall in exports over the last decade. The volume of imports has always been higher than that of exports, because of its larger quantity and partly because imports consist mostly of high-value speciality papers, while exports cover certain common varieties.

Licensing

In June 1966, paper pulp and allied industries were exempted from the licensing provisions of the industries (Development & Regulation) Act, 1951. This step was taken with a view to enabling entrepreneurs to set up additional capacities expeditiously.

In terms of the industrial licensing policy announced in February 1970, large industrial houses were allowed to participate in the 'core' and 'heavy investment' sectors. While newsprint industry was included in the core sector, paper was not included in that sector. However, in view of the capital intensive nature of the paper industry, it got automatically included in the 'heavy investment sector' (with investment propositions of over Rs. 5 crores), which was also open for entry by large business houses. Thus, the paper industry was again brought within the purview of licensing provisions.

Industrial Policy Statement

The industrial licensing policy of the Government was further modified in February, 1973, when the list of core sector industries was expanded and consolidated. Paper industries and large industrial houses are allowed to participate in and contribute to the development of paper industry.

Private sector has played a pioneering role in the development of the paper industry. Even now, except for the production of newsprint, the entire production of paper and the paper board is in the private sector. Within the private sector, eight large industrial houses control as much as over 75 per cent of the total production of the paper and paper board industry. The development of the paper industry has

been by far a result of investment made by large industrial houses. Other entrepreneurs were unable to contribute significantly to the development of the industry mainly due to the heavy capital investment and a high level of technical know-how involved. As a result, their role was confined to smaller plants.

Entry of Public Sector

For a long time only one newsprint mill set up in Madhya Pradesh in 1958 was functioning as a public sector undertaking. It was in May 1970 that the public sector entered the field of paper and pulp industry with the setting up of the Hindustan Paper Corporation Ltd. The Corporation has an authorised capital of Rs. 30 crores and a paid-up capital of Rs. 6.63 crores. In the first instance, the Government entrusted to this Corporation the following projects for implementation.

(i) Nagaland Pulp and Paper Project:
(ii) Kerala Newsprint Project;
(iii) Nowgong Pulp and Paper Project; and
(iv) Cachar Pulp and Paper Project.

Even 10 years after its establishment, the Corporation plays practically no role in paper production in the country, because none of the projects started by the company have been completed as yet. According to original plans, Nagaland Pulp and Paper Project, with an installed capacity of 30,000 tonnes, was to have been commissioned by the end of 1977. The date of commissioning was later shifted to December 1980. But the progress of the project is still very slow and the date of commissioning may have to be postponed again. The Nowgong and Cachar Paper Mills are each to have an installed capacity of 100,000 tonnes. According to present estimates, these plants will go into production in 1983 and 1984 respectively, involving in each case a two years' delay. The Kerala Newsprint Plant will have a capacity of 70,000 tonnes of newsprint and 10,000 tonnes of magazine paper per annum, when it is completed in 1981. In this case also, there has been a delay of two years in the execution of the project. Mainly as a result of these delays in project execution, the total cost of these projects is likely to be about Rs. 600 crore as against Rs. 200 crore originally estimated.

The paper industry is, thus, now entirely in private hands, except for the Government-owned newsprint mills at Nepanager. Even after the projects under implementation go on stream, the share of public sector in total production in the country is not likely to be very large. It will be 10-15 per cent only. □

Constraints on Capacity Utilisation in Public Sector Undertakings

Biswanath Lahiri*

THE under-utilisation of capacity in industrial units, particularly in the key sector, is a serious problem especially when the economy is experiencing a decline in industrial production and widespread shortages in goods and services. According to a recent Reserve Bank of India study, the average utilisation of capacity in industry ranges from 60 to 75 per cent of the total installed capacity. But the state of affairs in public sector is far from satisfactory. There the average capacity utilisation is only 68 per cent. The fall in capacity utilisation in key industries like steel, coal, power, where the Government has a total control, have not only led to a decline in output but also seriously affected the production of other industries where these commodities form the basic inputs. For example, the shortfall in the production of steel and power affect industry, fertiliser effects agriculture, coal hampers power generation which in turn adversely affects the production of engineering industry supplying virtually the entire requirement of power equipment and equipment for railways, road transport and communications. Besides these, the underutilisation of capacities tends to increase unit cost of production and reduces the competitive efficiency of the units. A fuller utilisation of capacities, on the other hand can lead to the creation of more employment and higher production. According to Reserve Bank of India estimates fuller capacity utilisation in key sectors of the economy can alone give additional output of more than of Rs. 1,000 crore. Immediate attention should, therefore be given to bridging the gap between installed capacity and its utilisation particularly in public sector units. It is a major problem facing by them.

One of the important indicators of efficiency, especially of the manufacturing enterprises, is the degree of utilisation of capacity since in the public sector undertakings the scale of investment is considerably large —more than Rs. 18,000 crores and they employ highly capital-intensive technology, the rate of capacity utilisation signficantly influences their profitability. The present low level of profit (according to Economic Survey of 1980-81, the public enterprises incurred a net loss of Rs. 74.0 crore during 1979-80 against Rs. 40.0 crores in 1978-79) is primarily because of low rate of utilisation of capacity particularly in the areas like steel, fertiliser,

* Deptt of Economics, Banaras Hindu University

machinery and tool where capital investment is large. In 1977-78, out of 129 operating units only in 27 units the capacity utilisation was less than 50 per cent while the figures of 1979-80 show that 34 out of 169 operating units, that is every fifth public enterprise, running at less than half of installed capacity.

Irrational Selection of Technology

One of the important reasons for under-utilisation capacity in the public sector is the irrational selection of technology. Public Sector very often selects a technology which is totally unrelated and new to our existing technological millieu and the adoption of which requires high degree of specialised knowledge and operational ability. The creation of a team of experts to adopt, support and sustain a new technology takes much time. Further, as a result of giving less stress on the research and development public sector units are generally unable to make any significant improvement in the already imported technology. Consequently, the technology with which they are functioning becomes outdated.

Inadequate Demand

Inadequate demand is another reason that can be attributed to under-utilisation of capacity. In its recent report, the Bureau of Public Enterprises reveals that the under-utilisation of capacities in majority of heavy engineering, light and medium engineering, transport equipment and consumer goods units was mainly due to the shortages of orders. For instances, Braithwaite Company and Burn Standard Ltd., are totally dependent on the Railway Board for manufacturing wagons and procuring orders for them. Similarly, the Scooters India Ltd. is working with less than 50 per cent capacity due to the lack of demand for its product. The remedy for such industries is to diversify their production by undertaking other production lines. There are other classes of industries, like steel and power, where the utilisation of capacities is largely dependent on the performance of other industries which supply basic inputs for them. The recent shortfall in the steel units' production is mainly due to the non-availability of coal and power. In 1979-80, it had been estimated that at least Rs. 3000 to 4000 crores worth of additional production could have been achieved had coal and power bottlenecks not existed.

Managerial Deficiencies

The most important factor responsible for the present condition, which caused under-utilisation of capacity of public sector units, is the management deficiencies. There is a dearth of competent managerial personnel to effectively run and manage the big public enterprises. This is the reason why a number of public sector enterprises are without the Chief Executive for a long time. The practice of inducting I. A. S. Officers to run the giant public sector commercial and industrial undertakings had proved fatal. All the I. A. S. officers cannot be good business executives. They are trained basically to run the Government administration. Even the capable professional men did not have freedom to use their skills and show good results because of bureaucratic procedures and interference.

The report on capacity utilisation in public sector undertakings submitted to the Bureau of Public Enterprises by the National Productivity Council, has classified the factors responsible for the under-utilisation of capacities into two parts, namely, unit level factors and extraneous factors.

The most important unit-level factors refer to managerial deficiencies. This is because of lack of effective planning system, improper marketing plan and efforts, absence of diversification and appropriate technology, inadequate R & D fecilities and demoralisation of managerial personnel due to interference and delays in the process of decision-making etc.

As regards the extraneous factors, the report enumerated the shortage of raw material and power, import restriction on capital equipment, undependable internal market and the strained industrial relations.

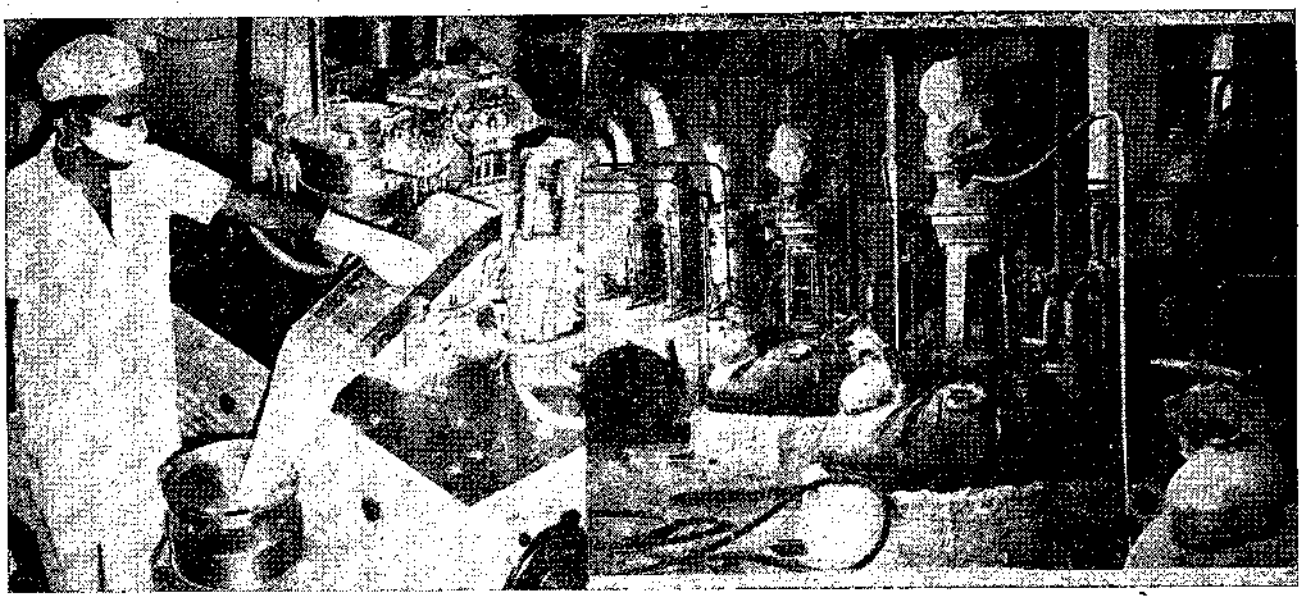
Greater Capacity Utilisation

A sound development of public sector is vital for the national economy. And, for this, it is essential that the government should initiate measures towards fuller utilisation of capacity of existing units before contemplating to start new ones. The productivity, employment and income level, and thus the general prosperity of the economy, largely depend on the fuller utilisation of capacity of the industrial units. Nay, the fuller capacity utilisation enables an industrial unit to become a viable unit and generate more resources for its growth.

The Industry Ministry has recently asked the Chief Executive of public sector undertakings to set a norm of 85 per cent capacity utilisation. This is not a hard task for them. In fact, a number of public sector units have achieved utilisation beyond their designed capacity. They could achieve this level by plant modification and removing the bottlenecks for improving capacity, increasing the research and development activities for plant improvement and production development. a quicker decision-making process to solve the plant-level problems and constant endeavour to increase the working efficiency through adherence to better operating and maintenance practices. □

Rèligion and caste shan't divide us :
Once born in Bharat,
Be they of the priest-class or any other;
All are the children of the Mother.
We'll bow to the Mother

—Subramania Bharati



(Left) Capsule filling operation in progress. (Right) A view of the bulk manufacturing process at the IDPL, Hyderabad.

Medicines for Millions

V. Sripati Rao*

WE have achieved near self-sufficiency in the production of life saving drugs. The creation of the Indian Drugs and Pharmaceuticals Ltd. (IDPL) on April 15, 1961, has paved the way to attain self-sufficiency. Under the aegis of the IDPL, three plants—one at Hyderabad to manufacture synthetic drugs, another at Rishikesh to produce antibiotics and the third one at Madras to manufacture surgical instruments—were established.

The IDPL Hyderabad is spread over a wide area of of about 336 hectares with a well developed township. The construction work on this plant commenced in 1964. In 1967 the main boiler went on steam and production of some drugs was taken up. By 1968, many more products were added and by 1972 the installed capacity of 851 tonnes of drugs was achieved. During the same period the plant diversified and expanded its production programme and added eleven more drugs to the original product mix of 16 drugs. It is envisaged that during the second phase expansion programme which is being undertaken, 9 more drugs will be added to the existing list of products bringing the total to 36. When the plant was established at Hyderabad it was designed to produce about 851 tonnes of basic drugs annually. However its capacity was doubled to 1625 tonnes by 1979-80 without any foreign collaboration. The formulations unit has a capacity of 4000 million tablets per annum. The capacity utilisation in this plant is normally around 90 per cent. The IDPL Hyderabad contributes as much as 35 per cent of the total bulk drugs produced in the country.

The plant at Hyderabad is now under the second phase expansion programme, at a cost of Rs. 2516 lakhs. Its production capacity will rise to nearly 3179 tonnes of bulk drugs with 36 drugs in the product mix—an addition of nine drugs. With the completion of the second phase expansion programme, the sales turnover is expected to be over Rs. 100 crores. Starting with a modest sale of Rs. 60.06 lakhs in 1968-69 the plant touched Rs. 4172.12 lakhs within a period of ten years—a seven-fold increase in its performance.

Within a period of three years the IDPL Hyderabad made a major breakthrough and in the year 1972-73 it earned a profit of Rs. 30.86 lakhs. The profitability of this plant has been increasing steadily with the addition of more drugs in the product mix. The plant depends to an extent of 70 per cent on raw materials which originate directly or indirectly from petrochemicals. Due to the escalation of costs of these raw materials the profit in 1978-79 was reduced substantially when compared to the previous years, and in 1979-80 a loss of Rs. 154 lakhs was incurred. In addition, the other reason for sustaining such a loss was the price control order of Government of India.

Quality control is another factor which is scrupulously followed here. Quality control, which begins at the raw material procurement stage, is taken care of at every level of production by the process control laboratory situated inside each block. The laboratory ensures that the drug meets the standards prescribed.

(Continued on page 31)

* Our Senior Correspondent, Hyderabad.

Oilseeds Production in Rajasthan

N. L. Agarwal and R. N. Sharma*

OILSEEDS accounting for one-ninth of the total agricultural production rank second in importance after foodgrains in the country. Since the beginning of the planning era, agricultural production in the country increased by more than 130 per cent and of foodgrains by 140 per cent but the production of oilseeds during this period increased by only 60 per cent. Over three-fourth of the oilseeds quantity produced in the country is used for vegetable oils. There is an acute shortage of vegetable oils in the country. The increasing gap between demand and supply of oilseeds has led to sharp rise in their prices, which in turn caused much hardship to the common people of the country.

Area and Production

Rajasthan is an important oilseeds producing State of the Indian Union, accounting for 7.66 per cent of the total area under five major oilseeds in the country. The five major oilseeds of the State are groundnut, sesame, rapeseed mustard, linseed and castor seed. The area, production and productivity of these oilseeds and their percentage in the state during 1978-79 are given in Table I. The other oilseeds like safflower, nigerseed, soyabeen, sunflower, cottonseed etc. are grouped under the minor oilseeds. The area under these minor oilseeds is low. However, there has been increase in area under them over time due to the increasing scarcity of vegetable oils in the country.

Total Area

The total area under the five major oil seeds in the state during 1978-79, which was a normal production year, was 12.26 lakh hectares. This accounted for 7.01 per cent of the total cropped area for the State. Of this the area commanded by sesame oilseeds was 4.23 lakh hectares (34.5 per cent of the total area under five major oilseeds) followed by groundnut 3.84 lakh hectares (31.32 per cent) and rapeseed-mustard 3.15 lakh hectares (25.60 per cent). Thus, these three oilseed crops accounted for 91.51 per cent of the total area in the state under major oilseeds. In terms of production of oilseeds, groundnut is the major oilseed crop as it contributed 2.37 lakh tonnes or 42.70 per cent of the total oilseed production. Rapeseed-mustard is second in importance from production point. Production of sesame oilseed is only 0.75 lakh tonnes (13.51 per cent of total production) in spite of the large area under the crop. The productivity of sesame crop is very low i.e. only 177 kg. per hectare. The productivity of groundnut and rapeseed-mustard in the State is over 600 kg per hectare. But it is low when compared to all-India average.

Area, production and productivity of the major oilseed crops have been fluctuating sharply from year to year during the last two decades. Production of five major oilseeds varied between 2.01 lakh tonnes to 5.56 lakh tonnes. Similarly area under oilseeds cultivation fluctuated between 8.71 lakh hectares to 12.46 lakh hectares. During the last 23 years, production of maior oilseeds increased from 2.836 lakh tonnes to 5.559 lakh tonnes i.e. by 96.01 per cent The increase in acreage during this period was only from 9.67 lakh hectares to 12.27 lakh hectares i.e. by 26.89 per cent. The year 1979-80 was not a normal production year and the acreage as well production under oilseed crops declined tremendously.

Production

Production of groundnut increased from 0.38 lakh tonnes in 1956-57 to 2.38 lakh tonnes in 1978-79 i.e. by more than 500 per cent. This increase in production of groundnut was contributed by the increased area under crop. The area under groundnut crop increased from 0.68 lakh hectares to 3.85 lakh hectares during the same period. Productivity of groundnut decreased upto 1969-70 and has shown an increase thereafter. However, the increase in productivity of groundnut was not much. Groundnut is a rainfed crop cultivated on sandy soils without much cultural practices by the farmers in the state. The improved varieties of groundnut are also not available. Hence there has not been a significant change in productivity for more than two decades.

Production of sesame crop declined from 0.91 lakh tonnes to 0.75 lakh tonnes i.e. by 17.58 per cent.

Table I Area, Production and Productivity of Major Oilseed Crops in Rajasthan in 1978-79

Oilseeds	Area		Production		Productivity in Kg./ha.
	Area in lakh Ha.	Percentage of total area	Production in lakh tonnes	Percentage of total	
1. Groundnut	3.84	31.32	2.37	42.70	617
2. Sesame	4.23	34.50	0.75	13.51	177
3. Rapeseed/mustard	3.15	25.69	2.04	36.76	648
4. Linseed	1.01	8.24	0.38	6.85	376
5. Castor seed	0.03	0.25	0.01	0.18	333
Total	12.26	100.00	5.55	100.00	453

*Department of Agricultural Economics, S.K.T. College of Agriculture, JOBNER (Jaipur-Rajasthan).

this was due to the decline in area under the crop from 4.79 lakh ha. to 4.22 lakh ha. (11.90 per cent) and productivity from 190 kg./ha. to 178 kg. per ha. Sesame is also a rainfed crop grown on sandy and marginal lands.

Production of rapeseed-mustard almost double in the State during the last 23 years. Total production of rapeseed mustard in the State was 1.10 lakh tonnes in 1956-57 which increased to 2.04 lakh tonnes in 1978-79. Similarly, the acreage under the crop increased from 2.66 lakh ha. to 3.16 lakh hectares in 1978-79 and further, to 3.66 lakh ha. in 1979-80. There has been a significant increase in the productivity of this oilseed crop in the State compared to all other oilseeds. Productivity recorded an increase from 414 kg/ha. to 646 kg/ha. or by 56.04 per cent. The increase in productivity of this oilseed crop is because of the use of improved varieties grown on better land with irrigation facilities.

Production of linseed fluctuated violently during the study period and remained lower than the starting year in all the years of the study. Area under this crop decreased from 1.52 lakh ha. to 1.01 lakh ha. or by 33.55 per cent However, the increase in productivity from 289 kg/ha. to 376 kg./ha. compensated the decrease in area and overall decrease in production of linseed was not much in the State.

The castor seed occupies a very low position in the total area and production of oilseeds in the State. Area and production under the crop increased by 50 per cent during the period. However, there was no change in the productivity.

Growth Rates

During the study period oilseed production in aggregate recorded a compound growth rate of 3.59 per cent per annum. This increase in production was mainly due to the increase in productivity at a rate of 3.30 per cent per annum. The growth rate of area was found to be 0.33 per cent but non-significant.

Compound growth rate of production and area of groundnut oilseed was found to be 7.80 per cent and 6.85 per cent per annum respectively. Both these growth rates were significant at one per cent level. The growth rate of groundnut productivity was found to be positive but non-significant. Thus, it can be said that during the last 23 years, production of groundnut (an important oilseed crop in total production) increased in the State due to the increase in area under the crop. There was no change in the productivity of this oilseed.

Sesame oilseed recorded a negative productivity. The negative growth in production of sesame was because of the decrease in area as well as productivity.

Rapeseed-mustard—a crop of rabi season—is grown under irrigated conditions. During the period the compound growth rate of production was 3.78 per cent per annum. This increase in production was contributed solely by the increase in productivity. The growth rate of productivity was 2.79 per cent per annum. Both these growth rates were significant at 5 per cent level. The growth rate of area was positive but insignificant.

The compound growth rate of linseed oilseed was positive but not different from zero. The area growth rate was negative. The productivity of linseed has shown a compound growth of 2.01 per cent per annum. However, the increase in productivity could not bring a significant impact on production of the crop because of the fall in area under the crop. The growth rate of area and production for castor seed was positive but it was negative for productivity. However, all the three co-efficients were not found significant.

From the above discussion, it is clear that production of oilseeds in the State increased from 2.83 lakh tonnes to 5.56 lakh tonnes and area from 9.67 lakh ha. to 12.27 lakh ha. during the last 23 years. The compound growth rate of production of the five major oilseeds was 3.59 per cent per annum. Among the individual oilseeds, production of groundnut and rapeseed-mustard increased by 7.80 per cent and 3.78 per cent per annum respectively. The increase in production of groundnut and sesame was contributed solely by aera (6.85 per cent and 2.79 per cent respectively). Sesame oilseed recorded a negative growth for area, production and productivity. In case of linseed, area recorded a negative growth but the decrease in area was compensated by the increase in productivity of the crop. Thus, there was not much significant change in production.

The increasing demand for edible oils and low rate of increase in supply has resulted in widening the gap between their demand and supply. The gap necessitated a large scale import of edible oils. There also occurred an exhorbitant rise in the prices of edible oils in the internal market. All these highlight the urgency and magnitude of increasing the production of oilseeds in the State. Following suggestions are put forth for increasing production of oilseeds in the State :

1. Production of oilseeds can be increased by increasing their cultivation in irrigated area, especially in the command areas of Rajasthan and Bhakra Canal. At present most parts of the area under these oilseeds are rainfed.

2. Intensive research be carried out to develop improved varieties of these oilseeds, so that productivity can increase. Further research should also be carried out simultaneously for the improvement of oil content in the varieties. There is also a need to evolve frost-resistant varieties as much damage to oilseed crops is caused by frost.

3. Provision of required inputs including improved seeds, fertilizers, pesticides and credit be made available to the farmers, especially small farmers, in time.

4. Guarantee of adequate returns to farmers be extended by fixing the minimum support prices at remunerative level for the various oilseeds.

5. There is need for bridging the gap between research and the level of technology adopted by the farmers in the cultivation of oilseeds. The farmers should be educated through extension approach for use of better cultural practices in growing of oilseeds.

6. The aphids and diseases such as blight, rust and powery mildew are also responsible for huge losses to oilseed crops in the State. There is need for developing integrated control measures for these diseases and aphid. □

Case Study

Indebtedness Among Farm Households of Puri

Shanti Sarup and R. K. Pandey*

RURAL indebtedness is one of the symptoms of the appalling and chronic poverty of the man behind the plough. Though agriculture provides employment to 79 per cent of the working population of Orissa and accounts for 69 per cent of the state's income, yet agriculture is backward. The farmers are often forced to borrow either for self consumption or for investment in the agriculture.

The present study is directed to assess the present debt position of the farm households in the Puri district of Orissa. The study also envisages to examine the association of other socio-economic variables with indebtedness.

The Study Area

For the purpose of this study the data collected under the project 'Constraints to higher yields on rice farms in operational research project area of Puri district' for the year 1978-79 is utilised. The term indebtedness and outstanding loans have been used interchangeably in the paper. The reference period for the outstanding loan is January 1979.

The study areas comprises four villages viz. Gharodia, insuapada, Beguniapada and Jorkani in Delang block of Puri district of Orissa state. The study area is dominated by marginal and small holdings and rice cultivation is the major source of income for most of the farm households in the study area. From 113 farming household selected for random sampling information on indebtedness along with other related characters of land holding, tenurial structure, method of crop production, adoption of various input use etc., were collected through personal interviews.

It was observed that about 79 per cent of farm households were under debt as on 31.1.79. Considering the debt position per farm household, the average amount of debt was Rs. 1212 with a standard error of Rs. 142 and Rs. 1538 with a standard error of Rs. 156 respectively. This clearly indicates the extent of poor economic conditions of the farm households in the area.

A sense of well being and security is inherent in the ownership of land. To understand the pattern of incidence of indebtedness among different holding size groups, the sampled farms were classified into four groups viz. 0-1 ha, 1-2 ha, 2-3 ha, 3 ha, and above and the percentage of farms indebted and the average amount outstanding for each category was estimated and the results are presented in table 1.

The table indicates that indebtedness is present in all the holding size groups uniformly in the area. It is, however, observed that the quantum of indebtedness is positively associated with holding size. The average outstanding amount of loan per farm was Rs. 608, Rs. 1037, Rs. 1979 and Rs. 2125 for marginal, small, semi-medium and medium holding size farms respectively. Again to get a comparable figure outstanding amount of loan was computed on per hectare basis of land owned by each group of farms. As expected, this analysis revealed that the heighest indebtedness (Rs. 1048) was observed in the case of farms with least land resources and minimum (Rs. 370) in the case of farms with large holdings.

About 82 per cent of the farm households availed of the credit facility from either banks or cooperative societies or both and the amount due to them account for about 74 per cent of the total indebtedness prevailing in the area. The percentage of loan obtained from professional money lender was only 8 per cent. According to All India debt and investment survey (1961-62), the percentage of money borrowed from the individual and professonal money lender was to the extent of 50 per cent. This change in the source of debt during the recent years was an indication of various debt relief measures adopted by the governments for the farm households, meaning thereby that cooperative agencies or Govt. banks had come to the help of rural households to free them from the clutches of private money lenders who used to charge exorbitant interests from the debtors. At present the rate of interest charged by the institutional agencies e.g. banks and coopera-

Table I Extent and Distribution of Indebtedness among Different Holding size groups-

Holding size group (in ha.)	0.0—1.00	1—2	2—3	3 and above
Total sample				
Household size	37	40	24	12
Household under debt	31	30	17	11
Percentage under debt	83.7	75.0	70.8	91.7
Debt				
Per household (Rs.)	608	1037	1979	2125
Per hectare (Rs.)	1048	752	868	370

*Indian Agricultural Statistics Research Institute, New Delhi

tives was much lower, only 10-20 per cent compared to the rate charged by professional money lenders (30 to 60 per cent).

To study the pattern of distribution of indebtedness among farm households, the indebted households were classified according to the range of the amount of debt. Of the total indebted families, 29.2 per cent of the household had outstanding loan below Rs. 500. About one fifth of the households borrowed money with in the range of Rs. 500-900. The extent of outstanding loan was 12.4 per cent in the range of Rs. 1000-1499. The percentage of households falling in the range of Rs. 2000-2499 and above Rs. 3000 was identical (i.e. 14.6 per cent). About half of the families had outstanding loan below one thousand rupees.

Further to examine the purpose for which a loan was taken, the amount of indebtdness was classified into two groups : productive and non-productive debt. The productive debt is one which is used for procuring crucial inputs for crop production, land improvement, land purchase for agriculture, purchase of bullocks, dugwell, poultry or any other business which could improve the earnings of the farm households, while non-productive debt was used for repair|construction of dwelling unit, marriages and other socio-religious ceremonies, family maintenance, litigation and redemption of mortgaged property etc.

About 89 per cent of the total amount of loan incurred was for productive purposes only. About 51 per cent of the total debt incurred was for buying crucial inputs for crop production. Next in importance was debt for the provision of dugwell for irrigation and improvement of land for increasing its productivity. The average amount of loan incurred for dugwell and land development was Rs. 237 and Rs. 166 respectively, both taken together accounted for about 26 per cent of the total debt. The average amount of the debt incurred for marriages and other socio-religious ceremonies was Rs. 118 or 7.6 per cent of the total debt incurred. The family maintenance debt formed only 1.6 per cent of the total debt. From above it is evident that indebtedness among farm households in the area is prevailing mostly due to debts incurred for improvement of their earnings rather than meeting their consumption needs and social obligations. Due to vagaries of nature which are not uncommon in this area, harvests fail. The amount invested on crop production raised through borrowing drains out alongwith the amount saved after years of prudent, rather frugal living and the man behind the plough remains indebted.

To examine the association of socio-economic variables such as holding size, tenurial status and family size with the prevalence of indebtedness and rate of indebtedness among different farm households, $\times^2$ (chi-square) test of independence was carried out and the results are presented in Table 11.

From chi square analysis, it seems that none of the socio-economic variables under study viz. holding size, tenurial structure and family size have any association with indebtedness. Similarly the amount of indebtedness is also observed to be independent of the tenurial structure and family size. But the range of indebtedness is observed to be highly associated with the holding size implying that the amount of indebtedness increases as the holding size increases.

Again to study the impact of indebtedness on crop productivity, the sampled farms were classified into two groups, farmers with outstanding debts of less than Rs. 1200 as Group A and those with outstanding debts of Rs. 1200 or more as Group B. The average yield of paddy obtained at their farms during kharif season of 1978-79 were estimated to be 1363 kg|ha. and 1088 kg|ha. respectively. The yield difference (275 kg|ha.) between the two groups was found to be statistically significant implying that economic condition of the farmers was an important factor for improving yield potential.

From above discussions, it emerges that indebtedness is a socio-economic evil prevalent among all groups of farms households and it is one of the factors affecting the productivity of the farms.

Table II Value of $\times^2$ among Socio-economic Factors, Prevalence of Indebtedness and amount of Indebtedness

Variables	Prevalence of Indebtedness			Amt of Indebtedness		
	d.f.	$\times^2$	Significance	D.F.	SX2	Signce
Size of holding	3	4.05	n.s.	4	14.26	*
Tenurial Status	1	0.84	n.s.	3	1.23	n.s.
Family size	1	2.15	n.s.	3	6.32	n.s.

* Significant at 5 % level
n.s.: not significant
Notes: The socio-economic factors are grouped as follows:
1. Holding size group:
(i) 0-1 ha. (ii) 1 2 ha. (iii) 2-3 ha. (iv) 3 ha and above
2. Tenurial status:
(i) owner cultivator (ii) owner and tenant
3. Family size:
(i) upto 9 members (ii) 10 and above
4. Amount of indebtedness:
(i) Below 1000 (ii) 1000-2000 (iii) 2000-3000 (iv) 3000 & above

Conclusion

To sum up, the study reveals that more than three-fourth of the total farm households were under debt. Average debt per family and per indebted family were Rs. 1212 and Rs. 1538 respectively. About eighty per

cent of the farm households had availed of credit facility from either banks or cooperative societies. It was observed that half of the debt incurred was for purchase of crucial inputs for crop production. The prevailing indebtedness was observed to be independent of holding size, tenurial status and family size but amount of indebtedness was observed to increase with the increase in holding size. This indicates that the problem of indebtedness among the farm households is still very acute and needs immediate attention on the part of the Govt. and other concerned institutions. Agricultural credit, when viewed in the context of reducing poverty among the rural poor by improving the productivity through scientific cultivation, forms an important component of modern technology. Fortunately, there is an evidence of considerable potential for increasing agricultural output per hectare in the area through adoption of recommended package of practices which are mostly capital intensive. To purchase these inputs and adopt the new technology farmers will need increasing amount of production credit. There is a strong, though latent demand for agricultural credit. Many studies have revealed that credit is an important component in obtaining high levels of productivity if a borrower is an innovator and if the supply of inputs is readily available. To ensure supply, distribution in kind may prove to be the most effective means of delivering production credit to the farmers. Since the production impact of the credit and the level of recovery are dependent on the adequacy of the available technology package, there is a great need of strenghening the extension services to educate the farmers in the application of the new technology suitable to the local conditions. Further to encourage adoption of the package by the farmers and to minimise risk, some sort of crop loan insurance may be introduced to ensure the farmers with minimum return. Such measures alone could alleviate the miseries of the farming community, relieve them of indebtedness and raise them above the poverty line.

Nungba Project in Manipur

Dr. T. N. Saikia*

NORTH-EAST INDIA faces the problem of social and economic disparities amongst the people living in the hills and the plains. There are areas of extreme poverty and infrastructural disparity within the same State. In order to remove the regional imbalances both the Central and State Governments had undertaken special area development projects in the recent past.

The Nungba Project

The Nungba Project in West Manipur district was known as Integrated Hill Area Development Project (IHADP) and was initiated in 1974-75. The project area lies in the western hill ranges of Manipur with a geographical area of 1295 sq. km. The elevation of the narrow valley ranges from about 350 m. to 800 m. and the hills within 800 m. to 2,000 m. above mean sea level. The main objectives of the IHAD project are :

(i) to help the hill farmers to take up integrated development schemes by way of diversifying the farming system through a phased programme of development ;

(ii) to wean away the Jhum cultivators from destructive farming practices and encourage settled farming ;

(iii) to introduce new technology in the field of agriculture and the allied sectors ;

(iv) to create basic infrastructure for rapid development of the project area.

The project was initiated with central assistance of Rs. 1.50 crores. The project had taken up agricultural development programmes with the introduction of HYV seed, fertiliser plant protection measures etc. together with double multiple cropping programme, development of horticulture by establishing progeny orchards for supply to the interested growers and rejuvenation of existing orchards ; land development by way of terracing and soil conservation ; creation of irrigation facilities by harnessing of small streams and rivulets by construction of dams, wiers and installation of pump sets for lift irrigation. Apart from these the project had also taken up the programme of introduction of improved dairy animals and poultry birds, creating marketing facilities, construction of link roads, facilities for cold storage, identification of growth centres, to link with interior areas.

Evaluation

The Agro-Economic Research Centre for N.E. India at Jorhat evaluated the working of the project in 1978-79 (i.e. exactly after four years of functioning). Out of 58 main villages in the project area various project schemes were extended to 40 villages at the time of survey. 12 villages i.e. 30 per cent of the adopted villages were covered by the field level study in order to assess the effectiveness of the project programme at the field level. Attempt has also been made to focus the overall achievement of the project at the aggregate level.

The schemwise target for the project period and achievement during the four years of functioning were based on the data collected at the aggregate level. The overall achievement of the project in case of certain key schemes were not satisfactory.

In order to assess the impact of the overall project programmes the schemewise sample beneficiaries were interviewed. The project was chiefly aimed at

*Agro-Economic Research Centre, for North East India, Jorhat.

boosting up of agricultural production with adoption of full package of practices including double/multiple cropping programme. Although the aggregate level study showed a spectacular progress in certain schemes, yet, at the field level outcome were not very satisfactory. The HYV seed covered a considerable area. The idea of introducing double|multiple cropping programme remains a theoretical proposition without any tangible results due to inadequate irrigation facility and the agricultural production process remains a gamble against monsoon. Other schemes like distribution of improved breeds of heifer, afforestation, rubber plantation, coffee plantation, etc. did not show any tangible achievement.

The key programme of introduction of bench type terraces with irrigation facility for settled farming in order to wean away the jhumias from destructive jhuming did not satisfy its objective. During the functioning of four years of the project only 22.65 per cent of the target were achieved and remaining 77 per cent left to be covered within another year. Out of the total terraced land constructed under the project programme only about 31 per cent is irrigated and that too not perennially. The project planned to provide one hectare of irrigated terrace per family but the field study revealed that the project could provide only 1.33 acres per family on an average without adequate irrigation facility. The hill farmers took active interest in the project programme at the initial stage. But when the farmers found that yield of crops in few terraces even after introduction of HYV seeds, fertilisers and plant protection materials were not remunerative, they were disheartened about the introduction of modern inputs. This is perhaps due to soil. Humus was disturbed and not properly maintained at the time of preparation of terraces. So, the hill farmers went back to jhuming to earn their livelihood.

In case of other schemes also the project could not make much headway except in the field of horticulture, because of the fact, that the agro-climatic condition is favourable to grow pineapple, orange, pears, etc. The horticultural schemes (particularly pineapple) are facing marketing problems due to lack of proper communication and marketing facilities. The fruit canning and processing and marketing centres were not taken in hand as proposed. It was therefore feared that the horticulturists may not get fair return for their product. The presumption has amply been revealed by the fact that the orange grown in the area is collected by the traders at throw away prices. The introduction of hybrid boars, female piglets, cocks and cockerels may prove viable provided marketing and related infrastructural facilities are geared up.

The other schemes like afforestation, rubber plantation, citronella plantation as a measure to preserve valuable natural water-sheds were also taken up. These schemes were at initial stage of implementation at the time of field investigation and hence yet to show the viability.

From the review of development programmes of Nungba Project it may be said that the production oriented schemes achieved only partial success but ground work has been done by the Nungba project to show the hill farmers the trend of development in the various fields.

The programme of changing the technology should be taken up stage by stage, along with the distribution of inputs like HYV seed, fertiliser plant protection materials through co-operative to make the farmers involved in the process. Due to free distribution of inputs the people of the project area seem to have looked upon the project as benefit giver for all the time to come. The marketing of farm products would have also been arranged through the co-operatives in order to ensure fair price for their products. These aspects were not taken into account by the project for which the achievements are bound to be partial.

The integrated development of hill areas requires perspective regional hill area development plan which should be based on studies on ecology, hydrology annual precipitation, soil properties, thermal quality, sociology etc. The perspective plan requires a long-term investment policy with considerable resources. □

Medicines for Millions

(*Continued from page* 24)

Rigid standards of pharmacopoeia are applied and reference samples are preserved in the archives to facilitate analysis in the unlikely event of a complaint from the market about the quality of the product.

The IDPL Hyderabad has a full-fledged engineering unit. It is fully geared to meet the various services, requirements of production blocks. Steam, water at different temperatures, —5 degrees to —4 degrees brine, inertgas, oxygen etc. are centrally produced and conveyed to the production blocks through pipe lines. The engineering workshop fabricates a number of items like reaction vessels, heat exchangers, distillation columns, extraction units, pressure filters etc. In addition it provides corrosion proof materials and linings to various columns and pipes with materials like, FRP, lead etc. Another encouraging feature is that several equipment needed for the II-phase expansion programme are getting fabricated at its own engineering unit at Hyderabad.

In addition, the Plant maintains a full-fledged Formulations Unit with a production capacity of over 4,000 million tablets per year. By and large, the formulations of the plant are based on its own bulk production. The utilisation of formulation capacity has generally been around 90 per cent during the last five years. The various formulations have been developed besides variety of pills for use in veterinary science in the IDPL Hyderabad.

This is the success story of the IDPL Hyderabad which is dedicated to serve the people of India by supplying life saving drugs. □

Trends

Essential Commodities at Reasonable Prices

SHRI Braja Mohan Mohanty, Deputy Minister for Civil Supplies has assured the Lok Sabha that the Government attached considerable importance to the availability of essential commodities at reasonable prices. The Minister who was replying to a calling attention notice said that the Government was concerned about the rising trend in the prices of some of the essential commodities since March 1979. However, there had been some moderation in the rate of inflation during the past few months. The Minister said that the rate of inflation had come down from 22.7 per cent in January, 1980, to 7.2 per cent in October 1981. The wholesale price index in September 1981 declined by 1 per cent over the preceding month. There was a further fall of 0.3 per cent in October, 1981. The prices of some essential commodities like sugar, gur, edible oils, pulses and potatoes had shown a declining trend.

Outlining the steps taken in this regard the Minister said that with a view to dealing with a difficult situation effectively Government took a number of measures relating to the management of supply and demand for essential commodities.

He said that in the context of a continuing worldwide inflationary trend, a decline in the rate of inflation in our country indicates the effectiveness of the policies adopted by Government.

For More Oil Seeds

THE production of oil seeds under the Sixth Five Year Plan is envisaged to be stepped up from 10.20 million tonnes in 1979-80 to 13.10 million tonnes by 1984-85 with the ultimate objective of attaining self-sufficiency in edible oils. Disclosing this in reply to a written question in the Lok Sabha recently Shri Braja Mohan Mohanty, Deputy Minister for Civil Supplies said that the maximisation of production of edible oils from relatively never and less exploited sources like soyabean, rice bran etc. will be a major element of the Sixth Plan strategy. The Minister further informed the House that an outlay of Rs. 38.65 crores had been provided in the Sixth Plan for dvelopment of vegetable oils particularly oilseeds of tree and forest origin.

Strong Electronics Base Needed for India

THE Union Minister of State for Science and Technology, Electronics and Environment, Shri Chandra Pratap Narain Singh has called for a strong electronics base in the country. Addressing an International Workshop on the Physics of Semiconductor Devices, the Minister said in New Delhi recently that even though India was the third largest country in scientific and technical manpower in the world, it occupied approximately 20th position in the field of electronics. India, hopefully, will touch Rs. 1,000 crores worth of electronics production during this year, but for a country of our size, it was too low, he added.

To achieve faster growth rate, the Minister called for a completely different and drastic approach. He pointed out that Indian scientists can achieve five-fold growth in electronics goods, worth nearly Rs. 5,000 crores in nearly five years if the electronics components were made available in the country at international prices.

US Assistance for Social Forestry Project

INDIA and the United States recently signed an agreement for a loan of $ 10 million (Rs. 9.2 crores) for the Social Forestry Project of the Madhya Pradesh. This is in continuation of an earlier Agreement for the same project for which assistance was provided for an amount of US $ 4 million. □

Assam Power Scheme approved

THE Borgolai Thermal Power Station scheme of Assam at an estimated cost of Rs. 45.64 crores, has been approved by the Planning Commission. The project is to be implemented during the current year.

The scheme envisages installation of two 30 MW turbine generator sets with associated auxiliaries and two boilers, together with intermediate bunker. The power generated is proposed to be stepped up to 132 KV and transmitted to Namrup grid sub-stations. □

West Bengal Power Scheme Approved

THE Planning Commission has approved a scheme for power transmission and transmission works in West Bengal at the estimated total cost of Rs. 103 crores.

Included in the State Plan, the scheme is to be implemented during the Sixth Plan period.

Demand for Conductors and Cables

"THE cable and conductor manufacturing industry must step up market research and development enforce greater quality control and cost control, and also explore foreign markets for their goods." Shri Vikram Mahajan, the Minister of State for Energy, said this while inaugurating a seminar on "Marketing Problems of the Cable and Conductor Units", at New Delhi recently.

The Minister said that with a big spurt in the power producing industry and a vast expansion programme, the demand for conductors and cables which had already gone up, would rise further. He said that the installed capacity in the country has already achieved a growth of nearly 14 items, from 2302 MW in 1951 to over 31,000 MW now. The generating capacity is planned to go up further by nearly 20,000 MW during the Sixth Plan and will cross one lakh MW by the turn of the century. Similarly, the per capita consumption which stood at only 18 units in the beginning of the plan has reached over 131 units. He said that a big financial investment in the power sector was envisaged and during the Sixth Plan an outlay of Rs. 19,265 crores had been proposed for generation, transmission and distribution and rural electrification programme.

Lead, Zinc and Cadmium Production

The Minister for Commerce, Steel and Mines, Shri Pranab Mukherjee recently inaugurated an international Seminar on Lead-Zinc and Cadmium. Shri Mukherjee called for concerted efforts to integrate measures for improvement of the environment in the mining and metal industries. He said that Government was keen to maintain ecological balance by adopting suitable pollution control measures while developing mineral industry. Shri Mukherjee also said that geological exploration in the last decade had established vast additional reserves.

Referring to the production of Zinc, the Minister said that the public sector company Hindustan Zinc Limited is poised to produce 75,000 tonnes of zinc, 18,000 tonnes of lead and 305 tonnes of cadmium per annum. At present India is importing about 55,000 tonnes of zinc and nearly 45,000 tonnes of lead per annum to meet the gap between indigenous production and consumption.

Earlier delivering the Presidential Address, Shri C. S. Swaminathan, Secratary, Department of Mines, said the Indian Government has decided to make substantial outlay of over Rs. 1220 million for the development of mines, smelters, treatment plants, etc. for lead and zinc. He said, that India still continues to import either the metals or the concentrates. He hoped that by the end of the decade over 70 per cent of the demand will be met by indigenous mine production as against about 22 per cent now in case of zinc. As regards lead, nearly 80 per cent of the requirement in 1989-90 is expected to be met by indigenous mines production as against about 24 per cent now.

Institutes for Non-Formal and Traditional Skills

The Government proposes to set up four training institutes for non-formal and traditional skills to enable the persons employed in low-paid occupations to go for self-employment and for skill and productivity upgradation. These institutes will be at Bhopal, Ahmedabad|Baroda, Lucknow, Jammu| Srinagar.

A meeting of the representatives of various professional associations in the field was held recently to discuss the scope of training, methodology to be adopted and type of people who could be trained under this programme.

It was decided to set up a working group under the chairmanship of the Union Labour Secretary, and the working group would draw up a national approach and work out a detailed scheme, identify areas and skills, including assistance from other training organisations and coordination with the State Governments. The participants suggested that the scheme should first start as upgradation of existing skills. The training camps should be set up at the places where there were concentration of such workers. Such a scheme would open avenues for self-employment and in turn would increase employment potentials.

Quick Vetting of Projects

Shri Mohammad Fazal, Member, Planning Commission, recently inaugurated three-day national workshop on "Project Management in Public Enterprises". The workshop, attended by over 200 delegates, recommended that the time taken in processing a project report at the Government level should be minimised to eliminate the delay in the implementation of various state-sponsored projects.

The workshop, first of its kind, jointly organised by the Bureau of Public Enterprises (BPE) and the Standing Conference of Public Enterprises, has also made several other far-reaching suggestions to cut down time and cost overruns in the designing and implementation of various projects.

Summarising the recommendations of the conference, Shri T. K. Saran, Adviser (construction), BPE, said all the workshop study groups unanimously emphasised the need to improve the quality of project appraisal and formulation requiring a multi-thronged approach, to identify gaps in indigenous manufacturing and to adopt a single-window approach where all connected agencies would be consulted before the project report is put to the Government for final approval.

For effective implementation of projects under construction it was emphasised that the chief executive at site should have sufficient powers to take spot decisions and sanction extra items within the overall sanctioned cost.

Assam Power Transmission Scheme Approved

The Planning Commission has approved scheme for additional power transmission and transformation works of Assam at an estimated cost of Rs. 23.72 crore.

The transmission works in the scheme comprise construction of 200 circuit kilometers of 220 KV transmission lines and 393 circuit kilometers of 132 KV transmission lines. Besides, the scheme envisages establishment of 132 KV sub-stations at Diphu, Dhemaji, Agia, Nazira, Amingaon, Gauripur, Jagiroad, Halflong and Jorhat, extension of 132 KV sub-stations at Gosaigaon, Lakwa, Lanka, Mariani, Tinsukia Margretta, Chandrapura, North Lakhimpur and also extension of 220 KV sub-station at Gauhati.

Gujarat Irrigation Project Approved

Bhadar reservoir project of Gujarat, estimated to cost Rs. 13.11 crores, has been approved by the Planning Commission.

The project envisages construction of a storage reservoir near village Mortalav in Lunawada taluka of Panchmahal district of Gujarat State, across the river Bhadar, a tributory of river Mahi. The project includes construction of a canal system on the right bank of the river.

When completed, the project will provide annual irrigation to 5480 hectares in Pachamahal and Kaira districts of the State.

Sizeable Increase in Coal Output Envisaged

The coal production will record a growth rate of 58 per cent during the Sixth Five Year Plan. The production will rise from a level of 104 million tonnes in 1979-80 to 165 million tonnes in 1984-85, and will fully meet the demand of different sectors of economy. This information was given by the Energy Minister, Shri A.B.A. Ghani Khan Choudhury, at a meeting of the Parliamentary Consultative Com-

mittee attached to his Ministry in New Delhi recently. After spelling out several measures to increase production, he said that these steps have already resulted in an upward swing in coal production. The output during the first seven months of the current financial year, April—October, went up by over 10 per cent exceeding the initial target rate of growth of 6.14 per cent fixed for the entire year, 1981-82. He said that looking to the increasing trend of production the original target of producing 121 million tonnes of coal during the current financial year has been raised to 124 million tonnes.

In regard to Power Sector, the Minister informed the members that power generation from the existing plants had gone up and total generation during April-October 1981 recorded a growth of 13.1 per cent over the corresponding months last year, exceeding the target growth rate of 9.4 per cent fixed for the whole year. The thermal generation during this period recorded a spectacular increase of 19.4 per cent.

STEP BY STEP

All-Round Improvement in Family Planning Performance

OVER 11 lakh sterilisation operations were performed during April to October 1981 as against 9.4 lakh operations during the corresponding period last year, showing an increase of 16.3 per cent. This information was given in the Lok Sabha recently by Shri B. Shankaranand, Minister of Health and Family Welfare in reply to a question. There has been a 12.1 per cent increase in IUD insertions. Over 3.4 lakh IUD insertions have been done during April to October, 1981 as against over 3.05 lakh during the corresponding period last year. Similarly, conventional contraceptive and oral pill users have recorded a 12 per cent and 3.6 per cent increase respectively.

Shri Shankaranand informed the House that a sum of Rs. 155 crore has been earmarked for the family welfare programme for 1981-82. The expenditure on family welfare programme by various States/Union Territories during the current year (upto September 1981) was provisionally estimated at Rs. 59.49 crore on the basis of information received so far.

The Health Minister also observed that the motivational and educational efforts aimed at persuading the people to adopt the small family planning methods, have been stepped up. The Chief Ministers of all the States have been advised to take direct and active interest in energising the family planning programme in the States. Efforts are continually made to ensure that the family planning services and supplies are made available to the people as near their homes as possible.

Maharashtra Irrigation Projects Approved

SIX irrigation projects of Maharashtra have been approved by the Planning Commission at the estimated total cost of Rs. 30.26 crores.

The schemes are: Madan Tank Project, Anjani river project, Torna river project, Mun river project, Buti nalla project and Pohar nalla project.

Three medium irrigation schemes of Maharashtra have also been approved by the Planning Commission at an estimated total cost of Rs. 11.30 crores.

The schemes are : Rangawali river project, Amravati river project and Sonwad irrigation project.

Steps to Increase Indigenous Oil Production

Over 16 million tonnes of crude oil was expected to be produced in the country during 1981-82. By the end of 1984-85, the Oil and Natural Gas Commission and Oil India Ltd. are together expected to produce nearly 30 million tonnes of oil and 4 million tonnes of oil equivalent of gas, which could be about 70 per cent of the total requirement of hydrocarbons. This information was given in the Rajya Sabha recently by Shri P. C. Sethi, Union Minister for Petroleum, Chemicals and Fertilizers.

Indian Buses for Ghana

A contract for the supply of 200 Tata buses was signed at Accra recently between Tata Exports Limited and State Transport Corporation of Ghana.

Apart from the supply of the buses Tata Exports would also supply two Tata mobile service vans, one mobile workshop and spare parts under this agreement.

Four-Fold Increase in Exports of Chemicals

STARTING from a level of Rs. 20 crores in 1965-66, India's exports of chemicals and allied products recorded a four-fold increase during the next decade, touching a level of Rs. 87 crores in 1975-76. This trend was maintained and in the five years between 1975-76 and 1980-81, the export figure touched Rs. 173 crores.

This was stated by Shri Khurshed Alam Khan, Minister of State for Commerce, while inaugurating the twentythird Annual General Meeting of the Chemicals and Allied Products Export Promotion Council in New Delhi recently.

The Minister said that the Government was aware of the various constraints faced by the industry and it had already initiated action on a number of these problems.

Shri Khan said that the CAPEXIL had a good record and had exceeded the export target quite a few times in the past. The non-achievement of the target last year should not demoralise the exporters but instead spur them on to make greater efforts to achieve and exceed the target of Rs. 235 crores for this year, he added.

The Minister said that the export potential for chemicals and allied products was vast and there was great scope for achieving a rapid increase in our exports. All efforts should be made to introduce new export products, explore new markets and develop the potentialities of the existing markets.

BOOKS

Inventory Models

Inventory Models and the Problems of Price Fluctuation by A. B. Lal Published by Shree Publishing House, Delhi; Pages 179, Price Rs. 100.

EVER since business enterprises started operating on a big scale, the problem of inventory control has assumed significant dimensions. With the ruling high cost of loan capital, every enterprise has to manage its affairs in such a manner that money locked up in inventory is not excessive. A judicious balance has to be struck to ensure that neither excessive inventory is built up for stock-out situations are created due to insufficient inventory. The author has sought to explore this subject in the above context and bring out all its ramifications. His aim has been to develop methodology for assessing whether inventory held is 'excessive' and how to devise methods of control with emphasis on the concept of 'Economic Order Quantity' which is the pivot on which the whole book rests.

Beginning with the classic formula of economic order quantity (EOQ) developed in 1915 which optimises the inventory ordering cost and inventory carrying costs, he has traced the History of development of the concept since then by drawing references to the worked of various experts on the subject. He has given a brief idea about various inventory models and discussed the role of operation research in solving inventory problems.

To push forth his ideas, the author has studied, the inventory problems of a company 'MODI STEELS' and with the help of figures has endeavoured to explain the idea. By means of worked examples from company's figures, he has clearly indicated how to optimise inventory cost by arriving at quantity to be ordered, number of orders in a year and number of days supply to be ordered with modifications of the economic order quantity formula. Introducing complications as receipt of material over a period of time and estimating demand for shorter duration as against long term planning, author has given the solution with variations and examples. Attempts have been made to deal with various facets of inventory control as minimum and maximum level of stock, recorder point, order quantity taking into account lead time and safety stock.

From a static model of inventory control, the author has introduced an element of rising prices of inventory for forecasting and ordering. A study of the formula developed for deciding the largest economic quantity to be purchased at current prices, as at beginning of a season, reveals the complications involved.

To sum up the author has expanded the formula of economic order quantity to cover various factors as order size, number of orders etc. In inflationary economic situation as now, effects of price increases in inventory have to be considered. The writer has merely introduced the subject, by theoretical dissertation followed by an example, probably because a knowledge of higher mathematics is very essential to understand and evolve solutions for inventory control in conditions of price fluctuations. He had to limit his efforts to discuss the subject assuming a static model with minimum variables in major part of the book.

His assessment of the inventory policy followed by 'MODI STEELS' would make an interesting reading. The book gives plenty of data on the subject of economic order quantity under various situations, normally not dealt with in such detail in standard text books on accounting and would be a useful addition for improving one's knowledge.

D. P. Rangan

Share of Wages

The Share of Wages in National Income by Dr. Ashok Mitra, Published by Oxford University Press, Calcutta, 1980. Pages 149. Price Rs. 75.

DR. ASHOK MITRA, an eminent economist and the present Finance Minister of West Bengal, has exhumed his earlier study written way back in 1954 on the share of wages in national income. The relative share of factors in national income, which deserves reprint and the present book is one such, has always evoked considerable interest as it is one of the major conundrums in macro-economic theory. Breaking away from repetitive moorings represented by Kalecki and later Kaldor, Dr. Mitra's monograph followed Cournot in building up a theory of income distribution, the main variables of which are the labour and import 'quotas', the rate of depreciation, the wage-price ratio, the number of competitors in the market and the so-called zero-demand price, that is the price at which no demand will eventuate.

The introductory chapter of Dr. Mitra's work, while, replete with unreserved praise for Marx's magnificent macrodynamics, emphasises the need to travel beyond it for elucidating the phenomenon of income distribution between classes. This is because Marx's theory was more in nature of predictions and hence seemed deterministic in design.

Dr. Mitra's work found holes in kalechi's theory in that the latter did not employ pure data. Besides, in Kalecki's formulation, variation in the price of raw materials has an inverse impact on the wage share—a rise in the price of raw materials lowers the share and vice versa. But Mitra's model assumes the reversal of role alloted to the raw materials prices. Thus a rise in the price of raw materials will increase and not lower the wage share. Though normally wages would go down with prices, they tend to go down less than the average relation between wages and prices would

warrant and do not go down at all. This is what Dr. Mitra calls the 'downward rigidity' of wages and it provides the main resistance against a decline in the wage share especially in periods of falling prices.

Dr. Mitra notes that production functions differ from the Douglas assumption and if the labour and capital quotas are inelastic, the wage share would largely hinge upon the market variable, the wage-price ratio. In such a circumstance the wage share would come to depend on just what the wage rate is. Dr. Mitra argues that technological or economic considerations would not count and the wage share would be determined by the social or political forces working through the wage-price ratio.

Dr. Mitra points out that if there is any possibility in the future, that labour-saving innovations would lead to a fall in the labour quota, this is likely to be compensated by rising productivity, spurring labour to fight for and secure higher wages. Even in the extreme eventuality of a capital-using innovation which would spawn a relative surplus of labour, the sense of social justice would preclude any downward pressure on wages.

The author concludes that if, because of the special form of rigid production functions, economic forces do not determine any specific distribution of national income, social and political forces may account for the constancy of the wages share. This 'extra economic' interpretation of the phenomenon of the share of wages in national income is inevitable because no valid theory has so far been successfully built. This lack of a solid theory of aggregative income distribution has led the author to concur with Joan Robinson who expressed unconcealed despair pertinently some three decades ago thus : "If there is any law governing the distribution of income between classes, it still remains to be discovered."

G. Srinivasan

Century of Learning

Competition Success Review monthly edited by S. K. Sachdeva, Rs. 3.50, New Delhi.

IT is a century of advancement of learning and wonder. It is a century of knowledge and knowledge means the scope of one's awareness or the extent of one's understanding or acquaintance with facts. It is rather—the acquintance with theoretical or practical understanding of some branch of science, art, learning or other area involving study, research or practice and the acquaintance of skills. To add, it is an age of competition and the competition is related to the general knowledge—an accepted fact that the general knowledge of a person and his intelligent awareness of current topics is one of the most important and essential yardsticks for the weeding out processes for most employment purposes. A handy and factual dependable reference source on general knowledge is, therefore, most desirable for the success of the competitors in the competitive examinations.

The main motto of the document under review is to inculcate a sound common sense and value and judgement in the competitors in terms of what is happening in today's world including its perspective past and the likely future shape of things to come. With such discerning capacity imbibed in the minds of the competitors, the *'Competition Success Review'* assists them to attain success in different fields of the human activities relating to employment.

Written in a simple, easy and lucid style, every issue of this journal aims at providing almost every information that is necesary for the examinees to succeed in competitive examinations. By attempting to provide as much information as possible to give every issue is full-blooded freshness of latest developments in different fields. It has reached the stage to be known as a concise and comprehensive package of information. It has been dedicating yeoman service to its reader—student community, especially the competitors, and thus to the society at large and ultimately to the nation as a whole. It is of immense value in preparation for all types of competitive examinations. It is reasonably priced.

—S.K. Dhawan

Raman Effect

Raman and his effect by G. H. Keswani National Book Trust, New Delhi pp. 180, price Rs. 10.

OF course it is a small book of simple, clear print and modest get-up. But it does commemorate the illustrious science genius of India, the late C. V. Raman—the man, the work he did and the effect he discovered to win the Nobel Prize for Physics in 1930.

The volume is not a science book nor is it a "definitive biography or review of Raman's work". Important events of his life, the work he initiated, pioneered and accomplished, his spirit of devotion to research in physics and attainment of fame and name have been presented in short essays. Far from being a scientific work the book contains anecdotes about the long and busy life of Raman with a sprinkling of religious, philosophic and patriotic sentiments of Raman and is thus of great interest to the lay reader. The book is written in a simple lucid and easy-to-grasp style characteristic of Shri Keswani. It provides interesting reading material for general readers. Appendices and index at the end of the book give guidance for advanced studies on Raman Effect and other allied topics of research in physical sciences. The book is reasonably priced.

R. Prakash

Aren't the lowliest of the low
Still the sharers of our life ?
Shall we deem them aliens
And injure their interests ?
We'll bow to the Mother

* * *

We are of the same caste and race,
We are children of Bharat all;
We are equal in law and stature,
And every one is Bharat's King
Long Live the Republic.

—Subramania Bharati

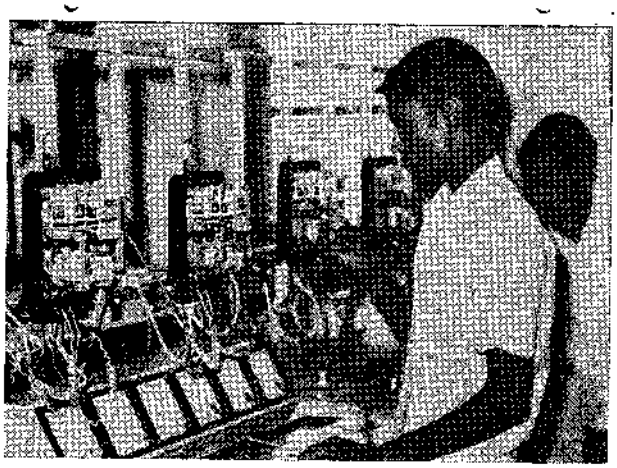
Electrification of Villages Through Cooperatives A Novel Experience in Hukkeri

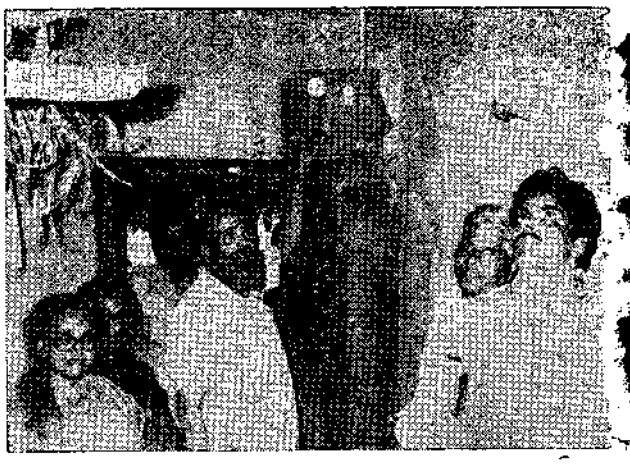
Vasudev Bhat*

THE electrification of villages in Hukkeri taluk of Belgaum in Karnataka through a cooperative society has shown us the new way to meet the power needs of the villages. The achievement is worth emulating in our bid to improve the living conditions in the countryside. Hukkeri is one of the five places where the said projects were initiated eleven years ago. Here the project was implemented by the Hukkeri Taluka Cooperative Rural Electricity Society sponsored by the Rural Electrification Corporation.

When the project began, only 20 of 121 villages in the taluk had been electrified. About 7400 persons were consuming power and 740 irrigation pumpsets were in operation. The Society set out to provide electricity at low cost. It obtained bulk power supply from the state electricity board to retail the same to as large a number of consumers as possible. The most important step taken by the Society was to disseminate knowledge about the uses of electricity and advantages of self-help and cooperation among members. Simultaneously, the decentralised administration of the Society removed procedural bottlenecks. A new domestic consumer could get the service within three days of his application. A farmer could get power for a pumpset within a week's time.

Meter Testing Laboratory of the Hukkeri Taluk Cooperative Rural Electricity Society.





Shri T. G. K. Charlu, Chairman, REC switching on a single point light connection.

The steep rise in the number of power consumers and power consumption tells its own story. In ten years time, the number of consumers increased four-fold to 28000 and there was a seven-fold rise in pump sets. The most remarkable development was the coming up of industries in the taluk. Four hundred more small scale units came up during this time and use of power for commercial purposes increased phenomenally. As a result, monthly power consumption rose from 2.5 lakh units to over 13 lakh units. This brought improvements in revenue earned, from Rs. 54,000 to Rs. 3.8 lakh. As against the all-round increase in earnings the investment was small—about Rs. 2.60 lakh. It was given as a long-term loan at low interest rate by the Rural Electrification Corporation.

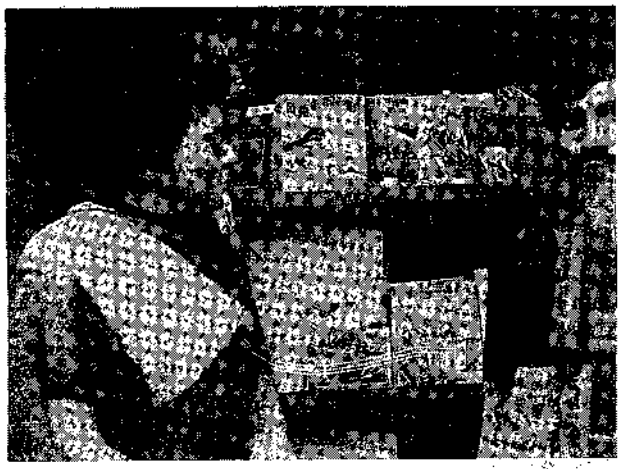
The Hukkeri Society has in its membership fold 15000 persons, 57 cooperative societies, 46 Panchayats, and 50 firms. It has amassed a reserve fund of over one crore rupees. Because of the Society's tireless efforts, Hukkeri taluk can claim the distinction of having electrified all villages and hamlets within its boundaries. Nearly 50 per cent of the power supplied is consumed by agricultural installations. Seventeen per cent is used in industrial lighting and 6 per cent in industrial high tension connections.

Power for Poor

The society was instrumental in implementing a REC scheme to electrify Harijan basties. About 1200 basties benefited from this scheme. Another scheme to light up the houses of the poorest, known as the Janata Scheme, is being implemented. At a total cost of Rs. 150 the Society provides one household electrical connection. The money is recovered in 75 instalments. The society levies a flat fee of Rs. 3 per month for the power used. As many as 355 households have availed of the scheme so far.

A feature of this project, which makes it efficient, relates to the maintenance of a full-fledged store and workshop. This helps in attending to the consumers complaints promptly. □

*Asst. Information Officer, Press Information Bureau, Hubli



Kum. Kumud Ben Joshi, Deputy Minister of Information and Broadcasting looking at some of the books exhibited by the Publications Division in the Pavilion "Reaching the Millions" at the ITF.

PAU Scientist Wins FAI Award

Dr. S. R. Bishnoi, Assistant Soil Chemist in the Department of Soils of the Punjab Agricultural University (PAU) has been awarded by the Fertilizer Association of India "FAI Silver Jubilee Award" for outstanding research in the use of fertilizer. The award which carries a cash prize of Rs. 5000 is awarded annually by the Fertilizer Association of India to the best doctoral research carried in fertilizers in the country.

Nehru Award for Prof. Gunnar Myrdal and Mrs. Alva Myrdal

THE Jawaharlal Nehru award for International Understanding for 1981, has been jointly awarded to Prof. Gunnar Myrdal and his wife Mrs. Alva Myrdal.

This was announced by Shri M. Hidayatullah, Vice-President of India and the Chairman of the Jury.

Professor Myrdal is well-known for his-numerous books on the problems of poverty particularly in the under-developed regions.

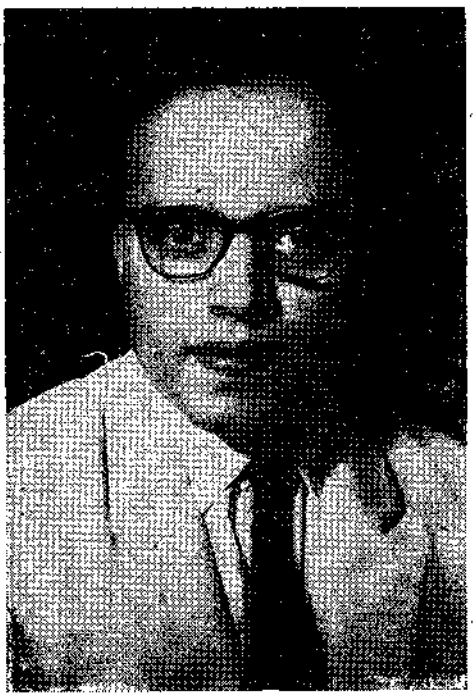
Mrs. Alva Myrdal is a well-known sociologist and writer and was formerly a Cabinet Minister in her own country and a diplomat. She has worked on numerous specialised agencies of the United Nations Organisation and her work in the field of peace was recognised by the Award jointly to her and her husband.

Dr. M. S. Swaminathan New FAO Council Chief

DR. M. S. Swaminathan, Member, Planning Commission has been unanimously elected as the Independent Chairman of the Food and Agriculture Organisation Council for a two-year term starting from November 1981.

The F.A.O. Council consisting of 49 member countries is the Executive Body of the Food and Agriculture Organisation of the United Nations.

Among the professional honours Dr. Swaminathan has received are: Shanti Swarup Bhatnagar Award (1961); Mendel Memorial Award of the Czechoslovak Academy of Sciences (1965); Birbal Sahni Medal of the Indian Botanical Society (1966); Silver Jubilee Commemoration Medal of the Indian National Science Academy (1973); Barelay Medal of the Asiatic Society (1974) and M. L. Moudgill Prize (1978). The Govarnment of India decorated Dr. Swaminathan with Padma Shri in 1967 and Padma Bhushan in 1972. He is also the recipient of the most coveted international honour, popularly known as the Asian equivalent of the Nobel Prize viz. the Ramon Magsaysay Award for Community Leadership in 1971 and the Borlaug Award for 1978. □



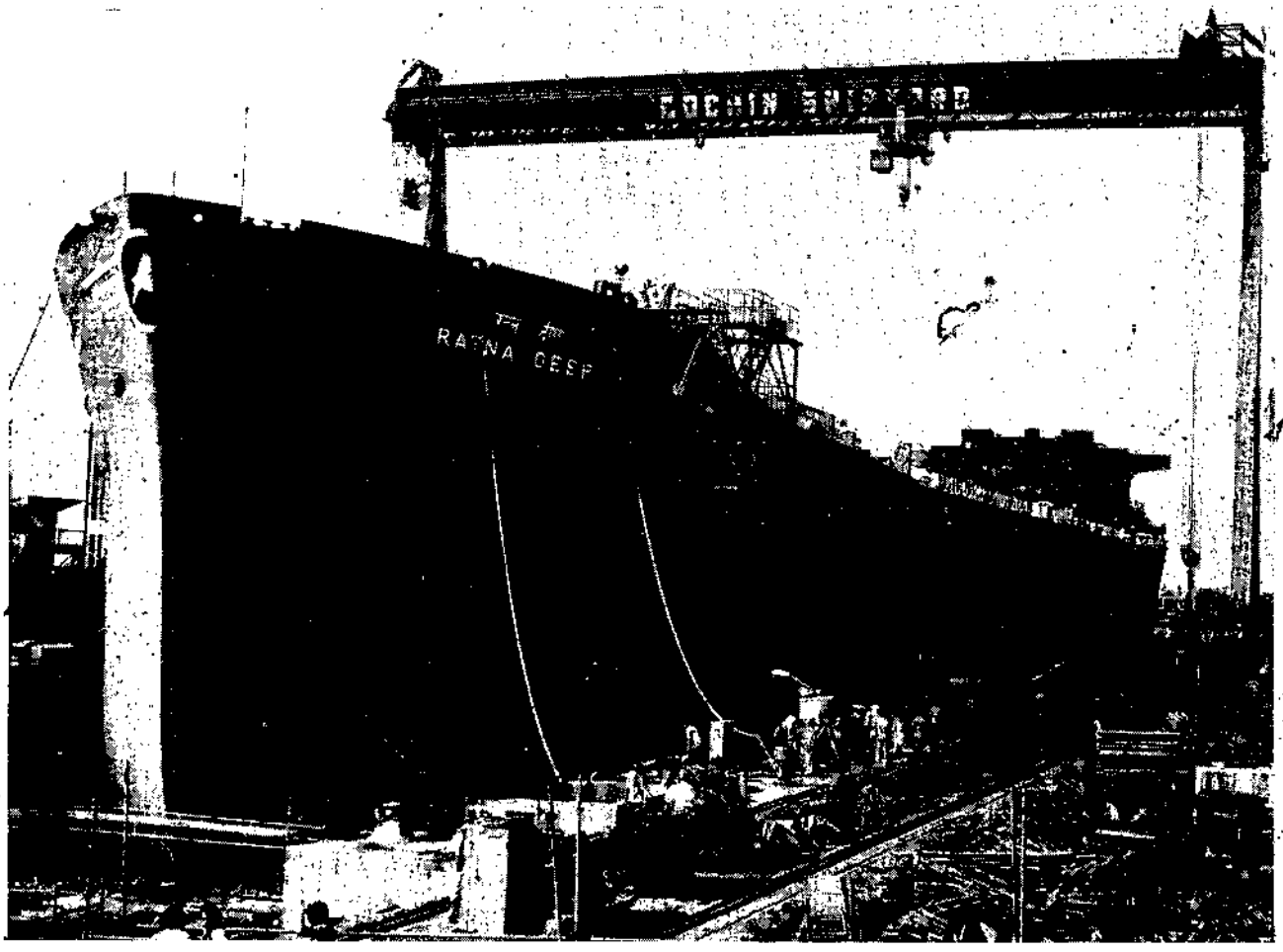
Dr. M. S. Swaminathan

BEL Bags Award for import substitution

THE Bharat Electronics Limited (BEL), a public sector enterprise of the Ministry of Defence has won the Gold Shield for import substitution this year. It is given the award for the development and production of a Mobile Troposcatter Communication System for the Defence services. It has earlier won the Gold Shield in 1979 for the production of secondary Surveillance Radar System for the Defence Services. Both the systems have been manufactured at the Ghaziabad unit of the BEL.

The foreign exchange saving following the indigenous development of the Mobile Troposcatter System amounted to Rs. 320.56 lakhs upto 1980-81. □

Licensed U (D)-52 to post without pre-payment at Civil Lines Post Office, Delhi
P & T Regd. D. (DN)/152
Regd. No. RN 949/57



M. V. Ratnadeep the second ship of the Cochin Shipyard.

"Ratnadeep" Launched

C. S. Pillai*

M. V. Ratnadeep, a bulk carrier of 75,000 DWT, the second ship of the Cochin Shipyard, was launched recently at Cochin by Smt. Saradabai Patil, wife of Shri Veerendra Patil, Union Minister of Shipping and Transport.

The 'Ratnadeep' has an overall length of 245.364 metres and a breadth of 32.207 metres. The moulded depth of the vessel is 18.745 metres. The hull is specially strengthened to carry heavy cargoes like iron ore etc. in alternate holds and the vessel is provided with fully airconditioned accommodation for the comfortable stay of 63 persons on board.

Though the shipyard took 20 months only to complete and launch the ship, they have to go a long way to reach the rated level of production. They are now committed to the Government to complete and deliver seven ships in all till the end of 1985. From about 5000 tonnes of fabrication during 1979-80, they will be reaching a through-put of over 20,000 tonnes by 1985. Already for the current year they have set a target of 10,500 tonnes. The shipyard has a very good repair dock and it has been made fully operational by September last when the associated crane was installed. The Yard has so far dry docked and repaired twenty vessels. □

"She has thirty crores of faces,
But her heart is one;
She speaks eighteen languages,
Yet her mind is one".

—Subramania Bharati

*Our Senior Correspondent, Trivandrum

Printed by the Manager, Govt. of India Press, Ring Road, New Delhi-110064 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.