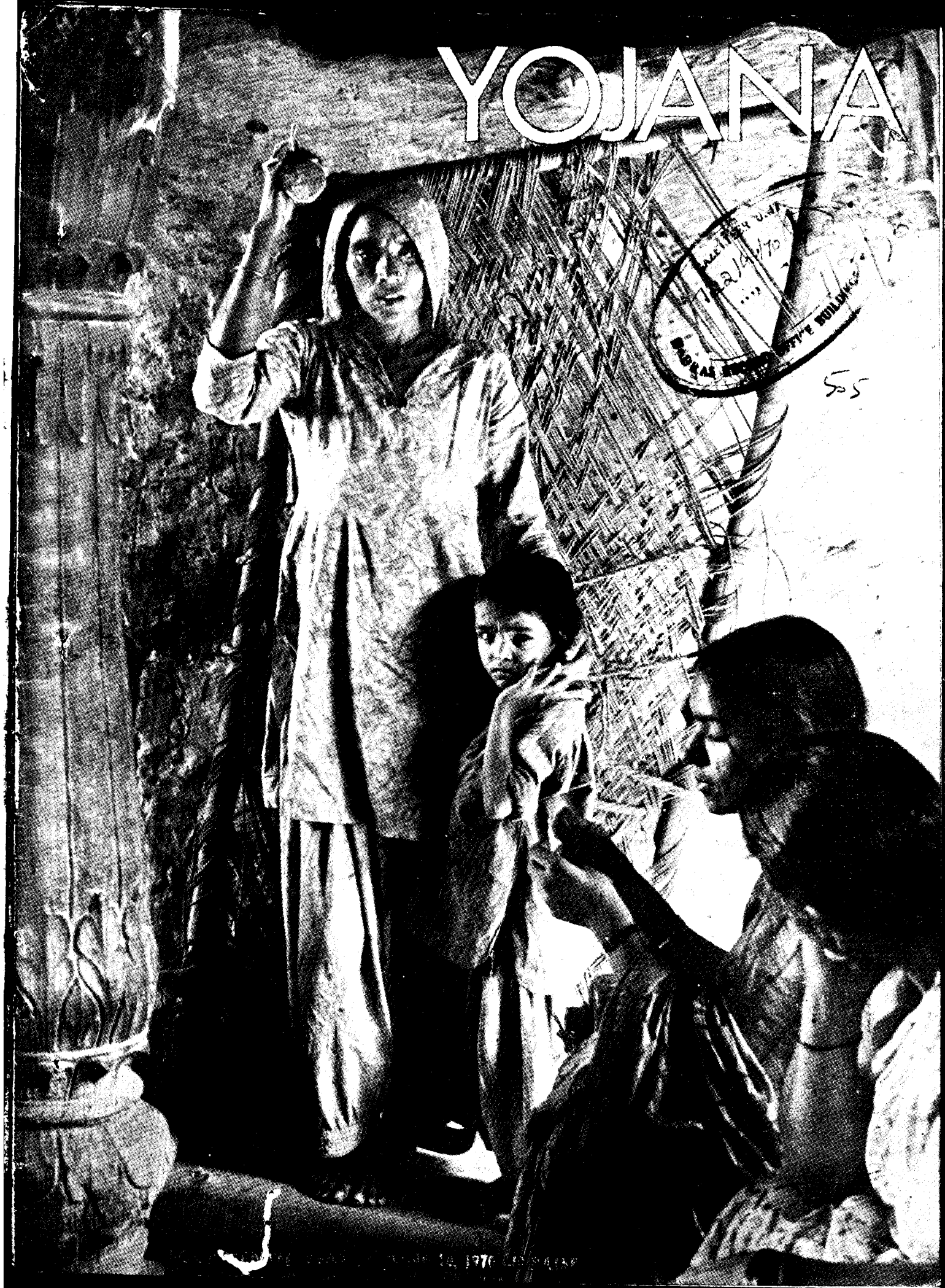


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# YOJANIA





The Maharashtra Agro Industries Development Corporation will soon put up India's first maize milling plant. This plant will process raw maize into flour, rava, soji and bran. Flour, rava and soji can either replace or supplement the corresponding by-products of wheat.

The two-million rupee Buhler plant to be located in Bombay will process 100 tons of maize a day. The cost will be a third of the price of grinding wheat into 'atta'.

Production pattern of the plant will be 55 per cent first grade flour for bakeries; 12 per cent second grade flour

for chapatis and rotis; 15 per cent soji and rava; 10 per cent germs for extraction of edible oil; and 8 per cent bran. The germs and second grade flour could be alternatively used for animal feed.

A highly mechanised plant, the end product will come off bagged and ready for storage and despatch. A major part of this Buhler plant will be fabricated by L&T.

Buhler Division

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## YOJANA

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LEST WE FORGET

Development is not an exercise in economic theory, it is an enterprise that engages the energies, ambitions and passions of men.

—Gerard Piel

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## ... AND MILES TO GO

THE final document of the Fourth Plan was presented to Parliament on May 18 last. In this issue, 'Yojana' presents the summary of a 442-page document that is going to determine the shape of things to come.

Incorporating various modifications at several stages and crystallising the wisdom gained in the field of planning in the last two decades, the final document is not just an exercise in economic elitism. It is a programme conceived in hope and born of experience. Its deliberate insistence on growth with stability is not a slogan but a pragmatic line of thought in keeping with the stunning realities of the recent years, when the nation's economy was shackled by unforeseen crises. Hence the 5.5 per cent rate of growth envisaged for the Plan period may look modest in comparison to what some smaller economies have achieved. But viewed in the context of India's complex economic pattern and problems, it is a measure of the socio-economic realism which prescribed "conditions of stability and reduced uncertainties" as being of paramount importance. Accordingly it is proposed, on the one hand, to gradually minimise dependence on external assistance generating internal surpluses through progressive reduction in local consumption and, on the other, to finance the Plan in non-inflationary manner. This bifocal approach appears to be the moral drawn from the performance of the Third Plan and the subsequent three Annual Plans.

Stressing the need for "purposive intervention by the state" to avoid concentration of wealth and income, the Fourth Plan assigns a much bigger role to the public sector than at any time in the past. It is stipulated that investment in this sector will be increased to 60 per cent of the total. Since public spending is avowedly with the objective of ensuring wider dispersal of benefits, a great moral responsibility rests with this sector to redeem the hopes reposed in it. So far the performance of this sector, let us be honest, has not been a desired success. The annual report on the working of the public sector undertakings has revealed a loss of Rs 27.67 crore from 73 undertakings. However sheltered the public sector may be, it cannot escape scrutiny by the people and their chosen representatives. It should not be forgotten that the failure of this sector would not only neutralise the gains of planning but would also hold the very concepts of centralised planning and public ownership of means of production in jeopardy. Much more than that, it will be a sad betrayal of the citizen's hopes and anticipations, for it is their money that is funnelled into these ambitious projects. Hence this sector must develop a high sense of accountability to the public and work for achieving efficiency and economy in production.

One of the factors that has hampered efficient working of public sector undertakings and has been duly noted in the approach to the Fourth Plan is

the neglect of the technician and vain glorification of the generalist administrator. The architects of the Fourth Plan deserve to be complimented for having highlighted this very sensitive aspect of the situation. According to the Plan document, the first need is "to incorporate in our administration, including that of the public sector undertakings, the technician, the specialist and the expert in an appropriate manner". Underlining a basic failure it says: "The structure of the older organisation and its line of command were inevitably constructed round the generalist administrator. This has to undergo modification in that the specialist, the technician and the expert have to be enabled to make their contribution in a responsible manner at all levels of administration."

Another significant aspect of the Plan document is a more pronounced accent on levelling off of marked disparities in the society. The Rs 1,818 crore-outlay on social services like education, health, family planning, regional development, housing, and water supply is the most gainful investment in that a nation's social capital is a greater motive force in its development than any other form of capital. In fact, the *raison d'être* of planning in India is the large backlog of poverty and backwardness at the broadest level. Expansion of social services to better the lot of the people is the ultimate aim of every welfare state. Adding a note of caution against the economic development leading to "social services endangering the fabric of democratic society", the Plan document asserts that the weakest should be looked after first and the benefits of development should flow "by planned investment in the underdeveloped regions, and among the more backward sections of the community."

Since planning is a continuous process, these goals may have to be consistently pursued through subsequent Plans, adding strength and durability to the foundations already laid. But in order that these do not remain high-flung ideals, it is necessary on the part of everyone involved to realise that no Plan has ever been implemented with success without resolve, hardship and sacrifice. Goals in politics can be achieved by agitation. Not so in economics. Between ideals and reality there is always just one gap—the will. And there we realise that a big leeway has to be made up. Growth in conditions of reduced uncertainties does not refer only to the frailties of the weather or the flamboyance of foreign aid. Uncertainties, in a broader perspective, also include peaceful conditions on the production front, both industrial and agricultural. The struggle against poverty, disease and ignorance which have wrenched this nation for centuries is a prolonged confrontation with the misfortunes of the past. Though much has been achieved in the last two decades of planning, much more still remains to be covered. And we have miles to go before we reach our goals.

## FINAL 4th FIVE YEAR PLAN

THE final document of the Fourth Plan (1969-74), presented to Parliament on May 18, 1970, declares that the basic goal of planning in India is a rapid increase in the standard of living of the people through measures which also promote equality and social justice. In this context, the Plan lays emphasis on the common man, the weaker sections and the less privileged.

Rapid economic development, which is oriented towards establishing social justice, it is stated must involve the refashioning of socio-economic institutions. Partly, the social objectives will be the end result of economic development but, in a large measure, their realisation will depend on how the course of development is charted and to what extent an appropriate structure of socio-economic institutions is evolved and operated.

The social and economic aspects of democracy have to be strengthened through this refashioning. This means that major economic decisions will be made by agencies informed with social purpose and that there will be a devolution of functions and scope for experimentation.

Democratic values have to be given effect to by encouraging the growth of a feeling of participation on the part of the small man, the promotion of enterprise among the disadvantaged classes, and the creation of a sense of involvement in the transformation of society among all sections of the community.

Planning in India, the document says, has to organise the efficient exploitation of the country's resources, increase production and step up the tempo of economic activity in general and industrial development in particular to the maximum possible extent.

It points out planning should result in greater equality of income and wealth. There should be a progressive reduction in the concentration of incomes, wealth and economic power. The benefits of development should accrue more and more to the relatively less privileged classes of society, particularly to the scheduled castes and the scheduled tribes, whose economic and educational interests have to be promoted with special care.

## Development in Conditions of Stability and Reduced Uncertainties

### APPROACH

Public Sector Investment to Go Up to 60 Per Cent  
Public Spending to Ensure Wider Dispersal of Benefits

THE Fourth Five Year Plan, 1969-74, aims at acceleration of the tempo of development in conditions of stability and reduced uncertainties. It takes note of the fact that the current tempo of economic activity is insufficient to provide productive employment to all and to bring about significant improvement in living standards of the people. The continuity of even this moderate rate of growth is likely to be threatened if instability emerges because of the weakness on the food

front and too great a dependence on foreign aid.

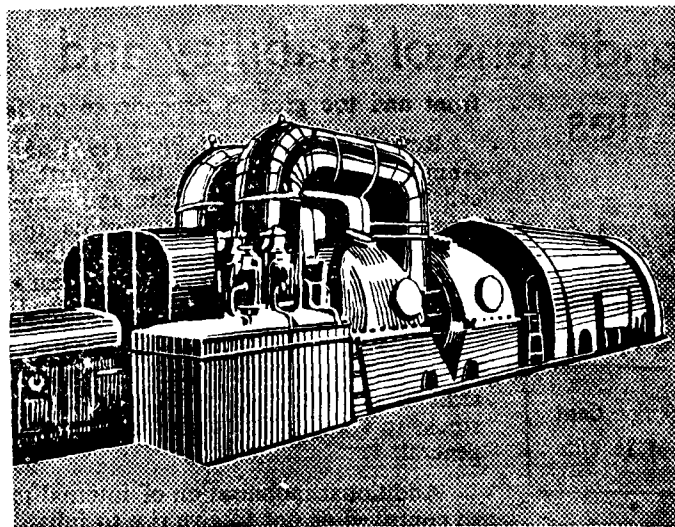
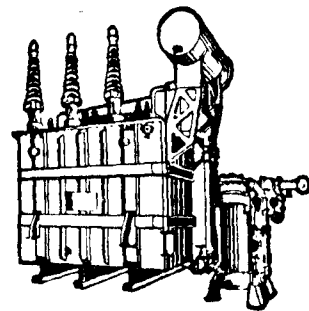
Reviewing the Third Plan (1961-66) and the three Annual Plans (1966-69), the Fourth Plan document calls for firmer policy direction and a number of supplementary measures and instruments to carry out the necessary adjustments so as to put the economy on an even keel. The most important of them are the measures for stability while development proceeds.

The Plan seeks to safeguard against fluctuations of agricultural production and uncertainties in foreign aid. It provides for the building up of sizeable buffer stocks to stabilise foodgrain prices and the price level in general.

Additional mobilisation of internal resources will be so contrived as not to give rise to inflationary pressures. Dependence on foreign aid will be greatly reduced. The concessional imports of foodgrains under PL-480 are expected to cease by 1974. Foreign aid net of debt charges and interest payments will be reduced to about half by the end of the Fourth Plan compared to the current level. The Plan aims at 7 per cent per annum increase in exports.

These measures which seek to limit the extent of

  
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LOOKS  
FORWARD  
WITH HOPE**



The complete range of heavy electrical machines and equipment produced by us has helped the country make big strides in the peaceful revolution in industry and agriculture and thus bring prosperity to the Nation.

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**HEAVY ELECTRICALS (INDIA) LIMITED, BHOPAL**  
(A Government of India Undertaking)

foreign aid and to avoid inflationary financing have influenced the total investment outlays proposed in the Plan. If the performance is better, the Plan outlays in later years could be larger than provided for now.

In this context special attention needs to be paid to the public sector where investment is expected to reach 60 per cent of the total.

The Plan document says that the process of development might lead, in the absence of purposive intervention by the state, to greater concentration of wealth and income, overgrowth of metropolitan centres and uneven regional development, technological unemployment and rural under-employment. The Plan document therefore spells out positive steps for ameliorating the conditions of poorer people through planned economic development.

In conclusion, the objective of national planning in India is not only to raise the per capita income but also to ensure that the benefits are evenly distributed, that disparities in income and living are not widened but in

fact narrowed, and the process of economic development does not lead to social tensions endangering the fabric of the democratic society. In part, these can be achieved by seeing that, in the implementation of the programmes, the weakest are looked after first and the benefits of development are made to flow by planned investment in the underdeveloped regions and among the more backward sections of the community.

In part this will be the result of purposeful policy decision effectively pursued. Fiscal and other policies should prevent concentration of wealth, check ostentatious consumption and promote savings. The programmes and policies of public, financial and other institutions should ensure wider dispersal of benefits.

Reforms in the educational system should help the growth of initiative and enterprise, make for horizontal and vertical mobility, open up wider opportunities for employment and enable the lowering of caste, class and regional barriers so that a purposeful change towards an egalitarian society can be brought about.

## IMPLEMENTATION

### Technician and Specialist to Get Key Roles in Administration

**Public Sector Managers to be Given  
Freedom in Day-to-Day Operations**

**Public Enterprises to be Run on Commercial  
Lines**

**Training of Central and State Personnel Engaged  
in Planning and Implementation**

THE successful implementation of Plans depends a great deal on better organisation and operation of the general administrative machinery. There are two broad aspects of administration that are of special importance to planning.

The first is the need to incorporate in our administration, including that of the public sector undertakings, the technician, the specialist and the expert in an appropriate manner. The structure of the older organisation and its line of command were inevitably constructed round the generalist administrator. Now the specialist, the technician and the expert will be enabled to make their contribution in a responsible manner at all levels of administration.

The second aspect is that of inducing in the expert or the technician a proper appreciation of the administrative and economic aspects of problems of Plan formulation and implementation from the point of view of

what could be the best arrangements under given administrative and economic constraints. Unless this is done, his contribution to planning would not be very effective. It is possible that putting the technician or the expert in more responsible administrative positions might itself accelerate the progress towards the objective.

In the case of public sector projects the managements of these projects exposed to constant public scrutiny are often afraid of taking adequate initiative and decisions involving risks. While the general policies pursued by the public sector organisations should be in conformity with the national objectives and declared policies, the managements of these enterprises have to be given sufficient freedom in day-to-day operations to run them according to commercial principles and thereby help them to increase their profitability and efficiency.

It is also emphasised that to develop the competence of personnel at different levels in the Centre and States engaged on tasks of Plan formulation, implementation and evaluation, training programmes will have to be suitably strengthened, developed and organised. The object of such training would be to impart necessary skills, develop right attitudes, increase decision-making abilities and stimulate critical and innovative thinking. These programmes should cover managerial, technical and administrative personnel at all levels engaged not only in planning work, but also in the execution of projects and programmes.

At the State level, it is important to strengthen the State organisations for planning. The administrative

procedures and staffing patterns of the planning departments in many States do not provide for a detailed study of either the performance or the quality of the new proposals from different departments. As a result, the integration of one scheme with another cannot be ensured at the stage of Plan formulation.

If the State Plans are to succeed, their formulation in relation to physical features and resources and the institutional organisations in each area is the first requirement. The natural corollary of beginning to plan realistically and from the bottom is to recognise that planning is not something that comes from outside or above but what each State, district, locality and community does to develop its own resources and potentialities. This emphasises wide diffusion of initiative, decision-making and participation. It also implies a

parallel shouldering of responsibilities.

While the Five Year Plan will continue to form the main base, it is necessary to prepare a more elaborate Plan for each year which will be the operative Plan. It should provide details of the year's programmes in the light of immediate past performance, physical availabilities and financial resources.

The system of performance programme budgeting that is being introduced in the Central Government should, through an appropriate linking of the physical and financial aspects of each programme, help in strengthening the Annual Plan formulation process. This would not only ensure effective control of programmes by budget allocation but would also facilitate an integration of the planning and budgetary processes.

## PLAN IN OUTLINE

# Rs. 24,882 CRORE OUTLAY

## Overall Growth Rate 5.5 Per Cent

A total outlay of Rs 24,882 crore is envisaged for the Fourth Plan (1969-74). Of this, Rs 15,902 crore is for the public sector and Rs 8,980 for the private sector programmes. In the public sector Rs 13,655 crore have been provided for investment and Rs 2,247 crore for current outlay. The total investment for the creation of productive assets aggregates to Rs 22,635 crore.

The total public sector outlay includes Rs 8,090 crore for Central schemes, Rs 781 crore for Centrally sponsored schemes, Rs 6,606 crore for State schemes and Rs 425 crore for schemes in the Union Territories. The State Plan outlays will be supplemented by the outlay for Centrally-sponsored schemes which are mainly under agriculture, health, family planning and welfare of backward classes.

On the basis of the proposed programme of investment and the level of outputs expected to be reached in different sectors by 1973-74, it is estimated that the

### NATIONAL INCOME

National income at the end of the Fourth Plan will be Rs 22,450 crore (at 1960-61 prices) as compared to Rs 13,308 crore in 1960-61.

overall rate of growth during the Fourth Plan will be about five and a half per cent per year.

The Plan document says that according to the estimates of the Registrar-General, the population is expected to grow at the rate of 2.5 per cent per year during the five-year period. The increase in per capita income over the Plan period will be about 3 per cent per year. The increase in foodgrains output visualised in the Plan of 5 per cent per annum will enable the country to dispense with concessional food imports by 1971. The rate of growth in various sectors of industry is envisaged at 8 per cent to 12 per cent per year. Efforts will be made to limit the growth of non-food imports to 5.5 per cent per year while securing an annual increase of 7 per cent in exports. In order to realise the rates of growth postulated, it will be necessary to step up the rate of domestic savings from the level of 8.8 per cent in 1968-69 to 13.2 per cent and that of investment from 11.3 per cent to 14.5 per cent by the end of the Plan. As a result, the requirements of foreign aid, net of debt repayment and interest payments, in the terminal year of the Plan will be brought down to about half the level in 1968-69.

### CENTRAL ASSISTANCE

The Plan document says that the principles of allocation and the pattern of Central assistance to the States have undergone a change. Under a formula adopted by the Committee of Chief Ministers of the National Development Council it was decided that after provi-

ding for the requirements of the States of Assam, Nagaland and Jammu and Kashmir, the Central assistance to the remaining States for the Fourth Plan be distributed to the extent of 60 per cent on the basis of their population, 10 per cent on their per capita income if below the national average, and 10 per cent on the basis of tax effort in relation to per capita income, and that another 10 per cent be allotted in proportion to the commitments in respect of major continuing irrigation and power projects. The remaining 10 per cent, it was decided, should be distributed among the States so as to assist them in tackling certain special problems, like those relating to metropolitan areas, floods, chronically drought-affected areas and tribal areas.

In order to simplify the procedure for Central assistance, to avoid adoption of standard schemes, unsuited to local conditions and needs as well as to ensure equity among States in regard to the grant assistance for the Plan, it has been decided that in future there will be no schematic patterns of assistance. Central assistance will not be related to any specific scheme or programme under the State Plans but would be given to the States through block grants and block loans. Each State will get a fixed proportion (30 per cent) of Central assistance in the form of grant and the balance (70 per cent) by way of loans. To ensure that the overall priorities of the Plan are adhered to, outlays under certain heads or sub-heads of developments and specified schemes will, however, be earmarked and will not be diverted to other heads of developments.

The Plan document says that States will now have much greater initiative in the formation of schemes and programmes. Till now the State Plans had been formulated, by and large, in terms of standard schemes which had been approved by the Central Ministries and the Planning Commission and which carried with

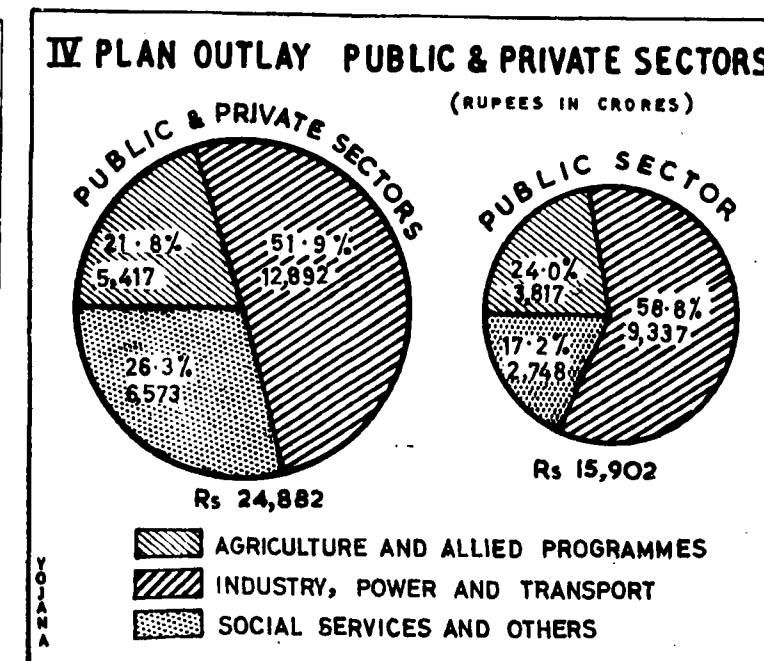
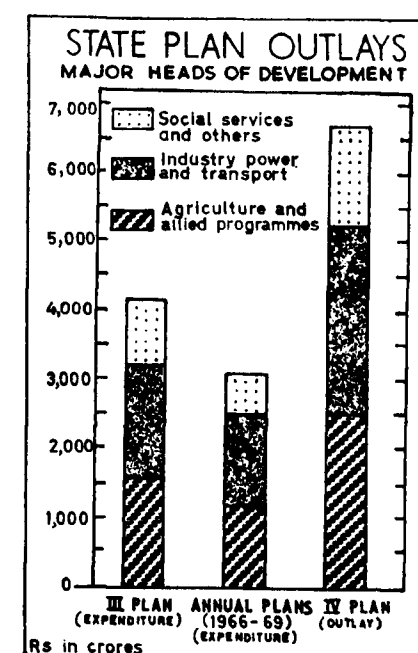
them a quantum of assistance in the shape of loans and grants. Central assistance being pre-determined, the size of the States' Plans will now be dependent largely on the efforts of the individual State to marshal its own resources for Plan programmes.

### CENTRALLY-SPONSORED SCHEMES

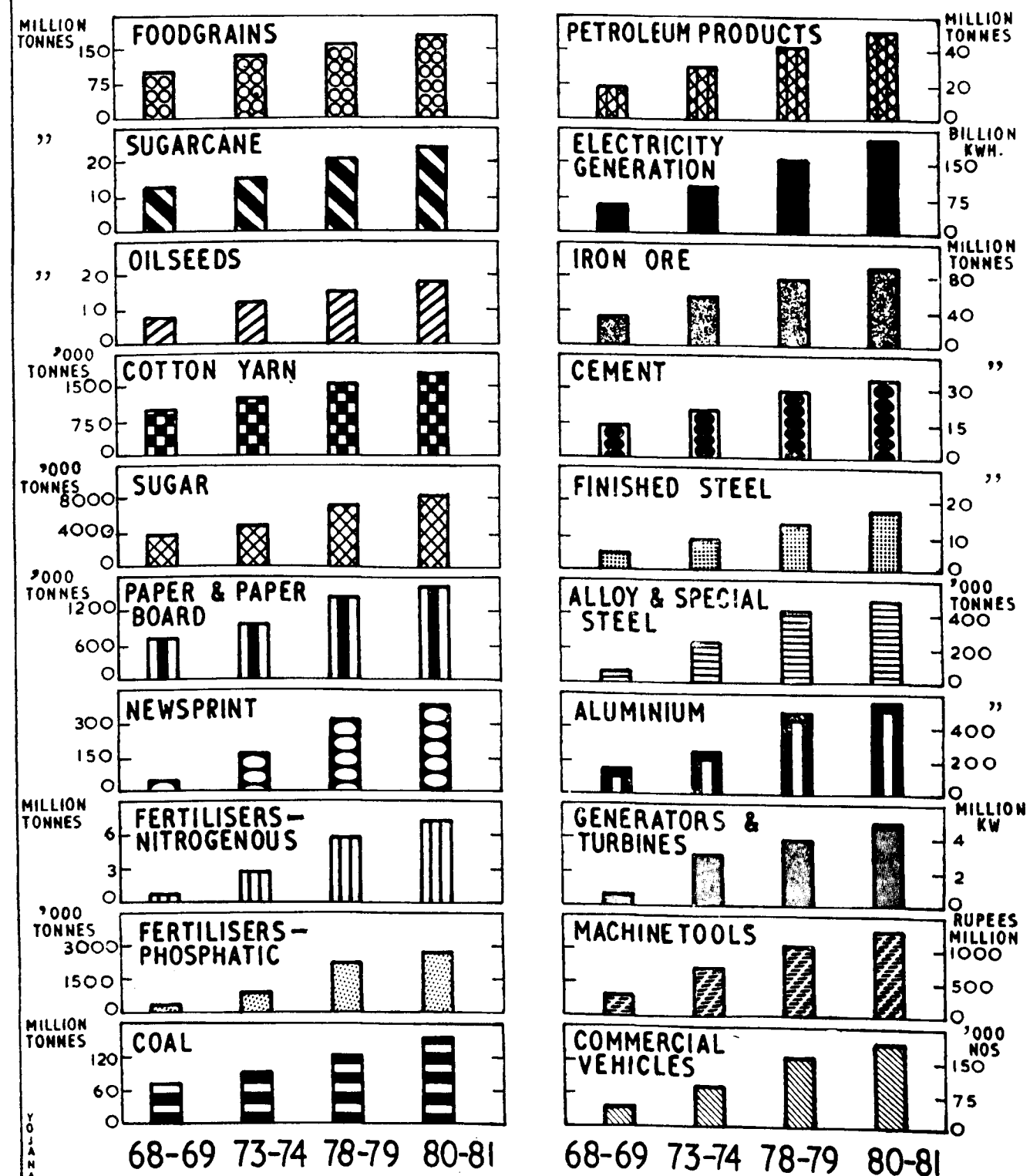
The Plan document points out that ever since the First Plan, a variety of programmes had been launched through schemes in which a uniform pattern of staffing and administrative organisation were laid down by the Centre. They usually carried with them substantial Central assistance during the Plan period. These were called Centrally-sponsored schemes. The responsibility for financing the committed expenditure for these at the end of the Plan fell on the States.

The States felt that most of the programmes envisaged in these schemes could be more appropriately carried out by them through their own Plans. It has been decided that in future only those Centrally-sponsored schemes will be taken up which fulfil the following criteria: that they relate to demonstrations, pilot projects, surveys and research; that they have a regional or inter-State character; that they require lump sum provisions to be made until they could be broken down territorially; and that they have an overall significance from the all-India angle.

The position was reviewed in the light of these considerations and a shorter list of Centrally sponsored schemes was drawn up and approved by the Committee of the National Development Council in September 1968. The list contained 52 schemes compared to 92 originally included. Subsequently, the Planning Commission and the Ministry of Food, Agriculture, Community Development and Co-operation had decided



## PRODUCTION OF SELECTED COMMODITIES



that the seven schemes to be administered by the Indian Council of Agricultural Research may be classified as purely Central schemes with the result that in the Fourth Five Year Plan 1969-74 the total number of Centrally sponsored schemes is 45. These schemes will hereafter be wholly financed by the Central Government.

### DISTRIBUTION OF OUTLAY

The distribution of outlay between the Centre, Centrally-sponsored schemes, States and Union Territories under major heads of development for the Fourth Plan is summarised in Table 1.

Table I

(Rupees in Crores)

| Head of Development                     | Centre  | Centrally-sponsored | Union Territories | States  | Total    |
|-----------------------------------------|---------|---------------------|-------------------|---------|----------|
| 1                                       | 2       | 3                   | 4                 | 5       | 6        |
| Agriculture and Allied Sectors          | 1104.26 | 126.83              | 71.58             | 1425.51 | 2728.18  |
| Irrigation and Flood Control            | 23.50   | —                   | 12.68             | 1050.39 | 1086.57  |
| Power                                   | 424.72  | 22.00               | 81.78             | 1919.07 | 2447.57  |
| Village and Small Industries            | 148.65  | 5.10                | 10.41             | 128.97  | 293.13   |
| Industry and Minerals                   | 3150.86 | —                   | 3.79              | 183.06  | 3337.71  |
| Transport and Communications            | 2622.00 | 42.00               | 90.72             | 482.54  | 3237.26  |
| Education                               | 241.00  | 30.00               | 51.77             | 499.89  | 822.66   |
| Scientific Research                     | 140.26  | —                   | —                 | —       | 140.26   |
| Health                                  | 53.50   | 176.50              | 19.28             | 185.75  | 435.03   |
| Family Planning                         | —       | 315.00              | —                 | —       | 315.00   |
| Water Supply and Sanitation             | 3.80    | 2.00                | 43.33             | 356.66  | 405.79   |
| Housing, Urban and Regional Development | 48.60   | —                   | 21.33             | 167.10  | 237.03   |
| Welfare of Backward Classes             | 0.50    | 59.50               | 4.95              | 77.43   | 142.38   |
| Social Welfare                          | 27.43   | 2.00                | 1.41              | 10.54   | 41.38    |
| Labour Welfare and Craftsmen Training   | 10.00   | —                   | 2.88              | 27.02   | 39.90    |
| Other Programmes                        | 90.68   | —                   | 9.09              | 92.54   | 192.31   |
| TOTAL                                   | 8089.76 | 780.93              | 425.00            | 6606.47 | 15902.16 |

The scientific method means planning. Planning is science in action. Planning has to be flexible; it has to be wide awake and alert.

Jawaharlal Nehru

## STATES AND UNION TERRITORIES

The broad distribution of State outlays, Central assistance and State resources for the Fourth Plan are given in Table II.

Table II

| (Rs. in crores)   |                        |                         |                   |
|-------------------|------------------------|-------------------------|-------------------|
| States<br>1       | States' Resources<br>2 | Central Assistance<br>3 | Total Outlay<br>4 |
| Andhra Pradesh    | 180.50                 | 240.00                  | 420.50            |
| Assam             | 41.75                  | 220.00                  | 261.75            |
| Bihar             | 193.28                 | 338.00                  | 531.28            |
| Gujarat           | 297.00                 | 158.00                  | 455.00            |
| Haryana           | 146.50                 | 78.50                   | 225.00            |
| Jammu and Kashmir | 13.40                  | 145.00                  | 158.40            |
| Kerala            | 83.40                  | 175.00                  | 258.40            |
| Madhya Pradesh    | 121.00                 | 262.00                  | 383.00            |
| Maharashtra       | 652.62                 | 245.50                  | 898.12            |
| Mysore            | 177.00                 | 173.00                  | 350.00            |
| Nagaland          | 5.00                   | 35.00                   | 40.00             |
| Orissa            | 62.60                  | 160.00                  | 222.60            |
| Punjab            | 192.56                 | 101.00                  | 293.56            |
| Rajasthan         | 82.00                  | 220.00                  | 302.00            |
| Tamil Nadu        | 317.36                 | 202.00                  | 519.36            |
| Uttar Pradesh     | 439.00                 | 526.00                  | 965.00            |
| West Bengal       | 101.50                 | 221.00                  | 322.50            |
| <b>TOTAL</b>      | <b>3106.47</b>         | <b>3500.00</b>          | <b>6606.47</b>    |

### BALANCE OF TRADE

The unfavourable balance of trade in 1968-69 will be reduced to a nominal level in 1973-74, while in 1980-81 there will be a small favourable balance.

The outlays for Union Territories Plans are given in Table III.

Table III

| Union Territories<br>1                  | Revised Outlay<br>2<br>(Rs crores) |
|-----------------------------------------|------------------------------------|
| Andaman and Nicobar Islands             | 14.00                              |
| Chandigarh                              | 7.75                               |
| Dadra and Nagar Haveli                  | 2.30                               |
| Delhi                                   | 162.65                             |
| Goa, Daman and Diu                      | 39.50                              |
| Himachal Pradesh                        | 101.40                             |
| Laccadive, Amindivi and Minicoy Islands | 2.00                               |
| Manipur                                 | 30.25                              |
| NEFA                                    | 17.99                              |
| Pondicherry                             | 12.50                              |
| Tripura                                 | 34.66                              |
| <b>Total</b>                            | <b>425.00</b>                      |

The Plan document points out that the Central Plan also includes provision to the extent of Rs 545 crore by way of support to the State programmes through institutions like Agricultural Refinance Corporation, Land Development Banks, Rural Electrification Corporation and Indian Dairy Corporation. Provisions have also been made in the Central Sector Plan for a few schemes which will directly benefit the States. Among them are the schemes for small farmers and agricultural labourers (Rs 115 crore), dry farming (Rs 20 crore) and area development (Rs 15 crore).

### ASSESSMENT OF RESOURCES

The assessment of resources for the Fourth Plan has taken into account the Award of the Fifth Finance Commission, the nationalisation of 14 major commercial banks, acceleration in their branch expansion and deposit mobilisation, particularly in rural areas; re-orientation of investment policies of the Life Insurance Corporation and the Employees' Provident Fund; and the more recent trends in receipts and expenditures of public authorities.

Analysing the details of estimates of resources for the public sector Plan, against the background of the experience of financing the Third Plan (1961-66) and the three Annual Plans (1966-69), the Plan document says that the scheme of financing the Fourth Plan, as now envisaged, marks a distinct departure from the previous Plans. It has been specially designed to serve the objective of growth with stability and promote progress towards self-reliance.

The share of domestic budgetary resources in total resources mobilisation for the public sector Plan has been raised to about 78 per cent, as compared to 59

per cent in the Third Plan and 54 per cent in the three Annual Plans. External assistance (net of loan repayments but without allowing for interest payments) for the public sector Plan is to go down from 28 per cent in the Third Plan and 36 per cent in the three Annual Plans to nearly 17 per cent of the total resources in the Fourth Plan.

Deficit financing is placed at only 5 per cent of the total resources for the Fourth Plan in the public sector, as against 10 per cent in the three Annual Plans and 13 per cent in the Third Five Year Plan.

The estimates of resources mobilisation by the Centre and the States in the Fourth Plan are given in Table IV.

Table IV

| (Rs crores)                                                                                                   |                |                |               |
|---------------------------------------------------------------------------------------------------------------|----------------|----------------|---------------|
|                                                                                                               | Centre<br>7232 | States<br>1502 | Total<br>8734 |
| Domestic budgetary resources other than negotiated loans from LIC etc. & State enterprises, market borrowings |                |                |               |
| Additional resource mobilisation                                                                              | 2100           | 1098           | 3198          |
| (a) By Centre                                                                                                 |                |                |               |
| i) 1969-70 measures                                                                                           | 725            | —              | 725           |
| ii) Measures to be undertaken in subsequent years                                                             | 1375           | —              | 1375          |
| <b>Total (a)</b>                                                                                              | <b>2100</b>    | <b>—</b>       | <b>2100</b>   |
| (b) By States                                                                                                 |                |                |               |
| i) 1969-70 measures                                                                                           | —              | 414            | 414           |
| ii) Measures to be undertaken in subsequent years                                                             | —              | 684            | 684           |
| <b>Total (b)</b>                                                                                              | <b>—</b>       | <b>1098</b>    | <b>1098</b>   |
| Loans from LIC, etc. and State enterprises' market borrowings (gross)                                         | —              | 506            | 506           |
| <b>Total domestic budgetary resources</b>                                                                     | <b>9332</b>    | <b>3106</b>    | <b>12438</b>  |
| Budgetary receipts corresponding to external assistance (net)                                                 | 2614           | —              | 2614          |
| (a) Other than PL 480                                                                                         | 2234           | —              | 2234          |
| (b) PL 480 assistance                                                                                         | 380            | —              | 380           |
| Deficit financing                                                                                             | 850            | —              | 850           |
| <b>Aggregate resources</b>                                                                                    | <b>12796</b>   | <b>3106</b>    | <b>15902</b>  |
| Central assistance for State Plans                                                                            | =3500          | +3500          | —             |
| <b>Resources for the Plan</b>                                                                                 | <b>9296</b>    | <b>6606</b>    | <b>15902</b>  |

In the scheme of Plan financing, Central Government and their enterprises will be raising an aggregate of Rs 12,796 crore. Of this, Rs 3,500 crore will go to the States as Central assistance, leaving Rs 9,296 crore for the Central schemes, Centrally sponsored schemes and the Plans for Union Territories.

All the States together will be mobilising resources amounting to Rs 3,106 crore over the Fourth Plan period. With Central assistance of Rs 3,500 crore, the total resources available for the State Plans will be Rs 6,606 crore.

### MARKET BORROWINGS

The Plan document says that additional resources will also be available for financing the public sector Plan consequent on the nationalisation of 14 major commercial banks. It is estimated that bank deposits would grow at a compound rate of 11 per cent per year against the earlier estimate of 7 per cent per year. This will mainly result from the more positive policy of opening additional branches and more purposeful drive by the nationalised banks to attract deposits, particularly

from the un-banked and rural areas. The aggregate increase in deposits over the Fourth Plan period is now estimated at Rs 3,000 crore. In the scheme of financing for the Plan, the contribution of the banking sector to the borrowings of the Central and State Governments borrowing by important financial institutions like Industrial Finance Corporation, Industrial Development Bank and Agricultural Refinance Corporation, borrowings by state enterprises, particularly State Electricity Boards, and borrowings by Food Corporation of India for buffer stock operations has been taken at a total of Rs 955 crore.

The contribution of Life Insurance Corporation and Provident Funds to the borrowing programme of the Centre and the States is also expected to be larger than what was assumed earlier. This has become possible on account of re-orientation of the investment policies of LIC and Provident Funds.

On the whole, the total net market borrowings of the Central and State Governments over the Fourth Plan period are estimated at Rs 1,415 crore. Besides, gross market borrowings of State enterprises are estimated at Rs 258 crore.

Additional resources to be mobilised for the Fourth Plan are now placed at Rs 3,198 crore. Of this, the State Governments have indicated their intention to raise about Rs 1,098 crore and the balance of Rs 2,100 crore will be mobilised by the Central Government. This latter figure is net of the States' share of additional taxation at the Centre.

#### PRIVATE INVESTMENT

With regard to resources for private sector it is stated that firm estimates of private savings are not available. On a rough calculation, the private sector is expected to generate savings amounting to Rs 14,160 crore during the Fourth Plan. The household and co-operative sectors will contribute Rs 12,210 crore and the balance of Rs 1,950 crore will be contributed by the corporate sector. The Central and State Governments will draw on this pool of private savings as much as

Rs 5,210 crore for the public sector Plan. Private savings thus available for private investment would amount to Rs 8,950 crore. Adding to it the net amount of foreign funds directly flowing to the private sector of the order of Rs 30 crore, the total resources available for private investment would be Rs 8,980 crore.

#### EXTERNAL RESOURCES

Referring to external resources it is pointed out that the estimate of budgetary receipts corresponding to external assistance indicated in the scheme of financing for the public sector Plan and the net inflow of foreign funds for the private sector represent only a part of the economy's requirements of foreign exchange resources. They refer only to public and private investment during the Plan period. The total requirement and availability of foreign exchange resources are much larger.

During the Fourth Plan the economy will require total imports valued at about Rs 9,730 crore. Of this, Rs 7,840 crore will be maintenance imports or imports of raw materials and components required for stepping up the rate of growth of industrial and agricultural production. These include imports of fertilisers, pesticides, crude oil, chemicals, non-ferrous metals, special varieties of steel and components and spare parts of machinery.

About Rs 1,300 crore will be required to finance project imports or imports of plant and machinery for expansion or creation of additional capacity in selected lines which cannot be met from domestic sources of supply. The balance of Rs 590 crore would be the cost of food imports during the Plan.

Import policy will have to be so framed as to eliminate all non-essential imports while ensuring the availability of items not produced indigenously in sufficient quantity.

In accordance with the policy objectives of the Plan, the aggregate external assistance, net of debt servicing, required during the Fourth Plan is estimated to be Rs 1,850 crore. This will be available only if gross aid utilisation in the economy is of the order of Rs 4,130

crore comprising PL 480 food aid of Rs 380 crore and the project and non-project aid of Rs 3,750 crore. The requirement of aid in the first two years of the Plan will continue to be high and aid commitments will have to be obtained well in advance to enable the programmes and projects to progress in accordance with the Plan.

The balance of foreign exchange requirement amounting to Rs 8,300 crore will have to be met out of export earnings. This will require export earnings to go up from the expected level of Rs 1,360 crore in 1968-69 to around Rs 1,900 crore in 1973-74, or at a compound rate of about 7 per cent per annum. This rate of growth will call for proper reorientation in policies and institutional arrangements for export promotion.

#### DOMESTIC SAVINGS

On the basis of estimates, domestic savings during the Fourth Plan period would amount to nearly Rs 20,000 crore, Rs 14,160 crore being private savings and Rs 5,830 crore public savings. To mobilise this order of domestic savings, the average rate of savings in the economy will have to be stepped up from the 1968-69 level of 8.8 per cent to 13.2 per cent by the end of the Fourth Plan. Such a step-up implies a marginal savings rate of 28 per cent over the Plan period.

With the total external assistance, net of loan repayments only, taken at Rs 2,644 crore (public sector—Rs 2,614 crore and private sector Rs 30 crore), the investible resources would be sufficient to finance the Fourth Plan investment outlay of Rs 22,635 crore—Rs 13,655 crore in the public sector and Rs 8,980 crore in the private sector.

This size of investment implies raising the average rate of investment from the level of 11.3 per cent in 1968-69 to 14.5 per cent in the last year of the Fourth Plan. This compares with the increase in the average rate of investment from 11 per cent to 13 per cent during the Third Plan.

#### EXPORT PROGRAMME

Reviewing export performance, the Plan document says that exports in 1969-70 are estimated to be around Rs 1,400 crore, representing an increase of Rs 40 crore

#### EXPORT EARNINGS

Export earnings are expected to go up to Rs 2,650 crore in 1978-79 and Rs 3,020 crore in 1980-81 as compared to Rs 1,900 crore at the end of the Fourth Plan. The annual rate of growth of exports for the period 1968-69 is estimated at 6.9 per cent.

#### DOMESTIC SAVINGS

Public savings are expected to increase from 1.4 per cent of the national income in 1968-69, to 4.5 per cent by 1973-74 and 6.3 per cent by 1980-81.

or about 3 per cent over 1968-69. Subsequently, they are expected to rise progressively during the period of the Fourth Plan and reach a level of around Rs 1,900 crore in 1973-74, showing a rise of Rs 540 crore over the base year (1968-69) level of Rs 1,360 crore. This would mean an increase of about 40 per cent in export over a period of five years or a compound rate of growth of 7 per cent per year. On this basis, exports during the Fourth Plan period as a whole are expected to aggregate to Rs 8,300 crore.

An essential pre-condition for the fulfilment of the export programme, says the Fourth Plan, is the realisation, according to schedule, of the production targets set in the agricultural, mineral and industrial sectors. Another important pre-condition is the maintenance of reasonable internal price stability. In the interest of promoting exports, regulatory or restrictive measures in the form of outright bans or export quotas should be kept to the minimum, specially in the case of primary agricultural products, unless there are over-riding considerations to justify such action.

Competitiveness in cost and quality is an important pre-requisite of success in the export effort, particularly in the case of manufactured products. Constant and determined efforts will, therefore, need to be made for improving efficiency and reducing costs. Attention will have to be paid to the improvement of the quality of export products in line with technological developments abroad.

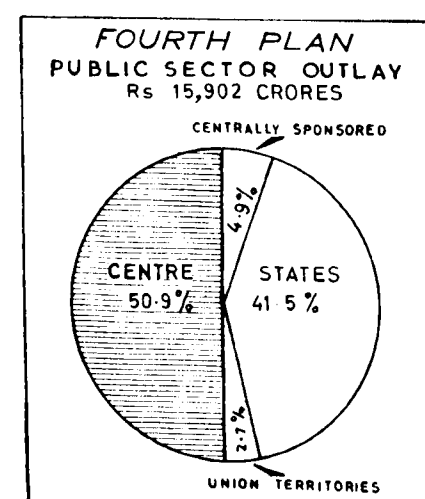
Improvement in the port and shipping facilities is of vital importance in the promotion of exports, particularly of bulk commodities. The Fourth Plan provides for the development of major ports and their modernisation and re-equipment.

The Plan document says that in the case of major traditional exports like cotton textiles and jute manufactures, adequate provision has been made for modernisation and rehabilitation of manufacturing units as part of the export promotion effort. Similarly, funds have been provided for replantation of tea bushes and modernisation of processing and packaging facilities. In the case of certain traditional items, particularly those facing competition from synthetics, further programme

#### NET DOMESTIC PRODUCT

Net domestic product in monetary terms is anticipated around Rs 38,000 crore (at 1968-69 prices) in 1974, and Rs 68,200 crore in 1980-81. This will necessitate an increase in the ratio of net investment to net national product from the current level of 11.2 per cent and the planned 14.5 per cent in 1973-74 to 17-18 per cent per annum by 1980-81.

Per capita output (valued at 1968-69 prices) of Rs 844 in 1980-81 would be 53 per cent higher than the per capita output of Rs 552 in 1968-69. The average per capita consumption would reach Rs 693 by 1980-81 as compared to Rs 488 in 1968-69.



#### TOTAL IMPORTS

The projected value of total imports in 1980-81 will be Rs 2,950 crore as compared to Rs 2,086 crore in 1967-68 and Rs 2,220 crore on completion of the Fourth Plan (1973-74). Projections of imports, commodity wise in 1973-74 and 1980-81 (in Rs crore) are:

|                                                   | 1973-74 | 1980-81 |
|---------------------------------------------------|---------|---------|
| Fertilisers and Fertilisers raw material          | 310     | 430     |
| Crude oil and petroleum products                  | 180     | 330     |
| Machinery, transport equipment and metal products | 740     | 1080    |
| Metals                                            | 355     | 450     |
| Foodgrains                                        | 30      | —       |

for industrial research will be necessary. For increasing exports of non-traditional items, special emphasis will be placed on wider publicity and adequate after-sale service.

### IMPORT REQUIREMENTS

After giving a historical analysis of imports trends in the country since 1951, and more particularly in 1961-69, the Plan document says that the total import requirements of the economy during the Fourth Plan period are estimated at Rs 9,730 crore. These are made up of Rs 590 crore of food imports (including PL 480 arrangements), Rs 7,840 crore of maintenance imports or imports of raw materials, components and spares needed for sustaining and accelerating the growth of industrial and agricultural production and about Rs 1,300 crore of project imports.

The maintenance import requirements totalling Rs 7,840 crore include major items, such as fertilisers

and fertiliser materials, POL, chemicals, non-ferrous metals, special varieties of steel, components and spare parts of machinery.

### IMPORT SUBSTITUTION

The Plan document says that an important assumption underlying the import estimates is that the basic ingredients of the import policy evolved in the years since devaluation would be continued, so that liberal import facilities for the priority industries, export industries and units and the small-scale sector would be provided.

A determined and sustained drive will have to be undertaken towards import substitution and rationalisation. It would be appropriate to give special attention to bulk areas like metals, fertiliser and machinery and equipment of all kinds, since progress in import substitution in these areas would result in sizeable savings of foreign exchange.

## AGRICULTURE

## STRATEGY SUSTAINED

IN the agricultural sector the Fourth Plan has two main objectives. The first is to provide the conditions necessary for a sustained increase of about 5 per cent per annum over the next decade. The second is to enable as large a section of the rural population as possible, including the small cultivator, the farmer in dry areas and the agricultural labourers to participate in development and share its benefits.

Accordingly, the priority programmes of development in agriculture fall broadly into two categories, namely those which aim at maximising production and those which aim at remedying imbalances.

The selected targets of crop production (in million tonnes) are :

|                 | Base level<br>1968-69 | Fourth<br>Plan<br>Targets |
|-----------------|-----------------------|---------------------------|
| Foodgrains      | 98                    | 129                       |
| Jute            | 6.2                   | 7.4                       |
| Cotton          | 6                     | 8                         |
| Oilseeds        | 8.5                   | 10.5                      |
| Sugarcane (Gur) | 12                    | 15                        |

The rate of increase in production of foodgrains and major commercial crops envisaged in the Fourth Plan is much higher than that accomplished in the past. Very little reliance is placed on bringing additional land under cultivation. The potentially arable area in the

## Increase of 5 per cent

country is estimated at about 175 million hectares. Of this, nearly 85 per cent is under cultivation. Thus there is a virtual exhaustion of uncommitted land resources.

In the Fourth Plan, it is anticipated that the addition of the net sown area will be only about one million hectares, which is the target of land reclamation. In this context, the strategy of production is primarily dependent on intensive agriculture.

Success in the achievement of foodgrains target is principally linked with the success of high-yielding varieties and multiple cropping programmes. In support of these, there will be schemes of major and minor irrigation, including large-scale energisation of pumpsets through rural electrification and integrated use of ground and surface water ; supply of inputs for plant nutrition and protection, and of machinery for farm operations ; reorganisation of credit, short, medium, and long and strengthening of the rural infrastructure in other important ways including more village roads, better marketing facilities, and adequate storage. There will also be agricultural research, extension and education, including farmers' education and field demonstration.

### Institutional Credit

Most of the outlays for agriculture are for programmes within the purview of the State Governments. Thus, out of an aggregate outlay of Rs 2,728 crore in the public sector, programmes of the order of Rs 1,426 crore are in the State Plan Sector. Moreover, a number of programmes in the Central Sector such as agricultural research and agricultural education are designed to provide the necessary infrastructure for different schemes in the State Plans or to improve the efficiency of the corresponding sectoral programmes in the State Sector. Further, the entire provision of Rs 324 crore to support

financial institutions is intended exclusively for programmes to be implemented in the States. In brief, care has been taken to ensure that provisions made for Central and Centrally-sponsored schemes in the agricultural sector go to fill the crucial gaps in the State Plans.

Besides direct Plan outlays, it is contemplated that investment in agriculture will flow from other sources, both institutional and private. On the institutional side, it is expected that the operation of land development banks will be considerably expanded. A similar expansion is envisaged for the Agricultural Refinance Corporation and the agro-industries corporations. In addition, agricultural credit corporations are proposed to be set up in States where co-operative credit agencies are weak. Commercial banks are expected increasingly to cater to the agricultural sector and provide finance both for investment and production. As a result of the availability of funds from these institutional sources as also a progressive shift towards self-financing by the medium and large farmers, it is expected that in the Fourth Plan, in addition to public outlays, private investment of the order of Rs 1600 crore will be made in agriculture.

### High-Yielding Varieties

The high-yielding varieties programme is of crucial importance to agricultural development. Out of an increase of 31 million tonnes of foodgrains projected for the Plan, 21 million tonnes are attributed to this programme. This is expected to be achieved largely by the extension of the programme from a base level of 9.2 million hectares in 1968-69 to 25 million hectares in 1973-74.

### Multiple Cropping

In 1964-65, out of 137.9 million hectares of net sown area, 20.2 million hectares were sown more than once. A series of new multiple cropping cycles have been evolved and tested. For the Fourth Plan, the target is to expand the multiple cropping programme so as to cover an additional 9 million hectares.

### Small Farmers

As regards the second objective extending the benefits of development to the smaller cultivators and the under-privileged sections of the rural population, it may be noted that the small holders and the agricultural labourers represent 52 per cent and 24 per cent respectively of total rural households. On the other hand, the pattern of land holding is such that only about 19 per cent of the cropped area comprises small holdings. In this uneven situation, the new agricultural technology tends to add a further dimension of disparity between those who have the resources to make use of it and those who have not. There is thus the danger of a polarisation between the more privileged and less privileged classes in the rural sector.

Various studies, including those conducted at the instance of the Planning Commission, show that the small farmers are not less progressive than the large farmers in their willingness to adopt modern inputs and cultural practices. The approach to the problem

of small but potentially viable farmers (generally those with holdings between 1-2 hectares) is not that of developing a different technology but that of enabling such farmers by suitable means to participate in the available technology.

In the Fourth Plan, this is sought to be achieved by a number of measures, both general and specific. The general measures, which extend to the country as a whole, are complementary in character and pertain to a number of spheres including minor irrigation, agricultural credit and animal husbandry.

A large amount of public investment is proposed for community works such as tanks and tubewells to benefit smaller farmers who would not be individually able to provide themselves with these facilities. Such minor irrigation works may be constructed by the State Governments, panchayati raj institutions or other appropriate authorities. As regards agricultural credit, it is proposed to take a number of steps for reorienting the general loaning policies and procedures of co-operative institutions in favour of the small farmers. It is also envisaged that the Agricultural Refinance Corporation will provide assistance for schemes on an area basis designed to enable the small farmers as well to take advantage of agricultural, dairying, poultry, and other programmes.

The second direction of effort towards assisting the existing small but potentially viable farmers will be in the form of specific projects in about 45 selected districts. It is contemplated that a small farmers' development agency will be set up in each of these districts. This agency will be entrusted with the study of local problems and the formulation and implementation of local measures.

### Landless Labour

As regards the typically non-viable small farmers, the Plan document points out that these fall basically into the same category as landless labour. Their sub-marginal holdings do not fully employ the available family labour and hence the potential solution lies elsewhere than merely in crop husbandry.

According to the Census in 1961, there were about 31 million agricultural labour in the country. In the Fourth Plan, efforts will be made to deal with the problem of sub-marginal cultivators and agricultural labourers by two sets of measures. The first set of measures lies in the sphere of land reforms. The second set of measures is for generation of employment-oriented activities.

For the large class of sub-marginal farmers, agricultural labour and landless labour, the remedy lies in the provision of supplementary occupations and other employment opportunities. Both occupations and employment have to be integrated into local planning.

### Dry Farming

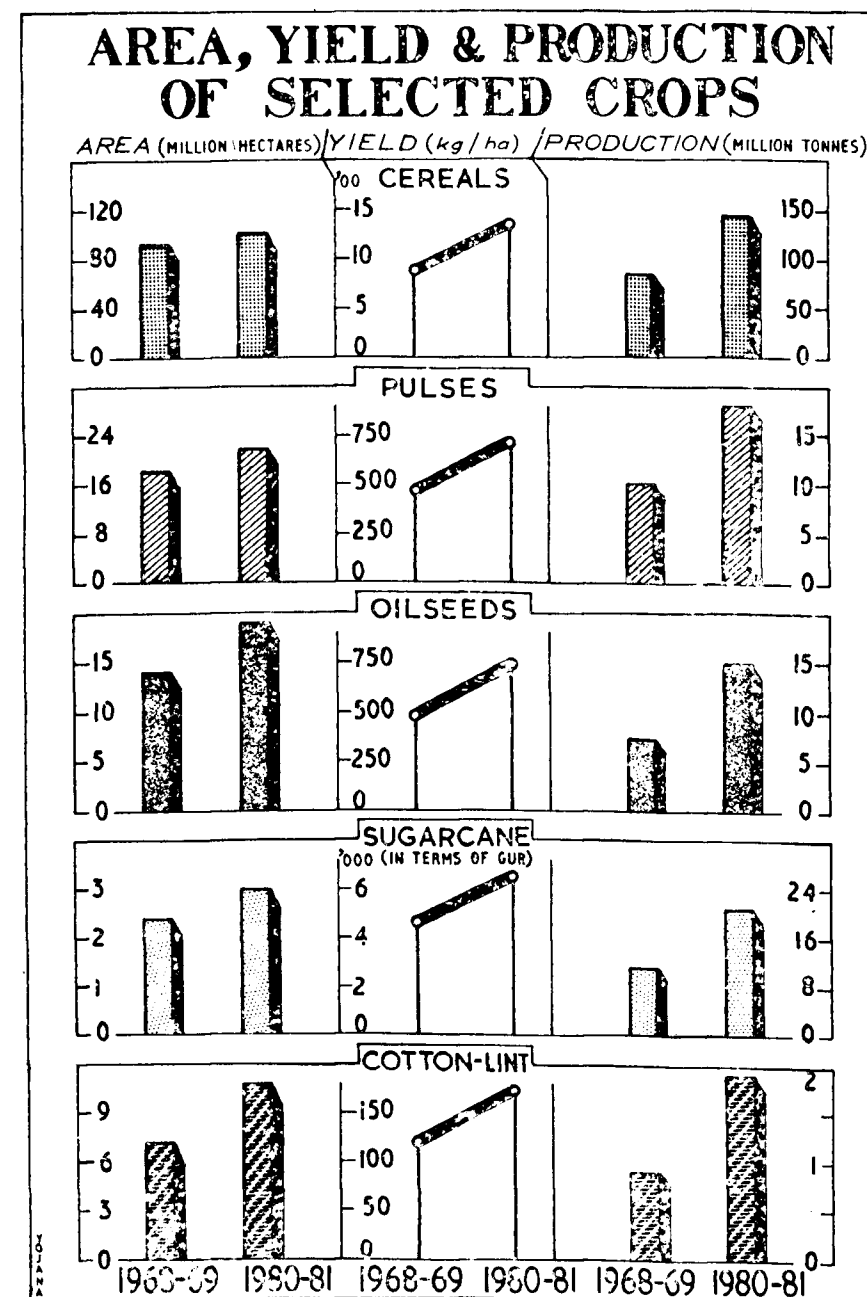
In the context of spreading out the benefits of agricultural development, the Fourth Plan is vitally concerned with dry land farming areas. Dry land farming is sometimes equated with rain-fed farming. However, for operational purposes, it is necessary to distinguish

dry land farming areas from absolutely arid or desert areas (with average rainfall below 375mm) on the one hand and areas having a relatively assured rainfall of 1,125 mm and above on the other.

An important objective of the Fourth Plan is to make a significant impact on dry farming. The programme envisaged is two-fold, namely research into improved dry farming technology and application of such technology to dry farming areas. Besides research,

specific programmes for application of packages of technology will be taken up in the dry farming areas. For this purpose, the Plan includes a new centrally sponsored scheme with an outlay of Rs 20 crore.

Apart from outlays included in the Plan, the Central Government, the Plan document says, provides annually about Rs 25 crore from the budget as grants to famine-affected States. Over the Fourth Plan period, nearly Rs 100 crore are likely to be available from this source.



#### INDIA AND WORLD TRADE

INDIA secured less than one-third of one per cent of the total increase in world trade during 1969, according to the latest official world trade statistics released by the International Monetary Fund.

While India's exports increased by only \$80 million in 1969, the rise in world imports was a massive \$30,000 million, from \$224,000 million in 1968 to \$254,000 million in 1969.

India's exports rose only marginally from \$ 1,753 million in 1968 to \$ 1,833 million in 1969, according to the International Monetary Fund.

Contrary to earlier estimates, there was no slow-down in world trade during 1969. On the contrary, exports and imports expanded much more rapidly in 1969 than in the preceding year.

World exports rose by 15 per cent to a record \$423,000 million. In 1968, the rise was 12 per cent only. World imports also rose by nearly 14 per cent against less than 12 per cent in 1968.

India was left far behind in the export race with at least three countries, Spain, Finland and Hong Kong overtaking her by substantial leads during the year. Spain increased its exports by \$310 million, Finland by \$350 million, and Hong Kong by \$434 million. The increase in India's exports was \$ 80 million or less than 5 per cent over 1968.

There is also no evidence that the developed countries bought less from the rest of the world. According to the International Monetary Fund, the imports of industrial countries were much higher in 1969 than in 1968 both in actual as well as percentage terms.

## IRRIGATION

# Total Outlay : Rs 1470 Crore 43 MILLION HECTARES TO BE IRRIGATED

The total outlay on major and medium irrigation  
(In rupees crores)

|                                                               |              |
|---------------------------------------------------------------|--------------|
| Continuing schemes                                            | 771.4        |
| New schemes                                                   | 140.4        |
| Investigation and research in the State and Union Territories | 26.5         |
| Research and design schemes of the Central Sector             | 15.5         |
| <b>Total</b>                                                  | <b>953.8</b> |

DURING the Fourth Plan, irrigation potential of about 4.8 million hectares would be created, of which 4.7 million hectares would be from the continuing schemes and 0.1 million hectares from new schemes. Utilisation is expected to be about 3.9 million hectares.

Integrated use and efficient management of water resources, both surface and ground; extension of irrigation, subject to the constraint of resources in the States sector, to those areas which are relatively deficient in assured rainfall as well as irrigation are among the Fourth Plan objectives in regard to irrigation.

The area under irrigation increased from 22.6 million hectares in 1950-51 to 35.9 million hectares in 1968-69. By the end of the Fourth Plan the area is expected to increase to 43 million hectares. It is estimated that 82 million hectares can ultimately be irrigated from both surface and ground water resources.

Many existing irrigation projects are designed for single crop irrigation and protection against failure of rains, rather than for ensuring maximum agricultural production. The recent shift of emphasis towards optimal production from irrigated tracts will be kept in mind not only in location and design of future works but in important details like the provision of field channels and drainage.

In the State Plan outlays, priority has been given to providing the maximum possible allocations considered essential for continuing schemes on which appreciable progress has already been made. In respect of inter-State systems, such as Rajasthan Canal and Pong Dam Project, progress in one State should correspond to that in another and should be maintained at the maximum pace feasible. This aspect has also been kept in view.

Provision has been made for adequate investigations of and advance action on new schemes for the Fifth

Plan as well as for research on designing and construction of projects. The spill-over from continuing major and medium schemes and outlays for them are shown below :

| (Rs crores) |                                                                                                          |                 |                                      |            |                            |
|-------------|----------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|------------|----------------------------|
| Sl. No.     | Scheme                                                                                                   | *Estimated cost | *Expenditure till the end of 1968-69 | Spill-over | Allocation for Fourth Plan |
| 1           | 2                                                                                                        | 3               | 4                                    | 5          | 6                          |
| 1.          | Major schemes, each estimated to cost more than Rs 20 crore on which appreciable progress has been made. | 1605            | 890                                  | 715        | 485                        |
| 2.          | Major projects costing between Rs 5 crore to Rs 20 crore on which appreciable progress has been made.    | 280             | 176                                  | 104        | 98                         |
| 3.          | Other major projects on which appreciable progress has not been made so far.                             | 350             | 12                                   | 338        | 86                         |
| 4.          | Medium schemes                                                                                           | 225             | 122                                  | 103        | 103                        |
| 5.          | Total :                                                                                                  | 2460            | 1200                                 | 1260       | 771                        |

\*As indicated by States up to 1-3-1970

Provision has been made in the Plan for all the major schemes on which appreciable progress has been made and for all the medium schemes. An outlay of Rs 685 crore has been provided for this purpose. The spill-over from these schemes into the Fifth Plan will be of the order of Rs 237 crore. All the medium schemes will be completed in the Fourth Plan period. The major schemes on which substantial expenditure has already been incurred will, in many instances, be completed or otherwise come to a stage when benefits will start accruing. The other major schemes with an outlay of Rs 86 crore will reach various stages of construction and partial benefits will start accruing from some of them in the first year of the Fifth Plan.

It is proposed to start new schemes, estimated to cost about Rs 750 crore, mostly in the latter part of the Fourth Plan. More than one-third of this will be for medium schemes and the rest for major schemes. The medium schemes would be located mostly in scarcity and drought-affected areas.

Comprehensive river basin planning, which takes due

## New Schemes Costing Rs 750 Crore to be Started

account of economic efficiency, will be paid greater attention. For integrated development of water and land resources, master plans have to be prepared for long-term development of irrigation in each river basin, including inter-State rivers.

### Minor Irrigation

Financial ceiling for individual minor irrigation works hitherto in vogue was Rs 15 lakh. It has been increased to Rs 25 lakh in the plains and Rs 30 lakh in hill areas with effect from April 1, 1970. The investments on minor irrigation schemes are derived from the public sector, the financing institutions and private resources. The public sector programmes are intended for State surface water schemes including river pumping projects, State tubewells, loans and subsidies to small farmers, purchase of equipment and contribution towards the purchase of debentures of the Land Development Banks. The outlays on minor irrigation are : States Rs 501.5 crore ; Union Territories Rs 6.2 crore; Centre Rs 8.0 crore.

The major portion of the public sector outlay is expected to be spent on community works constructed by the State Governments, Panchayati Raj institutions or other authorities. Such community works consist mostly of tanks, diversion projects, State tubewells and river pumping projects which provide irrigation facilities to small farmers who are not otherwise able to provide themselves with irrigation facilities. Loans and subsidies from the public sector outlay are proposed to be restricted to small farmers.

The total public sector outlay on taccavi loans and

subsidy is expected to be below Rs 60 crore. Investment on minor irrigation works financed by the institutional sector, including commercial banks, is estimated at about Rs 650 crore (not after deducting Plan sector contribution towards debentures) while investment by cultivators from their own resources is estimated to be about Rs 300 crore.

The total benefits from minor irrigation on the basis of the investment envisaged from public, institutional and private sectors expected during Fourth Plan *in million hectares* are as follows: New irrigation added-4.8 ; Depreciation on existing works 1.6 ; Net new irrigated area 3.2 ; Benefits due to improvement of irrigation supplies 2.25 ; and Benefits due to drainage and embankments 0.15.

### Rural Electrification : Outlay Rs 444.69 crore

The total outlay on rural electrification with special emphasis on energising pumpsets and tubewells provided under public sector will be distributed as follows : States Rs 285.15 crore ; Union Territories Rs 9.54 crore; and Centre Rs 150.00 crore.

It is estimated that 1.25 million pumpsets and tubewells will be energised during the Plan period.

A Rural Electrification Corporation with a Plan outlay of Rs 150 crore has been set up in the public sector. This institution will provide loans to the State Electricity Boards for energising irrigation pumpsets and generally promote the electrification of rural areas on a project basis. The Corporation will also provide loans to a number of Rural Electric Co-operatives which will be set up during the Plan period.

## POWER

# INSTALLED CAPACITY 23 MILLION KW BY 1974 : Rs 2447.5 Crore in Public Sector Outlay

A total outlay of Rs 2447.5 crore has been provided in the public sector for power. This is nearly 32 per cent of the total public sector outlay in the Plan. The private sector is expected to provide about Rs 75 crore, primarily for strengthening their distribution network.

On the basis of this outlay, a net installed capacity of 23 million kw can be achieved allowing for retirement of 0.4 million kw of old and obsolete plants.

A number of hydro-electric and thermal schemes will be under construction towards the end of the Plan. On completion during the Fifth Plan these will provide an additional capacity of about 3.37 million kw. With a provision of about Rs 196 crore on new generation programmes, additional generating schemes would be

included in the Fourth Plan for completion during the Fifth Plan period.

### Central Programmes

The provision of Rs 210 crore in the Central Plan on continuing generation schemes includes Rs 120 crore on atomic power generation, Rs 49.25 crore on the Badarpur thermal station, Rs 38.8 crore on D.V.C. schemes, and Rs 2 crore on the Neyveli thermal station. The first atomic power station at Tarapore of 380 MW capacity has gone into operation in 1969. In the second station at Ranapratap Sagar, the first unit of 200 MW is expected to be commissioned towards the end of 1971, and the second unit about two years later. In the third station at Kalpakkam (400 MW) the first

unit (200 MW) is expected to go into operation in 1973-74.

A provision of Rs 15 crore has been made in the Plan for advance action on a new atomic power station, the location of which has yet to be decided. The ninth thermal unit of 100 MW at Neyveli has gone into operation during 1969-70 and the station has now a total capacity of 600 MW.

The D.V.C. programme includes installation of two thermal sets of 120 MW each at Chandrapura. The Badarpur thermal station of 300 MW installed capacity is expected to have its first unit in operation in 1971-72 and the other two units are expected to follow in 1972-73. Three new Central projects—Loktak hydro-electric project in Manipur, Siul-Baira hydro-electric project in Himachal Pradesh, and Salal hydro-electric project in Jammu and Kashmir—are included in the Central Plan. Loktak and Siul-Baira schemes are scheduled to go into operation towards the end of the Plan.

The Central generating stations would be feeding into their respective regional grids. The establishment of Central stations will depend on the beneficiary States agreeing to a minimum offtake of power at optimum load factor in order to ensure that the central stations will be utilised fully and operated economically to the establishment of suitable transmission systems and tariff for power sold to them.

Out of 9.264 million kw generating capacity being added during the Plan period, plant and equipment for about 4.859 million kw of generation capacity will be

supplied by the indigenous public sector manufacturers and the balance, would be from foreign sources. Also, about 3.37 million kw capacity plant and equipment would lie in various stages of manufacture in these undertakings for supply to spill-over State projects. In addition, plant and equipment for new generation schemes which are yet to be identified would be under manufacture in these factories.

*There is adequate capacity in the country for manufacture of other heavy electrical equipment and no import of such equipment is envisaged in future.*

### Integrated Operation

The level of utilisation of available capacity is stated to be at present low. There is scope for improving efficiency of operation. For maximising utilisation of the available capacity and also for meeting the peak demands on their systems, some of the States may have to resort to fuller utilisation of stand-by capacities. Integrated operation of State grid systems utilising inter-State lines should also be adopted for maximising benefits.

A country-wide programme for carrying out pre-investment survey of hydro-electric sites is under implementation. New sites will be taken up for investigation during the Plan period. There are also schemes for extension of research, including applied research on generation, transmission and distribution, testing of electrical equipment, provision of consultancy services and training of operation personnel in the Fourth Plan.

## VILLAGE AND SMALL INDUSTRIES

# PROGRESSIVE IMPROVEMENT IN PRODUCTION TECHNIQUES

TOTAL OUTLAY : Rs 850 crore of which Rs 293 crore will be in the public sector

THE Fourth Plan envisages a total outlay of about Rs 293 crore in the public sector for the development of village and small industries. The distribution of the outlay in the Fourth Plan, compared with the Third Plan and 1966-69 expenditures is as follows :

|                                                                       |  |
|-----------------------------------------------------------------------|--|
| Sales of Industrial Co-operatives trebled in the past decade.         |  |
| 44.7 per cent of total cloth production is in the small-scale sector. |  |
| Handloom industry employs 3 million weavers.                          |  |

|                           | Estimated<br>Third Plan | Expenditure<br>1966-69 | Outlay<br>for 1969-74 |
|---------------------------|-------------------------|------------------------|-----------------------|
| Small-scale Industries    | 86.12                   | 39.35                  | 104.25                |
| Industrial Estates        | 22.15                   | 7.68                   | 19.08                 |
| Handloom Industry         | 25.37                   | 13.58                  | 39.35                 |
| Powerlooms                | 1.52                    | 0.47                   |                       |
| Khadi                     | 89.33                   | 55.41                  | 96.47                 |
| Village Industries        | 4.39                    | 3.80                   | 10.39                 |
| Sericulture               | 1.79                    | 1.28                   | 5.03                  |
| Coir Industry             | 5.30                    | 4.53                   | 13.46                 |
| Handicrafts               | 4.79                    | 6.55                   | 4.50                  |
| Rural Industries Projects | —                       | —                      | 0.60                  |
| Collection of statistics  |                         |                        |                       |
| Total                     | 240.76                  | 132.55                 | 293.13                |

The total outlay is exclusive of the outlays on village and small industries made in certain other programmes such as those pertaining to selected industrially-backward areas, displaced persons, co-operative processing and industrial areas. In addition to the outlay in the public sector, about Rs 560 crore are expected to be invested from private sources including financial and banking institutions, as against about Rs 275 crore in the Third Plan. Thus a total outlay of Rs 850 crore is estimated to be available for the development of small industries under the Fourth Plan.

The Plan objectives in regard to village and small industries are progressive improvement of their production techniques, promotion of their decentralisation and dispersal and building up of increasing number of agro-based industries. The production techniques of these industries have to be modernised and skill improved so that they are able to produce quality goods. A combination of incentives and disincentives is necessary for securing decentralisation and dispersal of small industries. Fiscal and other measures are required to enable these industries to stand competition with large industries.

Up to the end of 1968-69, about 140,000 small-scale units had been registered, as compared with about 36,000 units at the beginning of 1962. Machines worth Rs 4.5 crore were supplied on hire-purchase terms to small-scale industries in 1968-69 as against Rs 1.8 crore in 1960-61.

Over the period 1961-69, the number of industrial co-operatives including handlooms, handicrafts and processing societies, increased from 37,000 to about 51,000; their membership rose from 2.92 million to 3.88 million and sales from Rs 111.9 crore to Rs 331.9 crore.

About 346 industrial estates had been completed by the end of March 1969 as against 66 estates in 1960-61. The small units set up in these estates provided employment to about 82,700 persons, and their annual production amounted to Rs 90.25 crore. By the end of 1969, 125 societies had been registered for the establishment of co-operative industrial estates.

The production of handloom and powerloom industry was 3,530 million metres in 1968, as against 2,013 million metres in 1960. As a share in the total production of cloth, this represented an increase from 30.4 per cent in 1960 to 44.7 per cent in 1968. The handloom industry provided employment to nearly 3 million weavers and the value of exports of handloom fabrics and products increased from Rs 5 crore in 1960 to Rs 12.6 crore in 1965.

The production and employment figures of other small and village industries in 1968-69 are as follows:

**Khadi :** 66 million sq. metres of khadi, including woollen and silk were produced in 1968-69. Nearly 1.34 million persons including about 1.20 million spinners had part-time employment.

**Sericulture :** Production increased to 2.32 million kgs in 1968-69 (estimated). Three million people had part-time employment at the end of the Third Plan.

**Coir :** The value of exports of coir yarn and products increased to Rs 14.50 crore in 1968-69 ; 8 lakh persons were employed.

**Handicrafts :** The gross output of manufacture in 1966 was Rs 317 crore as against Rs 253 crore in 1961. Exports increased to Rs 76.5 crore in 1968-69.

### Positive Measures

Since a large number of industries are proposed to be delicensed during the Plan period, positive measures will be taken to assist small-scale industries. These will include liberal credit facilities, adequate supply of scarce raw materials, provision of technical assistance and improved appliances, tax concessions and differential excise duties.

The financial as well as fiscal incentives to be given to establish medium and large industries would be available to small industries as well. There are a number of industries, specially agro-industries, based on skills, demand and raw materials which are largely local. They will be helped to establish themselves by means of fiscal and technological support and organisation of credit facilities. In many rural areas, there is growing demand for repair and service facilities for agricultural machinery and other appliances ; this offers considerable scope for the establishment of small workshops and the employment of technically-trained persons.

Facilities for research, for improving production techniques, designs development, industrial extension services and testing facilities will be expanded. Training programmes for improvement in skills in selected trades will be enlarged for different small industries. Trade centres will be set up in large cities. The existing policy of price preference for the products of small industries under Government's stores purchase programme will be continued.

Facilities for studying the market trends abroad, testing quality marking, pre-shipment inspection and publicity will be enlarged and preference will be given in providing credit and supplying raw materials to the units engaged in manufacturing export products.

### Small-Scale Industries

In small-scale industries the main aim would be fuller utilisation of the capacity already established, intensive development of selected industries including ancillaries and industrial co-operatives and, subject to criteria of feasibility, promotion of the industries in semi-urban, rural and backward areas.

The existing reservations to protect small industries from undue competition from large industries will be continued and suitably modified from time to time. A phased programme of modernisation of machinery and equipment will be undertaken initially for a group of selected industries, such as machine tools, foundry and re-rolling. Production of items which are now being imported and other items required by priority industries including agro-industries will be encouraged.

Training and financial assistance will be given to

technically qualified persons so as to enable them to set up industries.

The programme of setting up industrial estates, complete with factory premises, will be pursued in small towns and promising rural and backward areas. Selection of sites for industrial development and industrial estates will be made on the basis of quick techno-economic surveys.

The public sector undertakings will be encouraged to establish estates for small ancillary units. The funds allotted for the industrial development areas would be used for promoting small-scale industries along with medium and large-scale industries. Establishment of co-operative industrial estates will also be encouraged.

### Handloom & Powerlooms

Production of cotton cloth by the decentralised sector, namely the handloom, powerloom and khadi industries, estimated at 3,596 million metres at present, is expected to increase to 4,250 million metres in 1973-74. Greater efforts will be made to enable handloom co-operatives to obtain their credit requirements for working capital from the State Co-operative Banks. It is proposed to reduce the rebate on sale and to extend certain types of assistance and facilities to the weavers outside the co-operative fold. The value of the exports of the handloom products is estimated to increase from about Rs 8.2 crore in 1968 to about Rs 15 crore by 1973-74.

### Khadi & Village Industries

Of the total Central outlay of Rs 95 crore, about Rs 59 crore are to be utilised for khadi and Rs 36

crore for the development of village industries, including Rs 22.50 crore for subsidy in lieu of interest on loans for both khadi and village industries.

### Silk and Coir

The value of exports of silk fabrics and waste is expected to increase from about Rs 6 crore in 1968 to about Rs 10 crore by 1973-74. Production of raw silk is expected to increase from 2.32 million kgs in 1968-69 to about 3.0 million kgs in 1973-74. The value of the exports of coir industry is expected to increase from about Rs 14.5 crore in 1968-69 to about Rs 17 crore in 1973-74. Mechanisation of the mat weaving and spinning sectors will be assisted as also the establishment of mechanical de-fibering plants.

### Handicrafts

The programme of development for handicrafts in the Fourth Plan will aim at improvement in the productivity of artisans through supply of improved appliances and introduction of new designs, quality control, promotion of organised production, preservation of silks, promotion of co-operatives and associations of craftsmen and expansion of exports and internal sales. Special efforts will be made for the development of those selected crafts which have an expanding demand in the export market.

It is proposed to set up model centres for stimulating the growth of well-organised units in which new designs and improved tools would be used to produce quality handicrafts. For preservation of skills, facilities will be provided for the training of young apprentices under master craftsmen.

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## Public Sector will continue to have Predominant Role

THE industrial programmes and policies for the Fourth Plan have been conceived, keeping in view the need to correct imbalances in the industrial structure and to bring about the maximum utilisation of capacity already built up. In broad terms, the objectives of investments in the industrial field are :

- (1) completing investment in relation to which commitments have already been made;
- (2) increasing existing capacities to levels required for present or future developments, in particular, providing for more adequate internal supplies of essentials in increasing demand or needed by import substitution or for export promotion; and
- (3) taking advantage of internal developments or availabilities to build new industries or new bases for industries.

Consistent with the new approach to industrial planning, it is not proposed to lay down, for the Fourth Plan, targets for all industries. Definite targets are proposed to be fixed only for industries included in the 'core' sector. In order to ensure the fulfilment of these targets, finance, supplies and other facilities would be made available to them on a priority basis. In order to guard against the creation of monopolies and increase in concentration, a number of measures have been suggested under the modified industrial licensing policy.

Co-ordinated development of large and small sectors will be encouraged through the promotion of ancillaries as feeder industries to large units, on the one hand, and of processing industries utilising the products of large industries, on the other.

### Backward Areas

Measures are proposed to be taken for the development of industries in the backward areas. Financial and credit institutions will provide certain general concessions for financing industries in all backward areas in the States and Union Territories. In addition, the Central Government would subsidise the establishment of industrial units in the backward areas to the extent of one-tenth of the total capital cost for projects costing up to Rs 50 lakh, both in the private and public sectors. In the case of projects involving larger capital outlay, the grant of subsidy would be considered on merits. This subsidy will be available to two districts in each of the nine States—Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Nagaland, Orissa, Rajasthan and Uttar Pradesh. In other States, the subsidy will be available for one district in each case. The backward areas of Union Territories qualify for such treatment.

**Outlay : Rs 5298 crore in organised industry and mining Rs 3048 crore in the public sector and Rs. 2250 in the private and co-operative sectors.**

More attention than before will be paid to the development of indigenous technologies, design and engineering skills. A number of design and consultancy organisations that have come into existence, both in the public and private sectors, will be strengthened and their scope enlarged.

### Public Sector

On a broad estimate, the total Central investments in public sector projects in the mining and manufacturing sectors would amount approximately to Rs. 3400 crore at the beginning of the Fourth Plan. A substantial proportion of this has been in the development of heavy industries, such as steel, coal, lignite, heavy engineering including electrical equipment, petroleum and fertilisers.

While these investments have contributed significantly to the strengthening of the industrial structure, the overall performance has not been uniformly satisfactory. Delays in completion schedules and large increases in original investment estimates have been the experience with several projects and the output has remained substantially below installed capacity. Expectations of a significant contribution to Plan resources from the internal resources of these enterprises have not been realised; on the other hand, several of them have to rely on budgetary support to meet their cash losses. Productivity and profitability of these enterprises are a matter of urgent importance.

### Outlays

The Fourth Plan envisages an investment of approximately Rs 5298 crore in organised industry and mining, Rs 3048 crore in the public sector and Rs 2250 crore in the private and co-operative sectors. The outlay in the public sector would be Rs 3337.7 crore, since it includes a sum of Rs 250 crores for transfer to private and co-operative sectors through financial institutions, and an amount of Rs 40 crore for supporting plantation programmes which have a bearing on export earnings and for State Industrial Development Corporations. Of the total outlay of Rs 3337.7 crore in the public sector, Rs 3150.9 crore will be in the Central Sector and Rs 186.8 crore in States and Union Territories.

Within the organised sector, it is thus contemplated that the public sector would continue to occupy a

predominant role in new investments. Of the total investments envisaged in the Fourth Plan, the public sector would account for about 60 per cent, which is broadly in line with the proportion of investment between the public sector and the private sector envisaged in the Third Plan.

### Public Sector

The major proportion of the outlay in the public sector is intended for the completion of projects already under implementation and projects on which investment decisions have been taken. New projects are envisaged in high priority fields like fertilisers, pesticides, petro-chemicals, non-ferrous metals, and development of iron ore, pyrites and rock-phosphate resources. New investment in the engineering industries is limited to a few comparatively small projects for filling critical gaps. Among other schemes, mention may be made of the Textile Corporation for which a provision of Rs 17.5 crore has been made primarily for the purpose of reconstruction and modernisation of viable mills taken over by Government. In view of the importance attached to the newsprint industry and the need for expanding production of paper, a provision of Rs 60 crore has been made for the Paper Corporation.

Taken as a whole, the public sector investments would strengthen the control of Government over the commanding heights of the economy. Thus, the public sector will account for a little over three-fourths of the investments envisaged in the 'core' sector during the Fourth Plan period, the balance being the share of the private sector. Looked at from another angle, 'core' industries would represent approximately 80 per cent of the total investment of around Rs 3000 crore in large industries and minerals in the public sector.

### Private and Co-operative Sector

The fixed investment outlay of Rs 2250 crore in the private and co-operative sectors of Industry is based on a preliminary study of the investible resources that are likely to flow into the organised sector.

**Iron and Steel:** The domestic demand for finished steel and market pig iron by 1973-74 is estimated at about 7.12 million tonnes and 1.95 million tonnes respectively. The specific programmes are the expansion of the Bhilai steel plant and the completion of the Bokaro first stage of 1.7 million tonnes ingot capacity. The expansion of the Bhilai steel plant originally programmed was for stepping up capacity from 2.5 million tonnes to 3.2 million tonnes; however, an alternate scheme envisaging the expansion of the plant to 4.2 million tonnes is also currently under the study. Provision had also been made for the establishment of a plate mill. Further it is proposed that the expansion of Bokaro plant (to a capacity of 4.0 million tonnes) should be taken up during the Fourth Plan period itself on a continuing basis with a view to achieving a capacity of 2.5 million tonnes by 1973-74. On the basis of the programmes included in the Fourth Plan, it is envisaged that the capacity will be stepped up from the level of approximately 9 million tonnes in 1968-69 to 12 million tonnes of ingots by 1973-74.

The production of pig iron is expected to be 3.8 million tonnes during 1973-74. Exports have been envisaged at the level of about one million tonnes of finished steel and 1.5 million tonnes of pig iron by the end of the Fourth Plan.

In view of the long gestation period implicit in the creation of additional capacity for steel, action has to be initiated during the Plan for meeting the future requirements of steel and pig iron. Provision of Rs 110 crore has been made for this purpose. Detailed studies are currently in progress in respect of the Hospet, Salem and Visakhapatnam plants.

**Non-Ferrous Metals:** The programme for non-ferrous metals envisages considerable expansion in the aluminium industry and significant additions to copper and zinc. The production of aluminium is expected to be stepped up from about 125,000 tonnes in 1968-69 to 220,000 tonnes by 1973-74. The programme in the public sector envisages the establishment of two smelters at Korba and Koyna with alumina production facilities. In addition to the public sector programme, expansion of capacity by the private producer is also envisaged.

The production of copper is at present confined to the output from the Indian Copper Corporation at Ghatsila, Bihar. The existing capacity of 9,600 tonnes per annum is to be stepped up to 15,500 tonnes. In the public sector, the major project is the exploitation of the Khetri-Kolihan deposits in Rajasthan with a view to producing 31,000 tonnes of copper per annum. In addition, it is proposed to take up exploitation of the Rakha copper deposits in Bihar.

Zewar mines near Udaipur are the only mines producing zinc ore. It is proposed to expand the mining activities so as to increase the output of 2,000 tonnes per day and meet the requirements of the existing smelter at Udaipur for producing 18,000 tonnes of zinc per annum. During the Plan, further expansion of the mines is envisaged for producing 4,000 tonnes per day and meeting the expansion of the smelter from 18,000 to 36,000 tonnes per annum. In the private sector, zinc is produced at Alway from imported concentrates. The capacity of the plant is 20,000 tonnes per annum and, during the Plan, is to be doubled.

**Engineering Industries:** The installed capacity for some of the major items of electrical equipment will increase to 3.58 million KW for steam turbines and generators, 1.7 million KW for hydro-turbines, generators and for power boilers 1.63 million HP for electric motors above 200 HP and 14.94 million KVA for transformers. Expansion in machine tool production, transport and communication equipment and agricultural machinery is envisaged.

**Ship-building:** The production capacity of Hindustan Shipyard Visakhapatnam, is to be increased from the present level of 2-3 ships of 12,500 Dwt. each to six ships per annum including one or two ships in the range of 14,500 Dwt, aggregating 80,000 Dwt. per annum by the end of the Fourth Plan period.

Another shipyard will be set up at Cochin with a building dock for ships of size 66,000 Dwt. and a ship repair dock to accommodate ships up to 85,000 Dwt. The total cost of this shipyard is estimated at Rs. 45.42 crore.

**Fertilisers:** To meet the growing demand for fertilisers, minimum capacity and production targets of 3 million tonnes and 2.5 million tonnes of nitrogen are envisaged for 1973-74. The schemes under implementation are expected to give a capacity of approximately 2.54 million tonnes. In addition, eight projects involving a capacity of 1.31 million tonnes have been approved in the private sector. In the public sector, six projects involving a capacity of 0.95 million tonnes are in an advanced stage of preparation for being taken up for implementation. A provision of Rs 262 crore has been made in the public sector for new fertiliser plants. In regard to phosphatic fertilisers, the firm capacity adds up to about one million tonnes. In addition, another 0.4 million tonnes is expected to be taken up for implementation shortly. Some of these projects are for the production of complex fertilisers forming part of nitrogenous plants. A minimum capacity of 1.2 million tonnes and production of 0.9 million tonnes is envisaged for 1973-74.

**Petrochemicals:** The main developments envisaged are the aromatics project and the naphtha cracker project at Koyali in the public sector. An important development in the private sector is the establishment of a caprolactam project by the Gujarat Fertilisers. A substantial beginning will be made on the establishment of an aromatics project along with associated facilities at Barauni.

**Petroleum Refining:** The demand for petroleum products is expected to increase to around 26 million tonnes by 1973-74. This will call for a refining capacity of approximately 28 million tonnes. To meet this additional requirement of refining capacity two new refineries, each with a capacity of 2.5 million tonnes per year, will go on stream during the Plan period. Of these the Madras Refinery went on stream in 1969-70 and the Haldia Refinery is expected to go on stream by the end of 1972.

## EMPHASIS ON LABOUR-INTENSIVE PROGRAMMES

THE principal means of enlarging employment opportunities is to get the economy moving as fast as possible with the maximum dispersal of productive activity throughout the country. While creation of employment opportunities has been an important consideration, equal emphasis has been placed on productive employment on a sufficiently high level of efficiency.

The trends in the employment growth in the organised sector during the past decade reveal that the rate of employment growth has been maximum in the tertiary sector of trade and commerce, transport, storage and communications, and services. This sector is expected to grow at a faster rate in the coming years. There has been a notable increase in the participation of women in almost all activities during the past decade. This trend will continue and lead to an improvement in their economic and social status.

The strategy of development envisaged in the Plan lays emphasis on labour-intensive programmes through development of agriculture, rural infrastructure including communication and transport links, rural electrification, water management, rural industries, decentralisation and dispersal of industrial investments, and rural and urban housing in the investment programmes.

Large-scale capital-intensive investments are limited to projects where technological considerations and economy of scale do not permit adoption of labour-intensive techniques.

A provision of Rs 37.11 crore has been made in the Fourth Plan for labour welfare and craftsmen training programmes. Of this, Rs 9.20 crore are in the Central Sector, Rs 25.12 crore in the States Sector and Rs 2.79 crore for Union Territories.

The extent to which new employment opportunities will be created or there will be improvement in the earnings of those already employed in different sectors during the Fourth Plan period cannot, however, be precisely quantified. The Planning Commission has suggested to the Central Ministries and the State Governments and Union Territories to take effective steps to remove any restrictive policies which inhibit the faster growth of employment.

### Agricultural Employment

The increasing tempo of agricultural development in the Plan is expected to create new employment opportunities on a large scale in the rural areas and also provide fuller employment to those who are already engaged in agriculture. The Plan aims at enabling a large section of the rural population including the weaker sections, such as small cultivators and landless labourers, to

participate in development and share its benefits. The special programmes formulated for submarginal farmers and for dry farming envisage a significant expansion in employment opportunities by way of both fuller employment and new avenues of employment.

The rural works programmes proposed to be undertaken in 40 chronically drought-prone districts in different States, for which an outlay of Rs 100 crore is contemplated, is expected to provide unemployment relief in these areas. Irrigation, flood control and drainage schemes are expected to provide increasing employment opportunities apart from under-employment relief in the rural areas.

Electricity schemes, too, would open up employment avenues. Rural electrification will give an impetus to development of small industries and generation of considerable rural employment.

Non-farm employment is expected to grow at a fast rate during the Fourth Plan. The accelerated growth of organised mining and manufacturing, the encouragement of ancillary and small-scale industries, continued assistance to village and household industries, the rising level of construction activity, the increased provision for building the infrastructure of communications, transport and power and expansion of training facilities, will all contribute to larger opportunities for direct employment including self-employment.

Organised industries and mining are likely to offer large job openings to engineers, technicians, skilled, semi-skilled, and unskilled workers. The programmes of khadi and village industries are expected to generate a substantial volume of employment, the bulk of which will be part-time and mostly benefiting women.

The development programme for small-scale industries is expected to provide employment opportunities on a full-time basis and on a large scale. A special scheme has been formulated by the Ministry of Industrial Development for promoting self-employment among engineer-entrepreneurs by imparting suitable training and by encouraging commercial banks to advance loans to them for starting small-scale industries.

Similarly, the State Bank of India and some of the

### PERSPECTIVE PLAN

In our next issue, dated June 28, *Yojana* will publish the Perspective Plan for 1974-1981, which will deal with the outlook for the Indian economy in the next decade.

Chief Editor

Further additional requirements of refining capacity are at present proposed to be met from the expansion of existing refineries, such as Cochin, Koyali, Barauni, and additional capacity in Assam.

**Coal:** The requirements of coal in 1973-74 have recently been estimated at 93.5 million tonnes, comprising 25.4 million tonnes of coking coal and 68.1 million tonnes of non-coking and blendable coal. This involves a considerable increase from the current level of production. High priority has been assigned to the coking coal programmes. The public sector projects are expected to produce about 9 million tonnes of coking coal; the rest will come from private mines. The capacity already established is expected to be adequate to meet the requirements of blendable coal during 1969-74.

Within the target of 93.5 million tonnes, the public sector is expected to contribute about 32 million tonnes. With this level of output, the share of the public sector in the total production by 1973-74 would rise to about 34 per cent from about 20 per cent in 1965-66. An outlay of Rs 110.53 crore has been provided in the Central sector.

**Lignite:** The only producer of lignite is Neyveli project in Tamil Nadu; the present level of production is about 4 million tonnes and is expected to be enhanced to 6 million tonnes in the Fourth Plan.

**Iron Ore:** Production of iron ore is about 28 million tonnes in 1968-69. The demand envisaged in 1973-74 is of the order of 51 million tonnes. Out of this, the demand on account of export is placed at 31 million tonnes (wet) against the level of 13 million tonnes in 1968-69. The production required for export is expected to be met from Bailadila 14 and 5 (Madhya Pradesh), Barajamda (Orissa and Bihar), Daitari (Orissa), Bellary-Hospet (Mysore) and Goa. Of these projects, Bailadila-5 and Bellary-Hospet, which are under the National Mineral Development Corporation (NMDC), are to go into production in the Fourth Plan.

It is proposed to increase the current capacity of 2 million tonnes of the Kiriburu mines to a level of 4.5 million tonnes

so as to meet the requirements of the Bokaro steel plant. The Kiriburu ore which is now being exported to Japan will consequently be diverted to the Bokaro plant after its construction and the export commitment of Kiriburu will be transferred to Bailadila-5. Out of the envisaged production of 51 million tonnes of iron ore, the projects under the National Mineral Development Corporation are expected to contribute about 14 million tonnes.

**Mineral Oil:** The programme for exploration and production of mineral oil will be continued by two agencies, namely Oil and Natural Gas Commission (ONGC) and Oil India Limited. The production of crude oil is envisaged to be stepped up from 6 million tonnes in 1968-69 to a level of 8.5 million tonnes by 1973-74.

**Atomic Energy:** The industrial and mineral programmes of the Atomic Energy Department include the expansion of production of atomic minerals and their processing, diversification of the Electronic Corporation of India to produce the electronic equipment required for the Atomic Energy Programme as well as for other users like the research and technical institutions in the country, and the establishment of a new heavy water plant in addition to the one which is currently under implementation.

**Other Industries:** Significant investment is contemplated in cement, paper and newsprint. The production of cement is expected to be stepped up to 18 million tonnes by 1973-74. The capacity estimated for paper is 1.0 million tonnes and production 0.85 million tonnes in 1973-74. Newsprint capacity is expected to be stepped up to 165,000 tonnes. The public sector will play a large part in the expansion of newsprint production. Apart from expanding the Nepa factory's capacity to 75,000 tonnes, a new newsprint mill of about 60,000 tonnes capacity is proposed to be set up in the public sector.

Among plantation industries it is expected that the production of natural rubber would be substantially stepped up during the Fourth Plan period. A provision of Rs two crore has been made for the Kerala Plantation Corporation.

## NO YEARNING FOR EDUCATION

Edayarpalayam, about 7 miles away from Coimbatore is a typically backward village with 420 houses, out of which 220 belong to the backward classes. The houses, are small, dirty and set in the midst of insanitary conditions.

The total population of the village is 2,022 comprising 1027 men and 995 women. The average size of the family is 5. The caste-wise structure shows that the Yadava community, scheduled caste and Muslims are in successive majorities (1501, 289+202). The social strata of the village is dominated by the Yadava community, recognised as a backward class.

In order to ascertain the education pattern among the backward classes, their employment and income position, the Planning Forum of the Government Arts College, Coimbatore, conducted a random socio-economic survey of these classes. Their findings show that despite many facilities accorded to these classes to send their children to schools, many of them are reluctant

to do so. Since the social set up of the village chiefly comprises labourers, whose per capita income is extremely low, this is not very strange. The parents are more inclined to allow their children to work rather than to study.

### A PLANNING FORUM SURVEY

However, the elementary school of the Panchayat Union, has almost full attendance. Still, more than 250 children in the school-going age are not attending school.

The total number of boys and girls attending Kuniyammuthur High School, which is only 1½ kms away from Edayarpalayam, is 115.

Higher education amongst these classes is almost non-existent. So much so that in spite of the facility of free education at the pre-university class level and the location of two Arts Colleges for men and 3 colleges for women, within a radius of 12 kms only 4 students attended the

pre-university class. Scholarship facilities and other fee concessions in the high school are also not being availed of, as most of the children stop their education even before they reach high school.

Since the high school is situated close by, the parents do not incur any expenditure on transport on the whole. The expenses incurred on each school-going child is also very nominal. But all this fails to tempt the cultivating tenants, farm workers and artisans, who are able to send their children to high school, to do so. They prefer their children to supplement their incomes by working as coolies.

Out of the 60 per cent of the people employed most are self-employed. But their earnings are very meagre. Most of them hardly earn more than Rs 500 per annum. The survey revealed that only 20 per cent had an annual income of more than Rs 1,000.

The backwardness of the village and its poverty can be measured by the fact that 85 per cent of the households were found to be ignorant of the Five Year Plans.

nationalised banks have also schemes for giving financial assistance to technically trained persons to start business on their own.

Under the transport sector, most of the schemes particularly under railways and roads are highly labour-intensive. The expansion programmes of the existing ports and the construction of satellite ports and various developments under inland water transport and shipping and improvement of international airports at Bombay, Calcutta, Delhi and Madras are likely to provide job opportunities for various categories of workers, particularly the technically trained persons and semi-skilled and unskilled labourers. The expansion programmes in the communications sector have also considerable potentialities for employment.

The extensive development of programmes for promoting tourism in the country is expected to provide a large number of employment openings in hotels, trans-

port and other tourist services.

#### Social Service Scheme

The expansion programmes in the field of general and technical education are expected to absorb a large number of trained teaching personnel, instructors, inspecting and other office staff. The tempo of construction activity in school and college buildings, laboratories, hotels and staff quarters will also boost up employment opportunities.

Similarly, the health and family planning programmes are expected to provide large employment avenues for medical and para-medical personnel and other categories of administrative personnel. Under housing, various programmes are envisaged including a revolving fund of Rs 200 crore which is expected to create large employment in construction activities.

## TRANSPORT & COMMUNICATIONS

# FASTER AND IMPROVED COMMUNICATIONS

#### Outlay : Rs 3,245 crore

THE total outlay on transport and communications in the public sector will be Rs 3,245 crore, including Rs 2,622 crore in the Central Sector, Rs 581 crore in the Plans of States and Union Territories, and Rs 42 crore on Centrally-sponsored schemes.

Programmewise, the pattern of allocation in the Third & Fourth Plan is as follows :

|                        | Rs in crores |             |
|------------------------|--------------|-------------|
|                        | Third Plan   | Fourth Plan |
| Railways               | 1,326        | 1,050       |
| Roads                  | 440          | 876         |
| Road transport         | 27           | 94          |
| Ports                  | 93           | 195         |
| Shipping               | 40           | 141         |
| Inland water transport | 4            | 13          |
| Lighthouses            | 4            | 7           |
| Farakka barrage        | *            | 70          |
| Civil air transport    | 49           | 203         |
| Tourism                | 5            | 36          |
| Communications         | 117          | 520         |
| Broadcasting           | 8            | 40          |
| Total                  | 2,113        | 3,245       |

\* Expenditure during the Third Plan was kept outside the Plan.

#### Rail Services

A 20 per cent increase in passenger vehicle kilometres for non-suburban services is foreseen during the Fourth

Plan as against an increase of about 17 per cent achieved in the Third Plan. Suburban traffic is expected to increase by 31 per cent. It is proposed to run high-speed trains on long distance routes, where overcrowding is comparatively heavy. A sum of Rs 50 crore has been earmarked for increasing mass transit facilities in the metropolitan cities of Bombay, Calcutta, Madras and Delhi.

An outlay of Rs 1,000 crore has been made for the railways' development programmes. In addition, a provision of Rs 50 crore has been made for metropolitan transport.

The programme for acquisition of rolling stock is based entirely on indigenous production. Dieselisation

**Mass Transit Facilities in Metropolitan Areas to be Improved**  
**Indigenous Production to meet Entire Requirements of Rolling Stocks**  
**Road Development to aim at linking up Metropolitan Cities, Industrial Areas, Mining Belts and Hilly & Backward Regions**  
**Nationalised Transport Services to be Strengthened**  
**Another Satellite Earth Station Medium Wave Transmission to cover 80 Per Cent of Population**  
**Five New TV Centres to come up**  
**Fillip to Inland Navigation**

is proposed to be extended from 19,200 route-kilometres to about 22,000 route-kilometres in 1973-74. Electric traction will be extended from 2,900 route-kilometres to about 4,600 route-kilometres in 1973-74. It is also proposed to electrify or dieselise fully the high density routes which are at present under mixed traction. A techno-economic study on dieselisation of railways is being undertaken, and the programmes for dieselisation will be reviewed in the light of its findings. As part of a long-term plan, 750 kilometres of the proposed 1,500 kilometres of metre gauge lines will be converted into broad gauge during the Fourth Plan period. Doubling of track is proposed to be provided on 1,800 kilometres.

#### Road Programmes

A provision of Rs 418 crore has been made for road development in the Central Sector. To bring about improvements in the existing network of national highways, it is proposed to complete all the missing road links—about 400 kilometres—and improve all the lowgrade sections. Of the 17 major missing bridges on the national highways system, 16 will be completed and work on the remaining one will be in progress by the end of the Plan. The programme provides for reconstruction of weak bridges and culverts and two-lane widening of important sections on 24,000 kilometres of national highways. Provision has been made for the completion of the Lateral Road from Bareilly in Uttar Pradesh to Amingaon in Assam. It is proposed to add a limited length of roads to the national highways.

For the road development programmes in States and Union territories, a provision of Rs 458 crore has been made.

The accent will be on meeting the requirements of metropolitan cities, industrial and mining areas and hilly and backward regions. It should be possible to increase the length of surfaced roads from about 3,25,000 kilometres at the end of 1968-69 to about 3,85,000 kilometres at the end of the Fourth Plan.

Special emphasis is being laid on the development of rural roads. State Governments have agreed to set apart about 25 per cent of the total outlay on road development in rural areas.

#### Road Transport

The total goods traffic by road transport is expected to increase to about 84 thousand million tonnes-kilometres in 1973-74. The passenger traffic is expected to increase from about 98 thousand million passenger-kilometres in 1968-69 to about 140 thousand million passenger-kilometres in 1973-74. To meet this, the number of trucks will have to rise to about 4,70,000, of buses to about 115,000 and of commercial vehicles to 85,000 by the end of the Plan period.

A provision of Rs 91 crore is proposed for augmenting nationalised transport services in the States. In addition, Rs 10 crore have been included in the Railways' Plan for contribution to the capital of State road transport undertakings. In the Central Plan, a provision of Rs 3 crore is proposed for the Central Road Transport Corporation which operates in the north-east region and

for financial assistance to the Central Road Transport Training and Research Institute, Poona.

The investment in road transport in the private sector is estimated at Rs 935 crore.

#### Communications

The Rs 520 crore allocation on Communications includes the following programmes during the Fourth Plan period.

|                                     | (Rs in crores) |
|-------------------------------------|----------------|
| Outlay                              |                |
| Telecommunications                  | 466.25         |
| Postal Services                     | 26.00          |
| Overseas Communications Services    | 12.04          |
| Wireless Planning and Co-ordination | 1.00           |
| Hindustan Teleprinters              | 1.75           |
| Indian Telephone Industries         | 12.96          |
| Total                               | 520.00         |

During the Plan period, 760,000 telephone connections will be added to the present figure of 1.1 million. Trunk telephone services will be extended to another 7,000 route-kilometres of co-axial system, 12,000 route-kilometres of the micro-wave system and 17,300 lines for trunk automatic exchanges.

The Plan provides for about 31,000 new post offices. Besides expanding ITI factory at Bangalore, a new factory for manufacture of long distance transmission equipment is proposed to be set up at Naini.

The Hindustan Teleprinters Ltd., will be able to manufacture 8,500 teleprinter units per annum by the end of the Plan as against 5,010 units in 1968-69.

To step up overseas communications facilities, another satellite earth station will be put up in Delhi, besides completing the one at Arvi near Poona. Efforts will be made to provide stable wideband telecommunication channels.

#### Broadcasting

The total cost of broadcasting programmes to be undertaken during the Plan period is estimated at Rs 45 crore with a spill-over of Rs 5 crore beyond 1973-74.

It is proposed to cover nearly 80 per cent of the population in all the States and Union Territories by medium-wave transmission. Under External Services, the Plan makes provision for the completion of the two superpower medium wave transmitters at Calcutta and Rajkot, and the establishment of two new 250 kw short wave transmitters at Aligarh.

Commercial broadcasting will be extended on a regional basis. In addition to strengthening the existing TV Centre in Delhi, five new TV centres, will be started in Bombay (with relay facilities at Poona), Calcutta, Madras, Kanpur/Lucknow and Srinagar.

#### Ports & Shipping

The Central Sector schemes for port expansion will cost about Rs 300 crore, of which ports are expec-

ted to contribute Rs 100 crore from their own resources. The Plan outlay therefore is Rs 180 crore with a spill-over of Rs 20 crore beyond 1973-74. The country's major ports are expected to handle a traffic of 77 million tonnes in 1973-74 as against 55 million tonnes in 1968-69.

Rs 130 crore have been provided for the acquisition of ships, increasing the tonnage to about 3.5 million G.R.T. at the end of the plan from 2.14 million G.R.T. at the end of 1968-69. For improving inland navigation, Rs 9 crore have been provided in the Central Plan. Farakka Barrage, which will improve navigability in the Calcutta port, is expected to be completed during the Plan period at a cost of Rs 156 crore, against which the expenditure incurred up to 1968-69 was about Rs 77 crore.

### 1800 ILLITERATES EVERY MINUTE

The population of illiterates in India swells by 1800 every minute, by 1.65 crore every year. The number of literates has doubled during the last 18 years. From 29.6 crore in 1951 the number of illiterates rose to 34.9 crore in 1969.

## SOCIAL SERVICES

# EDUCATION

## Educational Development to Correspond with Social Objectives

The development of social services in the Plan will cost Rs 1,818 crore and include programmes related to Education, Health and Family Planning, Regional Development, Housing and Water Supply as indicated below :

|              | (Rs in crores) |
|--------------|----------------|
| Education    | 822.66         |
| Health       | 435.03         |
| Water supply | 342.5          |
| Housing      | 216.00         |

**Priority for Girls' Education**  
**Focus on Rural Health Services**  
**Integrated Schemes for the Uplift of Weaker Sections**  
**Massive Support to Family and Child Welfare Programmes**  
**Birth Rate to be Reduced from 39 to 25 per Thousand**  
**28 million Couples to be Covered, 18 Million Births to be Prevented**

Priority will be given to the expansion of elementary education with emphasis on backward areas and communities and on girls' education. Increased efforts will be made to involve people in educational programmes and to mobilise public support. Youth services will be developed. Educational programmes will be increasingly related to social and economic objectives by co-ordinating them with development programmes in other sectors and by drawing up of a perspective plan on the basis of manpower needs, social demand and the likely availability of financial, material and human resources.

The enrolment target for elementary education has been fixed at 86.68 million or 69.8% by the end of the Fourth Plan. In case of girls the number will be 33.24 million or 55.1%.

To prepare students for employment after the secondary stage, a number of vocational courses are being provided after class X in industrial training institutes, polytechnics, schools for nursing and agricultural school.

### Girls' Education

Sustained efforts will be made during the Fourth Plan to extend education among girls, the gap between the enrolment of boys and girls being still considerable. Girls' enrolment is targeted to go up by 1973-74 to 27.33 million in classes I-V, to 5.91 million in classes VI-VIII and 2.69 million in classes IX-X.

The Fourth Plan's emphasis in case of higher education will be on strengthening of staff and library and

laboratory facilities. In order to develop inter-disciplinary research, clusters of advanced centres will be set up in related subjects. The Indian Council of Social Science Research has been established to promote research in social sciences.

Rs 822.66 crore have been provided for education in addition to an average annual non-Plan expenditure of Rs 550 crore. Of the total outlay, Rs 551.66 crore (67%) will be in the state sector, Rs 32.40 crore (4.0%) in the Centrally-sponsored sector, and Rs 238.60 crore (29.0%) in the Central sector. The total expenditure on general education will be Rs 697.28 crore (84.8%) and on technical education Rs 125.37 crore (15.2%).

### Public Health

During the Fourth Plan, efforts will be made to provide an effective base for health services in rural areas by strengthening the Primary Health Centres which will render preventive and curative health services and take over the maintenance phase of communicable diseases' control programmes for malaria and smallpox and become the focal points for a nationwide family planning programme. The Fourth Plan outlay on health is Rs 435.03 crore compared to Rs 140.11 in 1966-69 and Rs 225.86 in the Third Plan. The breakdown of the Fourth Plan outlay is as follows :

|                                                   | Rs in crores  |
|---------------------------------------------------|---------------|
| Medical Education and Research (including dental) | 85.29         |
| Training Programmes                               | 12.93         |
| Control of Communicable Diseases                  | 127.01        |
| Hospitals and Dispensaries                        | 89.29         |
| Primary Health Centres                            | 76.49         |
| Indigenous Systems of Medicine                    | 15.83         |
| Other Programmes                                  | 28.19         |
| <b>Total</b>                                      | <b>435.03</b> |

It is proposed to establish 508 primary health centres covering 340 blocks which do not yet have a centre so that there is at least one primary health centre in each block. The present strength of these centres is 4,919.

Programmes relating to indigenous systems of medicine, including establishment of a central medicinal plant garden at Poona and surveys of medicinal plants, which were started in the Third Plan, will continue.

### Regional Development

According to present projections, the urban population is expected to increase from 79 million in 1961 to nearly 152 million in 1981. The number of towns with a population of 50,000 and above is likely to increase from 250 in 1961 to 536 in 1981. In this context, the potentialities of developing existing small towns in the area need to be fully explored.

A provision of Rs 40 crore has been made in the West Bengal Plan for integrated urban development of the Calcutta Metropolitan Region by implementing water supply, sewerage and drainage, roads and traffic,

slum clearance, housing and urban development schemes.

The total allocation on housing and urban development is Rs 216.60 crore of which Central Sector scheme alone accounts for Rs 48.60 crore while the rest of Rs 168 crore have been earmarked for States and Union Territories.

The Fourth Plan outlay on water supply is Rs 405.7 crore. The bulk of the Rs 131 crore provision for rural water supply will be utilised in areas of acute scarcity.

### Uplift of Weaker Sections

The special schemes for raising the social, educational and economic standards of the backward classes, and social welfare services specially directed for the handicapped and the destitute, are intended to supplement the general programmes in other sectors of the national economy. The total outlay in the public sector for such schemes is Rs 183.76 crore.

In the first eighteen years of planning, about Rs 277 crore were spent on special programmes for the welfare of backward classes. Of this, Rs 100 crore were for members of the Scheduled Tribes, Rs 150 crore for Scheduled Castes and Rs 27 crore for other backward classes. On a programme-wise basis, Rs 117 crore were spent on schemes of educational development, Rs 91 crore on economic development, and Rs 69 crore on health, housing and other schemes.

The expenditure on some of the important programmes in the Fourth Plan is as follows :

|                                                                              | Rs in crores  |
|------------------------------------------------------------------------------|---------------|
| Centre                                                                       | 60.00         |
| Tribal development blocks                                                    | 32.50         |
| Post-Matric scholarships                                                     | 11.00         |
| Girls, hostels                                                               | 2.00          |
| Coaching and allied schemes                                                  | 1.00          |
| Research, training and special projects                                      | 1.50          |
| Co-operation (special schemes)                                               | 2.50          |
| Improvement in working and living conditions of those in unclean occupations | 3.00          |
| Denotified tribes and nomadic tribes                                         | 4.50          |
| Aid to voluntary organisations                                               | 2.00          |
| States                                                                       | 77.43         |
| Education, economic development, health, housing and other programmes        | 77.43         |
| Union Territories                                                            | 4.95          |
| Education, economic development, health, housing and other programmes        | 4.24          |
| <b>Total</b>                                                                 | <b>142.38</b> |

### Integration of Programmes

In the Fourth Plan it is proposed to lay emphasis on consolidation, improvement and expansion of the services so that the process initiated in the earlier Plans is accelerated.

Schemes of economic uplift such as land allotment, grant of subsidies for purchase of ploughs, bullocks and improved seeds for development of agricul-

ture and animal husbandry, schemes for soil conservation, land colonisation, minor irrigation, and organisation and development of co-operatives will be continued. Assistance will also be given for the promotion of cottage industries, including financial assistance for improving trade or business marketing facilities, technical guidance and setting up production and training centres.

For the welfare of nomadic and semi-nomadic groups assistance for settled living, by way of extending facilities for housing, agricultural land, agricultural credit, cattle breeding farms and co-operatives and setting up of cottage industries, will be continued.

For denotified communities, a combined correctional-cum-welfare approach started in the earlier plans will be continued. It will be supported by schemes of general education, social education, economic uplift and housing.

### Social Welfare

The total outlay on social welfare schemes is Rs 41.38 crore, as compared to Rs 13.40 crore in the Second Plan, Rs 19.40 crore in the Third and Rs 12.08 crore in 1966-69.

Family and child welfare projects in rural areas will form the nucleus of the social welfare programmes. Nutritional deficiency in pre-school children has been given priority and an outlay of Rs 8 crore has been made for the feeding of pre-school children.

Destitute children would receive higher priority. It is proposed to allocate Rs 1 crore specifically for assisting voluntary organisations for the welfare programmes for destitute women. The training centre for the adult deaf which offers facilities to boys of 16-25 years of age in engineering and non-engineering occupations will be expanded and a school for the partially deaf started. National Centre for the Blind in Dehra Dun will be expanded.

The model school for mentally retarded children in Delhi for boys and girls between 6 to 15 years in age will also be expanded.

### Nutrition

Special measures have also been proposed by the planners for nutritional food for pregnant women, infants and young children. The Plan outlays on nutrition programmes in various sectors are of the order of Rs 45.18 crore.

Some of the principal new nutrition programmes in the Fourth Plan are: feasibility tests of vitamin and mineral fortification of staple foods, pilot project for nutrition education through State Nutrition Bureaux, prophylaxis against nutritional anaemia in mothers and children, control of blindness in children caused by vitamin deficiency, composite programme for women and pre-school children, fortification of wheat products and salt, formulation of low cost diet through linear techniques, and maize, pulses and millets processing.

By the end of 1968-69 the mid-day meal programme in schools covered about 11 million school children. *Balwadis* under the Social Welfare Department benefit

about 200,000 children in the age group 3 to 6 years. Nutritional feeding of about 500,000 pre-school children of all ages up to 6 years is provided by the State health departments.

In the Fourth Plan all the relevant age groups at the centres selected will be sought to be covered. Production programmes in the Plan envisage stepping up of the availability of *Balihar* from its current level of 26, 500 tonnes per annum to approximately 50,000 tonnes per annum. The number of school children covered is expected to increase from 11 million to 14 million. One of the schemes pertaining to the welfare of pre-school children relates to the blindness caused in children by deficiency of vitamin A. This scheme will benefit about 8 million children of 5 years and less, in areas of high incidence of blindness.

A special programme to be executed by the Social Welfare Department for mid-day meals to cover one million children in tribal areas and another one million in slum areas of metropolitan cities annually, will be introduced during the Plan period. There are 489 tribal development blocks in the country. A similar scheme will cover ten lakh children in the age group 0-3, residing in the slum areas of metropolitan cities, who are in urgent need of supplementary nutrition for normal growth.

## FAMILY PLANNING

### Outlay : Rs 315 Crore

Family Planning is a programme of the highest priority. According to the Plan document the estimated population in 1968 (October 1) was 527 million. The increase in population from 365 million in 1951 to 445 million in 1961 and 527 million in 1968 has been the result of a sharp fall in mortality rate without any significant change in the fertility rate. The birth rate appears to have remained unchanged around 41 per thousand population during the greater part of the past two decades up to 1965-66.

Recent surveys carried out by the Registrar-General and the National Sample Survey Organisation appear to indicate that the birth rate has come down to 39 per thousand of population for the country as a whole, the rate being somewhat higher in rural areas. The population growth rate is estimated to be 2.5 per cent per annum.

In order to make economic development yield tangible benefits it is proposed to aim at a reduction in birth rate from 39 per thousand to 25 per thousand population within the next 10-12 years.

In the Third Plan a provision of Rs 27 crore was made. At the end of the Third Plan, there were 3,676 rural family welfare planning centres, 7,081 rural sub-centres and 1,381 urban family welfare planning centres.

The Plan document points out that family planning will remain a Centrally-sponsored programme for the next ten years and the entire expenditure will be met by the Central Government. An outlay of Rs 315 crore has been made in the Fourth Plan for family

planning programmes. Of this, about Rs 269 crore will be provided for services and supplies at rural and urban centres and compensation for sterilisation and IUCD. The remaining Rs 46 crore will be spent on training, research, motivation, organisation and evaluation.

Keeping in view the aim to reduce the birth rate to about 32 per thousand population by 1973-74 from the present 39, the use of conventional contraceptives will be stepped up to cover 3.24 million persons in 1969-70 and 10 million persons by 1973-74. As a result of these measures, 28 million couples are likely to be protected by 1973-74. The births expected to be prevented will aggregate to 18 million for the Plan period.

Surgical equipment will be provided in all rural and urban family welfare planning centres (nearly 7,000 in number) for vasectomy operations. The efforts of

these centres will be supplemented by more than 1,000 mobile service units attached to district family planning bureaux.

In addition to the present system of free distribution, a massive programme of distribution of condoms (Nirodh) through 600,000 commercial retail outlets will be developed and sold to consumers at 15 paise for a packet of three condoms. It is estimated that 1,200 million pieces will be indigenously manufactured.

Arrangements will also be made for training 10,000 medical and 150,000 para-medical personnel. In the research programmes, emphasis will be laid on the bio-medical aspect. New centres for reproductive biology and human reproduction will be established and orientation-cum-training courses in these subjects for teachers of medical colleges will be arranged.

### REPORT FROM YOJANA BHAVAN

## A Study of Community Development

IN the post-stage II blocks of the Community Development Programme, adequate attention was paid to the enlargement of the production base in the agricultural sector. The block staff, including block development officers, assistant extension officers and village level workers had spent their time in modernising agricultural production. In the initial stages, the block programmes leaned heavily towards constructional activities.

These are the findings of the Programme Evaluation Organisation (P.E.O.) of the Planning Commission which recently evaluated the post-stage II blocks of the Community Development Programme.

The study was conducted in 39 selected blocks, 286 sample villages and 12,056 households in the States of Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Jammu and Kashmir, Kerala, Tamilnadu Madhya Pradesh, Maharashtra, Mysore, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

P.E.O. has found that the village level worker was, on the whole, competent to guide and advise on improved varieties, and the level of use of improved seeds was high for irrigated paddy, irrigated wheat, sugarcane and cotton. The percentage of area irrigated by tubewells, wells and tanks showed considerable increase in the post-stage II period,

compared to the initiation of the blocks. A large proportion of cultivators were found to use nitrogenous fertilisers, improved seeds and plant protection measures.

There was considerable scope of increasing facilities for training of cultivators, as only five per cent of sample cultivators reported to have had such training.

The quality of demonstration on farmers' fields required improvement. The adoption of improved practices and plant protection measures would have to be stepped up. Financial assistance for investment in irrigation and land improvement was observed to be meagre and what little assistance was given went to larger cultivators. There was, therefore, need to step up the level of medium-term finance in agriculture and disbursement among small and medium cultivators.

Development of institutional framework, like panchayats and co-operatives, was found to be encouraging. Co-operatives played an increasing role in enabling timely supplies of seeds and fertilisers, constructing godowns and for purchasing improved tools and raw materials by rural artisans and craftsmen.

There was a large number of tax defaulters in some of the blocks, the main reasons being the inability of assesseees to pay and the lack of efforts in tax realisation.

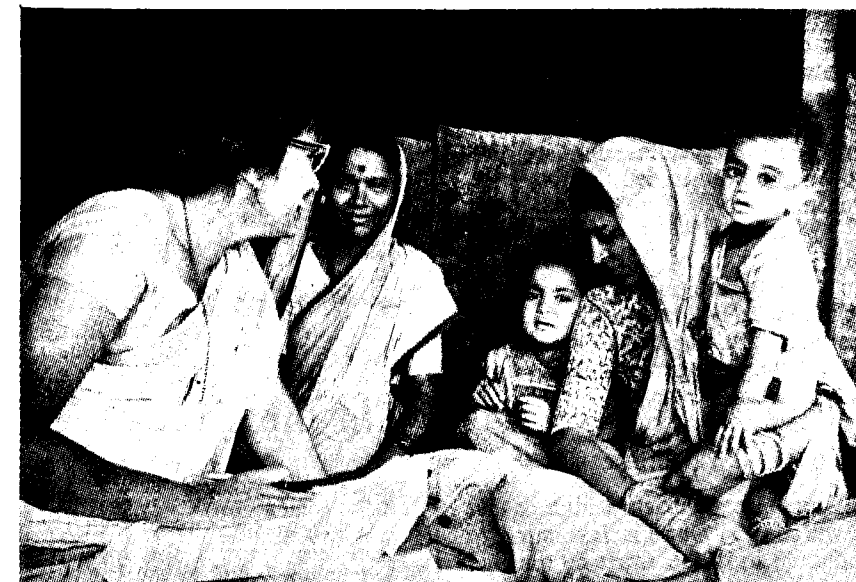
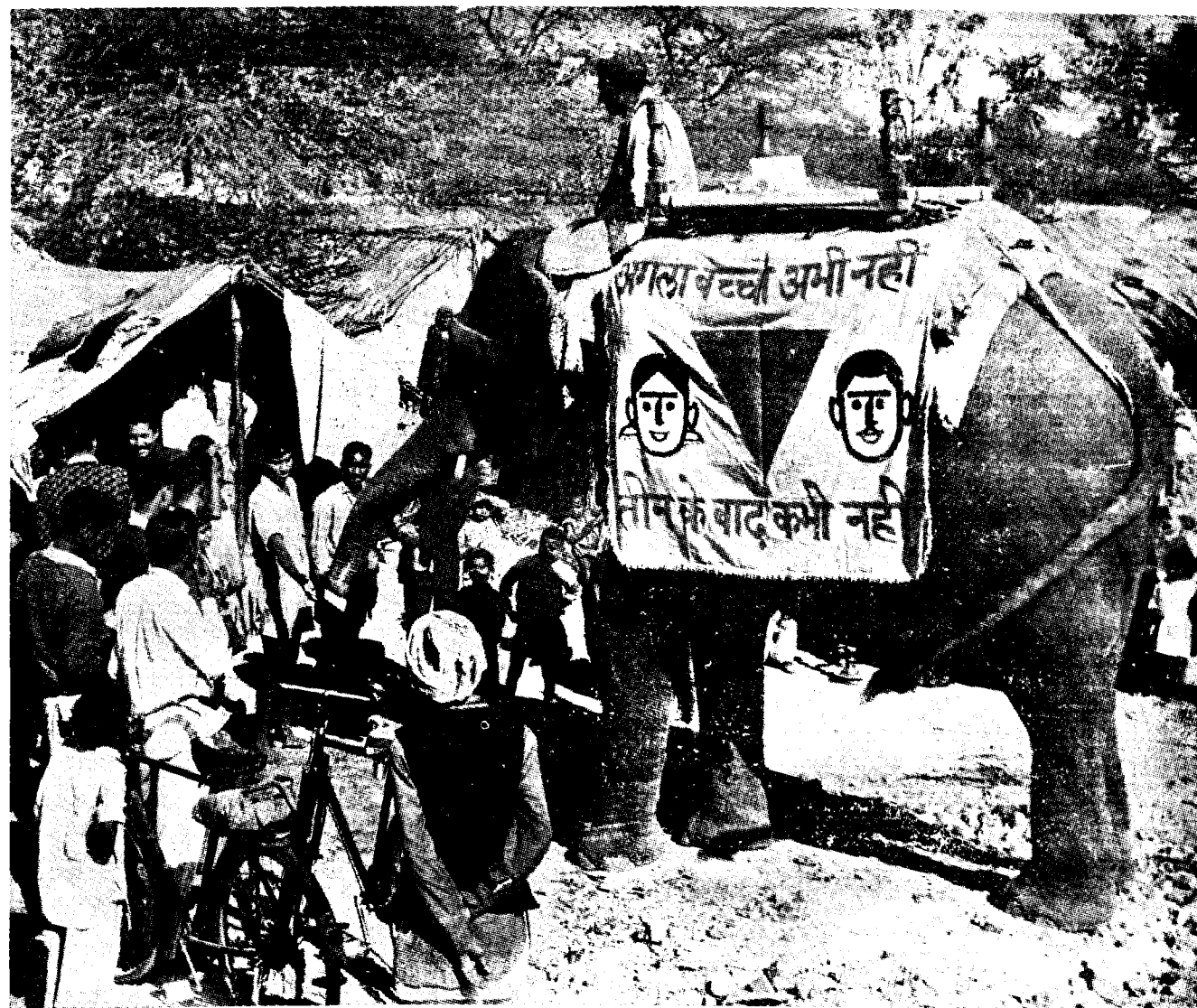
In spite of this, the panchayats mobilised local resources and secured public participation in the execution of community work and upliftment of special groups like women, scheduled castes and scheduled tribes. Generally speaking, the block staff worked with tact and understanding, although at places, they were drawn into local politics, which adversely affected development programmes.

Problems of post-stage II blocks were numerous, such as inadequacy of block funds for development activities, lack of flexibility for conditional block grants, and absence of simplified procedures for giving loans and grants impartially.

By fixing a ten-year period of intensive development followed by normalisation of post-stage II period the policy-makers visualised that the block would reach a fairly high level of development. The expectation that the State departments would route their funds through the blocks did not materialise in most areas.

In terms of trained men, facilities and equipment, the pre-extension stage envisaged for each block could not be adequately ensured. In many cases, the "intensive phase" of a block had to be extended beyond a period of ten years.

In conclusion, coverage of the country with community development blocks was *fait accompli*; but a slower rate of spread might have substantially added to the record of achievements.



A mother of two seeks the help of a medical worker. Picture at left shows an elephant being used to propagate the idea of family planning.

## FAMILY PLANNING IS PLANNING FOR FAMILY HEALTH

### Maternal and Child Health in Urban Areas

A Yojana Staff Report  
by  
HAMEEDUDDIN  
MAHMOOD

INDIA'S urban population—79 million in 1961—is expected to rise to 152 million in 1981. During the same period, the number of towns with 50,000 or more of population will have gone up from 280 to 536. The employment opportunities created by economic development and growing urbanisation tend to accelerate rural exodus to towns, affecting not only their topography but also their ecology: population swells, race for the living space increases in the same proportion as the

standards of living fall, newer slums mushroom and the older ones decay further. Added to this is the fact that these immigrants from rural areas do not get adjusted to the urban ways of living. Thereby, the rural phenomenon persists: low health and hygiene standards, high rate of birth and malnutrition. All these pose new problems to community wealth, of which maternal and child health is the most paramount.

To identify the problems of

maternal and child health in urban areas and to work out solutions for them, the South-East Asia Regional Office of the World Health Organisation held a 4-day meeting of experts and authorities from June 1 to 4 in New Delhi. Representatives from four State Governments—Gujarat, Maharashtra, Mysore and Tamilnadu—Union Government and WHO, took part in the discussions which centred on the objectives and fundamental requirements of the twin programme of maternal and child health and family planning. The existing pattern of these programmes and institutions in urban areas, their organisation, management and potential resources were also reviewed in extenso. Another aspect under consideration was the people's attitudes to such programmes.

#### New Dimension

The integration of maternal and child health and family planning services has given a new dimension to the population control measures. These do not any more mean only prevention of unwanted births or spacing of pregnancies. According to the redefined objectives, family planning means planning for family health. This subtle shift in emphasis has made all the difference to the acceptability of family planning as a way of life. Now, the entire family

has been involved in the programme. A healthy mother is as important to the household, and thereby to the community, as is a healthy child to its parents. The incorporation of family planning services into the general health services has also strengthened the base of urban medical and health services for which Rs 269 crore have been allocated in the Fourth Plan. Another Rs 46 crore have been

earmarked for training, research, motivation, organisation and evaluation of family planning programmes. In addition, a sum of Rs 27.43 crore has been allocated for family and child welfare projects. (For details of allocations for maternal and child care, nutrition and family planning please turn to pages 30 and 31.)

The WHO-sponsored meeting strongly underlined the fact that both maternal and child health and family planning were directly concerned with the health of the individual mother and the infant and with the physical and social health of the family. It was recognised that I.U.D. and hormonal contraception, being modern methods, entailed health supervision and management of side effects and complications. At a press Conference earlier, a WHO spokesman said that research is being carried out to improve the "Loop" and to devise effective follow-up measures for those who accept it.

#### Nutritional Counselling

Another suggestion was to relate family planning advice to nutritional counselling, as maintenance of lactation, adequate child spacing and adequate family resources for nutrition are all within the scope of family planning.

'Nirodh', the indigenously manufactured contraceptive, has gained popularity.



Noting that the mortality and morbidity in India were higher among 2-3 yearolds, the meeting drew attention to the needs of pre-school children. During the Fourth Plan five lakh pre-school children are to be covered by the nutritional feeding programmes. The non-schoolgoing children, whose number would be more in slum areas, also deserved attention in respect of nutritional feeding and in fighting vitamin deficiency.

It was also suggested that genetic counselling should be included in the family planning advice, though, it should not be equated with advising people against having children. It is better to educate mothers on the inherent risks, than blatantly to plead with them to bear fewer offsprings. That maternal mortality risk is more after the third pregnancy and increases significantly beyond the fifth is a piece of information that will work. There are other facts too. The risk of infection is higher in case of children born in large families. Late foetal and neonatal deaths have been found to be the lowest when the interval between two pregnancies is between 2-3 years. Early weaning has been found to follow a short pregnancy interval. The ensuing malnutrition, it was pointed out, reaches its peak in the second year and has been mostly

responsible for high degree of infection in this period. Also, the risk of maternal death is more when mother's age is below 20 or above 30-35 years. The appearance of a number of congenital diseases in children has been traced to advanced maternal age.

In the light of all these facts, genetic counselling has a very important educational role to play in the effective implementation of the family planning programmes, especially in urban areas.

#### Awareness

There already exists a high degree of awareness. Quite a few surveys conducted in urban areas by various national and local agencies have revealed that the average size of the family desired by a vast majority of couples was 3. But the response to accepting the method of family planning has not been as great. Herein lie the challenges to educational and motivational work. If the Fourth Plan target of preventing 18 million births is to be achieved, it is necessary that maternal and child care as an adjunct to family planning is intensified in urban areas where population multiplies in geometric progression thereby adding to the misery of our towns and cities.

### A MODEL VILLAGE

A model village scheme has been drawn up by the Mikir Hills District Council in order to bring closer the scattered Karbi population of the district. The scheme will be implemented at Chutinala, about six kilometers away to the north-east of Diphu. The idea behind this scheme is to render the execution of development programmes easier.

An area of 405 hectares at Chutinala is being cleared up and trees which do not bear fruits are being cut down. The river Diphu is flowing through this area.

It may be mentioned that Mikir

people who are in unauthorised occupation in Matipong forest reserve of the District Council, are to be shifted to this model village. Thus the scheme may be described as an alternative rehabilitation plan for the people of Matipong. Every family will be given 20 bighas of land and a pucca bund will be constructed on the river Diphu to provide permanent irrigation facilities.

It is proposed to raise wheat and other crops on the reclaimed land. A sum of Rs 1.54 lakh has been sanctioned by the State Government for implementing this model village scheme.



### World Health In the Sixties

The world's population increased by 404.7 million between 1960 and 1968 : about 50 million additional people each year in the Member States of the World Health Organisation. The increase in child population was 141 million, 90 per cent of it in developing countries. The number of persons over 65 years increased by 32.3 million in the same period, slightly more than half of them in WHO'S European Region.

This information is revealed in the Fourth Report of the WHO on the World Health Situation. In most of the developing countries according to the Report, the increase in the health services did not correspond to increase in population.

#### Beds

There were 9,961,000 hospital beds in the world in 1960, or one bed for 230 persons. In 1967, there were 11,788,000 beds, or one bed for 220 persons.

Countries with a large proportion of children had higher incidence of gastro-intestinal disorders, intestinal protozoa and helminths, infectious hepatitis, measles, respiratory infections and malaria. Mortality and morbidity in the one-to-four year age group were also high. These conditions were often associated with nutritional deficiency diseases, particularly protein-calorie malnutrition. Malnutrition was not due to a lack of food but to the lack of knowledge about balanced and adequate diets.

In developed countries, chronic degenerative diseases were becoming more and more serious. In Europe, where there were two million extra persons per year in the 65-year-and-over age group, chronic and degenerative diseases and the care of an increasing number of older people in the community presented difficulties, even with the wealth of resources available.

### DICKENS DEATH CENTENARY

THE English-speaking world this year is commemorating the death centenary of Charles Dickens, who died in Kent on June 9, 1870. Hundreds of thousands of educated men and women in this country have had and still have the privilege of reading Dickens in original in their school text-books. They love his characters, tender as they are, and share their agony. Even the films

suffering and especially for troubles which poverty brought to the young and innocent like Little Nell, Oliver Twist, David Copperfield and Little Dorrit.

He was not a reformer devoted to a particular social or political plan. He wanted people to love each other more and he constantly preached the need for a change of heart.

Like many of his contemporaries, he was critical of his own Age and he attacked by satire and vivid description abuses like the workhouse system (*Oliver Twist*), the muddle and delay of the law (*Bleak House*) and the callous organisation of industry (*Hard Times*).

Dickens is a master of the significant image—the sea in *David Copperfield*, fog in *Bleak House*, the river in *Our Mutual Friend*.

He makes the natural and the artificial intersect—Panks in *Little Dorrit* is like a steam-tug, Twemlow in *Our Mutual Friend* like a table to be opened or closed as required. Dickens is at his best when describing childhood experiences.

When an image pleases him he develops it elaborately. Accept his

based on Dickens novels have been hot favourites. The human suffering in 19th century England with its work houses and slums provided a poignant setting and infused Dickens' works with a rare warmth of feeling. *Yojana* pays its tribute to this great humanist by reproducing below excerpts from Raymond Chapman's article on the "Creator of Memorable Characters." Says Chapman.

No other English novelist, no English writer except Shakespeare, has left so many characters in whom we can believe as did Charles Dickens. They grow into knowledge as acquaintances grow in life, by observable traits made familiar through repetition.

In an age concerned with reform in many aspects of society, Dickens brought to his art compassion for



### IGNORAMAN

Wants to Know

What

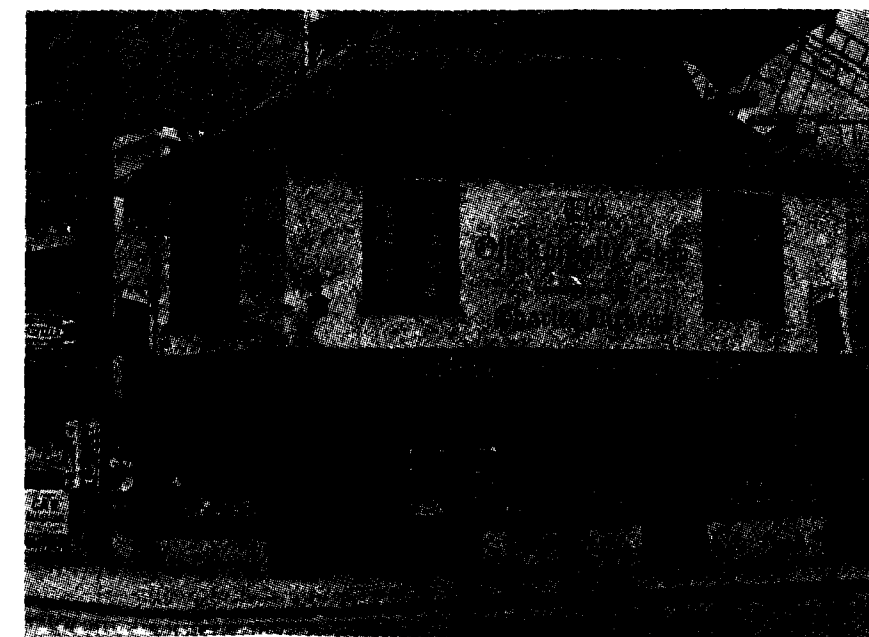
is the scale

of disguised unemployment

in Government Offices

method, enter into his enthusiasm and let his words succeed by incantatory rather than purely semantic effect.

Generally, he writes vigorous, straightforward English which is a joy to read. He may not be the greatest of English novelists, but his special talents are unrivalled. There is no other English novelist who so unfailingly gives delight.





Wheat crop on a trial farm in the Aduthurai Research Station

## WHEAT FROM RICE LAND

Work of Aduthurai  
Research Station

S. V. RAGHAVAN

Our Madras Correspondent

ABOUT 50 kms from Thanjavur in Madras State lies Aduthurai, a centre of research in various aspects of agriculture and banana. It is a small village with a population of 8,587 (1961 Census). The village derives its importance in the present-day economy from its valuable contribution in the field of rice research, soil sampling, banana research and a rural training institute.

The agricultural research station was started in 1922 and acquired the status of a regional research station in 1962. It is mainly inten-

ded to serve the Kaveri delta tract where paddy is the principal crop. The total area attached to the station is 97 acres.

Research work at the station is organised under five units, namely breeding, agronomy, soil science, entomology, and mycology. The main objectives of research conducted under these units are the development of improved varieties of paddy, pulses, and cotton by selection, hybridisation and introduction; formulation of improved agronomic practices; studies on plant nutrition and changes in soil properties due

to continuous cropping; studies on the life history of pests, seasonal incidence of pests, their mode of attack and effective measures to control them; and studies on diseases and varietal resistance to diseases, and their seasonal incidence.

The research station has so far evolved 28 strains of paddy. The strain, ADT-27, released in 1965 has brought about a revolution in paddy cultivation in the State. Further studies on the improvement of ADT-27 are in progress; exotic varieties like IR-8 and IR-5 are being studied for extensive appli-

cation in Thanjavur district.

In exploring new avenues, the Aduthurai station has recently embarked on a bold venture of raising wheat in what has all these years been a rice land. Indeed, its current venture is dictated as much by a spirit of enterprise as by a sense of economics. On the one hand, an answer is sought to the question, why not grow exotic foodgrains and make them native to the soil in Thanjavur delta, and on the other hand, to provide the farm labour, which practically has to remain idle during non-cultivation months, employment and a means of earning and augmenting whatever savings it may have. Already green gram, black gram, groundnut, maize and cotton are some of the items tried, with a measure of success, during the bleak season. The addition of wheat is yet another bold experiment, which the Aduthurai researchers feel confident, will produce tangible results. This is, however, not to say that there is going to be tomorrow a total transformation or revolution in the agricultural pattern of this region.

The wheat experiment has just now begun. On the raised lands around the trial farms of the Aduthurai station, two popular varieties of wheat strain, *kalyan sona* and *sherbat sonora*, widely used in the Punjab and Haryana, have been sown recently. The duration of the crop is about 85 to 90 days, and the first returns show a possible yield of about 1,000 kgs per acre. It has also been assessed that there is an area of 5,000 acres of raised land in Tamil Nadu ideally suited for wheat cultivation.

It is proposed to raise wheat seed from local areas in November-December 1970 and use this seed to raise a wheat crop during the months of November-December 1971.

A new method of raising nursery called 'dapog' and a new technique in planting, double row planting, are among the station's recent achievements in the field of agronomy. Application of fertilisers based on soil test recommendations has been studied in detail and the efficacy of soil test manurial schedule has been demonstrated.

In the direction of pest control and rat eradication, the research

station has found out the effectiveness of a whole range of pesticides like parathion and endrin diazinon, and digging burrows to catch them, poison baiting and bow trapping for the rats.

A team of dedicated young men are actively engaged in research, study and practical experiment and demonstration not only to test their findings in the laboratory but to show the still conservative farmer that science can be welcomed as a reliable handmaid to prosperous agriculture.

## EMPLOYMENT

## POSITION

## IN ASSAM

D. N. CHAKRAVARTI

Our Shillong Correspondent

THE total employment position in Assam recorded a nominal increase of 0.1 per cent, that is from 7.36 lakhs at the end of the quarter in June 1969 it went up to 7.37 lakhs at the close of the next quarter. Employment in the public sector recorded a decline of 1.7 per cent, bringing down the figure from 2.60 lakhs to 2.56 lakhs in these two quarters. In the private sector, on the other hand, employment increased from 4.76 lakhs to 4.81 lakhs during the same period, showing that 5,000 new jobs were created in this sector.

The overall employment situation in the private sector improved due to seasonal plucking and manufacturing of tea, expansion in educational services, and increased activities in constructional work. Manufacturers of matches and cotton spinning and weaving also contributed to some extent to this increase.

An industry-wise analysis shows that employment slightly increased in electricity, trade and commerce, plantation and forestry and, to a very little extent, in mining and quarrying. The highest decline was recorded in transport and communication.

Employment decreased substantially in Goalpara and Garo Hills while it increased slightly in Mikir Hills and North Cachar Hills and Sibsagar districts. The position remained more or less static in other districts.

The decline in public sector employment was partially offset by a rise of 3.3 per cent in Central Government jobs excluding the Railways and 1.1 per cent in quasi-Government establishments.

The total number of job seekers in the Live Registers of the Employment Exchanges in Assam was 67,380 at the end of June 1969, as against 63,580 at the close of the previous half-year period ended December 1968, registering an increase of about six per cent. Of this, an increase of 3.3 per cent was recorded in the number of educated job-seekers including matriculates and above. An interesting feature of the employment situation in the State is the increase in the number of women workers. At the end of September 1969 the total number of women employees was 227,110 as against 223,720 at the end of June the same year, recording an increase of 1.5 per cent.

## KERALA LEADS IN RURAL ELECTRIFICATION

Kerala leads other States in rural electrification with 73.6 per cent of its villages enjoying electric supply. Tamil Nadu, which had 9,181 villages electrified comes next, with 65.2 per cent of their villages electrified. The percentage figures (as on 31 December 1969) of the other States are: Andhra Pradesh 22.5, Bihar 9.3, Gujarat 16.9, Haryana 36.4, Jammu and Kashmir 11.5, Madhya Pradesh 4.3, Maharashtra 27.2, Mysore 23.8, Nagaland 3.9, Punjab 38.6, Rajasthan 6.5, Uttar Pradesh 12.2, and West Bengal 6.6.

## IRON ORE TO JAPAN

The country is now set to reach a level of 30 million tonnes of exports of iron ore in future from over 21 million tonnes estimated for the current financial year.

In the financial year just ended, foreign exchange earnings from the export of iron ore had crossed the Rs 100 crore mark for the first time. In terms of quantity, it was 17.6 million tonnes.

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## BOOKS

### HISTORY SEEN THROUGH COINS

*Coins by Parmeshwari Lal Gupta. Published by National Book Trust, New Delhi. Pages 241. Rs 6.75*

B. N. Kumar

COINS not only jingle and circulate as exchange but they tell and often recreate history. In this book (with 34 illustrations) the author has succeeded in presenting the entire history of the Indian coins from their birth nearly 2,700 years ago to the present times.

The book becomes all the more commendable when one realises that hardly any literature on coins existed and that the territorial limits of the subject extend from the Himalayas to Kanya Kumari and from the Arabian Sea to Burma. And to chronicle and give details of the coins issued by the innumerable little kingdoms that existed in various parts of this vast country from time to time must indeed have been a colossal task.

It was in India, 2,700 years ago that coins were first introduced for trade and commerce. Libya and China followed.

The coins started as units of value but soon acquired a glow of regal splendour. They tell us of the religious persuasions of kings and rulers and throw light on the growth of various pantheons and iconographic forms. In addition, they have an aesthetic and artistic value. They reflect the workmanship of the artists of their times and also project the aesthetic tastes of the people. Their contribution to the knowledge of history is invaluable.

But for the discovery of coins in gold, silver and copper issued by 30 Bactrian kings and queens who ruled over Punjab and Gandhara, their memory would have faded into nothingness. Again it is from the figures of Rama and Sita on his coins that we know of Akbar's inclinations towards the Bhakti cult of Vaishnavism.

The Indian coin treasure is rich

and varied. Coins have been issued in gold, silver, copper, nickel and lead. The earliest coins were punch-marked and were mostly issued in copper in all conceivable linear geometrical forms. Later these coins were replaced by cast coins and coins struck from dyes.

The first gold coins were, however, issued during the invasion of Alexander. Later invaders definitely improved upon these coins. These coins have a remarkable artistic appearance. It was during the reign of Muslim dynasties that we had the name of the mint and the mintmaster inscribed on the coins. The coins issued by Mughal emperors also carry the year of issue. During the settlement of European communities in India gold coins were regularly issued by the Dutch, the Portuguese, the Danes, the English and the French. It was after Independence that India issued metric coins.

Some very interesting facts emerge from a study of the ancient coins. It was on the coins of Kanishka that representation of Buddha in human form first appeared. Other gods and goddesses that appeared regularly on the pre-Christian era coins were Uma, Vaishanka and Sikanda. Gupta coins carry portraits of Indian goddesses like Lakshmi, Durga and Ganga.

The coins of earlier invaders carried realistic portraits of gods and goddesses and the symbol of Tripod of Apollo. Effigies of Greek gods and goddesses like Zeus, Artemis, Hercules, Apollo, Nike and others were a regular feature. The inscriptions were always bilingual, in Greek and Prakrit or Khroshti.

A most interesting coin issued by a city-state was that of "Pushkalavati", modern Peshawar. It reveals that its administration was vested in a goddess. It was, however, not uncommon to issue coins in the name of the presiding deity.

## GLORIOUS LEGACY

*5900 Years of Indian Architecture. Published by the Publications Division, Patiala House, New Delhi. Pages 56. Rs 4.*

Krishna Chaitanya

THE epoch when architecture was the sole concern of archaeologists is, mercifully, past. With urbanisation gaining tempo, middle-income groups are vitally involved in the construction of houses and many of them are sensitive to the distinction, in terms of the graces rather than just the amenities, of living between a house and a home. A mental climate, therefore, is already available, for generating some interest in the tradition of our architecture. This tradition is five millennia old and it has evolved an astonishing variety of structural and aesthetic forms.

Brief though the compass of the book is, the narration is engaging. It cannot help being rapid, but we get vivid glimpses of the civic architecture of the Indus Valley civilisation with its astonishingly modern emphasis on sanitation and drainage, the palatial buildings of the Asokan period which were probably modelled on Achaemenid prototypes. The achievement of the Rashtrakutas is unique in the world's annals for they carved out seemingly structural temples out of living rock. To this heritage the advent of the Moghuls added fine modulations. Masculinity dominates the tomb of Ghiasuddin Tughlak; it is tempered and graciously refined in the Humayun Tomb; the Taj develops a wholly feminine delicacy and grace.

As a low-priced popular introduction, this publication is extremely successful. But along with this type we need books of ambitious production quality. Photographers of world renown like Martin Hartman and Roloff Beny have produced illustrated volumes of great beauty on Indian architecture. But these publications are too expensive for the ordinary man. A public sector venture like the Publications Division

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sion should think in terms of books of the same quality but at subsidised prices. This will not be a commercially satisfactory proposition, but the investment is bound to yield substantial returns in making the Indian people aware of their common legacy, and thereby help in cultural integration.

## BROTHERHOOD OF MAN

*Hymns of Guru Nanak : Translated by Khushwant Singh : Published by Orient Longmans. Pages 192. Rs 7.50.*

S. Prasad

AS the author of a number of books on the Sikhs and their religion, Khushwant Singh is on familiar ground. Before launching on the translation, he makes it clear that the responsibility for the translation is entirely his, as he does not believe in team work for this purpose. The interpretation is also his. But critical readers are reminded that there are two other English translations of the Guru's hymns available which can be referred to.

One gets a glimpse of the life of Guru Nanak, brought out in lucid prose in the first four chapters. The hymns, which appropriately begin with the Japji, the morning prayer, follow.

The date of the Guru's birth is still in dispute. But, by all accounts, his mother had a prodigy in hand. One of the *Janam Sakhis* about him recalls that he was quick to absorb all that he learnt. Another of these life stories tells us how even as a child he talked to both Hindus and Muslims about their religions.

This then was the boy, who grew up to say that there was no Hindu or Muslim, for all were equal in the eyes of God, the Great Father. He carried the standard of the Brotherhood of Man, wherever he went.

The universality of the Guru's teachings creates an immediate impact. Listen to this excellent rendering by Khushwant Singh :

Before time itself

There was Truth

When time began to run its course

He became the Truth

Here is another :

How then shall the Truth be known ?

How the veil of false illusion torn ?

O Nanak, thus runneth the writ divine,

Abide by His will, and make it thine.

There is both the richness of thoughts and the tinkle of words in the translation. At the end, one is left with a grateful feeling about the Great Master who had the humility to say :

I stumble in the desert wastes  
From deserts I clamber up the hills;

I rose myself in the forests.  
Without the guru to guide me  
I shall not find my way.

Anecdotes grew around Guru Nanak, as they do around every great man. They show that the Guru's rationale was laced with cynicism. He was averse to dogmas and blind faith. The best, perhaps, about him is his retort that his feet should be moved in a direction where God does not exist, when some Muslims objected to his pointing his feet towards Mecca, while he was sleeping in a mosque.

## PHYSICIAN FOR THE SOCIETY

*The Physician and the Society by Jacob Chandy. Published by the Publications Division, Ministry of Information & Broadcasting, New Delhi. Pages 46. Rs 1.25.*

THIS booklet is a compilation of three lectures delivered by Dr Jacob Chandy in the Patel Memorial Lecture series in December 1967. In these lectures, Dr Chandy has comprehensively and compactly dealt with the various problems facing the medical profession particularly in its relation to the Indian society today.

The first lecture traces the history of medical science and the introduction of western medicine in India early in the past

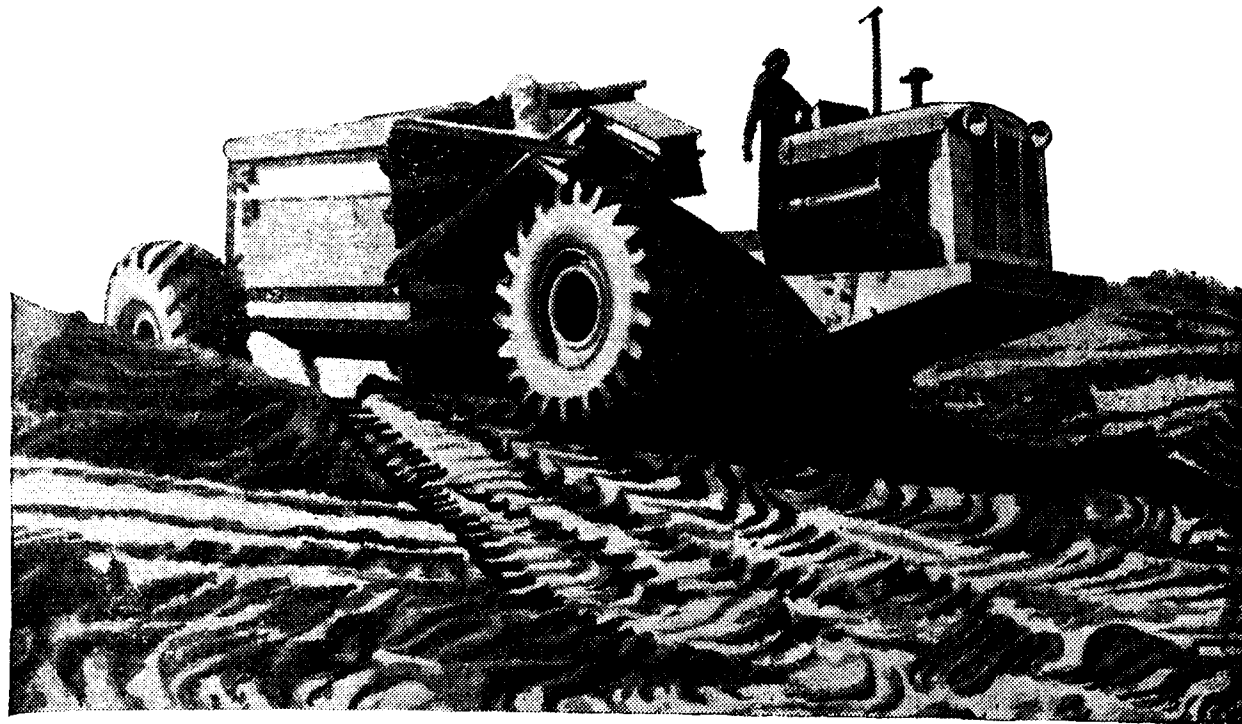
century. The second lecture deals with medical practice as a social service and points out the change of attitude brought in the doctor-patient relationship by the specialisation and sophistication of health services. The third lecture dwells upon medical research and enumerates a number of social and scientific problems which medical science has to tackle in the course of its development.

In discoursing on the medical facilities in the country, Dr Chandy has not given much thought to the indigenous systems; he seems to think that they are not quite scientific. For instance, in referring to the indigenous systems in developing countries he says that for them "tradition, empiricism and observation are the basis of treatment". Dr Chandy perhaps has not remembered that the modern allopathic system has only recently adopted many Ayurvedic specifics for blood pressure, diabetes and so on. However, he has made some observations on the present state of medicine in India which deserve serious consideration by the Government and others concerned with medical profession. To mention only a few, he says that medical education in the country today has become mediocre. The advances in the treatment of diseases have not kept pace with those in correct scientific diagnosis, and the physician's 'power to cure is much less than his ability to understand the disease process.' Medical care has increased not only the healthy population but also the number of children with mental and physical defects, creating more socio-economic problems. And he says "No less awesome are the potential dangers of intervening genetically in man's being." But, finally, like a good doctor, he assures us, "The physician is for the society and not society for the physician."

M. K. P.

*To Know India*  
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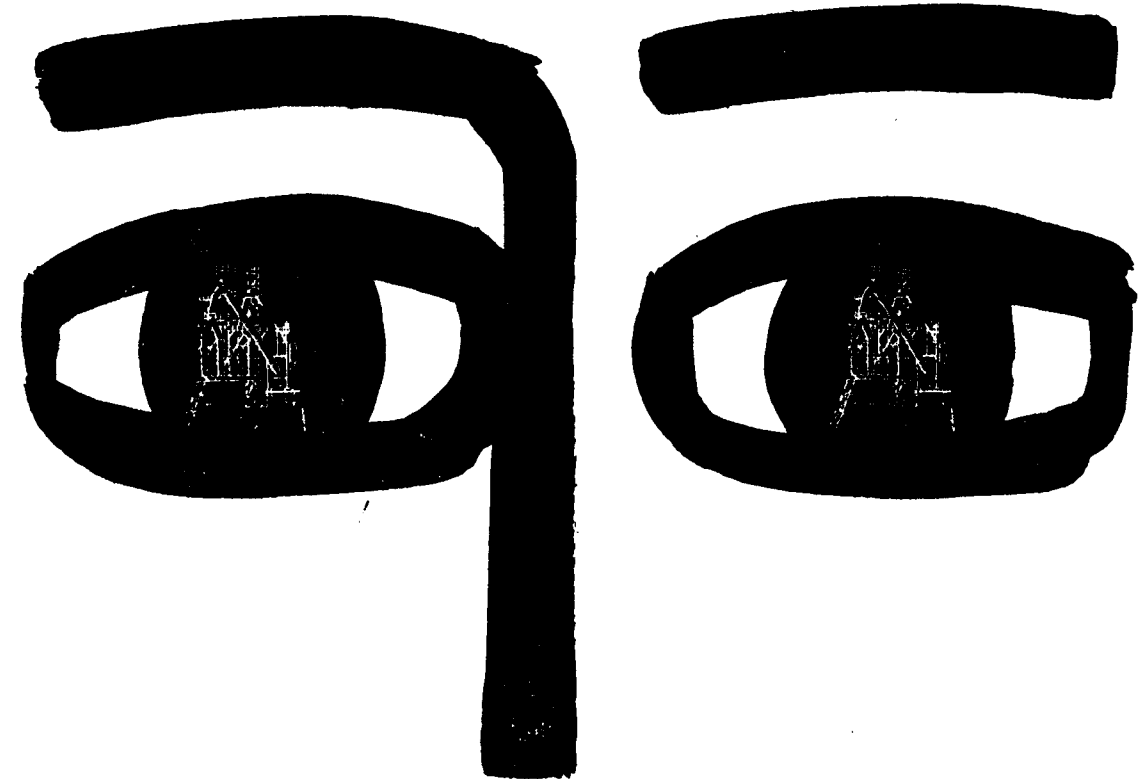
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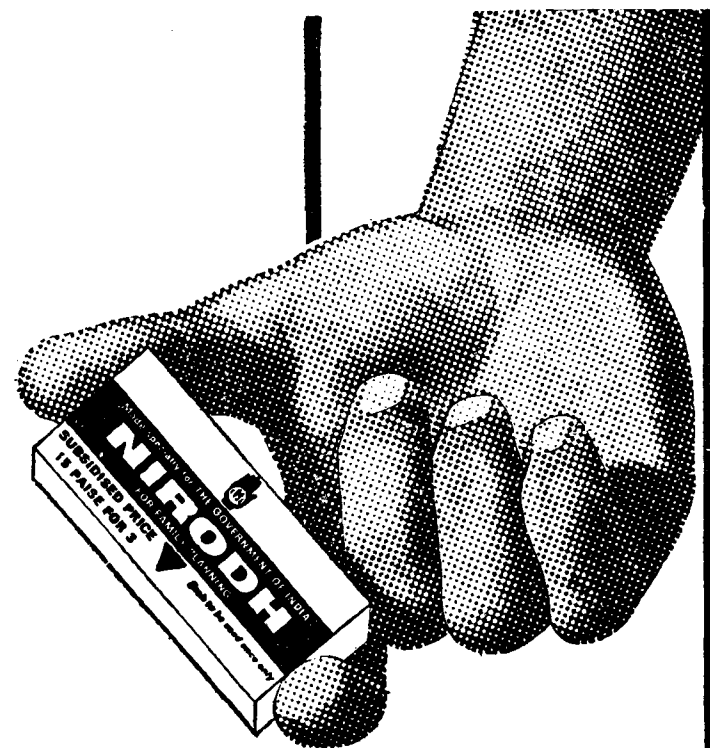
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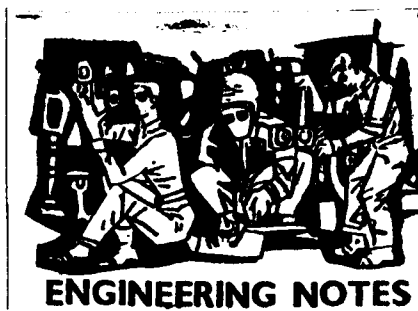
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#### AN INDIVIDUAL'S WORK AIDS IMPORT SUBSTITUTION

A few years back India used to import a large amount of low sulphur fuel oil from Indonesia for use as fuel in steel melting furnaces. But thanks to the work done by Mr K. K. Roy Choudhuri, now of the Indian Oil Corporation Ltd., Calcutta, the import of that oil has been stopped. In its place is now being used the indigenously available, and hitherto unmarketable, low-sulphur heavy stock (LSHS) obtainable from Indian refineries.

Mr Choudhuri, working then at the Tata Iron and Steel Company, carried out various tests on a sample of LSHS obtained from the Barauni Refinery. A residual waste product, LSHS has a pour point of 50°C, sulphur content of 0.5 per cent and calorific value of about 19,500 Kcal/Kg. When the experiments proved successful, a large-scale plant trial was conducted in the Steel Melting Shop of Tata Iron & Steel Co. The trial also proved fruitful.

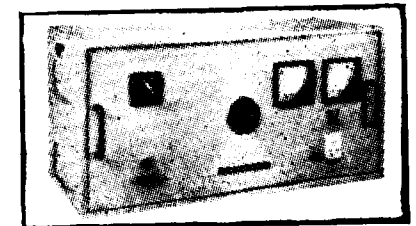
For transport of LSHS, special tank wagons with steam coils inside have been fabricated by the railways. Before loading the wagons, the oil is heated. When the wagons reach their destination, the contents are again heated by means of the built-in steam coils and pumped to storage tanks which are also provided with steam coils inside. The entire pipeline from the storage tanks to burners of the furnace is steam-traced and lagged so as to maintain the temperature of the oil between 60°C to 70°C. LSHS is fired into furnaces at 90° to 100°C and is found to be a satisfactory substitute for the imported oil. It is now being used in some big steel plants and in several power stations.

Courtesy : Invention Intelligence

#### VALVES GROW LARGER

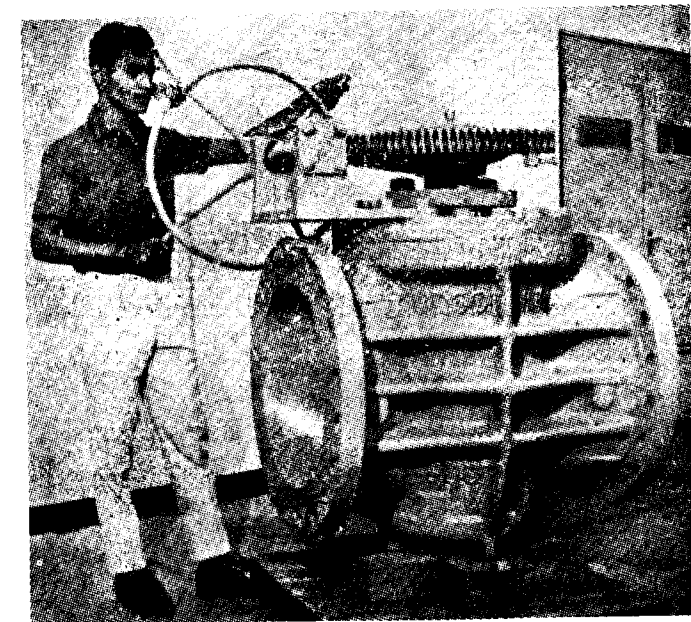
AUDCO India Limited has developed 500 mm (20") gear operated plug valves. Twelve such valves have been ordered by Neyveli Lignite Corporation for isolating services in their fertiliser plant. These valves, operating under a pressure of 16.5 kg/sq. cm. will be installed in a pipeline carrying raw corrosive gas comprising mainly carbon dioxide and methane.

These plug valves are the largest to be developed and manufactured by Audco India. Previously the largest size offered in this type was 300 mm (12").



#### MOTOR SPEED CONTROL

ANOTHER new product is a solid state motor speed control for AC and DC motors. The DC speed control device is applicable to 220V DC shunt motors and varies the speed in the range of 15.1, speed variation is stepfree and starting



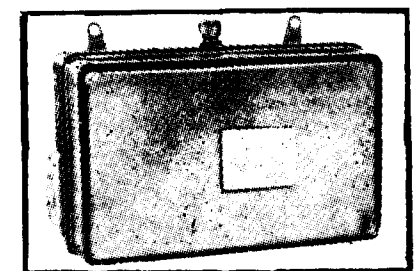
AUDCO's first  
500 mm plug valve.  
Twelve such valves  
have been ordered  
by the Neyveli  
Lignite Corporation.

#### AUTOMATIC VOLTAGE BOOSTER

AN automatic voltage booster has been developed by the switch-gear design engineers of Larson & Toubro Ltd. It effectively safeguards single phase motors and appliances, such as refrigerators and air-conditioning equipment against the damage that might result from operation at low voltages.

A boost voltage of about 20V is injected automatically as soon as mains voltage drops below 200V. This is automatically withdrawn when the mains voltage rises. The automatic operation eliminates the need for a voltmeter and frequent manual adjustments. The booster is available in three current ratings, 1.6A, 8A and 14A.

jerkfree. Torque is constant throughout and dynamic braking is provided. It also has an over-current limiting device. There is a similar unit for varying the speed of 230V AC single phase squirrel cage induction motors in the range of 6:1. Speed variation is by changing supply frequency.



Automatic voltage booster developed  
by Larsen & Toubro engineers

## Development Diary

- \* Export of spices from India registered an all time record of Rs 34.31 crore during 1969-70 as compared to Rs 25.04 crore during 1968-69.
- \* A new road, through very difficult terrain, has been built by the Border Roads Organisation in Assam. The 416 km. long road, which links Aijal, headquarters of the Mizo Hills district with Lundleh and Silchar, will be the main line of communication in the district.
- \* The Central Food Technological Research Institute, Mysore, has developed a groundnut blend called Lac-Tone to replace tone milk made from imported skim-milk powder. Madhavaram Dairy at Madras and the Bangalore Dairy have already started production of Lac-Tone on a trial basis.
- \* The Assam Agro-Industries Corporation has so far distributed over 300 tractors and an equal number of power tillers to the farmers. It has also supplied to them plant protection equipment worth Rs 28 lakh.
- \* A cyclone warning radar station has been inaugurated at Visakhapatnam. The station is the first in a chain of eight stations being installed in different coastal areas of the country. Each radar has a range of 400 km.
- \* The total agricultural advances made by the State Bank of India reached a record figure of over Rs 125 crore in 1969-70. Direct agricultural advances rose from Rs 6 crore to Rs 40 crore in the same year.
- \* The Metals and Minerals Trading Corporation has entered into a contract with Bulgaria for the supply of one lakh tonnes of iron ore this year, valued around Rs 71 lakh.
- \* A new high-yielding variety of paddy named 'Jagannath' has been developed by the Orissa Agricultural University. The strain is suitable for cultivation in low-lying water-logged areas, and is expected to yield 5,000 kgs. per hectare, if properly treated with nitrogen.
- \* The Government of Assam has taken up a Rs 40-lakh scheme, under the Fourth Plan, for supplying drinking water to the Nowgong town.
- \* The second stage of Umiam Hydel Project in Meghalaya has gone into trial production. Built at a cost of about Rs 4.25 crore it has an installed capacity of 18 MW. This raises the total installed capacity of the Project to 54 MW.
- \* In Gujarat, drilling has begun at a new structure in Mehsana district. This is the twentyfirst structure to be drilled by the Oil and Natural Gas Commission in North Gujarat.
- \* The first 33,000 kW water turbine and generator set up at OBRA in Uttar Pradesh and supplied by the Heavy Electrical factory, Bhopal has been commissioned.
- \* The total cropped area in Patiala district, Punjab, rose from 287,000 hectares in 1950-51 to 483,000 hectares in 1968-69. The area under multiple cropping increased from 36,000 hectares to 101,000 hectares during the same period.
- \* Production of machine tools and accessories has shown an increase of 43 per cent in 1969-70 over the previous year.
- \* The Minerals and Metals Trading Corporation has signed a contract for 6 lakh tonnes of iron ore worth about Rs 423 crore to Poland.
- \* Asia's biggest Flourspar beneficiation plant has been formally commissioned at Kadipani in Baroda district of Gujarat. The plant, costing over Rs 4 crore and set up by the Gujarat Mineral Development Corporation, has been designed and erected by Indian engineers. When in full production it will save the country annually Rs 2 crore worth of foreign exchange.
- \* India has become self-sufficient in the production of all types of miniature bulbs and has started exporting a sizeable quantity of automobile bulbs. The first consignment of automobile bulbs was sent to the UAR last month.
- \* Exploitation of the iron-ore deposit No. 5 at Bailadilla has commenced. The deposit, being developed by the National Mineral Development Corporation at a cost of Rs 36.53 crore, is estimated to contain 165 million tonnes of high-grade iron ore.

## YOJANA

The journal of the Planning Commission published fortnightly in English, Hindi, Assamese, Bengali and Tamil

## যোজনা

Mirrors the economic growth of India and its different regions

## পাযোভা Payobhara

Highlights the vital economic problems and the considered views of the country's thinkers and field workers

## ধন ধান্য

## Dhanadhanye

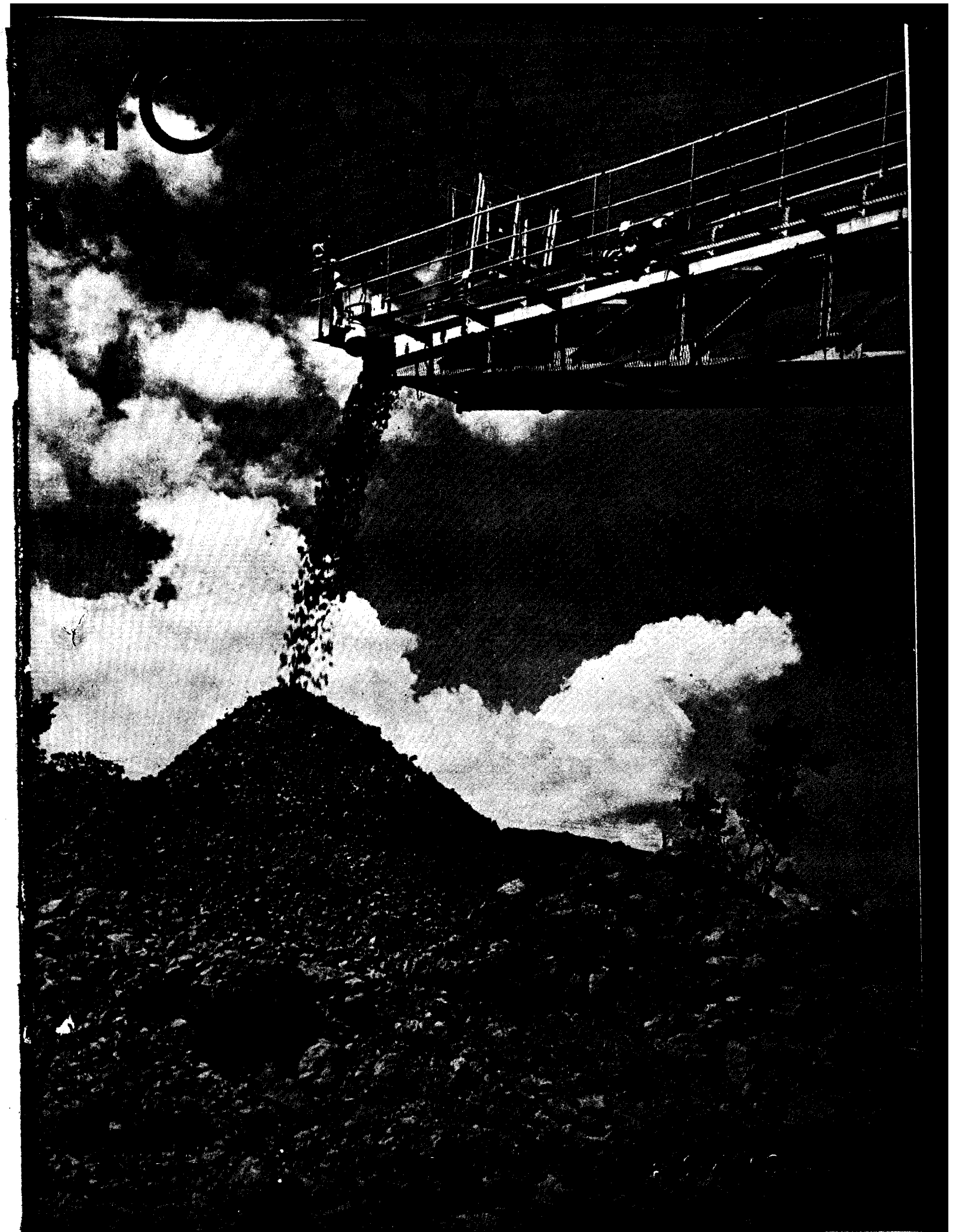
Staff reports, field surveys and on-the-spot studies of the different sectors of the national economy

## திட்டம்

## Thittam

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To help them reap better...  
help them  
sow better

We help them sow better by making better equipment possible like tractors that plough an acre an hour, bulldozers, scrapers, traxcavators, superphosphate plants. This is only the groundwork behind our efforts in making more food possible. We've been thinking of food from other angles as well. Like dairy, for instance. Leading dairies depend on us for complete dairy equipment. And that's not all. We also supply and install cattle feed plants, bulk handling equipment, refrigeration plants, bacon factories, slaughter house equipment... Our efforts in making more food possible are backed by collaborators like Caterpillar—people who move the earth; Chemiebau who are well known for the design and supply of chemical plants all over the world; Atlas—famous for refrigeration plants, bacon factories, slaughter house equipment; Niro Atomizer, Paasch and Siikeborg, Wright Hargreaves—manufacturers of dairy equipment, Buhler—designers of bulk handling and grain storage plants...

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P.O. Box 278, Bombay 1

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133/70  
LEST WE FORGET

Mass production inevitably involves mass consumption, which in turn involves many other factors, chiefly the purchasing power of the consumer. Therefore planning must take note of the need to provide more purchasing power by way of wages, salaries and so on.

—Jawaharlal Nehru

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## ORGANIC NATIONAL FUSION

PLURALISTIC societies at all times have always had their problems of adjustment, coherence and cohesion. When the diverse elements fuse into a unity, they create a vigorous personality enriched by the constituent strains. This happened in the United States of America where diverse ethnic groups, of their own free will, acquired a new, unmistakable identity. But where there was a clash between these diverse elements, polarisation took place, leading to feuds, tensions and eventual dismemberment of the socio-political structure, as it happened in the case of the Austro-Hungarian, Ottoman and Roman empires.

An intermediate situation is also possible. That is, by a process of continuous sedimentation of distinct and diverse cultures, an amalgam is evolved in which the separate identities of the constituent peoples, races, and creeds maintain their dissemblance; and yet in their overall pattern they merge into a common stream of consciousness.

It was this phenomenon that has characterised five thousand years of India's recorded history and heritage. Our historians, social thinkers, philosophers, poets, and writers have demonstrated this unique unity in diversity.

The process of assimilation and socio-cultural osmosis continued until European merchant imperialism and political piracy gained a foot hold in the subcontinent. This new band of intruders were very conscious of the colour of their skin. So they remained Sahibs, ruling "the Natives" from a distance with ruthlessness. For their rule to last long and to withstand the onslaught of nationalistic urges, which sparked off the 1857 rebellion, they reclassified "the Natives" by their separate identities and, by implication, according to their separate interests. The "Indian" disappeared; in his place appeared the caste Hindu, the "untouchable", the Muslim, the Sikh and so on and so forth.

The labels served the purpose of the alien rulers, and the separate identities divided a common destiny into fragments. And in its hour of retreat from the subcontinent, the disintegrating Empire created, as its political successors, two Dominions which had their birth in hatred, anguish and suffering, unleashing an unprecedented wave of violence and a trail of homeless people in search of sanctuary. The tragedy of the Partition is deeply etched in the memory of the generation that lived through its horrors. And, as always

happens, its memory has played havoc with the human mind.

In 1970, India is still paying the cost of this painful chapter of her history, which is revived and re-invigorated by every act of violence which has its source in the seeds of suspicion and hatred sowed more than two decades ago. Every man of conscience, everyone who loves his motherland, has unequivocally condemned such acts. Yet these happenings continue to occur sporadically and on flimsiest of pretexts. They pollute the air and also the minds. But, more specifically, they disrupt the economic life of the community. Damage to life and property dislocates production and normal business and affects the common man. It slows down the pace of development on which hinges the future happiness and prosperity of succeeding generations.

The morphology of this malady may be political. Its pathology and physiology are not. Pathologically it is a disease of the mind and a sign of total disruption of the process of organic growth of a composite nation's composite culture. Its saddest aspect is that a wider social intercourse, which a plural society alone can provide, is being reduced to narrow personal experience of limited utility. Not only vertically, but also horizontally, society is being forced into morbid compartmentalism, again destroying a common identity. Pluralism, instead of being a proud distinction and an asset, has become a stumbling block.

Physiologically, this phenomenon is traceable ultimately to economic distress. A socio-economic, rather than a political approach, can unravel the mysterious mechanics of a riot, be it on grounds of religion, language or caste. A people deficient in protein can be easily excited.

Hence, the way out of this quagmire lies in weeding out poverty and ignorance. Educated people, with a certain measure of economic security, will be less prone to exploitation by interested elements. It is admittedly an uphill task in the present circumstances, but it is also an ineluctable and inescapable responsibility. Planning for economic development has to be a unified national endeavour based on mutual adjustment; coherence and cohesion alone can help a pluralistic society like ours to stand up and face the challenge of growth and development. Without national integration at vertical and horizontal levels, growth will lose its momentum and development its essence.

SPOTLIGHT ON

## Outlook for Indian Economy

### PERSPECTIVE PLAN

### PROJECTIONS FOR 1974-81

- 6.2 Per Cent Rate of Growth Envisaged
- Net Domestic Product to Reach Rs 58,200 Crore
- Per Capita Output to be 53 Per Cent Higher
- Gross Cropped Area to Reach 188 Million Hectares
- Foodgrains Production to Rise to 167 Million Tonnes
- Aggregate Saving to Increase to 18 Per Cent of National Income

IN terms of a long-term perspective for 1980-81, a 5.5 per cent rate of increase in total production is foreseen during the Fourth Plan period. The goal set for the period beyond 1973-74 must be of a magnitude which can be sustained with reasonable price stability and on the basis of progressive self-reliance.

A target of 6.2 per cent growth rate per annum for the Fifth Plan and up to 1980-81 is considered feasible. The projections are presented up to 1980-81 so that the detailed investment planning in the Fifth Plan will take fully into account the need for advance preparation in respect of additional output in long gestation sectors to be realised in the early years of the Sixth Plan.

On this basis, net domestic product (valued at 1968-69 prices) would reach Rs 58,200 crore by 1980-81, that is, double the level attained in 1968-69. Since population would, in the meantime, have risen by about a third, the per capita output of Rs 844 in 1980-81 would be 53 per cent higher than the per capita output of Rs 552 in 1968-69.

#### Population Growth

The Plan document says that population growth is an important variable determining the rate of improvement in per capita income. The population is expected to increase at the rate of around 2.5 per cent during the Fourth Plan and then scale down to 1.7 per cent a year by 1980-81 due to birth rate falling from 39 per thousand in 1968 to 25 in 1980-81 accompanied by a decline in death rate from 14 per thousand of population to

less than 9 over the same period. If population growth is brought down further to 1.0 per cent by the end of the century, the population in the year 2000 will be 260 million less than the estimated 890 million at the present rate of growth.

#### Macro-Economic Projections

The projected evolution of the economy over the next 12 years from 1968-69, viewed in terms of broad aggregates, is:

|                                            | Rs 100 crore at 1968-69 prices |         |         |         |                                      |
|--------------------------------------------|--------------------------------|---------|---------|---------|--------------------------------------|
|                                            | 1968-69                        | 1973-74 | 1978-79 | 1980-81 | Index of growth 1980-81 over 1968-69 |
| Net domestic product at factor cost        | 290.7                          | 383.1   | 517.0   | 582.2   | 200                                  |
| Net domestic product at market prices      | 317.6                          | 418.6   | 571.0   | 644.4   | 203                                  |
| Net imports of goods and services          | 3.1                            | 2.3     | (-)-1.0 | (-)-2.0 |                                      |
| Net domestic expenditure of which:         | 320.7                          | 420.9   | 570.0   | 642.4   | 200                                  |
| Net investment                             | 32.3                           | 55.0    | 86.2    | 102.5   | 317                                  |
| Government consumption                     | 31.0                           | 41.0    | 55.0    | 62.0    | 200                                  |
| Private consumption                        | 257.4                          | 324.9   | 428.8   | 477.9   | 186                                  |
| Per capita private consumption (Rs)        | 488                            | 545     | 644     | 693     | 142                                  |
| Per capita net domestic product (Rs)       | 552                            | 643     | 776     | 844     | 153                                  |
| Projected mid-year population (in million) | 527                            | 596     | 666     | 690     | 131                                  |



be obtained by the expansion of trade in minerals and manufactures. The share of tea and jute manufactures, two of the major traditional export items, is expected to be reduced from about 28 per cent of the total exports in 1968-69 to about 15 per cent in 1980-81. The relatively rapid growth of demand for leather and leather products, fish, fresh and processed fruits and oilcakes in the world market, however, offers a promising avenue for expansion.

The scheme of long-term development seeks to eliminate dependence on foreign aid by 1980-81. Commodity imports in 1968-69 according to balance of payments data, were Rs 1,740 crore. Foreign exchange payment on account of interest and amortisation on account of foreign debt was Rs 277 crore.

There was a substantial net outflow on account of invisibles, net private capital transactions and other miscellaneous items of Rs 202 crore, making a total

### THE OBJECTIVE IS SELF-RELIANT GROWTH

foreign exchange outgo of Rs 2,219 crore. As against this, the commodity export earnings were only Rs 1,367 crore leaving a deficit of Rs 852 crore. This was covered by external assistance (including Rs 118 crore of PL 480 assistance.) By 1980-81, commodity imports are expected to increase to 2,950 crore and debt service charges to Rs 650 crore. The balance on account of invisibles, private capital transactions and other miscellaneous items is expected to show a modest surplus by 1980-81. This together with the estimated export earnings of Rs 3,020 crore would be adequate to meet the commodity import requirements as well as interest obligations on foreign debt.

### Domestic Resources

The objective of self-reliant growth requires that the supply of domestic savings be increased to a level adequate to finance projected investment and to pay at least interest on foreign debt. In order to reach the projected level of income in 1980-81 and to sustain at least a 6 per cent rate of development thereafter, the net investment in the economy will, on a provisional estimate, be required to reach Rs 8,600 crore by 1978-79 and Rs 10,250 crore by 1980-81.

Given the objective of dispensing with net aid after 1980-81 the volume of domestic savings will have to increase from Rs 2,530 crore in 1968-69 to approximately Rs 8,600 crore in 1978-79 and Rs. 10,450 crore by 1980-81. This means diverting approximately 28 per cent of the increase in national income for savings throughout the next twelve years. The average rate of savings will rise from about 8.8 per cent in 1968-69 to nearly 13.2 per cent in 1973-74 and to 18 per cent by 1980-81. A significant increase in public savings over the next decade is anticipated. From 1.4 per cent of the national income in 1968-69, they are estimated to rise to 4.5 per cent by 1973-74 and 6.3 per cent by 1980-81.

Aggregate savings would rise from 8 per cent of the national income in 1968-69 and the planned 13.2 per

cent for 1973-74 to 16.6 per cent by 1980-81. In order to raise total savings to 18 per cent of the national income and taking into account the possibility that taxes might cut into private savings, it would be necessary to raise additional taxation amounting to 2 per cent of the projected national income by 1980-81.

### Manpower Planning

Manpower planning is a critical area where long-term requirements will have to determine current decisions. The emergence of temporary imbalances of supply and demand should not be allowed to influence admissions to long duration courses, as these judgements, based as they are on current market conditions, are not relevant to evaluating the supply and demand position several years hence when the trainees will be seeking jobs.

One of the major purposes of having a long-term view of the economy's development is to quantify the nature and magnitude of tasks implied in the specified overall objectives. A rate of growth of 6 per cent per annum sustained over a number of years can produce tangible impact on the life and living standards of the people. This will be more noticeable if there is, at the same time, a marked reduction in population growth as contemplated in the long-term strategy.

### BARAUNI'S FRESH ACHIEVEMENTS

WITH well over 31 thousand tonnes of record production in March this year, the Kerosene Treating Unit of the Barauni Refinery has won fresh laurels. Earlier, this unit had set up a record by running continuously for over a year.

At the end of the financial year, the Barauni Refinery could look back with satisfaction at its achievements on different fronts. The total tonnage of crude processed during 1969-70 comes to over 2 million. This is an increase of nearly 18 per cent over last year's figures of about 1.76 million tonnes.

Similarly, the Coking Unit, which is designed to process 600,000 tonnes of feedstocks, scored by processing 687,000 tonnes as against over 590,000 tonnes in 1968-69, an increase of nearly 16 per cent.

The Kerosene Treating Unit treated 286,000 tonnes of Kerosene and allied products as against 204,000 tonnes during the corresponding period last year. There has been nearly 40 per cent increase in production this year.

The Lubricating Oil Complex of the Refinery also has not lagged behind its sister units and produced about 32,000 tonnes of base tube oil. The production in this unit during the corresponding period last year was not very encouraging due to the low off-take of its products.

The despatch of finished products from the Barauni Refinery also scored manifold increase during the year under review. A total of nearly 1.97 million tonnes of finished products was despatched through rail, road and pipelines, against over 1.57 million tonnes despatched during 1968-69—an increase of nearly 25 per cent in the year under review.

The Government earned nearly Rs 80 crore by way of excise duties in 1969-70 on the produce of Barauni Refinery alone.

# Poorer States Have Put in Greater Efforts for Economic Growth

## DISPARITY IN SOCIAL OVERHEADS REDUCED

IN the process of planned economic growth, the States have come to assume an increasingly significant role. In fact, the cry, of late, has been for more finances from the Centre and for more autonomy for the States in the formulation of projects and in the utilisation of funds. However, many question the ability of States for effectively mopping up the community's resources for developmental purposes. In assessing the States' efforts, the analysis has to be confined to the developmental expenditure on revenue account only.

It is true that the total scale of effort in the area of the public sector involves a substantial outlay on capital account, but the financing of this part of developmental effort, specially at the States' level, does not reflect the use of the Government's fiscal powers. It is more or less financed through other non-fiscal devices of the Government representing capital receipts, either in the form of domestic 'loan finance' comprising market loans, small savings, State provident funds, annuity deposits and other voluntary savings, miscellaneous capital receipts, withdrawals from States' cash reserves, sale of securities and treasury bills and, to a greater extent, through Central assistance in which grants used for financing revenue expenditure have been insignificant in terms of total assistance.

Sometimes, the overall surpluses on revenue account are diverted to the capital account for financing the capital expenditure of the States. However, surpluses are usually small, comprising both tax and non-tax revenues. There are certain limitations to identification of the particular elements of the tax and non-tax revenues which go into the financing of these capital outlays individually. It may not be easy to relate this expenditure to the fiscal devices of the State Governments and is, therefore, being kept outside the ambit of the present analysis.

Developmental expenditure under revenue account includes both Plan and non-Plan items. The Plan expenditure represents the outlays on schemes or programmes embodied in the respective State Plans under different sectors of development, mainly in the area of social services. The non-Plan developmental expenditure indicates the committed expenditure in respect of schemes that were part of the previous Plan but immediately on its

*Compared to the richer States like Gujarat, Maharashtra, West Bengal, Tamil Nadu and Punjab, the relatively poorer States of Kerala, Assam, Mysore, and Jammu and Kashmir had utilised at the end of the Third Plan a higher percentage of their revenue on development.*

*The total developmental expenditure in 1965-66 was more than five times of that in 1951-52.*

*Andhra Pradesh, Assam, Kerala, Madhya Pradesh and Rajasthan, which put in their highest developmental effort in the First and Second Plans, relaxed during the Third Plan.*

*By the end of the Third Plan, Kerala's per capita developmental expenditure as a percentage of the per capita revenue expenditure was the highest, namely 70 per cent, as against the all-States average of 58.3 per cent.*

completion became prior charge on revenues for maintaining the level of services which was attained at that stage.

For Plan accounting techniques, however, the committed expenditure, though of a developmental nature, is kept outside the Plan. Hence it is classified as non-Plan developmental expenditure. This type of expenditure is not altogether static but is responsive to moderate trend increases. Apart from this fact, a certain order of new developmental expenditure, which for one reason or the other could not be included in the three Plans, was also classified as non-Plan developmental expenditure. Thus, the aggregate developmental outlay over any period of time had been more than the outlay provided under the three Plans.

### A STUDY OF STATES'

### PLAN SPENDING

### IN THREE PLANS

by R. C. SAXENA

In view of this fact, the term *developmental expenditure* in the present analysis would imply both Plan and non-Plan expenditure on revenue account only.

Over the last one and a half decade, there has been a considerable step-up in the developmental expenditure in the economy of States. In 1951-52, the developmental expenditure amounted to Rs 204 crore. It rose to Rs 560 crore in 1960-61 and to Rs 1,103 crore in 1965-66. Thus the total developmental expenditure in 1965-66 was more than five times of that in 1951-52.

### Growth Rates

Compared to the developmental expenditure for all States in 1951-52, it had increased by about 179 per cent or at a compound rate of 12.1 per cent per annum in 1960-61. It was highest in Assam and was about 17 per cent per annum. Rajasthan came next with 16.8 per cent. The other States with a comparatively high rate were Punjab (15%), Madhya Pradesh (14.7%), Orissa (14.3%), Kerala (14.1%), Andhra Pradesh (13.3%), and Tamil Nadu (13.1%). In Maharashtra, this rate equalled the all-States average of 12.1 per cent.

Mysore's was the lowest growth rate (6.7%). The other States below the all-States average were Gujarat (about 8%), Uttar Pradesh (9.9%), Bihar (10.3%) and West Bengal (11.8%).

In a period of five years from 1960-61, the all-States average for developmental





# TELECOM FACTORY, CALCUTTA

115 YEARS OF PIONEERING WORK IN THE FIELD OF TELECOMMUNICATIONS

*India's oldest telecom factory in Calcutta has pioneered telecommunications revolution in the country. Its production has risen from Rs 80 lakh in 1958-59, to Rs 2.14 crore in 1968-69.*

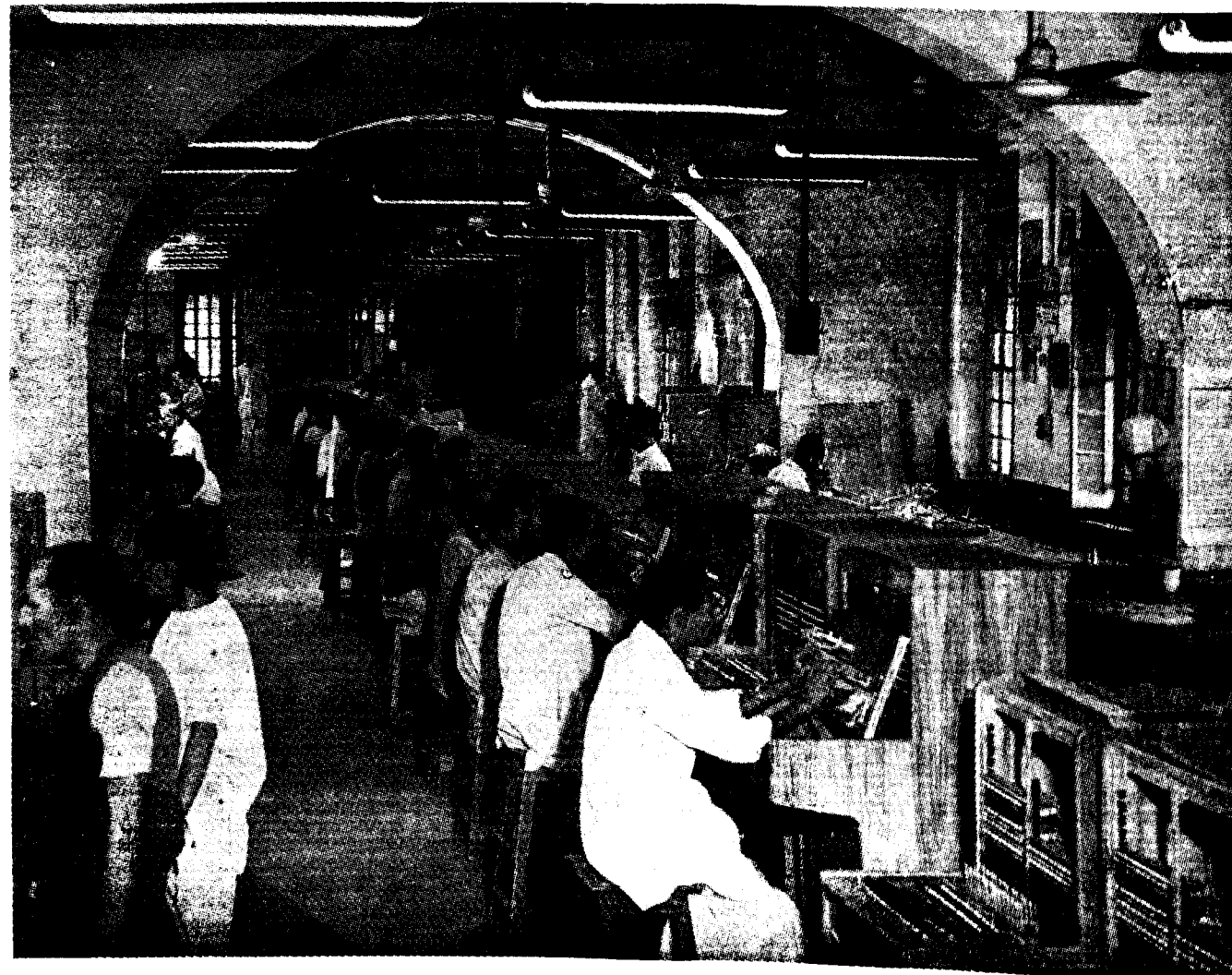
A Yojana Spot Report by  
S. C. BASU  
Our Calcutta Correspondent

REMEMBER W.B.O.' Shaughessy? That Irish doctor who erected near Calcutta in 1838 the first long line of telegraph ever constructed in the world?

It was at the insistence of this first Superintendent of "Electric" Telegraphs of India that a small departmental workshop to repair and produce equipment for telegraph was opened at Alipore in Calcutta in 1855.

And today, 115 years apart, one can still see in that quieter part of south Calcutta old sheds and outdated structures sprawling over some 13 and odd acres of land within a furlong from the old viceregal lodge at Belvedere.

Yet the Alipore workshop was only the second of its kind—the first being the one set up at Agra a year earlier in 1854. But it was shifted to Alipore three years later.



The switch board assembly shop of the Telecom factory, seen above, assembles, on an average, 65 boards per month for manual exchange worth Rs 6.5 lakh from a fantastic range of components, mostly produced in the factory itself.

YOJANA June 28, 1970 Page 12

Both the workshops were opened to meet an exigency created by the East India Company's ambitious programme to construct 4,000 miles of overhead telegraph line for the first time in the country. It was imperative that a certain range of stores and equipment should be indigenously produced and repaired if the Company was to accomplish the job within a reasonable period of time.

Towards the end of 1857, a substantial part of the Alipore workshop was transferred for operational reasons to Bangalore, then a scene of brisk transit business due to the extension of telegraph lines in the deep south and, across the sea, in Ceylon.

But four years later, the Bangalore workshop was abolished on economic grounds, and its plant and machinery brought back to Alipore again. Since then till 1942, the central workshop at Alipore, renamed last year as "Telecom Factory", enjoyed the unique position of being the only departmental workshop of the Posts and Telegraphs Deptment.

## A Proud First

Apart from repair to telegraph lines damaged due to cyclones, the Alipore factory undertook a wide variety of work ranging from the production of high tubular masts for river span, spare relays, batteries, Morse sounders etc. for telegraphy to the supply of odd screws and missing parts for machines and instruments brought from England. Even in those days of its beginning, the Alipore workshop had an "excellent" cable-making machine that produced by 1870 a certain length of insulated cable—"one of India's proud firsts"—a part of which was laid across the Hooghly river at Barrackpore, near Calcutta.

In 1910, the factory entered the telephone age. That year for the first time in India, magneto switch boards for telephony were assembled at this workshop from the parts brought from England. Three years later, the manufacture of several components for Baudot and line stores was initiated.

During the first World War, the factory met heavy military demands with remarkable speed and

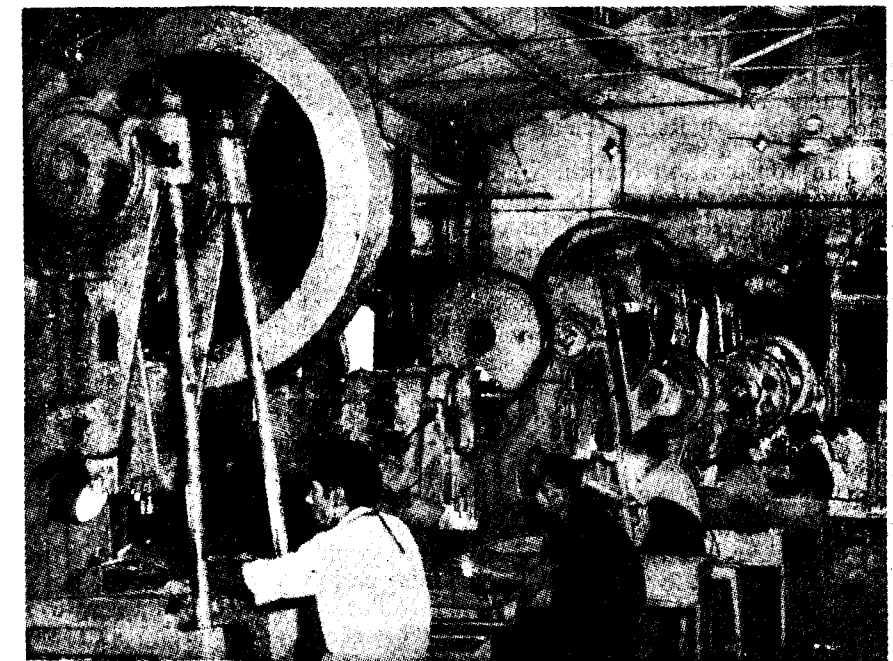
efficiency. By 1924, it started producing magneto switch boards, and in the thirties switch boards for trunk telephones. It also took up at the same time repair to and manufacture of several components for teleprinter.

The second World War intervened. To meet war demands not only had the production programme of the Alipore factory to be substantially geared up but a parallel factory opened at Jabalpur in 1942. The next year, Government took over the Bombay Telephone Company along with its workshop for the same purpose.

## After Independence

Independence came. And the

independence, the 2,100 industrial workers of the factory became entitled to the same scale of benefit as is admissible to any Central Government employee of similar rank and status. There are in the factory today a canteen subsidised by Government where a worker can get a meal at 60 paise, a two-bed dispensary with a whole-time doctor, a recreation club for the employees, and co-operative societies for credit and consumer goods. The government have a lately acquired land in the city to build staff quarters. The factory also runs a training centre, as is required under the Apprenticeship Act of 1961. So far, over 1,000 trainees comprising mostly the officials and workers of the factory



The light machine shop of the factory

accent changed. The need now was for attaining self-sufficiency in the production of stores and equipment for the expansion of telecommunication facilities in the country at a much faster rate than ever before.

Independence ushered in an age of promise for the industrial workers in the Alipore factory, as elsewhere. It assured them a minimum monthly wage with job security. Open to corruption as they were, the daily wage and piece-rate systems of work and payment were abolished.

Gradually over the 23 years of

have received basic and in-plant training in different trades here. Elaborate safety measures are also adopted on the shop floor and there is a committee of officials to look after their implementation. Before 1947 an industrial worker of this factory could not think of all this even in his wildest imagination.

## Towards Self-Sufficiency

With the commencement of five-year plans, the accent on specialisation punctuated the slogan of self-sufficiency. Thus, instead of limited

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production of a wide range of items as was being done in the past, the factory was called upon to undertake large-scale production of a limited number of specialised items. Gradually with the establishment of the Indian Telephone Industries in Bangalore, and Hindustan Teleprinters Ltd. in Madras, most of the work relating to telephone particularly to auto exchange, and all work concerning teleprinter were transferred from the three telecom factories to these organisations. Consequently, two production wings of the Alipore Telecom factory, namely, the construction branch and the instruments branch, now manufacture between them line stores comprising mostly casting items, telephone equipment like switch boards for manual exchange, and other items of telegraphy, such as, Morse key, sounder dubern, distribution box, charging board and the like, worth nearly Rs 2 crore a year.

The construction branch, which produces line stores of an annual value of about a crore of rupees consists of a foundry, a heavy machine shop, forging, fitting, welding, galvanising, painting, tin-smithy, carpentry and other allied shops in which over 1,000 workers are employed. The foundry, which is one of the oldest in India and the only one in the three telecom factories, produces a variety of cast iron items required for the construction of overhead telegraph lines. It is equipped with four massive cupolas each of which can melt four tonnes of pig iron per hour. The molten metal is then cast into moulds of different articles like sockets, sole plates, anchors, cable routes and joints, and indicator discs.

The instruments branch, which comprises the equipment assembly shops and a machine shop of its own, holds an unbroken tradition of excellent workmanship. In this assembly shop, for instance, switch boards for telephone exchanges are assembled entirely manually from a fantastic range of components mostly produced in the factory itself. It is a high precision job which demands a very high order of skill and expertise in execution.

In 1969-70, a total of 629 boards worth Rs 75 lakh were assembled

in the factory. This includes 180 boards for trunk exchange. They will add several thousands of new lines to the telephone network in the country. For 1970-71 the factory proposes to assemble 765 boards, including 280 for trunk exchanges.

The Second Plan saw the complete transformation of the telecom factories from repair-cum-production units to manufacturing units. During this period a third branch, namely, industrial engineering branch, was added to the Alipore factory to study the economics of production on a scientific basis from the method, cost, time and motion angles with a view to accelerating the rate of production and improving the quality of products with economy in costs towards labour, material and time. Norms and standards of production were laid, and in many cases, the production process was simplified. The designs of several products and instruments were also modified for better operational utility and long life.

### Modernisation

The application of the results of studies undertaken by the industrial engineering branch afforded the factory a net recurring saving of Rs 1.25 lakh in 1968-69.

In the Third Plan, the idea of complete modernisation of the factory was mooted to make it more dynamic. The organisational set-up was correspondingly changed. During this period incentive scheme was introduced in 1964, and today over 700 workers are earning an additional income as a result. The scheme has also stepped up production appreciably.

The massive modernisation plan which continues to be implemented during the Fourth Plan period in suitable phases envisages the rebuilding of the factory on modern lay-out at its present location. It will allow free movement of vehicles within the factory compound, eliminate avoidable manual handling of materials and provide better amenities to the staff. It is proposed to build multi-storied buildings in place of the existing structures which are mostly out-dated, and to replace the old machine by modern ones.

As a result of different measures adopted by the factory in the recent past, the rate of production has increased considerably although there had been some reduction in the strength of workers in the meantime. In 1969-70, for instance, of the aggregate value of production from all the three telecom factories estimated at Rs 6.33 crore, the Alipore factory alone claims a share of Rs 2.26 crore. In 1968-69, again, the factory contributed Rs 2.14 crore to the total production worth Rs 6.21 crore. In the year previous to that, the value of production from this factory amounted to Rs 1.87 crore. Only ten years ago, in 1958-59, the figure was barely Rs 80 lakh.

There is another factor which has largely contributed to the rising trend of production. It is the measure of understanding between the workers and the management.

The oldest telecom factory of India is a strange place. Over the past 115 years it had been working silently so much so that few know about its existence. No wonder that it is. For, one comes in contact with the postman or the telegraphman or the telephone operator but hardly with the worker of a telecom factory. Thus one fails to see that behind the telephone on which his voice floats, the wire which carries his message and the innumerable gadgets that ensure their transmission, lie the deft hands of generations of workers the unknown heroes of the saga of development of telecom services in the country.

### SOYABEAN PROSPECTS

THE area under different improved varieties of soyabean is about 5,000 to 6,000 hectares, which is likely to increase to 1,27,000 hectares by 1973-74. Rich in protein content, and widely used for antibiotics industries, soyabean, cultivated in Terai areas and other hill regions, can be successfully grown in Maharashtra, Gujarat, Andhra Pradesh, Mysore and Madhya Pradesh.

## COMPOSER OF 'VANDE MATARAM'

JUNE 26 is a date to remember, for on this day 132 years ago was born the composer of *Vande Mataram*, the song which stirred countless millions in the nation's struggle for freedom. Bankimchandra, who wrote the stirring words of the song, was a prolific genius. One among the galaxy of great men of 19th century Bengal, he had the versatility of a novelist, a pioneer editor, an administrator and a great patriot.

At Kanthalpara in 24 Parganas in West Bengal, still stands the ancestral home where Bankimchandra was born in 1838. Young Bankimchandra was one of the first two graduates in the country. Later, he joined the Provincial Executive Service, and the 33 years of his working life were the most productive period in his literary career.

In 1872 Bankimchandra brought out a pioneer literary monthly, the *Bangadarshan*, which had a distinguished place in the annals of Bengali literature. A good many Bengali litterateurs owe their emergence to this remarkable journal.

Bankimchandra's novels, portraying deep human emotions, nobility of character, and the inner conflict and agony of the human mind, powerless against destiny, have won for him an enduring place among the great writers of this country. Based on social themes, his novels, *Bishabriksha* and *Krishnakanter Will* portray men and women as they are and life as it is. Another of his great novels, *Kapalkundala* has a lyrical beauty which reveals the poet in Bankimchandra. On the other hand, his historical novels *Rajsingha* and *Sitarani* belong to another category. The majesty of his characters, painted against the canvas of history and written in blood and tears, characterise some of his best works. Another novel *Chandrasekhar* is the stirring story of Mir Kasim's valiant efforts to resist the establishment of British rule in India.

*Kamalkanter Daptar* and *Lokrasasya* are satires on life and people, which demonstrate his many-sided

genius. As a serious thinker, too, Bankimchandra exercised great influence on his contemporaries.

Bankimchandra's greatest work, however, is *Ananda Math*, with an intensely patriotic theme. It is in this novel that he wrote *Vande Mataram*, which sets the tone for the novel.

These literary works, pulsating with the upheavals of time and history, stirred the entire nation. When Bankimchandra died in 1894, the stirring words of *Vande Mataram*, were already echoing from the snow-capped Himalayas down to the shores of the Indian Ocean.

### THE AGE OF MAN

The Earth was formed an estimated 4,500 million years ago, and life already existed some 3,000 million years before man's earliest ancestors first appeared.

Two American experts—Dr Elwyn L. Simons and Dr David R. Pilbeam of Yale University—believe that the first man-like creatures emerged about 15 million years ago. The conclusion is based on the studies of two fossilized jawbones believed to be of an extinct primate known as *Ramapithecus*.

The creature lived in Asia and Africa eight million to 15 million years ago. But they were uncertain exactly where to place him on the evolutionary ladder. Was he more ape-like or more man-like?

If *Ramapithecus* was indeed a hominid, he probably would be the direct predecessor of a primate called *Australopithecus*, generally thought to be man's most immediate ancestor.

An expedition in 1969 led by Dr F. Clark Howell of the University of Chicago found fossils in East Africa that were linked to *Australopithecus* and extended his age from less than two million years to nearly four million. Dr. Simons and Dr. Pilbeam worked with jawbones unearthed in the late 1920's and early 1930's in India. They say the specimens, which were on exhibit at

Side Track



## IGNORAMAN

Wants to Know  
If  
the Police need protection,  
who, then, will protect  
him

the British Museum in London and the Calcutta Museum, had been incorrectly classified as belonging to a genus of extinct apes.

The Yale investigators note that the jawbones they examined lack large overlapping canine teeth characteristic of all apes. Thus, they say, *Ramapithecus* could grind his food with hominid side-to-side movements. According to the two scientists, the jawbones of *Ramapithecus* show decreasing molar wear to the back, suggesting the man mechanism.

This in turn implies that *Ramapithecus*, like later hominids, had a relatively long infancy and adolescence, which has been correlated with greater individual learning.

The path of man's genesis is still tenuous, but the new evidence at least points to a pre-human history much longer than once suspected.

### CENTENARIANS

Of Bulgaria's eight million people, 425 are above the age of 100. This puts Bulgaria in the first rank in Europe in the relative number of its centenarians. They come mainly from large families of between four and nine children. Of the centenarians, 58% are women.

# FINANCING AGRICULTURE

## Governmental, Commercial and Co-operative Efforts Must Be Co-ordinated

S. M. H. RIZVI

IT is very difficult to estimate precisely the total agricultural credit requirements of the country. In 1951-52, according to the All India Rural Credit Survey of the Reserve Bank, the total annual borrowings of the cultivators were estimated at about Rs 750 crore. Ten years later, according to the All India Rural Debt and Investment Survey of the Reserve Bank, the total borrowings of cultivators' households from all sources in 1961-62 were estimated at Rs 1,030 crore. The total short-term credit requirements for agricultural production are estimated at Rs 1,800 crore during 1973-74 of which credit needs for fertilisers would be roughly one-thirds. For medium and long term purposes, the requirement has been estimated at Rs 2,000 crore during 1969-70 and 1973-74.

These estimates are based on certain assumptions: (a) For holdings of the size of 20 acres and above, coming under high-yielding varieties programme, no credit for such expenses would be needed; (b) For irrigated area not coming under high-yielding varieties programme the credit needs per acre would be 50 per cent of those for high-yielding varieties; (c) the actual application of inputs in the high-yielding varieties programme will not be to the full extent of the currently recommended doses in all areas; (d) the inputs of the quantities required would be available for use by the cultivators; and (e) the dependence on credit would increase as more and more cultivators take to intensive cultivation in increasing part of their holdings.

The estimate, it may be added, takes care of credit needs for inputs such as fertilisers and pesticides for cash crops also. The requirements of credit for the Fourth Plan are on the lower side as the cash component of credit requirements

has not been included in the estimates for crops except for the high-yielding varieties, and some cash crops. Moreover, it does not include the needs of the farmer for domestic expenditure and redemption of old debts.

For any assessment of finance required by cultivators, their needs for domestic expenditure and redemption of old debts have necessarily to be accounted for, as otherwise production finance will be diverted towards the non-production items. Recently the All India Rural Credit Review Committee appointed by the Reserve Bank of India has estimated that in 1973-74 the short-term agricultural credit requirement will be Rs 2,000 crore. Out of this the requirement of credit for cash expenses will be Rs 1,173 crore and for kind will be Rs 827 crore.

The estimates are worked out on the assumption that an area of 171 million hectares will be brought under cultivation by 1973-74 (H.V.P. 24 million hectares, Non-H.V.P. irrigated 28 million hectares and unirrigated 119 million hectares). The total credit requirement has been worked out for each type of

area by estimating, firstly, the kind component the credit requirement for fertiliser, seeds and pesticides and secondly, the cash component. The medium-and long-term credit requirements during the period 1969-70 to 1973-74 has been worked out by the committee at Rs 2,000 crore.

### Level of Savings

The supply of credit depends upon the level of savings and capital formation, earnings, repayment capacity and risk-bearing ability of the farmer. The problem of agricultural finance is not only of enlarging the supply of credit and of making it available at reasonable terms, but also of building up institutional agencies which take an integrated view of the requirements of the agriculturist and enable him to organise his operation on a proper economic basis.

The analysis of the table shows that in 1951-52, borrowing from institutional agencies accounted for only 7 per cent while non-institutional agencies supplied about 93 per cent of the total borrowings,

|                            | 1951-52      |            | 1961-62       |            |
|----------------------------|--------------|------------|---------------|------------|
|                            | Amount       | Percentage | Amount        | Percentage |
| <b>Institutional</b>       |              |            |               |            |
| Government                 | 24.8         | 3.3        | 26.8          | 2.6        |
| Co-operatives              | 23.2         | 3.1        | 159.6         | 15.5       |
| Commercial Banks           | 6.8          | 0.9        | 6.2           | 0.6        |
| Total                      | 54.8         | 7.3        | 192.6         | 18.7       |
| <b>Private</b>             |              |            |               |            |
| Landlords                  | 11.2         | 1.5        | 6.2           | 0.6        |
| Agriculturist Moneylenders | 186.8        | 24.9       | 370.8         | 36.0       |
| Professional Moneylenders  | 336.0        | 44.8       | 136.0         | 13.2       |
| Traders/Commission Agents  | 41.2         | 5.5        | 90.6          | 8.8        |
| Relatives                  | 106.5        | 14.2       | 90.6          | 8.8        |
| Others                     | 13.5         | 1.8        | 143.2         | 13.9       |
| Total                      | 695.2        | 92.7       | 837.4         | 81.3       |
| <b>Grand Total</b>         | <b>750.0</b> | <b>100</b> | <b>1030.0</b> | <b>100</b> |

and of these 70 per cent was provided by moneylenders. A comparative study of the table shows that the share of institutional agencies towards current borrowings increased from 7.3 per cent in 1951-52 to 18.7 per cent in 1961-62. Out of this the share of co-operatives was 15.5 per cent. Evidently the moneylenders' grip on the rural credit market continues to be firm.

As such a co-operative credit agency, in spite of its drawbacks, remains the only institutional agency which can play a major role in this context. Despite a substantial increase in the volume of co-operative credit, its incidence has been uneven. Co-operative loans continue to be given generally against the mortgage of land. No shift to the crop loan system was noticeable in most States. Though the co-operatives have certain social obligations, they must at the same time satisfy the test of efficiency.

The Fourth Plan programmes in agriculture show that for short term alone Rs 2,000 crore would be required in 1973-74 and for medium and long-term purposes, Rs 2,000 crore would be needed in 1969-74 for the country as a whole. According to the Draft Fourth Five Year Plan, the quantity of short-and medium-term loans advanced by the primaries is expected to go up to Rs 750 crore in the last year of the Fourth Plan as compared to Rs 450 crore (estimated) in 1968-69. For long-term credit a loaning programme of Rs 700 crore has been envisaged for 1969-74. Thus it is evident that co-operatives will be able to meet the requirements of agricultural credit up to 36 per cent.

While it is recognised by and large, the co-operatives are and will continue to be the most important institutional agency for provision of agricultural credit, it will be unrealistic to expect their credit, operations to be commensurate with the rapidly expanding needs in this field. An important agency which can play a vital role in future in the field of agricultural finance is the nationalised banks.

For nationalised banks to operate more vigorously and to ensure sustained flow of capital into agriculture the risks and uncertainties involved

should be minimised through measures like crop insurance, increasing farm income and a favourable price policy for the agricultural product. To reduce the cost of operation, maximum use should be made of the extension staff, on the one hand, and the service organisation of the supplies of inputs and agriculture machinery on the other.

The State Governments should provide to the bank certain facilities such as administrative support for carrying out the necessary pre-investment survey, technical assistance by the State agricultural department in assessing feasibility of the proposed schemes and statutory protection for recovery of dues on the same lines as in case of the co-operative credit structure.

### Financing Pattern

The banks can finance agriculture both directly and indirectly. Direct financing can be done for the production and other processing operations connected with production, such as storage, processing, and marketing. Indirect financing can be done by way of purchase of debentures of land development bank, financing of agro-industries corporation, and the loans floated by State Electricity Boards. They can also help provide working funds required by non-credit co-operatives so that the resources of the co-operative banks may be available for financing agricultural production. In view of a number of difficulties involved, the nationalised banks should concentrate on high-yielding varieties.

With the increasing use of capital in agriculture and growing complexity of farming as a business, it is essential that nationalised banks should appoint farm loan representatives well-trained in agriculture who can provide adequate banking service to the farmers. Such personnel can advise the farmers in soil testing, farm planning, farm management, farm appraisal and counselling on diverse financial and technical matters on a non-fee basis.

Finally, the entire credit system—governmental, commercial and co-operative—must be so knit together as to avoid gaps or overlapping. This calls for proper co-ordination between all such institutions.

## UNDP ASSISTANCE FOR TV EXPANSION

UNITED Nations Development Programme has approved an assistance of \$ 2,215,900 for the establishment of a Television Production and Studio Technical Operations Training Centre in Poona, and for the expansion of the Experimental Satellite Communication Earth Station in Ahmedabad. This brings the total of Indian development projects to receive assistance from UNDP to 54.

The allocation for Television Production and Studio Technical Operations Training Centre, Poona is \$1,147,000. Government of India will provide \$694,000 (in rupee equivalent). The duration of project, which will be executed through UNESCO, in association with ITU is three years.

Expansion of the Experimental Satellite Communication Earth Station, Ahmedabad, will be done with a Government contribution of \$1,085,000 and a UNDP contribution of \$1,068,900. The duration of project will be four years and ITU, in association with UNESCO, will execute the project.

The purpose of the project is to assist the Government in expanding facilities at the Experimental Satellite Communication (ESCES) at Ahmedabad in order that it may participate in an experiment in mass education employing the medium of television broadcasting via satellite.

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## DROP-OUTS IN SCHOOL EDUCATION

### Rural Conditions

### Demand Basic

### Changes

P. B. JORAPUR

EDUCATION is an important area of economic development. Since the advent of planning this fact has become more pronounced and is borne out by the increasing enrolment throughout the country.

In the case of primary education, Kerala scored 119 per cent enrolment, followed by Tamilnadu (104%), Maharashtra (93%), Mysore (89%) and Gujarat (85%). The lowest enrolment percentages were in Rajasthan (56%). Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Punjab and even West Bengal had lower percentages of enrolment than the national average of 78.

In the case of admissions to middle school classes (VI to VIII), Kerala again had the lead with 77 per cent, followed by Tamilnadu (54%), Maharashtra (47%), Punjab (43%) and Gujarat (39%). Bihar with 20% enrolment was the lowest. Andhra Pradesh, Assam, Madhya Pradesh, Orissa, Rajasthan, U.P. and Bengal again had lower percentages than the national average of 34.

It is generally observed that participation rate in a developing country is higher than in a developed country. One of the reasons for this is the lower proportion of students in a developing country, where for economic reasons parents have to push their children into work much early in life.

The correlation between percentage of enrolment in I to V classes and the proportion of workers

below 15 years was found to be significant at .61 in respect of boys when Punjab and West Bengal were excluded. The relation was negative in that, States with higher proportion of workers below 15 years had lower proportion of enrolment and vice versa.

The percentage of workers in manufacturing may be broadly considered an indicator of advancement in industry. The people in the industrially advanced States may be considered as socially and economically better off than their counterparts in the less advanced States. They are also more conscious of the education of their children. Hence the percentage of enrolment of children in the schools may be expected to be comparatively higher in these States. Rank order correlation showed that the percentage of workers in manufacturing and enrolment were significantly related at .79 when all States were considered; when West Bengal was excluded, they were highly significant at .85. The relation between these two factors was positive.

### Three Factors

It is a matter of general experience that those who are educated themselves give more importance to the education of their children than the uneducated. In some cases it might be true that the uneducated persons who are convinced of the disadvantages of being uneducated, by their own experience, might be anxious to give education to their children. But in general, enrolment may be expected to be high when the literacy rate among the population is high. The positive correlation between these two factors was found to be highly significant at 81.

Per capita income may be considered to measure the general economic and social status of the population. Desire for schooling naturally will be influenced by per capita income. Positive correlation may be expected between these two factors. In the present case however the correlation was moderately significant at .59. The reason for this is, in case of States like Kerala,

Orissa and Uttar Pradesh, the enrolment was high although the per capita income was not proportionately high, and in States like Punjab and West Bengal, although the per capita income was high, the enrolment was not.

What is more important is not merely the percentage of enrolment in I to V classes, but the percentage of students who continue in the school in the higher classes. It is generally observed in India, as in any other developing country, that there is large-scale dropout in the primary school itself. It has been mentioned above that while 78 per cent of children in 6-11 year age-groups were enrolled in I to V classes, the percentages of enrolled in VI to VIII classes and IX to XI classes were 34 and 19 respectively in the country. The main reason for this drop-out is the same as for low enrolment, namely large number of children are withdrawn from school and employed in the family farm or establishment. This holds good both for rural and urban areas. Some drop-outs might also be due to mortality and a small fraction due to migration.

The exact wastage at various levels of schooling could be measured by tracing the cohort of children and their enrolment in successive classes. From the experience in Mysore State it is observed that the wastage goes on increasing with the higher classes. In 1962-63 cohort for instance, out of 100 children enrolled in class I, 59 children only were enrolled in class II during the corresponding cohort year. This figure declined to 52 in class III, to 43 in class IV, reaching only 35 in class V. In other words, out of 100 children who took admission in class I, 41 children dropped out by the time they reached class II, and this drop-out increased to 65 by the time this cohort took admission in class V. Thus 65 children out of 100 children could not study even upto V class. Compared to 1955-56 cohort, there has been a decline in wastage in primary education in Mysore State, in the cohort of 1962-63. The wastage declined by 10 per cent in V class, by 8 per cent in III class and by 6 per cent in IV

# TRAINING YOUNG FARMERS IN SCIENTIFIC FARMING

T. S. SOHAL AND B. P. SINGH

class IV. There was no change as regards class II.

The extent of wastage in the middle schools (VI to VIII classes) was comparatively lower than in primary school. There is not much difference compared to that of secondary schools (IX to XI classes). But the wastage continued to increase with the higher class. In 1962-63, in the middle schools, while out of 100 children enrolled in V class, 87 children took admission in VI class. This number declined to 81 in VII class and further to 67 in VIII class in the corresponding cohort year. That is, out of 100 children enrolled in V class only 67 children continued in VIII class or 33 children dropped out by the time they came to VIII class. The drop-out was higher between VII and VIII class (14 per cent) than between VI and VII class (6 per cent). It is surprising that the wastage in middle school education continued to be of the same magnitude in 1962-63 as in 1955-56 unlike in case of primary education. As mentioned above, there was a decline in wastage in primary education in 1962-63 cohort compared to that of 1955-56.

In the secondary school education also the wastage continued to increase with higher class. But the magnitude of wastage was smaller than in primary education. The wastage for 1962-63 cohort declined considerably compared to 1955-56 cohort. The decline in the wastage was largest for XI class (25%), followed by X class (23%) and IX class (17%). This trend indicates that the 1962-63 cohorts dropped out to a smaller, extent once they reached X class. This may also suggest that students in the high schools in 1962-63 cohort were more conscious of their education than their counterparts of 1955-56 cohort. It is really a good sign that among the 1962-63 cohort, as many as 71 children out of 100 children enrolled in VIII class, continued their education in XI class.

This analysis does not give the complete and accurate picture of the total wastage or drop-out children in I to XI class. We cannot say as to how many children of the cohort who enrolled in Class I continued upto class XI as the data are not

available for entire New Mysore State prior to re-organisation. These data prior to re-organisation, are limited to old Mysore State. But from what is observed even in respect of primary education, there is no doubt that wastage of talent is on a large scale.

## The Remedy

The remedy for this should take care of two aspects. Firstly, there should be a radical change in the working of the primary schools at least in rural areas. Since the bulk of the population is dependent on agriculture at subsistence level, parents cannot resist the temptation of putting their children on their land particularly during busy agricultural operations. This would continue till a common cultivator is capable of using some sort of labour saving implements for his agricultural operations at least during the busy seasons. This may apply even to the rural artisans. From this point of view, the timings of the primary school will have to be suited to the conveniences of the larger population of the rural area. The vacation should be given during the busy season and the daily working hours should be reduced and changed.

Secondly, when a villager leaves school after about 2 to 4 years of schooling, he practically forgets whatever he has learnt during the short period in his young age. There should be a constant interest created in reading and writing. In other words, adult education should be given an important place. It is not sufficient, for real education to have its impact on all-round development of the rural area, if a villager can just read and write a few words. Nor can he retain interest in this. A new literacy field will have to be covered, through which common man will have the minimum knowledge about the various fields of knowledge in general and agriculture in particular. For instance the literature for an adult villager should embody the latest methods of cultivation including crop-protection etc., animal husbandry, rural industry, administration in the country at various levels and should also include the modern scientific achievement. Unless the literature is as close as possible to practical life, an adult will retain interest in it. More than anything this should be within the reach of even the poorest villager. In this respect mobile libraries or the local libraries may have an important part to play.

## Poor States' Bid for Progress

from Page 11

Maharashtra, Gujarat, Madhya Pradesh, and Andhra Pradesh. The remaining States were below the all-States average. These were Orissa, West Bengal, Uttar Pradesh, Rajasthan and Bihar. The lowest to record was Bihar where it stood at 5.35 per cent.

From the above analysis it may be concluded that some of the States like Bihar and Uttar Pradesh which were relatively much backward failed to properly utilise the opportunity of stepping up their developmental expenditure with increase in their State incomes during the Third Plan, whereas other States like Jammu & Kashmir seized the opportunity. Assam, Mysore, Kerala, and Madhya Pradesh also made praiseworthy attempts during the period under review. Orissa did not fully use the scope it had for a higher effort.

In more prosperous States like Tamil Nadu, Gujarat, Punjab, and Maharashtra, the developmental effort was lagging behind; they utilised a smaller percentage of the increase in their incomes in 1965-66 for developmental purposes. It is surprising that West Bengal not only utilised

as little as 6.4 per cent of the increase in its State income for developmental purposes compared to much higher utilisation of 12 to 20 per cent in some of the poorer States mentioned earlier but it failed even to reach the all-States average. The reasons for the low performance in some of the prosperous States may perhaps be attributed to the fact that the Third Plan was oriented towards a policy of heavy investment on capital account and this restricted the developmental activities in the sphere of social overheads to a relatively lower level. In so far as this resulted in the building up of social overheads in underdeveloped States and, to a considerable extent, reduced the disparity in this field between the underdeveloped and comparatively more developed States, it may be said to be a successful part of our planning.

To Know India

Read YOJANA

IN order to equip farmers with the latest scientific know-how and practical skills in important fields of farming, the Young Farmers' Training Course was started five years ago at the Punjab Agricultural University, Ludhiana. It was a propitious start. The new high yielding varieties of crops and other researches of the University were creating a favourable impact on the farmers and generating new enthusiasm among them. The University enjoyed cordial working relationships with the Departments of Agriculture, Community Development and Co-operation, All India Radio and other extension agencies. The Farmers' Training Programme was offering a

A Farmer's Home named after the late Mr Pratap Singh Kairon has been constructed within the campus to provide living accommodation to about 250 farmers. A Farmers' Training Institution providing for teaching halls, offices of teachers and staff, stores and garages is on the anvil. It is conceived as a self-contained unit in the Extension Education Department.

The duration of the Young Farmers' Training is three months. Farmers of the age group 16-35 who have passed the matriculation or an equivalent examination are admitted to this course. The trainees are provided with free tuition, living accommodation and a stipend of

(iii) orientation session, (iv) organisation of instruction, (v) study tour, and (vi) concluding day.

**Publicity:** Wide publicity among farmers is arranged with the aim of ensuring mass level awareness in respect of the training facilities. Though queries in this regard are answered all the year round, publicity efforts geared to a particular course start about 6-8 weeks prior to its commencement, with the issue of letters to the Deputy Commissioners, District Agricultural Officers, District Level Assistant Extension Specialists of the Punjab Agricultural University, Chairmen and Secretaries of Zila Parishads, Block Samitis, Market Committees and the previous trainees. The admission notice is advertised in Sunday editions of about a dozen important newspapers and magazines of the area. Weekly broadcasts by All India Radio, Jullundur, are made in their programmes for farmers.

Among the publicity media, the radio announcements have been the most effective in ensuring farmers' participation. The second best are advertisements in farm journals, like the 'Progressive Farming' in Punjabi, Hindi, and English, and the monthly bulletins issued by the Punjab State Co-operative Fruit and Vegetable Development Federations. Advertisements in the daily newspapers and magazines are very expensive and, strangely enough, not very effective; the letters to district level agencies have also proved ineffective.

The last date for the receipt of applications prescribed in the admission notice is not strictly insisted upon; applications of eligible persons continue to be entertained till the date of interview. Experience has shown that out of about 300 application forms taken, generally only 70-75 completed applications are received and only about 40-50

## Punjab Agricultural University's Efforts in the Last Five Years Prove Worthwhile

A wide variety of training courses at different periods of the year and in many agricultural vocations. The courses were knit together so well that a successful village level course of 1-2 days' duration could inspire some of the trainees to receive 6 days' training at the institutional level and which, in turn, could stimulate interest in some of them to join intensive training of three months' duration. The successful conduct of the first course had inspired the subsequent courses. The Punjab farmer is known for his dynamism and progressive outlook.

In these favourable conditions, the efforts of the Extension Education Department to motivate farmers to participate in training programmes evoked enthusiastic response. This provided at once an opportunity as well as a challenge to the course organisers because in case the trainees were not received well and attended to properly, the future possibility of attracting farmers to such a course would be ruled out.

Rs 50 per month. In the last five years, 16 courses have been organised for the benefit of 341 young farmers. The demand for this training is on the increase and every time there is keen competition for admission.

Besides framing the schedule of training and finalising it with resource personnel well before the commencement of the course, the lodging and boarding of participants have also to be arranged. The farmers who come to join the course have to be shown utmost courtesy and consideration. Therefore, the course organiser has to be a mature person with adequate experience of working with farmers.

The organisers of Young Farmers' Training have to bring to bear remarkable organisational skills upon their jobs and handle the trainees with understanding, tact and wisdom and, in course of time, establish several organisational practices. The organisational aspects have been grouped as (i) publicity to the course, (ii) selection of trainees,

farmers appear for interview. It shows that the enthusiasm of many applicants wanes with time.

**Selection :** Proper selection of trainees is an important factor contributing to the success of the training. The applications are scrutinised carefully for documentary evidence of such particulars as land holding, education, age and farming experience. All eligible candidates are called for interview which is held only 2-3 days before the commencement of a course. The advantage in holding the interview at a late stage is that applications received late can also be entertained.

The interview serves the purpose of ensuring the selection of persons having the aptitude and potentiality to undergo training and, secondly, of allaying any false notion about the course being a step towards better employment opportunities. The interview helps us to admit young farmers who are really interested in farming. Their interest is adjudged through simple questions regarding their farms, such as areas under different crops, time of sowing, and use of fertilisers and pesticides. Applicants fresh from educational institutions are seldom selected because they would not have decided on the choice of farming as their profession. Preference is given to practising farmers or their sons who after finishing their studies are already working on their farms.

The condition regarding educational qualification is relaxed in favour of candidates otherwise very suitable. The seats being limited, some of the eligible interviewees are advised to come for the next course of training. The really interested candidates among them do come up again and get admitted.

The group selected is, by and large, homogeneous as the majority of trainees are matriculates, with farming background and of the age group 18-25 years. A few persons, with college education in arts or science, however, may also be there in each group. There is a possibility that one or more selected persons may change their minds and fail to join the course. To prevent a few seats remaining unfilled as a result of last minute indecision on the part of farmers, a deposit of Rs 20 is taken

from each selected person immediately after interview and is refunded to him only on successful completion of training.

**Orientation :** On the first or second day of training, the farmers are assembled in a session with their teachers. The orientation session is no formality or ritual. It has an important purpose, namely supplying the trainees detailed information in respect of training so that they know exactly what to expect from this training and also what sort of participation is expected of them. The rules and regulations of the course, for example in regard to attendance, leave and stipend are explained. The salient aspects of different subjects of study are explained to the trainees to stir up their interest. The suggestions from the trainees on course outlines are invited and considered.

Successful orientation has gone a long way in eliminating marginally interested or disinterested persons from the course. After the trainees get acquainted with each other in about a week's time, they are helped to choose their monitors who act as connecting links between the trainees and the administration. They take care of the sports material and the radio listening set provided to the trainees for recreation.

**Organisation of Instruction :** The course organiser frames the time-table and circulates it among the teachers well in time and also takes care that no instruction hours get lost for any reason whatsoever. He ensures that the stipend to the trainees is paid on the due dates. He invites progressive farmers to share their experiences in the adoption of modern farm technology with the trainees. Representatives of some beneficiary Government departments as well as private field agencies are also invited to tell the trainees about the facilities that these departments provide to the farmers in developing their farms. The course organiser also arranges to hold periodical tests for the trainees.

Information on the bio-data of trainees and their performance in the course is maintained and analysed to find out what sort of trainees derive maximum benefit from training

so as to build up useful guidelines for the selection of more suitable trainees in future.

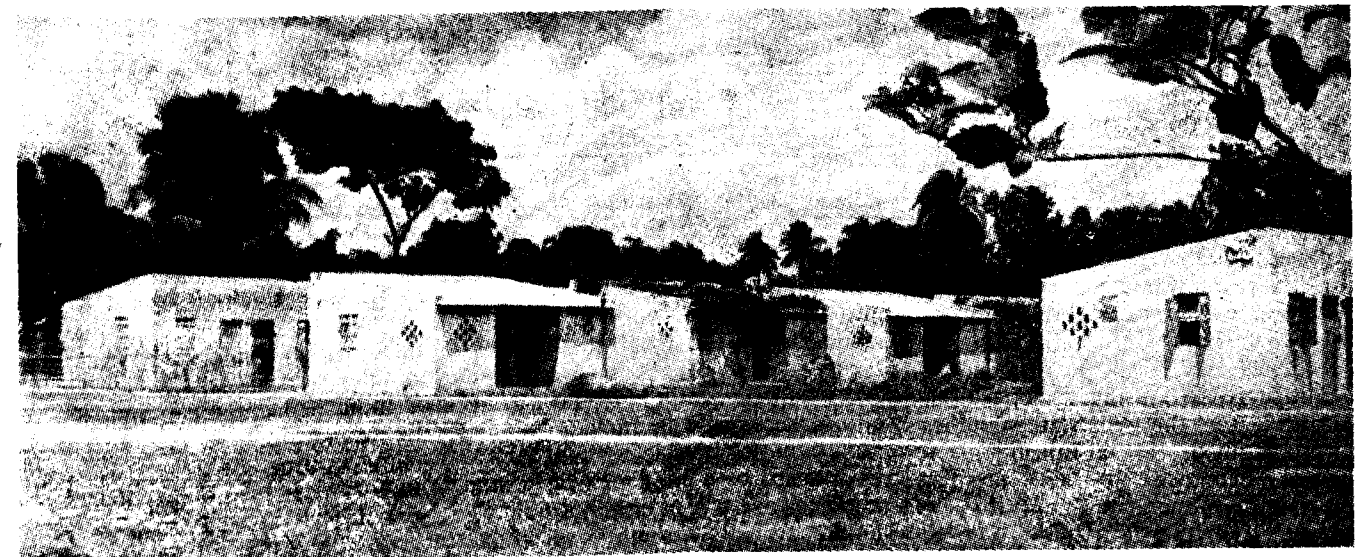
**Study tours :** The study tours are arranged to the farms of progressive farmers, experimental stations of the Punjab Agricultural University and manufacturers of farm machinery, pesticides, and other inputs. The study tours are normally confined to the territorial jurisdiction of the Punjab Agricultural University. Transport and accommodation during the tours are arranged by the University. The tours are properly spaced within the duration of training so as to remove monotony among the trainees. Wherever possible, the trainees are lodged in tourist bungalows/Panchayat Bhawans so that they develop appreciation for clean and modern living. The accompanying teachers also stay with the trainees in order to develop greater mutual understanding and appreciation.

On the concluding day of the training, a formal function is held and certificates are awarded. The trainees who achieve the first three positions in the final examination are awarded prizes. The trainees are invited to give their impressions and suggestions for improvement and the programme of follow-up-guidance for the trainees is explained to them in detail. While the training programme has caught on and proved very popular among young farmers, a continuous effort is kept up to improve the programme in all its aspects.

### To Our Contributors

Articles which are not accepted for publication in Yojana will be returned only if they are accompanied by self-addressed stamped envelopes.

Unsolicited articles will not be acknowledged.



A view of the new township built for the repatriate families

## HOME FOR THE HOMELESS

Indian Repatriates from  
Burma Begin A New Life

**F**OLLOWING a decision of the Burmese Government in 1963, to repatriate all non-nationals, several hundred thousand Indians faced eviction at short notice and with little protection. Thrown out of employment overnight and their assets frozen, these men, women and children were forced to return home with a meagre sum of Rs 75 per family. To West Bengal came 4,432 families consisting of 21, 636 repatriates. Providing them with food, clothing, shelter and jobs imposed severe strains on a State which was already struggling to rehabilitate the displaced millions from East Pakistan.

### Rehabilitation

As they filtered into the West Bengal territory the repatriates were temporarily sheltered in Hasnabad and Petrapole camps till rehabilitation assistance became available. While in transit camps, these families were given Rs 30 to Rs 75 according to the size of the family. Foodgrains at subsidised rates, warm clothings for children and grants for marriages were provided. All repatriate families who intended

to settle in West Bengal were non-agriculturists and needed economic rehabilitation and housing assistance. Each family was given business loan and shop rent up to Rs. 5,000. So far 1,602 families have received over Rs 25.38 lakh in business loans. Old age pension was also granted at the rate of Rs 20 per head per month.

There was also the problem of the education of the repatriate children. Stipends of Rs 55 per month were given to each repatriate student at Industrial Training Institute and to those learning trades like tailoring, weaving, etc. So far 61 boys and girls have received such assistance. Grants of Rs 5 to Rs 100 per month were also given in

Assistance in the form of sewing machines was provided to help the repatriate families.



the form of tuition fee, books and hostel charges. The total educational assistance extended so far amounts to Rs 3.38 lakh.

The rehabilitation programme has been so thoroughly executed that only 35 families comprising 114 repatriates are living in permanent liability camps and 15 families or 61 persons are housed in non-permanent liability camps.

Provision was made for granting housing assistance at the rate of Rs 4,600 per family in urban areas and Rs 2,250 per family in rural areas. Co-operative housing societies exclusively for the repatriate families were formed. So far housing assistance extended to 687 families through co-operatives and to 200 families directly amounts to over Rs 17.40 lakh.

#### A New Township

The biggest challenge was the construction of townships for repatriates, one at Srikrishnapore in 24-Parganas and another at Batanagar in Howrah. The first phase of Srikrishnapore township began in June 1967 and by now 222 families have been accommodated. Two more housing schemes at Kodalia and Bongaon for housing 350 repatriate families are awaiting sanction.

The nostalgic repatriates, for whom it is hard to forget the memories of their long stay in Burma, have rechristened Srikrishnapore as "Suvarnapattam." In Indian mythology Burma has been referred to as "Suvarna Dweepa" and the home of the homeless from Burma could not have had a better name.

#### RICE YIELDS INCREASE EXPORTS DECLINE

World rice trade declined in 1969 for the fourth consecutive year and surplus stocks are expected to increase further in 1970, according to an FAO survey. Paddy production has risen again in the current season and at 193 million tons (excluding mainland China, North Korea and North Viet-Nam) it exceeds the previous season's record crop by 3.6 per cent.

The survey also says that continuing improvements in the quality of high-yielding varieties, and their wider adoption, and the recent acceleration in output appear to confirm that several developing countries will be able to achieve their objectives of self-sufficiency.

## THE STORY OF HINDUSTAN MOTORS

A. K. GANGULY

On what was a marshy tract of land two decades ago at Uttarpara, about 13 kilometres north of Calcutta, stands today the Hindustan Motors factory spread over an area of about 300 hectares. Until 1942, no serious efforts were made in India to manufacture motor vehicles. About 20,000 passenger cars and trucks were imported every year, either completely built or for assembly in India. Hindustan Motors Limited was the first to begin the manufacture of the vital and more difficult components of a motor vehicle. It started its business at Port Okha in the old Kathiawar State (now in the State of Gujarat) in 1942.

#### Components

During 1944-45 Hindustan Motors concluded an agreement with the Nuffield Organisation of England to build the Indian model of the Morris Ten. During the next year, the company entered into an agreement with Studebaker Corporation of the U.S.A. to manufacture all models of Studebaker cars and trucks. At that time, the company also decided to erect the present factory and started the construction work in 1946. During the next four years the construction work was completed, machinery installed and the assembly line for cars and trucks shifted from Okha to Uttarpara. The manufacture of components was begun in 1949, and the first Indian cars with foreign and local components were put on the road the same year.

In addition to its earlier models, Hindustan 10 and 14, the company has marked three other models—Landmaster in 1954, Hindustan Ambassador in 1957, and Ambassador Mark II in 1963. Till now it has put on the road over 250,000 cars and trucks. The indigenous content of the Hindustan Ambassador is now 99 per cent, and their output accounts for about 65 per cent of the total number of cars produced in the country.

In 1958 Hindustan Motors signed an agreement with General Motors Corporation (U.S.A.) for the manufacture of components for Bedford commercial vehicles. The Government of India had granted permission for the expansion of the company's manufacturing capacity to include Bedford trucks up to 15,000 per year.

In November 1968, a modern engine plant for Hindustan Motors was set up. The plant is capable of producing 15,000 bus and truck engines annually.

Three loans have been provided by the U.S. Agency for International Development (USAID) totalling 41.6 million dollars, equivalent to Rs 31.2 crore, to step up production of commercial vehicles and to modernise the over-all plant facilities.

## A MASSIVE YIELD OF MAIZE

VED Prakash of Nagla Tashi in Meerut has scored a success in maize farming this season. He sowed in March Ganga-3, a hybrid maize at the rate of 7½ kg per acre in an area of 20 acres. The treated seeds were procured, from the seed store of Rohtak Block to which the village belongs. A strong 'Palewa' was done before sowing to ensure moisture in the field. Ved Prakash had earlier grown potato in the field and earned a big profit.

The maize is now ready for harvesting and the entire standing crop has been purchased by a Delhi trader. The cobs are very popular in Delhi because of their sweetness and luscious quality.

Ved Prakash had applied two weeks after sowing a spray of 20% Endrin E. C. at the rate of half a litre per acre against any possible damage by the stem borer. The first irrigation was done 25 days after sowing. Thereafter the crop irrigated every week.

"The weekly irrigation is an important item of hybrid maize cultivation in summer season and in the absence of the water the plants are apt to lodge and become pale," Prakash is reported to have said.

The farmer gave at the flowering time 30 kg. of Ammonium Sulphate per acre by way of top dressing. The yearly replacement of seed is essential, according to Ved Prakash.

## BOOKS

### COMMUNITY DEVELOPMENT

*Community Development: An Analysis of the Programme in India* by S. N. Bhattacharyya. Published by Academic Publishers, Calcutta-9. Pages 171 Rs. 20/-

K. V. Natarajan

THE history of the Community Development movement in India provides an interesting illustration of an attempt to plan for integrated social and economic development. During the 1950's the concept was rapidly popularised and by the end of the decade many countries in Asia had instituted programmes of Community Development in one form or the other. Bhattacharyya's book gives an insight into the progress and problems of Community Development in India. The historical part of the narrative is well documented and is fairly objective. Within a short compass, the author has tried to bring out all the important facets of the Community Development movement including its relationship to the extension agency on the one hand and Panchayati Raj institutions on the other. In a critical evaluation of the Community Development Programme, the author brings out his important theme that one of the major mistakes in the implementation of the programme was the inadequate adherence to the basic principles for which it stood. He is of the view that on account of the Government's anxiety to achieve quick results on the agricultural front, Community Development missed its main focus.

The author concludes that one way out of the vicious circle of food production and community development could be to work out a short-term and a long-term strategy for agricultural improvement. Within the short-term approach, he brings in such concentrated efforts at agricultural improvement as the I.A.D.P., provision of inputs and credit and irrigation as well as extension work. The second approach of a long-term character should be directed towards promoting socio-economic transformation of the rural areas. He also develops the idea that these two approaches need not be mutually exclusive.

In the last chapter which sums up the main ideas in the book, an assessment of the working of the programme has been made. The view is expressed that the programme in India differs from the internationally accepted definition of the term Community Development which means self-generating group action for the benefit of the community. The assessment itself is, however, ambivalent and while one gathers the impression that the author would like an intensification of the Community Development Programme, it is not certain whether all the lessons learnt have been enumerated with appropriate emphasis in this study. Experience not only in India but in other Asian countries with an op-

erating Community Development programme, has shown that it cannot be a cheap and politically painless remedy for rural backwardness, but should form one of the several important elements in a broad strategy of economic engineering and social reform. Community Development can only be a fraction of the total process of modernisation that is taking place in rural India today. Modernisation is proceeding apace both through voluntary and directed forces which Community Development has helped through emphasis on multifaceted development, nurturing of secular institutions and the introduction of Panchayati Raj.

While the author has ably brought out the main defects of the programme, he has failed to pinpoint a few others. There was considerable absence of understanding of the role which voluntary groups have to play in the Community Development by which people who live in villages or communities are involved in helping to improve their own economic and social conditions and thereby become effective working groups in the process of national development. Secondly, Government personnel not only assumed major responsibility for determining what the needs of the villagers were, but also arrogated to themselves the function of prescribing the remedies. Thirdly, the levels of living attempted to be provided for the local people through the programme were not, in fact, conscious standards of those to whom these levels of living were sought to be provided. Development leaders aroused in the bargain unwarranted expectations, instead of trying to work consistently and effectively in developing the aspiring local groups to achieve their aspirations. The bureaucracy's traditional norms and workways have persisted throughout the life of the programme. And the right type of leaders were not discovered. In fact, there was a clear bias in favour of the traditional elite in the choice of local leadership for operating the programme. As pointed out by the National Commission on Labour recently, the emergence of peasant communities in different parts of the country with a tradition of land ownership, was an important feature in the evaluation of the programme. These classes, —Bhoomihars and Rajputs, Kammas and Reddys, Lingayats and Vokkaligas, Nayars and Thiyans, Jats and Ahirs, Kallans and Nadars —have acquired new importance in rural society and have been able to dominate institutions including Panchayati Raj bodies, to work them to their specific advantage. On this aspect of the matter, Bhattacharyya has little to say; perhaps it is this new dominance of the emerging caste elite, that has spelt disaster for Community Development in India.

There is a useful index at the end of the book and also a detailed bibliography.

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## REVALUING GANDHI

*Thoughts on Gandhiji—Published by Khadi and Village Industries Commission, Bombay. Pages 75. Re 1.*

M. K. Dharmaraja

LIKE the plethora of anthologies brought out on the occasion of the Gandhi Centenary celebrations, *Thoughts on Gandhiji* reproduces a few articles by writers, foreign and Indian. They had earlier appeared in the monthly *Khadi Gramodyog*. Among the contributors are prominent Gandhians from various walks of life, including a few who had come in close contact with Bapu. They have tried to revalue his ideas and relate them to the contemporary world.

An example of this reassessment is the analysis by V. L. Mehta pointing out how the decentralised form of production envisaged in the Gandhian outlook should be imperative in socialist planning. So also Gandhiji's philosophy of the same regard for other's faiths as for one's own offers the basis of secularism to govern both individual and national life. Not independence alone—but the moral, economic and social emancipation of the nation was the Mahatma's goal. It was indeed the *human* aspect of the *human* being that Gandhi sought to emphasise, says U.N. Dhebar in his essay—*The Redemption of Man*. Shriman Narayan similarly draws on Gandhiji's principles to stress both the evils of loot, arson and violence and the futility of yielding to this blackmail. According to Prof Mulford Sibley of Minnesota, "Democracy" in the Gandhian technique is the way to mobilise the energies of the people to achieve a non-violent society. He would admonish industrialists and socialists aiming differently to give up the attempt "to have our cake and eat it too".

The eight essays brought together in this book help in the process of an appreciation of Gandhiji's ideas and thereby in the understanding of today's problems.

## Indian Glass Down The Ages

History of Indian Glass by Dr Moreswar G. Dikshit, University of Bombay, 1969. Pages 212. Rs 65.

K. K. Nair

WHAT is Middle-East to Europe still continues to be Middle-East to those regions to which it should be Middle-West; and for many of us we are our own Far-East. Europe-centrism, which dominated the study of history, culture and sociology in the nineteenth and late into the twentieth centuries, has yet to make its complete exit. This can be accelerated by books of monumental scholarship like the one under review. Ethnocentrism is not a monopoly of the West however and the author has to be congratulated on the sobriety with which he has limited himself to only those claims that can be substantiated.

European scholarship has been extremely reluctant to concede any great antiquity to glass in India and too ready to attribute foreign derivation to glass objects unearthed in excavations of various epochs. But

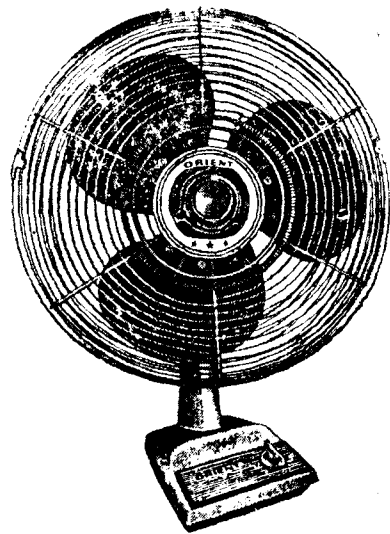
Pliny had recorded that glass from India was superior to all others, "because it was made of pounded crystal." Dr Dikshit has been able to substantiate the validity of this reference by showing that Indian glass of this period was generally very rich in its silica content.

But Pliny belonged to the second century A.D. while the evidence suggests that the beginnings of glass in India can be traced back by at least another millennium. If there is evidence to suggest that glass originated in Mesopotamia, it is still within the bounds of possibility that the material could have had many points of origin over the far-flung earth. As Dr Dikshit cogently argues, occurrence of glass beads in a chalcolithic context at Maski in Mysore far removed from the normal zone of foreign contacts or regular trade routes of the ancient people, shows that the material was an indigenous creation, not imported. Marshall noted the incidence of glass at Taxila from the fifth century B.C. onwards.

Among the Taxila finds there is at least one object which is unmistakably Indian in origin—a glass ear-reel with a flowerlike design on its top. This ornament has not been found anywhere else, outside India. It appears to be made from a glass which resembles obsidian and obsidian glass has been mentioned by Pliny as a product of India.

The author has also been able to compile supporting literary evidence. The *Satapatha* and *Taittiriya Brahmanas*, written before 800 B.C., refer to the practice of decorating the manes and tails of horses with coloured glass beads. The *Maha Vagga* and *Chulla Vagga* of 300 B.C. prohibit the use of glass ornaments or glass bowls by monks.

Dr Dikshit brings the story right up to recent times. The sober and meticulously referenced account does not gloss over the failure of the Indian craftsman to make use of the invention of glass blowing. Today, there is no reason why sophisticated products should not replace the bangles which accounted for the bulk of the output in the past.



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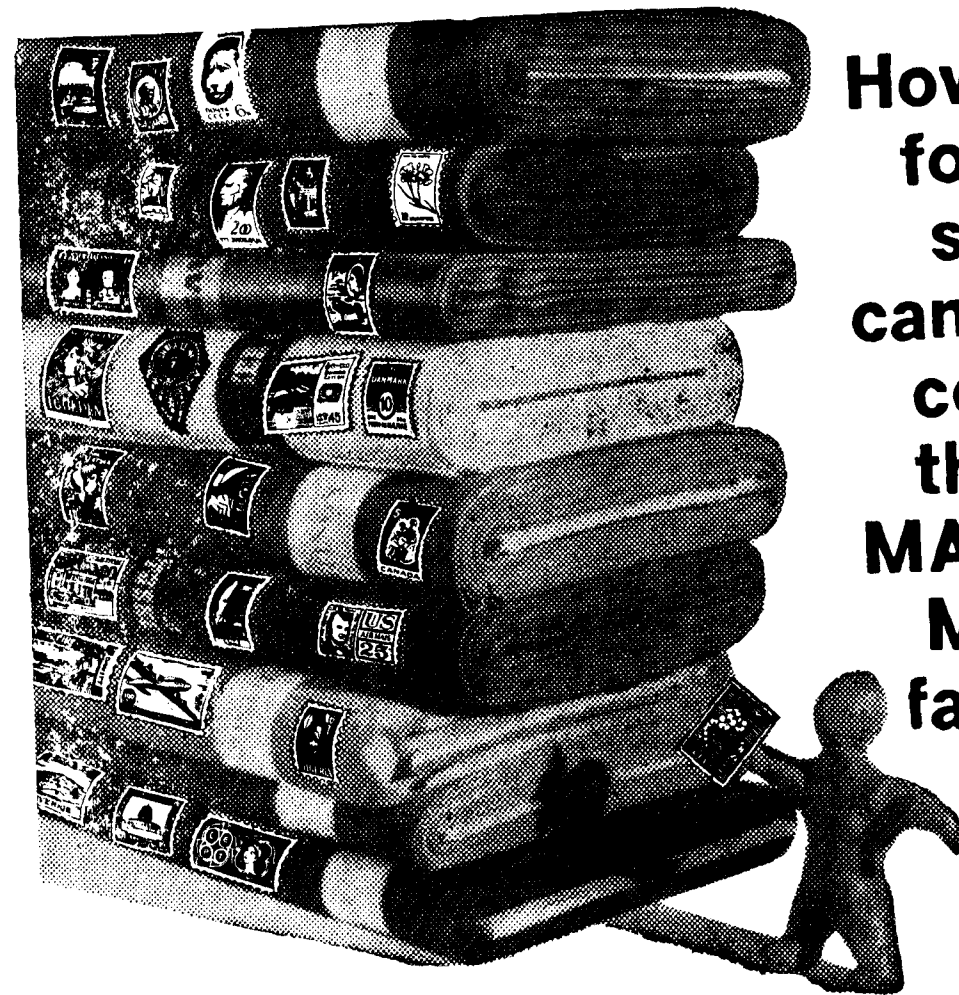
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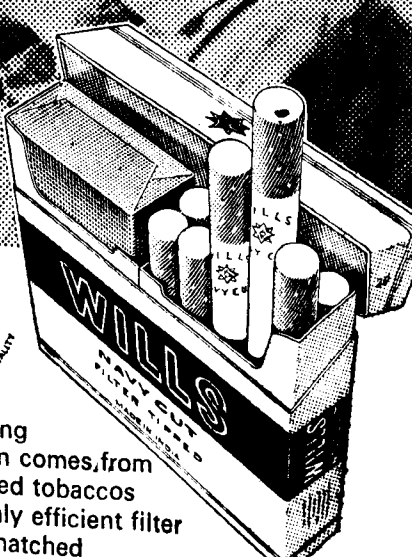
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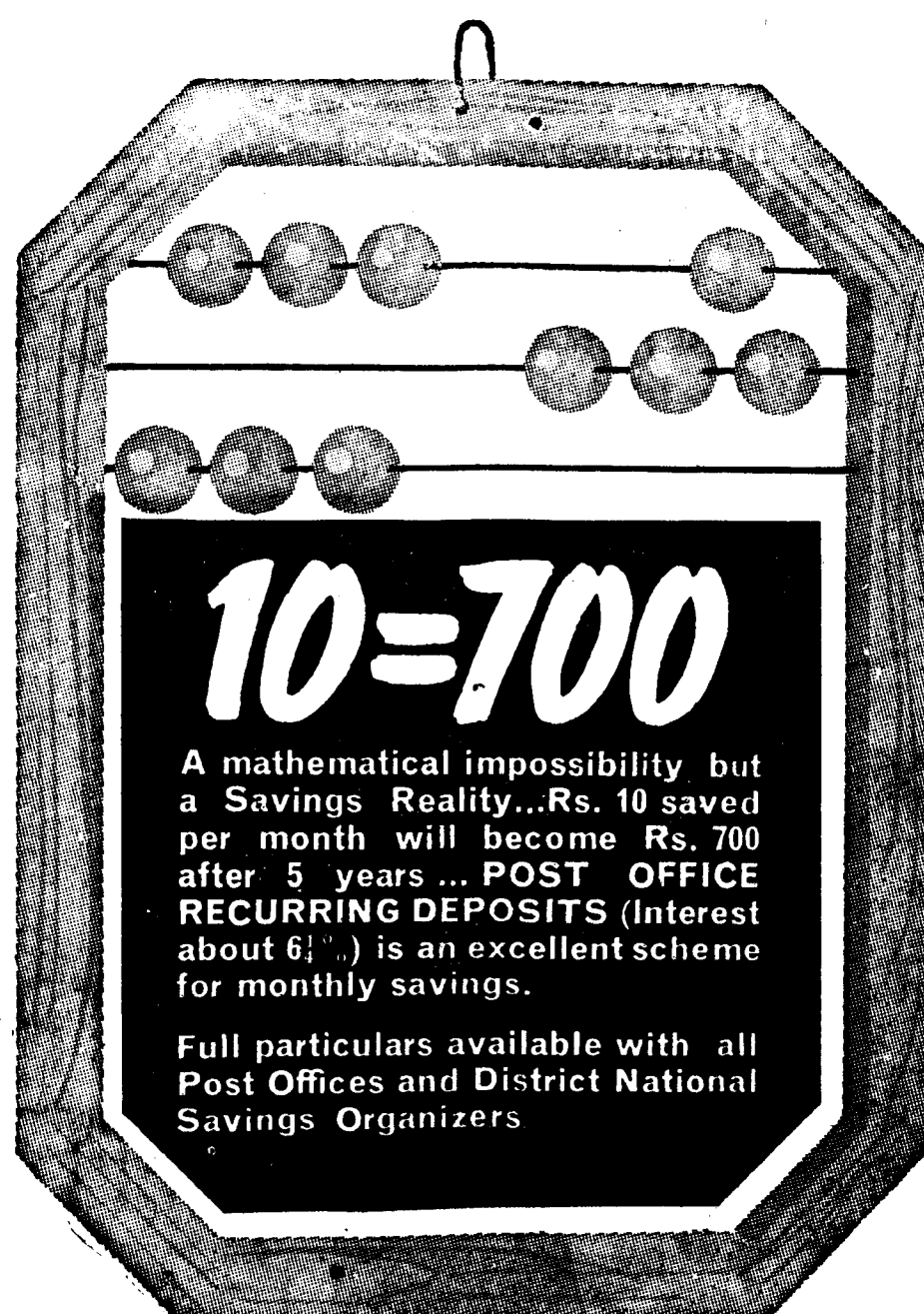
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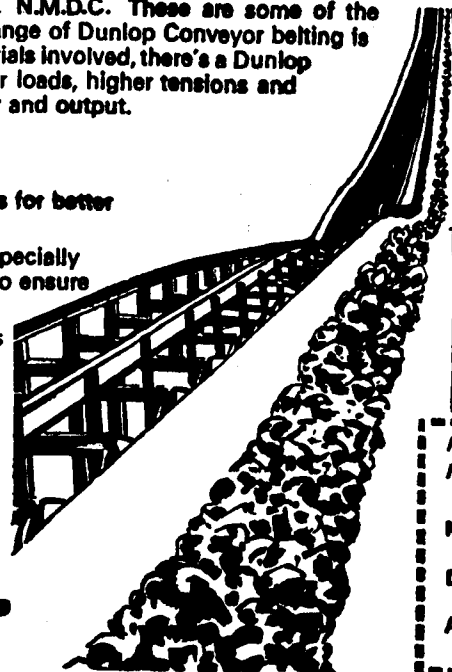
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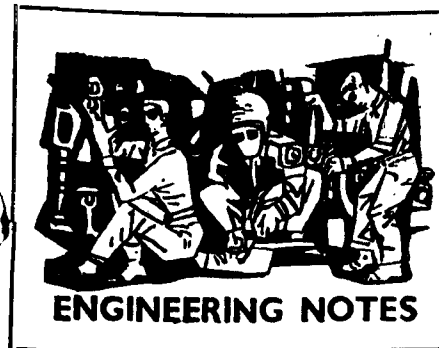


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DEVELOPING a lathe to suit the modest budget of small entrepreneurs and training institutions has been occupying the attention of Hindustan Machine Tools for some time past. High quality and low price in machine tools is a difficult combination to achieve. But this has been made possible by the young and talented workers and engineers of HMT, Kalamassery, with their vast experience and know-how in the machine tool line gathered over a decade of HMT's existence.

The modestly-priced LT-20 lathe, the prototype of which has undergone rigorous tests by the Research and Development Wing of HMT and also by competent authorities like the Central Machine Tool Research Institute, Bangalore, has been acclaimed a big success by its various customers all over the country. HMT has already despatched 70 such machines to these customers.

Completely designed by the Hindustan Machine Tools, Kalamassery, this lathe is made of 100 per cent indigenous materials and components. The salient features are: low price, high precision, convenient operating controls, special accessories to do many types of work in addition to normal turning, least maintenance, variants to suit the customers' requirements, monolithic casting to ensure maximum rigidity, streamlined appearance, excellent cutting characteristics, and world-wide sales and service network of HMT at the customers' request.

Advance orders for 217 machines were booked within three months after commercial production was started.

**A SCOOP FOR THE FIRST TIME**

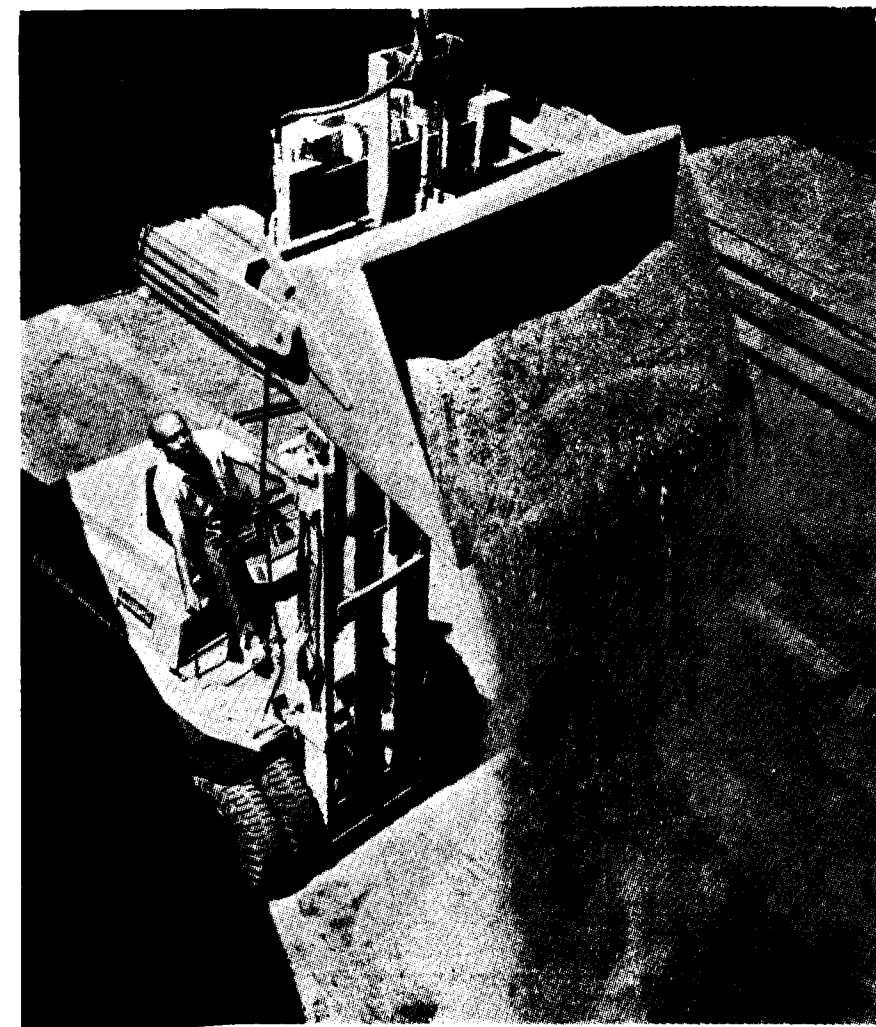
FOR the first time in India a scoop is offered as an optional attachment for fork lift trucks. Developed by McKenzies Limited, for their versatile range of McK Saxby fork lift trucks, these scoops are ideally suited for rehandling and dumping fine, granular and other free flowing solids like chemicals and fertilisers, salt, sand, charcoal and foodgrains.

The scoop is hydraulically operated. It is offered in 700, 800 and 900-litre capacities to suit the varying density of materials. The first McK Saxby fork lift truck with a scoop was ordered by Hindustan Organic Chemicals. The Maharashtra Agro-Industrial Corporation has placed an order for two units with scoops for handling fertilisers from stock-piles.

McK Saxby fork lift trucks are offered in 2.5-tonne and 3-tonne capacities. Model 3T has a dual tyre axle which is optional on Model 2T5 for operation with a scoop. Other optional attachments offered with these fork lift trucks are crane booms and rams.

McK Saxby fork lift trucks are sold and serviced by Larsen & Toubro Limited and Willcox Buckwell (India) Limited. Apart from product quality and proven service, an important advantage that this make offers to the customer is the high indigenous content which means easy availability of spares for quick replacement and therefore reduced down-time. Both front and rear tyres and tubes and fluid couplings, which are standard on Model 3T, are made in India.

A McK Saxby fork lift truck demonstrates the efficiency of the hydraulically-operated scoop.



## Development Diary

\* A new and powerful propellant has been developed at Thumba in Kerala. A multi-stage rocket is also under development there to carry a 5 kg. payload up to an altitude of 100 kms.

\* The Mormugao Port set a new record by handling 9.03 million tonnes of traffic during 1969-70. The previous highest was 8.78 million in 1968-69.

\* A 60-km broad-gauge railway line has been constructed between Obra, about 120 km. from Mirzapur in Uttar Pradesh, and Singrauli in Madhya Pradesh. The line has been constructed at a cost of more than Rs 88 crore.

\* India's second Leander Class frigate has been launched from Bombay. Built by Mazagaon docks at a cost of Rs 20 crore, several items of the frigate have been developed indigenously.

\* The foundation stone of the Cooperage Telephone Building, one of the biggest projects to be undertaken by the Indian Posts and Telegraphs, has been laid. The 16-storied building which is to be completed by the end of 1974 at a cost of Rs 1.23 crore will ultimately house 40,000 lines of equipment worth Rs 8 crore. The underground plant will cost Rs 9 crore.

\* An all-weather ship, Amindivi, built in Yugoslavia at a cost of Rs. 2 crore, has arrived in Cochin Port. The ship will ply between the mainland and the Union Territory of Laccadive, Minicoy and Amindivi Islands.

\* Export of woollen hosiery during the current year will go up to about Rs 7.50 crore as against Rs 6.20 crore in the last year.

\* The Kerala State Industries Development Corporation has obtained a licence for establishing a glass factory at Alleppey.

\* The first public sector cement plant in Tamil Nadu was inaugurated at Alangulam in Ramanathapuram district. This six-crore plant has an

annual rated capacity of four lakh tonnes.

\* The area cultivated under rice in Andhra Pradesh during 1969-70 is estimated at 84,34,600 acres as against 70,40,400 acres during 1968-69, representing an increase in area of 16 per cent.

\* Indian Railways have manufactured for the first time in India a 35-tonne metre gauge steam crane which can be hauled at a speed of 72 kilometres per hour.

\* The Izzatnagar Workshop of the North Eastern Railway will manufacture 25 cranes, each costing Rs 5.4 lakh. It will save foreign exchange worth Rs 1.35 crore.

\* Amar Dye-Chem-Ltd, a Bombay firm, has recently concluded an agreement with Anilinas Argentinas S. A. of Buenos Aires, representing a group of Argentine firms, for making available know-how and technical assistance for the manufacture of reactive dyes, hot and cold brands, optical whiteners for cotton nylon and polyester on payment of royalty.

\* The Indian Railways have earned a gross revenue of Rs 83.18 crore, in April 1970 as against Rs 76.83 in April 1969.

\* The total new business completed by the Life Insurance Corporation of India amounted to Rs 71.22 crore during April and May in 1970, as against Rs 62.64 crore of completed business during the corresponding period last year.

\* Traces of gold have been found in copper ore, to be used at Khetri project of Hindustan Copper Ltd. The Department of Mines and Metals, Government of India is now examining the possibilities of extracting gold during the process of manufacturing copper.

\* Kirloskar Electric and Kirloskar Brothers are providing 30 per cent of the capital in a joint venture to be set up at Ceylon for the manufacture of electric motors, pumps, diesel engines, and machine tools.

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# YOJANA

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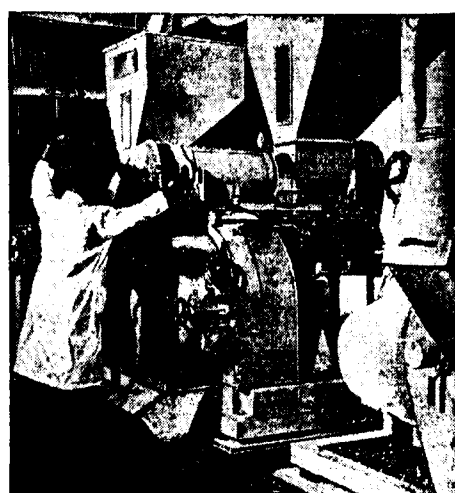
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LEST WE FORGET

India's task for bringing about the Union of all races has not been finished. It has commenced anew. It has a message to give to all the nations.

—Deshabandhu Chittaranjan Das

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## A PRAGMATIC DECISION

WITH the Government of India's decision to sanction the setting up of a fertiliser factory at Mithapur in Gujarat, the decks have been cleared to increase fertiliser production in the country. This has acquired greater urgency due to the fact that a great deal of foreign exchange has to be spent on the import of fertilisers to meet the increasing demand from agriculturists and to sustain the green revolution. During 1969-70 the country had to spend an estimated Rs 200 crore in free foreign exchange to import nearly two-thirds of the country's requirements. By 1973-74 the import of fertilisers is estimated to rise to Rs 520 crore. Quite obviously, this is a situation which cannot be allowed to continue and the Government has rightly decided to increase the production of fertilisers in the country progressively towards self-sufficiency.

Last December a private sector plant in Goa was sanctioned by the Government and with the sanction of this latest project in Gujarat an additional yearly flow of 8.5 lakh tonnes of basic fertilisers will be pumped annually into the present production stream. The sanction for the private sector plants does not, however, mean any deviation from the policy of increasing production of fertilisers in the public sector. In fact, plans are under way for the setting up of new plants at Barauni, Talcher and Ramagundam and one ammonia-based project at Paradeep. The ones already functioning at Kanpur and Kota have got over their initial difficulties.

The Mithapur factory has been sanctioned subject to the restriction that no imported raw material would be used in the manufacture of fertilisers. In fact, the Government has now decided that all private sector factories will have to depend on indigenous material and only the public sector plants will be entitled to import liquid ammonia for the manufacture of fertilisers. This underlines the policy of Government to depend largely on public sector enterprises to meet the essential needs of the country. The new private sector plant will have to depend entirely on petroleum-based feedstock.

Government policy regarding the fertiliser industry has further significance in view of the crucial role assigned to agriculture in the Fourth Plan. With the gross cropped area increasing at the slow rate of 1.2 per cent per year, the achievement of agricultural production targets calls for a sharp increase in the per hectare yield, which in turn will depend, to a great extent, on the judicious use of fertilisers. The targets of consumption of fertilisers during the Fourth Plan period have been placed at 3.2 million tonnes of Nitrogen, 1.4 million tonnes of  $P_2O_5$ , and 0.9 million tonnes of  $K_2O$ , and also presumes the need for setting up more units in the next few years.

However, along with the setting up of more plants, adequate steps have to be taken to increase production by utilising the excess capacity of the existing units. In this context, it may be pointed out that the fertiliser industry has been operating at only about 60 to 65 per cent of its rated production capacity. There is, thus, obvious need to stop this wastage and to make the maximum use of the installed capacity of existing units in order to reduce the gap between the needs of agriculture and the availability of fertilisers. One of the reasons for the lack of full utilisation of the present capacity is the shortage of imported spares and balancing equipment. If this is so, there is urgent need to ensure that the plants are not handicapped by lack of essential replacements. In fact, it would be worthwhile to give special facilities to these plants to import the necessary equipment in order to attain full production capacity. This is as urgent as the setting up of new plants.

Paradoxically, however, in spite of rising demand vast quantities of fertiliser stocks continue to remain unsold in the godowns of State Agriculture Departments and Co-operatives. For instance, in Andhra Pradesh imported fertiliser stocks worth Rs 4.7 crore are reported to be lying unsold. The reason probably is that farmers are not willing to accept this particular type of fertiliser. Clearly the country cannot afford to waste so much money, nor can it allow such an important input of agriculture to be thrown away. This aspect of the matter also needs close attention, because consumer motivation is as important as actual production.

The problem of transport also needs adequate attention so that there is no imbalance between supply and demand. To avoid this, the movement of fertilisers from manufacturing centres to the centres of high consumption demand should be facilitated, and given the highest priority.

Concrete policy guidelines should be laid down regarding price structure and availability of fertilisers to the farmer. Here, the nationalised banks in the rural areas can play an important role through advancing fertiliser loans to farmers on the basis of land holdings and the estimated crop yields. Instead of giving cash loans, it will be an advantage if the banks arrange for the supply of fertilisers directly to the farmer, the value being treated as a loan.

It is clear that there is need for a co-ordinated approach to pricing, distribution, transportation and marketing of fertilisers. At the same time, a careful analysis of consumer behaviour should supplement the production-oriented policy in the fertiliser industry, which has never lacked sound economic judgment.

## Widespread Private and Individual Initiative Can Create Conditions for Adequate Employment Opportunities

R. VENKATARAMAN

ONE of the directions in which the progress of the Indian economy has fallen conspicuously short of requirements is in the matter of providing satisfactory employment opportunities commensurate with the expansion in educational facilities or with the growth in the population. In the kind of economic situation that prevails, a clear and precise identification of the degree of employment or underemployment is a difficult task. However, it is possible to distinguish the large-scale underemployment in the rural areas from the unemployment of the educated in the urban areas. The latter being more vocal has received considerable attention in recent years.

Taken as a whole, it would be correct to say that in spite of the planning effort, spread over nearly two decades, it has not been possible for us to deal adequately with the problem of unemployment. The picture is none too comforting when we think of the situation in the context of the new decade. The provision of employment opportunities will be one of the major problems that we will have to tackle, if the cherished values of freedom and democracy have to be sustained.

In essence, the problem has two facets. First is the aspect of a growing population and the entry of an increasing number of persons within the productive age in the labour market. The second aspect of the problem relates to a pattern and rate of economic development that would be conducive to the maximisation of employment opportunities to absorb this growing inflow of new labour entrants.

*Edited version of a Talk delivered at the Thirtieth Annual Conference of the All-India Manufacturers' Organisation.*

Looking at the problem from the point of view of the next decade, the various measures that are currently undertaken for control on population would have very little effect on the addition to labour supplies during the next decade. This is so because the new entrants during the next decade have already been born. Not that population control is of insignificant importance; this has necessarily to be intensified from a longer term point of view. But clearly there is no alternative insofar as the 1970's are concerned except to seek solution to the unemployment problem through emphasis on the second aspect which I mentioned, namely of securing a rate of growth which would sustain a much larger employment potential. In other words, we cannot divorce the employment problem from the question of our policies and programmes of economic development and it is in this direction that we have to give further thought.

The Planning Commission has been very much concerned about seeking avenues to maximise employment opportunities within the framework of the Plan. Naturally, any proper direction to policy in this regard has to be based on a factual analysis of the situation. Admittedly, there is a considerable lack of information about the nature and magnitude of the problem. The Planning Commission, therefore, set up in August 1968 a Committee of Experts to enquire into the estimates of unemployment worked out on previous occasions and to advise the Commission on the various connected issues.

The Committee has come to the conclusion that the estimates of

labour force, additional employment generated and unemployment at the beginning or at the end of a Plan period presented in one-dimensional magnitude are neither meaningful nor useful as indicators of the economic situation. Owing to the character of our economy and consequently that of the labour force, employment and unemployment are too heterogeneous to justify aggregation into a single dimensional magnitude. It would, therefore, be necessary to undertake studies on the different segments of the labour force taking into account the various characteristics. The only information which is currently available relates to the employment provided by the public sector and non-agricultural establishments in the private sector as collected under the Employment Market Information Programme. This programme does not cover employment in agriculture, household establishments, the self-employed and the Defence forces.

### Economic Recovery

On the basis of information available from this source, employment increased from about 12.10 million at the end of 1960-61 to about 15.46 million at the end of 1965-66 or by about 28 per cent. The growth of employment in 1966-67 was considerably lower at about 0.8 per cent and during 1967-68 it was almost negligible. In 1968-69 it increased by about 2 per cent, partly reflecting signs of economic recovery. Partial though this information is, it is indicative of the close linkage between employment, on the one hand, and the rate of economic growth on the other.

During the next decade (1971-81), the net addition to the labour force is estimated at around 59.8 million,

within the age group of 15 to 59. This gives some indication of the magnitude of the problem involved. Assuming that a part of this addition would be in the nature of self-employed persons or unpaid family helpers, there is no doubt that the quantum of additional opportunities that would have to be created during the next decade is of a size which is staggering. We have, therefore, seriously to consider in what manner and to what extent we can galvanise our efforts to meet the problem.

#### Primary Solution

As I said earlier, the primary solution lies in accelerating the economic growth. A line of criticism that is often voiced against the Planning Commission is that the Plans are too large and ambitious and the sights are too high to be realistic. Whatever may be the merits of this criticism, it would be a point to ponder whether, in fact, considering the magnitude of the problem, we can do with less! In fact, even the Fourth Plan outlay would be inadequate in relation to the accumulated needs of the situation.

Apart from the overall magnitude of the Plans and the rate of growth, an important aspect, insofar as it relates to the provision of employment, is the manner in which these resources are deployed and the technological routes that are chosen for achieving the desired goals. Clearly the methods that are adopted in labour-short, capital-affluent nations are not only irrelevant but positively injurious to the Indian situation with surplus labour and inadequate capital resources.

The integration of employment creation to economic development through the maximum possible productive use of available labour to accelerate economic growth, and, more particularly, to substitute labour for scarce capital where this is economically feasible should be the appropriate strategy in our context. Not only much greater resources would have to be deployed for labour-intensive rural development programmes, but even in the matter of industrial production, greater encouragement would need to be given to economically sound, labour-intensive industries by an appropriate choice of techniques and pro-

duct mix except, of course, in the case of such industries where technological considerations demand production on a capital-intensive basis.

#### Agricultural Labour

In the Fourth Plan considerable emphasis has, therefore, been laid on the development of agricultural infrastructure including communications and transport links, rural electrification, rural industries, decentralisation and dispersal of industrial investments and on rural and urban housing. Further, special programmes have been formulated for sub-marginal farmers, landless labourers and for dry farming. It is also proposed to undertake rural works in chronically drought-prone districts in different States. The emphasis on programmes of soil conservation and wasteland reclamation are also expected to contribute more employment opportunities to agricultural labour.

Whatever be the programmes in the Five Year Plans, the rate of growth and the creation of newer employment opportunities, in the ultimate analysis, are functions of the total national effort. There are limitations up to which governmental effort alone can sustain a rising tempo of development. While the public sector may expand and the Government may provide the necessary environment and conditions for economic growth, it is largely through the emergence of private and individual initiative at all levels and on a widespread basis that the country can achieve the required momentum to sustain opportunities of employment on an adequate scale. In recent years, there has been a significant shift in the balance of trade between the urban and rural sectors.

#### Rural Prosperity

With the agricultural revolution, rural prosperity has considerably increased. I am not sure whether the industrial community has taken full advantage of this situation. The demand for consumer goods has substantially increased from the rural sector. In fact, there is a danger that if these demands are not met at a satisfactory level, it can lead to a price spiral. But protected as it has been hitherto, there has not been the urge on the part of our industrial community

to extend its marketing operations to meet the rising demand in the rural sector. To my mind, marketing is an aspect which has been neglected in the process of our economic development for reasons which are well known.

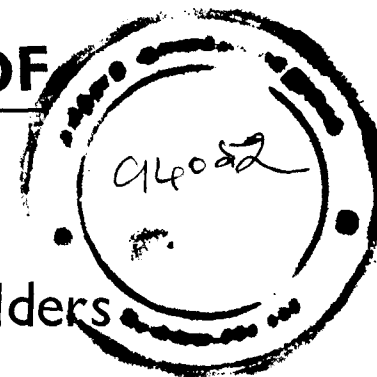
In a situation of unemployment and under-employment, marketing can absorb, productively and usefully, a very large proportion of the new labour force. At the same time, it can activate further economic growth by creating new productive facilities to meet the growing demands. In other respects too, the rural population is at present neglected. The new agricultural strategy demands various agricultural inputs including mechanical and electrical appliances. There are hardly any repairing or maintenance facilities available in the rural centres. Provision of such facilities can absorb skilled labour and, at the same time accelerate the process of agricultural revolution. It is this urge to look for opportunities and to cash on them that can ultimately lead both to our economic salvation and also solve the unemployment problem.

#### Industrial Growth

The new industrial licensing policy that has been announced recently provides the environment within which much greater initiative and entrepreneurship have become possible. Many small-scale and medium scale industries can now be set up without seeking Government approval. Industries which call for investments up to Rs 1 crore, provided these do not call for more than 10 per cent of foreign exchange, can be set up without any industrial licence. With the much larger industrial base and with a variety of raw materials and capital equipment available in the country, this provides an excellent opportunity for setting up medium-size labour-intensive industries on a wide scale. Even larger industries within the total assets of Rs 5 crore can be expanded by Rs 1 crore without an industrial licence. The development of small-scale industries has been given special attention and quite a few of them have been reserved exclusively for development in the small-scale sector. Indeed, an encouraging feature of our develop-

turn to PAGE 10

## EMPLOYMENT PROSPECTS OF AGRICULTURAL ENGINEERS



### Brighter Chances For Diploma Holders Than For Graduates

Although the number of graduate agricultural engineers has almost trebled over the last decade, the demand has not kept pace with this increase in output. The prospects of employment of graduate agricultural engineers during the Fourth Plan are found to be meagre; on the other hand, there is likely to be a sizeable demand for diploma holders in agricultural engineering. Many of the jobs at present handled by graduate engineers could be entrusted to the diploma holders, who, as a group, would be nearer to the farmers, and could tackle their problems. These are among the findings of a manpower planning unit set up by the Department of Agriculture of the Union Ministry of Food, Agriculture, Community Development and Co-operation to study the problems connected with the availability of high level technical manpower for agricultural production programmes in the Fourth Plan.

The unit's first study report has estimated that the number of graduate agricultural engineers at the end of 1961 was about 350 and that the output during the four years 1958-1961 was about 135. Substantial expansion in agricultural engineering education has since taken place; as against only three institutions in 1963, (The Allahabad Agricultural Institute, Naini, The Indian Institute of Technology, Kharagpur, and the U.P. Agricultural University, Pantnagar) there were four in 1964, five in 1965, six in 1966 and seven in 1967.

The report further adds that between 1962 to 1968, about 515 graduates and post-graduates in agricultural engineering were added to the total number. In 1968 their number was

865. From 1969 to 1973, a further addition of 1,315 is likely to take place.

The younger age-groups will be predominant; persons below 35 years of age would, in 1974, constitute about 88 per cent of the total.

The report says that the State Governments are unlikely to employ a large number of agricultural engineers. During the Fourth Plan the requirement may, at the most, be for 285 agricultural engineers in connection with extension activities. There would, of course, be some departmental schemes (workshops, tractor-hiring centres, etc.), but it is doubtful if the allocations would be large enough to justify the employment of a substantial number of agricultural engineers.

Sixteen Agro-Industries Corporations would emerge as major employers during the Fourth Plan. The only constraint on their demand would be the nature of the programmes; should a corporation have a programme not based on agricultural engineering skills, it would obviously not need agricultural engineers in large numbers. The larger number of corporations are expected to emphasise programmes of distribution, repair and hire of agricultural machinery and may need some agricultural engineers. It is difficult to estimate their requirement during the next five years. On an *ad hoc* basis a requirement of 100 has been assumed. Much would depend on the programme the corporations actually undertake and efficiency of implementation.

The low employment potential in the pesticides and fertiliser industries and of commercial banks is not surprising. Considering, however, the growth envisaged in the

tractor industry, a higher employment potential was to be expected. Its absence brings into focus the industry's lack of emphasis on organising a sound distribution network. There would, no doubt, be other units, but to take the overall requirement above 150 would be extremely unrealistic.

A connected question in this context is the establishment of more institutions of agricultural education. It would be evident from the preceding analysis that there is little justification for more institutions. It is perhaps too late to reconsider the establishment of agricultural universities, but there is clearly a need for halting the establishment of more agricultural and veterinary colleges. This argument is equally valid for agricultural engineering faculties.

The prospects of employment of agricultural engineers, have on enquiry, been found to be extremely meagre; the need actually is for sub-professionals and their output has not been organised yet. It would be appropriate if the number of agricultural engineering faculties is kept at the present level for at least the next five years; at the most, the establishment of a faculty in the south may be considered. This, obviously, would not be a satisfactory arrangement unless the existing faculties ceased to serve the States of their location exclusively and developed into regional centres of agricultural engineering education. Each of the existing faculties should be meant for a group of States and each State may be made eligible to send students to two regional institutions at the most. The seats available in each existing faculty should be apportioned among constituent States, the seats available to each State in the second regional institution being somewhat less than in the first.

The curb on expansion of post-graduate education in agricultural engineering should be equally firm. Postgraduate education is specialised and there is obviously little point in organising postgraduate faculties in all subjects in each institution. Each of the more efficient institutions could have a postgraduate faculty in one subject only and admissions could be made on a national basis according to merit.

Some knowledgeable agricultural engineers have suggested that post-graduate education ought not to follow undergraduate education immediately; there should be an interval in the course of which the prospective entrant should have obtained experience of field conditions. The entire question deserves immediate examination.

In agricultural engineering education, a cadre of sub-professionals, namely diploma-holders needs to be developed. Many of the jobs at present handled by graduate engineers could conveniently be entrusted to the sub-professionals who, as a group, would be nearer to farmers and could handle their problems. Before, however, their output is undertaken, it would be expedient if States decided on their inclusion in the extension agency. They would also have to assess the requirements of the private sector and promote schemes calculated to assist the output in self-employment.

(ISAE NEWS)

#### PRIVATE SECTOR REFINING CAPACITY

The foreign oil refineries in India produced 7.49 million tonnes of petroleum products in 1969, as against the licensed capacity of 5.095 million tonnes per annum. Among these Burma Shell, Esso, and Caltex produced 1.75 million tonnes, 0.60 million tonnes and 0.575 million tonnes more respectively than their licensed capacities. The excess production was permitted in order to utilise the available refining capacity and to achieve self-sufficiency in refined petroleum products.

#### YOU PAID IT LAST YEAR

Central Government's tax revenue during the financial year 1969-70 amounted to Rs. 2,725.70 crore, as against Rs. 2,417.71 crore in the previous year. The revenue realised in March 1970 was Rs. 322.38 crore as against Rs 349.12 crore in March 1969.

The following are the details of the revenue realised under various heads :-

| Revenue Head                                                      | (Rs in Lakh)              |       |                                |        |
|-------------------------------------------------------------------|---------------------------|-------|--------------------------------|--------|
|                                                                   | During March<br>1970 1969 |       | Up to March<br>1969-70 1968-69 |        |
| Customs                                                           | 3696                      | 3896  | 41953                          | 44335  |
| Union Excise (excluding cesses on salt, rubber coal and iron ore) | 13489                     | 12171 | 148681                         | 128509 |
| Corporation Tax                                                   | 4978                      | 8044  | 36132                          | 30340  |
| Income Tax                                                        | 9532                      | 10196 | 42553                          | 36104  |
| Wealth Tax                                                        | 221                       | 354   | 1555                           | 1118   |
| Expenditure Tax                                                   | —                         | —     | —                              | —      |
| Gift Tax                                                          | 44                        | 49    | 193                            | 150    |
| Estate Duty                                                       | 183                       | 144   | 709                            | 645    |
| Opium                                                             | 95                        | 58    | 794                            | 570    |
|                                                                   | 32238                     | 34912 | 272570                         | 241771 |

#### PAPER AND CEMENT MILL EQUIPMENT

WITH three months to go for the close of its current financial year which ends on August 31, 1970, Utkal Machinery Ltd. (UTMAL), an Indo-German venture at Kansbahal, near Rourkela, is looking forward to a record turnover of over Rs. 3.5 crore.

Compared to a meagre turnover of Rs 0.9 crore in 1966-67 which increased progressively to Rs. 1.5 crore in 1967-68, and to Rs 2.3 crore in 1968-69, this year's expected turnover is regarded as a sign of UTMAL's continued success in the production of sophisticated equipment for paper and cement mills. The invoiced value of sales of UTMAL in 1968-69 amounted to Rs 3.1 crore resulting in a gross profit of Rs 40 lakh and a net profit of over Rs 20 lakh.

The company is now able to fabricate some of the most complicated equipment necessitating high precision, which was considered beyond the scope of manufacture in India. The range of equipment manufactured by it is increasing as

it is able to replace equipment of foreign manufacture by Indian substitutes with its German collaborators.

UTMAL also claims to lay stress on sophisticated and out-of-the-routine jobs. For instance, the foundry, which was intended for the production of only grey iron castings is now producing steel castings and non-ferrous castings of large sizes up to a total weight of ten tons. Among the special castings made by UTMAL are "S"—pipes for benzol coolers, and cylinders to the sintering unit of Bhilai steel plant; hollow ball castings for the Rourkela Steel Plant, which involves special casting techniques; and rings of special molybdenum alloys for power plants which require special hardening properties since these work under tough conditions where, if the surface hardening is not of very high quality, they wear out in a short time.

For the first time in India, UTMAL has also undertaken repair of high pressure and low pressure feeders for continuous digestors.

#### BOOKMANSHIP ON A PRODIGAL SCALE

THE need for books was never better emphasised than when Isaac Newton maintained: "We know only one per cent of one millionth of all that is to be known." Though India adds 1,800 illiterates every minute or 16.5 million every year, the nation's literacy figure has certainly improved from 296 million in 1951 to 349 million in 1969 and is likely to go up to 435.68 million by the end of the Fourth Plan. To provide suitable reading material for such a massive readership calls for bookmanship on a prodigal scale. The National Book Trust, created in 1957 to foster bookmindedness and promote the publication of low-priced books has already acquired the dimensions of a colossus. During 1969-70, it produced 106 books against a bare 21 in 1960-61; a five-fold increase in less than a decade. So far it has published 500 titles in various Indian languages. The publication of one hundred books under National Biography series is already under way. During the Fourth Plan, the Trust proposes to publish a series of another 100 books for children under the Nehru Bal Pustakalaya project. Under *Adan-Pradan* scheme, during the Fourth Plan, 10-20 outstanding books in every Indian language will be brought out in all the other Indian languages. The Trust's publication schedule under "India—Land and People" series reads like a re-discovery of this ancient nation. Covering each State and Union Territory in all its aspects—physical, social, historical and cultural, this series with a first print order of 5,000 copies of each book, is likely to reach half a million mark in production.

A 30-million rupee scheme for subsidised publication of university level books in English is another ambitious project of the Trust.

Other series of publications include books on science and Indian folklore, Indian language translations of outstanding books of the world, books on the World of

Today, besides an exclusive series for the youth under the Young India Library scheme.

All this may appear to be a frenzied publishing activity but it is understandably necessary, for low-priced books written for the common men are a great need of today's India. The National Book Trust does not act only as a mad publishing house churning out volumes after volumes. It has also assumed the task of popularising good and useful reading by holding annual National Book Fair and periodic regional Books Exhibitions and Book Weeks throughout the country. The Third National Book Fair organised in Bombay in 1969 was one of the biggest events of its kind. Over 6,000 titles from nearly all the worthy publishing houses in the country were on display and books were sold at 10 per cent discount. Best designed stalls and jackets were awarded prizes. Seminars on "Books for Youth" and "Minds of Publishers and Book-sellers" were held. Distinguished authors were brought in intimate contact with their readers during three "Meet the Author" evenings.

Book Exhibitions have so far been arranged in nine States and Union territories. That is not all.

In order to promote sales of Indian books abroad the Trust has participated in overseas exhibitions at Frankfurt, Zagreb and Hong Kong. Early this month, 300 titles in Indian languages and English were on display at the Fifteenth International Book Exhibition in Detroit, U.S.A.

Matching representations at the forthcoming world Book Fair at Frankfurt and also in Book Exhibitions at Jakarta, Kuala Lumpur and Singapore, are in the offing. In 1972, the Trust proposes to hold a World Book Fair in New Delhi. Concurrent with the Fair an international seminar on "Books for Millions" will also be organised.



#### IGNORAMAN

Wants to Know

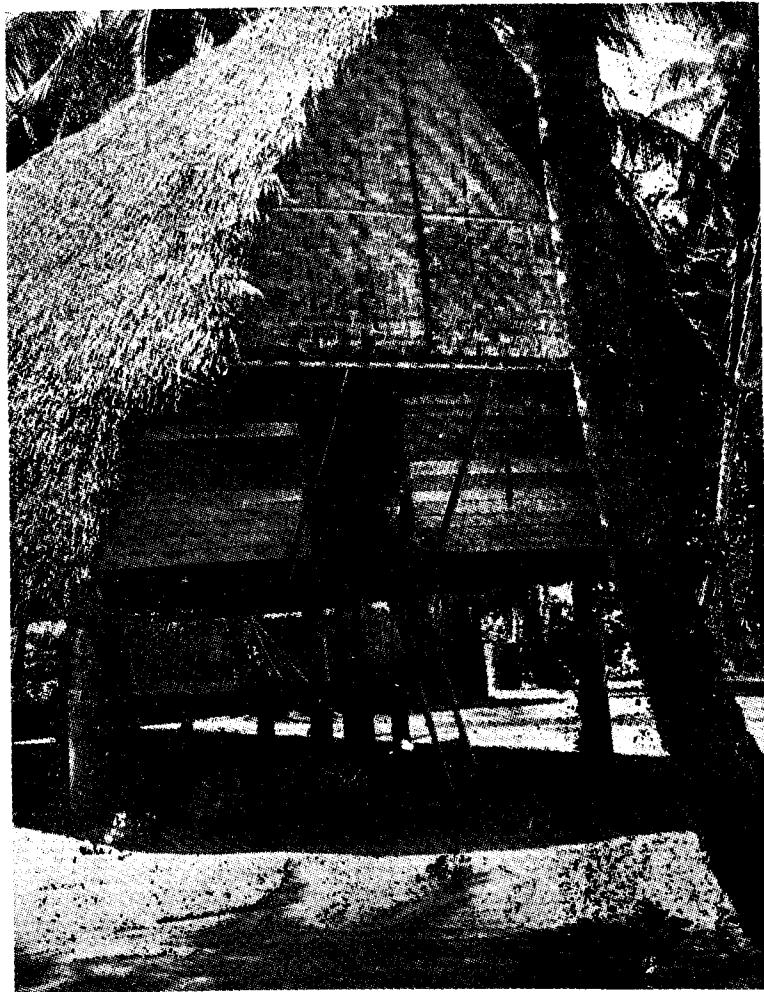
Whether  
the "General Election"  
will one day become  
another  
"Midterm" election.

#### I. C. A IS 75

The International Cooperative Alliance will be seventy-five years old next month. The Alliance, with its affiliated cooperative organisations comprising 255,508,443 members, is the apex organisation of cooperative institutions in 60 countries. It is, in addition, a meeting ground of cooperators and an institution for research and exchange of know-how and ideas.

During the last 25 years, the I.C.A. has helped in the promotion of cooperative institutions in the developing countries in a big way. A Regional Office and Education Centre for South-East Asia was set up in New Delhi in 1960, with substantial assistance from the Swedish Cooperative Movement.

The International Co-operative Alliance also aims at providing specialised training facilities to co-operatives in developed countries. ICA maintains close contact with the United Nations. A joint committee, consisting of ILO, FAO, ICA and other organisations has been formed recently to deal with the promotion of agricultural cooperatives. ICA has also drawn up co-ordinated programmes for development of cooperatives during the Second Development Decade.



## *An Idyllic World in the Heart of the Bay of Bengal Awaits Settlers*

M. VEERABAHU

"IF any one wants to create a paradise on earth, one can right away start work at the Nicobars". So said a visitor to these islands. This idyllic setting awaits people, more and more of them.

The Government have chalked out plans for extensive colonisation in the Andaman-Nicobar archipelago. Under these schemes settlers from the mainland will be provided with 4.1 hectares of land, half of it for agricultural purposes and the rest for homestead and horticulture.

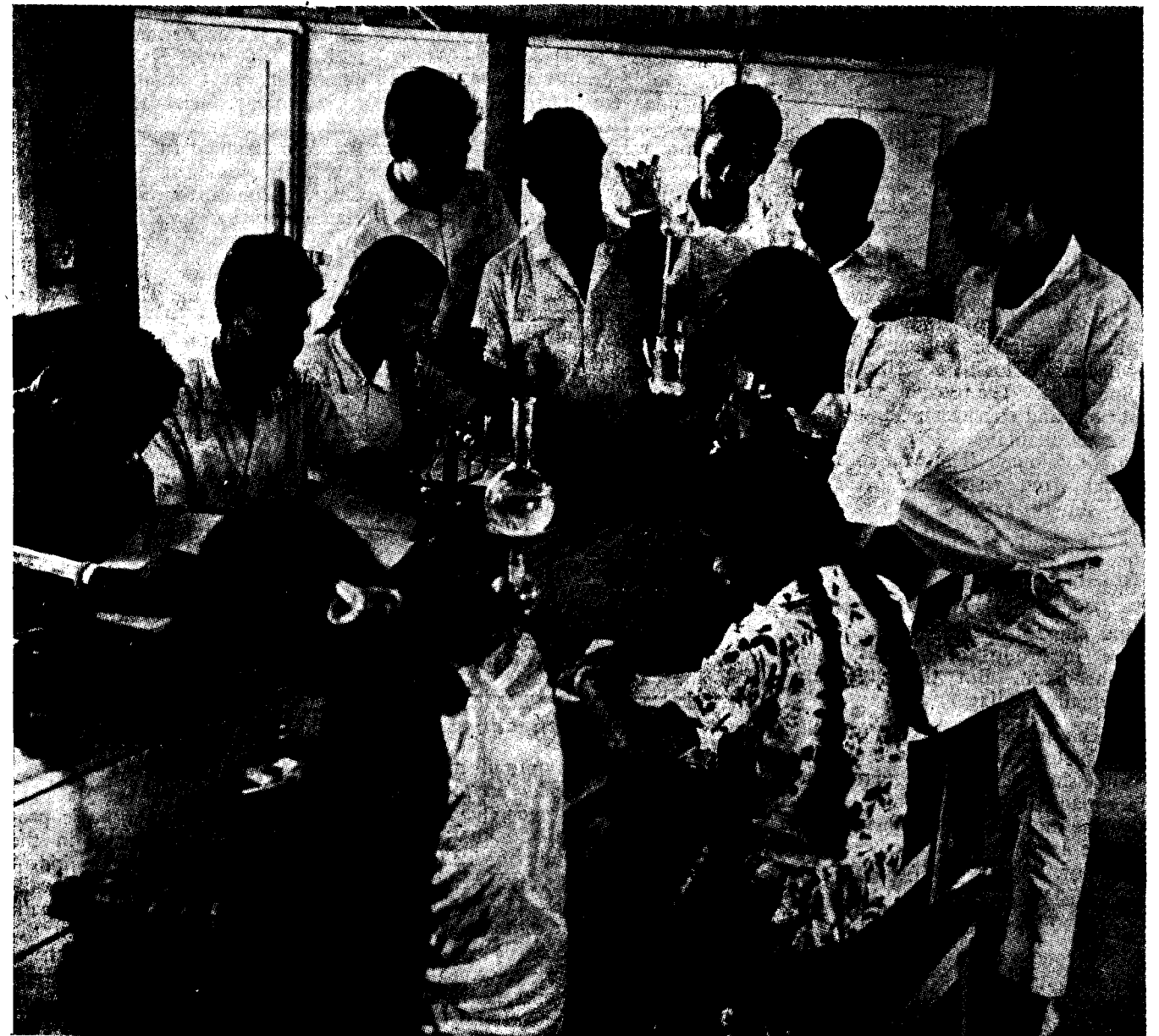
Repayable loans of about Rs 2,000 will be given for construction of houses, buying plough animals, seeds and other inputs. In addition, an ex-gratia grant of about Rs 1,000 will be given for maintenance and passage. It is then left to the settlers to make a paradise of their new habitat.

The word 'island' invokes a feeling of tranquility, pleasure, gaiety and abandon. This feeling turns into a deeper experience when one steps on the Nicobar islands—a

cluster of 19 islands strewn over a vast area between 6°40'N and 6°20'N latitudes and 93°E and 94°E longitudes. Standing like sentinels at the South-Eastern gateway of the Bay of Bengal, these groups of islands are situated at about 1,200 km both from Madras and Calcutta. Together with the Andamans they constitute the far-flung outpost of the Indian Union and are administered by a Chief Commissioner.

The lush green islands, like emeralds on blue velvet, with a belt of coral all round, offer prospects

## Call from NICOBARS



Though situated on the outpost of civilisation the Car Nicobar Island boasts of a High School. Here students of the co-educational school are learning the mysteries of science in the school laboratory. Opposite page: A typical island dwelling on stilts (Top). This tropical paradise provides a variety of fruits which grow wild in the lush vegetation. This young boy (left) is returning home with a load of fruits. (Photographs: P. Roy, Photo Division).

for development. The coconut palm is the "Kalpa Tharu" of the islanders. It provides the staple food for the Nicobarese. Coconut and copra are the chief commodities of commerce and trade. Fifteen million coconuts are exported annually. It is also the equivalent of money for the local people. Arecanut is another commercial crop grown here. Paddy is cultivated to a considerable extent. There is ample scope for growing sugar-cane, bananas, coffee, rubber, and pepper.

Fruits like papaya, oranges, mangoes, guava, pineapple, lemon and jack-fruit grow very well in the soil. The chief occupation of Nicobarese is plucking coconuts from the tall graceful palms, digging yam from earth, hunting pigs and catching fish.

Of the 19 islands in the Nicobars, with an area of 1625 sq. kms. only 12 are inhabited. Car Nicobar is a densely populated island in the group whereas the Great Nicobar is very sparsely inhabited. About

128 sq. kms. in area and having a population of about 10,000, Car Nicobar is the headquarters of the Assistant Commissioner. Port Blair in the Andamans, about 240 km. away, is the headquarters for the whole Union Territory. Car Nicobar is the most northerly among the Nicobar islands and Great Nicobar is the most southerly and the biggest (852 sq. kms.).

There is a middle school besides several primary schools in Car Nicobar. Port Blair has a degree col-

lege. The level of literacy in the Union Territory is fairly high (33.51 per cent). There is a hospital, a police out-post and a wireless station in Car Nicobar.

The indigenous Nicobarese are a good-humoured and lively people belonging to two distinct groups—the Nicobarese and the Shompens. Ethnically they are akin to the Indo-Chinese. The average height of the male is 1.57m. and the female 1.50m. They live up to 70—80 years. They speak a language of the Mon Ammon groups. Indigenous religion is animism though there are Muslims, Christians, Hindus and Buddhists. The people are superstitious and consider birth and death as unclean affairs. They are fond of bright colours. The women do not suffer from restrictions. There is no dowry system.

Carpentry is their chief craft. They can make pottery. They build their own boats and canoes.

The islanders are good boatmen and enjoy canoe races. They live in groups of villages under a headman. But this system is gradually fading.

The houses are built on stilts, 2.5 metres high and are generally dome-shaped or rectangular. They are made of wooden planks, the roof of the house is framed with lath of the areca palm and covered with grass or leaves.

#### Penal Settlement

In ancient days, these islands formed an outpost of the Chola kingdom and have been referred to as *Nacaccavaram* in the Tanjore inscriptions. In the 18th century the colonising West European nations, one by one, had brief spells of occupation. Finally, the British annexed the Andaman and Nicobar islands. In 1858 they established a penal settlement in the Andamans

where Indian patriots were sent to serve long-term imprisonments. The Japanese occupied the territories during the Second World War. On December 31, 1943, while the islands were still under Japanese occupation, Netaji Subhash Chandra Bose raised the Tricolour over there. After Independence, they formed a Part "D" State and were later made Union Territory in November 1956.

These islands are linked with the mainland by once-a-month shipping service operating between Calcutta and Madras. For inter-island travel, there is only one vessel available besides the country boats plied by the local people.

#### Fourth Plan Schemes

The Government have plans for developing shipping, harbour and road facilities. The Fourth Plan outlay for the Union territory of the Andaman and Nicobar islands was fixed originally at Rs 11 crore. The Annual Plan outlay for 1970-71 was fixed at Rs 3.59 crore, the sectorwise allocations being Agri-

culture: Rs 36.40 lakh, Co-operation and Community Development: Rs 9.07 lakh, Power: Rs 13.51 lakh, Industry: Rs 0.59 lakh, Transport and Communication: Rs 1.45 crore, Social Services: Rs 1.28 crore and miscellaneous: Rs 5.46 lakh. In addition, Rs 1.04 lakh would be available for Centrally-sponsored Schemes. The Plan outlay has been increased now to Rs 14 crore.

The colonising schemes of the Government for the whole of Andaman and Nicobar islands have benefited a large number of displaced families from East Pakistan. About 3,000 families have been settled. In addition, 183 families from Kerala and 43 from Tamil Nadu have also found happy living ground there. There is scope for more settlers to come from the mainland. Recently seven venturesome navy men, in a boat, sailed across the bay from Madras to these islands. However, even less venturesome people would find it exciting to visit and settle in these beautiful, beautiful islands.

#### MORE FERTILISERS

Fertiliser consumption in the States will be stepped up to 15.5 lakh tonnes of nitrogen, 5.5 lakh tonnes of  $P_2O_5$  and 2.5 lakh tonnes of  $K_2O$  by the end of 1970-71, representing increases of 21 per cent, 28 per cent and 43 per cent respectively over the estimated consumption during 1969-70. Compost production will also increase to 156.48 million tonnes in 1970-71 as against last year's 150.50 million tonnes, and the urban compost production will go up to 4.5 million tonnes as compared to 4.2 million tonnes in the previous year. The target set for the coverage under green manuring is 10.44 million hectares, as against 9.56 million hectares in the previous year.

The Fourth Plan targets of fertiliser consumption are 3.2 million tonnes of nitrogen, 1.4 million tonnes of  $P_2O_5$  and 0.9 million tonnes of  $K_2O$ .

The domestic production of fertiliser during 1970-71 is expected to be about 10.50 lakh tonnes of Nitrogen and 3.20 lakh tonnes of  $P_2O_5$ ; while total requirements of  $K_2O$  are to be met from imports.

#### FASTER RATE OF GROWTH

from Page 4

ment has been the remarkable progress that has been made in the establishment of small-scale industries. On the basis of the data available regarding the number of small-scale industries registered with the State Directorates of Industries, the number of small-scale units increased from about 35,000 in 1961 to 1,31,000 by 1968. From the employment point of view, this is particularly significant as, according to certain statistics, the fixed investment per employee is of the order of Rs 2,000 in small industries against nearly Rs 18,000 in large industries.

The Fourth Plan, therefore, gives particular emphasis on the development of small-scale industries. It is to be hoped that with the liberalisation in the industrial licensing policy and with the generally brighter outlook on the economic front, the industrial community both, big and small, would come forward to increase the tempo of industrial development and to substantially increase the employment opportunities.

## PERFORMANCE BUDGETING

### As an Aid to DECISION MAKING

R. K. MENON

IN their Report on 'Finance, Accounts and Audit' the Administrative Reforms Commission recommended the introduction of performance budgeting in the Central and State Governments in respect of developmental organisations. The Government of India made a start in 1968-69 and a document was prepared for that year in respect of Posts & Telegraphs Department (Capital Outlay), Department of Family Planning, Ministry of Communications (Overseas Communications Service, The Monitoring Organisation, Wireless Planning & Co-ordination Wing), Ministry of Works, Housing and Supply (C.C.P.S. and C.P.W.D.) and Ministry of Shipping & Transport. The scheme was further extended over 1969-70 to the Department of Health, Ministry of Irrigation & Power, Department of Food, Revenue side of P. & T. Department and Civil Aviation Department and Meteorological Department. Further coverage was achieved for the year 1970-71 in respect of Department of Labour & Employment and select organisations of the Department of Agriculture. It is expected that other Ministries and Departments will also be covered gradually in the course of the next one or two years.

The existing conventional budgets for these Ministries and Departments consist of the Demands for Grants and also some details in the "Notes on Important Schemes". The Demands for Grants give the financial requirements in terms of inputs of the organisation, for example the number of officers to be appointed and the quantity of materials and equipment to be purchased. Except for the details given in respect of certain items in the "Notes on Important Schemes", the existing budget documents do not show what the Department or

organisation is going to achieve in the budget year—in other words, what is the output of the Department or organisation. The performance budget document contains, in respect of each Ministry or Department, the financial requirements by programmes and activities, for example the entire operations have been divided into programmes and activities. Even though the financial requirements are given as per programme activity the objectwise classification at

existing budget the focus is on the financial requirements with reference to objectwise details, the performance type of budget emphasises the achievement in terms of the output or end product or service which a Department or organisation is expected to achieve. The review of the programme or activity with reference to objectwise details has not much of a meaning and also has limited management utility while the review of a programme or

A performance budget gives data that is not available in the existing budget. It gives the inputs and outputs of a programme which are useful from the point of view of the decision-maker.

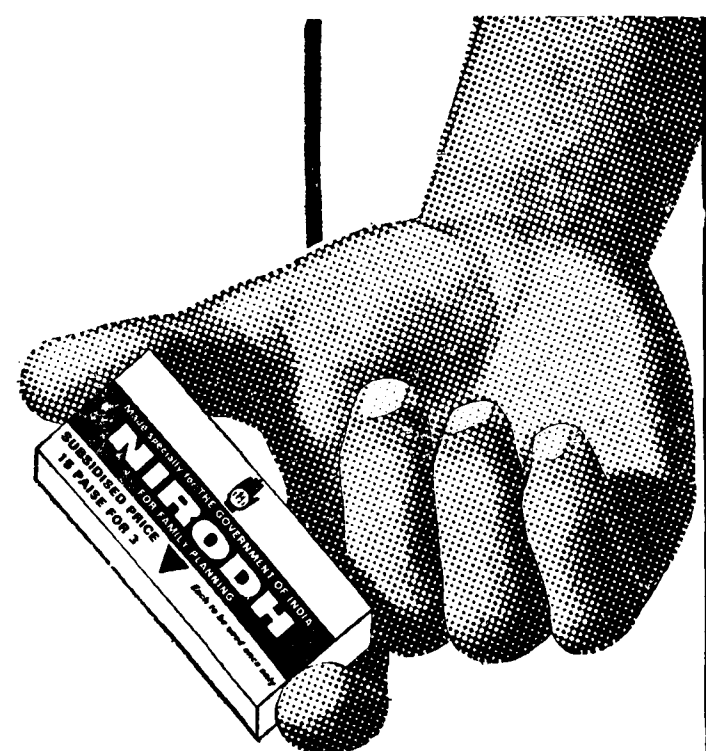
present given in the conventional budget document is not dispensed with. Further, this is followed by work-load data and other statistics in respect of each programme or activity which seek to highlight what will be the output or result or accomplishment of the programmes and activities.

The question has often been asked as to how this is going to improve decision making, budget formulation and execution. It must be explained, first of all, that these performance budgets are merely conversions of the existing conventional budgets into performance type of budgets and to that extent they can be of limited use only in the management and control of programmes because these data are not made use of at the time of formulation of the budget. While in the

activity with reference to the end product or service will enable the administrative authorities to pinpoint draw-backs and deficiencies and help them to correct such lapses. As mentioned earlier, this is only the first step and the financial and accounting arrangements have also to be reoriented to this performance approach. Regarding the reorganisation of the accounts, a team consisting of the Deputy Comptroller & Auditor General as the Convenor and the Budget Officer of the Government of India and a Joint Secretary of the Planning Commission as members with representatives of the administrative Ministry will be examining the Heads of Accounts/Minor Heads and so on with a view to evolving an accounting structure which will correspond with the programmes / activities of the Government.

#### OUR CONTRIBUTORS

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The financial management system will have to be reoriented to suit the requirements of a performance budget. Instead of the objectwise classification, the classification by programmes/activities will be useful from the point of view of decision making which has to review expenditure, taking into account the results achieved. The reporting and evaluation should indicate the expenditure incurred on the programme/activity as against the approved outlay with details of the physical progress achieved.

The system of budget scrutiny and budget formulation would undergo a change as a result of the adoption of performance budgeting and would help in better decision making. Does the performance approach to budgeting help in this process? As already stated, we have so far attempted only to convert the existing objectwise detailed budget into a performance budget. In other words, at the stage of budget formulation and decision making the details which are in the performance budget have not been made available to the administrative authorities and the Ministry of Finance. The performance budget provides the new set of data, namely, the output side of the budget. We are, at the same time, not dispensing with the objectwise details which give the inputs of an organisation. By seeing, therefore, both the inputs and the outputs, the executive authorities will be in a better position to judge which programmes should be accepted; owing to lack of sufficient resources we are compelled to select programmes as all of them cannot be accepted.

#### Inputs and Outputs

Programme analysis enables us to highlight what we may expect to get out of a programme. Further, measures of performance could be established which would help in assessing results and accomplishments and would also help in reaching wise budget decisions. In certain areas we will be able to develop data in more detail and make refinements, for example, in determining unit cost of output. In such cases, we will be able to find the relationship between the inputs and the outputs. While it

is true that in the case of some programmes it may not be possible to translate the benefit/output in terms of money, at the same time, an identification of the benefits, although not quantified, will be useful to the administrative authorities in the selection of alternative programmes.

The data at present available to planners and policy makers at the time of Annual Plan discussions are mainly financial in nature. The summary statements and papers prepared indicate briefly what is the outlay for the Fourth Plan, the outlay budgeted for the current year, the anticipated expenditure and the proposed outlay for the coming year. The focus is mainly on the amount of money spent against the outlay. There are no data about physical achievement or service rendered or work done. It will be admitted that there will be meaningful discussion if this is accompanied by programme analysis of the schemes launched, for example what has been the target and achievement of the schemes. As an instance, if we take one central sector scheme of the Department of Agriculture under Agricultural Production, say, Improved Seeds, information on the following lines is given:—

| Head/Sub-head                 | Fourth Plan<br>Outlay | (Rs in lakhs)     |                            | 1970-71<br>as proposed<br>by Ministry |
|-------------------------------|-----------------------|-------------------|----------------------------|---------------------------------------|
|                               |                       | 1969-70<br>Budget | Anticipated<br>Expenditure |                                       |
| I. Agricultural<br>Production | 13434.00              | 1328.13           | 1237.43                    | 2649.94                               |
| i) Improved Seeds             | 150.00                | 30.00             | 60.00                      | 60.00                                 |

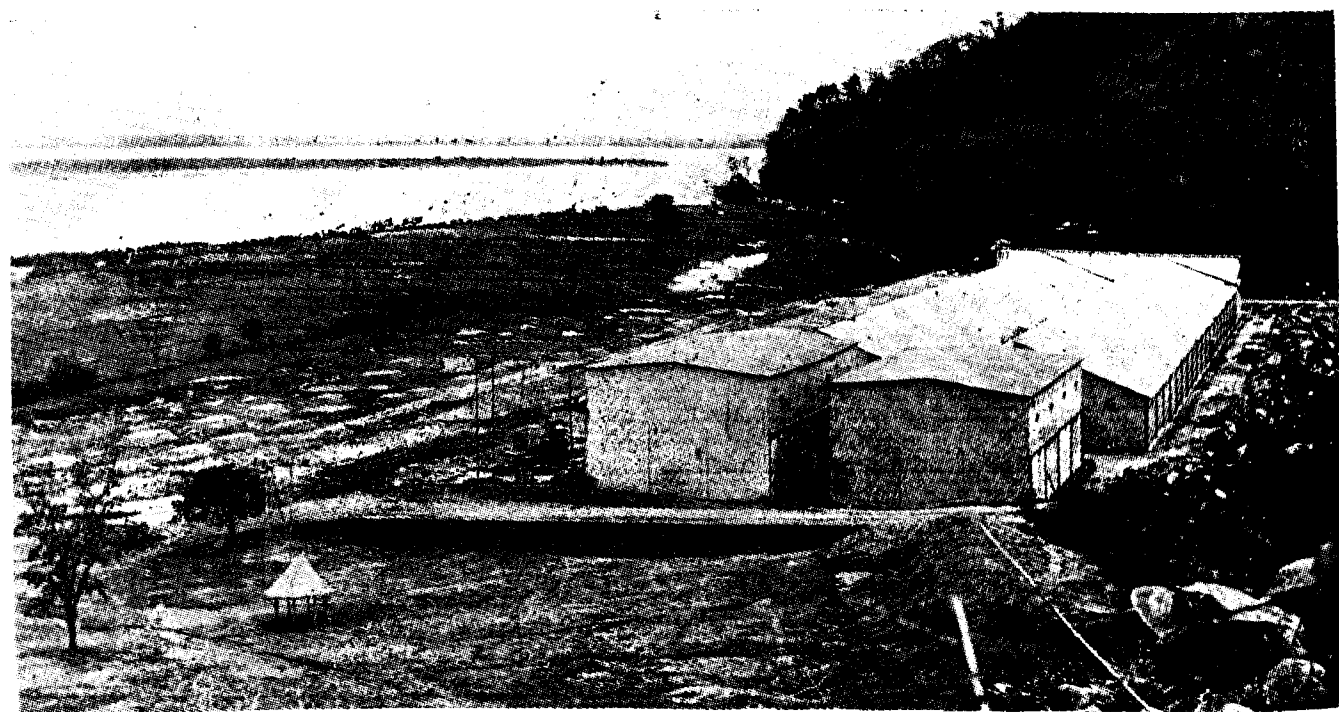
Supplementing this information by additional data as required under performance budgeting will enable not only a purposeful review of the programme being undertaken at the time of Annual Plan discussions but it also will provide with a set of important data of what is proposed to be done in the coming year. Such data, for example, for improved seeds could be on the following pattern and under the heads, Achievement 1968-69; Target 1969-70; Achievement up to October, '69; Target 1970-71.

The information should be classified under the following items: Number of State Seed Farms with area cultivated; Number of Private

Seed Farms; if any, with area cultivated; Production of Improved Seeds (tonnes); (a) Paddy—Primary, Secondary; (b) Wheat—Primary, Secondary; (c) Millets—Primary, Secondary; (d) Pulses. Similar information about high yielding variety; important data if any, regarding Seed Testing Laboratories; Seed Processing Units; Seed Testing. This has to be prepared in November as Annual Plan meetings are held some time in December. The proforma may have to be modified taking into account any special circumstances. Similar data will have to be prepared for other programmes like Manures and Fertilisers and Plant Protection.

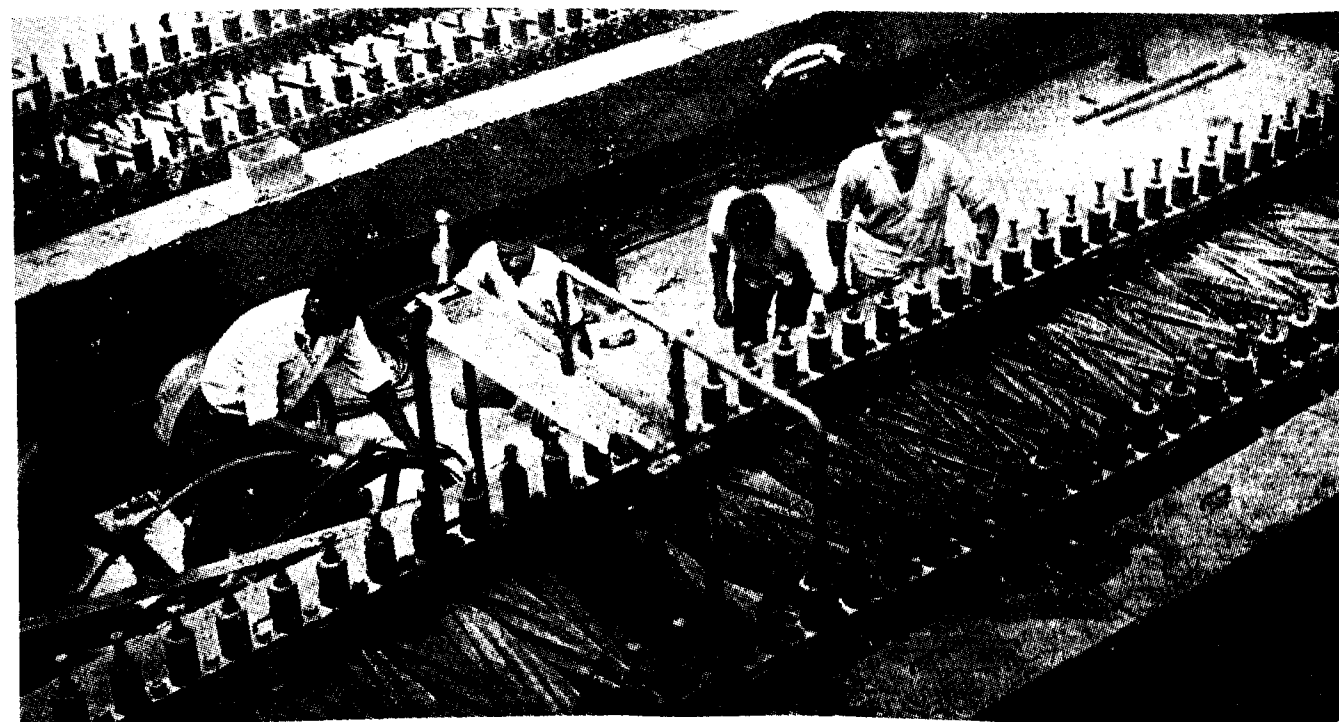
This kind of analysis helps the administrative Ministries to recommend which of the programmes should be continued, or which of them have fallen behind schedule and which of the programmes should be expanded or curtailed. It is, therefore, obvious that if we want to have a rational judgement of the different programmes which should be accepted by Government a systematic analysis of their inputs and outputs is made available. This would strengthen the decision making process at the various levels of management in Government. Once the programmes are included in the

budget the kind of analysis involved in performance budgeting will be of use in reviewing progress in the attainment of policy objectives and work goals. This will also be of assistance in the re-planning and re-programming that is needed to accommodate changes in the programme and unexpected developments, if any, at the time of formulation of the plan in the succeeding year. It must be emphasised in this connection that performance budgeting is only a tool which has to be used and this cannot be a substitute for good judgement. In other words, it should not be considered as a panacea for all our ills.

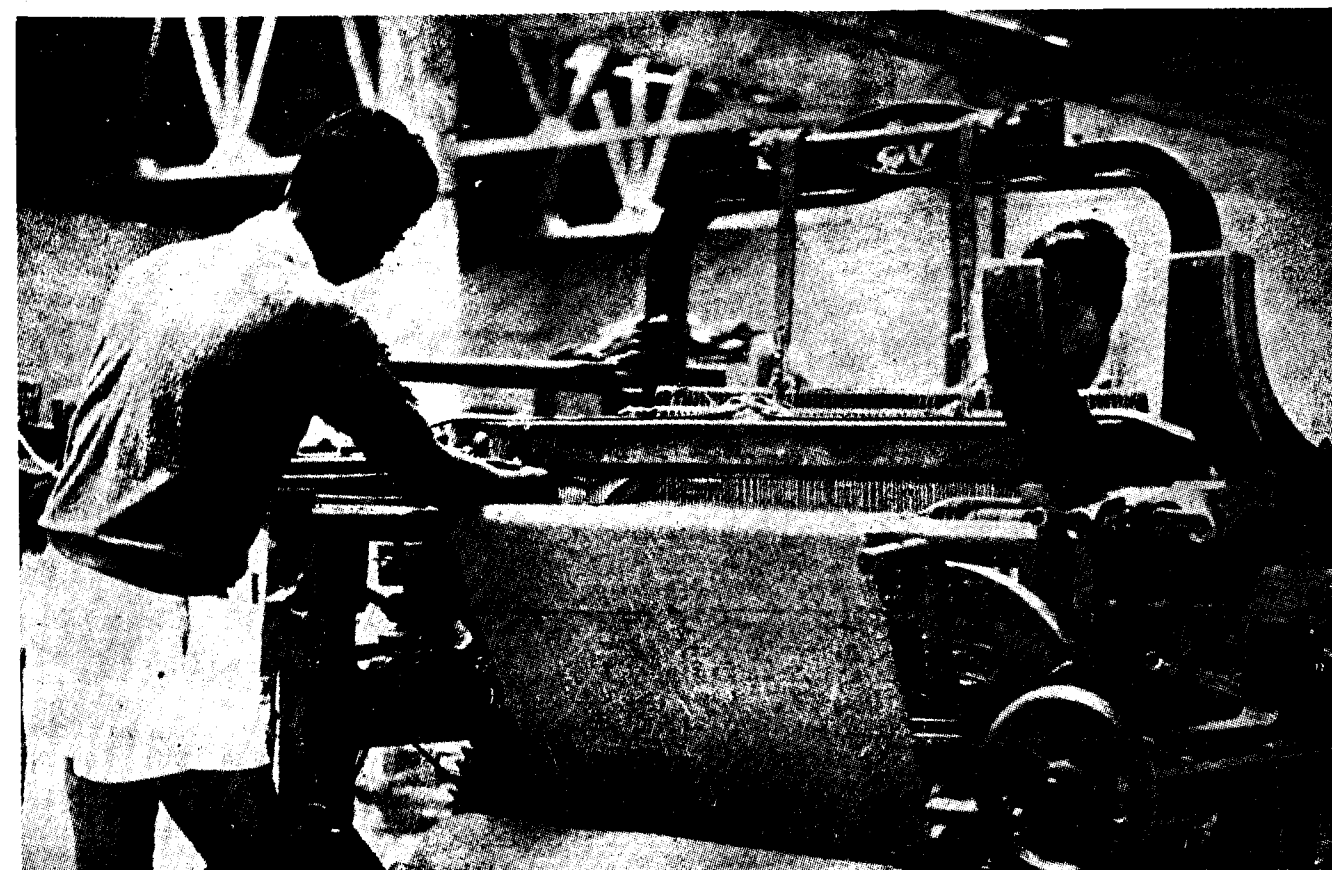


## INDIA'S FIRST CO-OPERATIVE JUTE MILL

A Yojana Report by  
D. N. CHAKRAVARTI  
*Our Shillong Correspondent*



YOJANA July 12, 1970 Page 14



ON the banks of the Brahmaputra at Silghat, where the glory of the past echoes in the ruins of this river port city, has emerged a new milestone of progress—the Assam Co-operative Jute Mills. The 1.63 crore rupee venture, which begins trial production in the last week of this month, is the first of its kind in the country and marks a breakthrough in the co-operative movement.

The second largest producer of jute and herself a major consumer of finished jute goods, Assam had for years been demanding a major jute mill within the State. The general industrial backwardness of the State coupled with the difficulties of capital and power, delayed

(To left)  
A panoramic view of the jute mill on the banks of the Brahmaputra at Silghat.

(Left)  
The mill will have 150 looms for producing sacks and bessian. Picture shows technicians at work.

(Above)  
Mill hands working at a sack-producing machine.

### *This Assamese Venture Adds a New Dimension to Co-operative Movement*

the actual launching of the project. The long-cherished dream of the people of Assam showed signs of fulfilment when a co-operative society was formed at Nowgong on June 23, 1959 with the object of manufacturing jute goods from the raw materials available within the State.

The actual construction work, started in 1967, though the licence

for setting up the jute mill was granted in 1962. Located on the south bank of the Brahmaputra, 57.6 km away from the Nowgong town, the site is hardly seven km from the National Highway. It has a good many assets—good river, road and railway communication, proximity to sources of raw material and availability of sufficient land water. The best prospect for the factory is that the internal demand for its products will be twice as much as its turnover.

The Mill area covers 25 hectares extending right up to the edge of the river.

The main factory building, which has been fully erected, is a massive structure, 528 ft long and 32 ft wide with an annexe of 528 ft length and 33 ft width, accommodating offices, stores, workshops and canteen. The godown for the finished products is located in the eastern extension of the factory building. Two more godowns, each 100' x 30', have been built for

turn to PAGE 22

YOJANA July 12, 1970 Page 15

# FORESTRY IN FOURTH PLAN

G. S. CHANDRAS

ACCORDING to an estimate by the Planning Commission the net shortages in the supplies of wood would be increasing rapidly.

Similar is the case with the minor forest produce, wild life resources and other more important services rendered by forestry. Damage due to floods and draught is mounting: silting and inadequate water flow in the rivers and reservoirs pose serious problems, especially in agriculture; forest dwellers are the weaker section

of the society and, therefore, need better attention.

Detailed calculations need be made to estimate the total area required to be under each type of forestry for intensive purposes like production and for extensive ones like protection.

Imports of major forest produce and their derivatives have remained well above Rs 20 crore a year. Pulp and pulp products account for more than three-fourths of the im-

port contents. It is remarkable that the trend of exports, which are of a smaller size, has remained steady at Rs 3 crore per year, timber being the chief export commodity.

In addition, India exports about Rs 12 crore worth of minor forest produce, and their derivatives, the chief constituents being gums, resin, lac, essential oils, medicinal plant products, dyestuffs and tanstuffs.

Forestry programmes must, therefore be oriented towards import substitution of pulp and pulp products and towards export promotion of minor forest products such as gums, tannins, lac and essential oils.

## Forestry Planning

Past development programmes were based on the National Forest Policy, evolved in 1952. This obviously needs revision to suit the changed circumstances.

'Working Plans' for individual forests date back to the first decade of this century and were designed mainly for the purposes of exploitation and plantations. Till the end of the Third Plan, planning in forestry in the scientific sense of the term had not risen above the state level. Forestry planning has to contend with some special considerations. It involves land use of nearly a fifth of the national area. A long span of time is required for the growth of trees and when that happens there are uncertainties in market condition.

It is unfortunate that neither the Programme Evaluation Organisation of the Planning Commission nor any State Forest Department appears to have completed an economic evaluation of the important development programmes in forestry.

## Protection

It is found difficult to protect forests from illicit felling of trees, fire, unscientific grazing, encroachment for agricultural cultivation, shifting cultivation and poaching. This problem has not received due attention in all the three Plans. Provision of jeeps alone will not solve this problem. People's parti-

cipation is essential and for this purpose necessary incentives have to be provided.

## Rural Labour

Forestry programmes being labour intensive, knowledge of the pattern of availability of rural labour for such programmes is essential. Locational aspects, land availability and water supply are the major considerations.

Production in forestry involves a time-lapse, and therefore no forestry programme can be evolved without having a complete picture of future requirements.

The pattern of distribution of such selected areas, the species to be planted, the problems relating to labour and grazing, location of forest-based industries and the

position of power and water supply have, therefore, to be given priority consideration.

Even the manner in which the plantations will be raised will be of material importance: whether they should be raised by the forest departments or by corporations or by co-operative bodies and so on.

Plantations and afforestations are naturally the major items of a forestry programme in areas under the charge of the forestry organisations. The rate of covering forest areas under plantations and afforestations is disproportionately low as compared to the requirements. The selection of localities between individual states and the rate of productivity, availability of labour, possibilities of setting up industrial units are the governing factors in forestry invest-

ments. Development of roads and other means of communications is also of vital importance. The optimum density required in the prevalent situations must be determined early through operations research and other techniques.

In areas not controlled by forestry organisations, much more elaborate outlook is needed because of the institutional factors involved. Farm-forestry is the main scheme under this category.

## Land Reforms Needed

Apparently there are vast areas under private ownership which can be considered for farm forestry but there will be only a little chance of success if the final mode of implementation of this scheme is not determined on the basis of experience

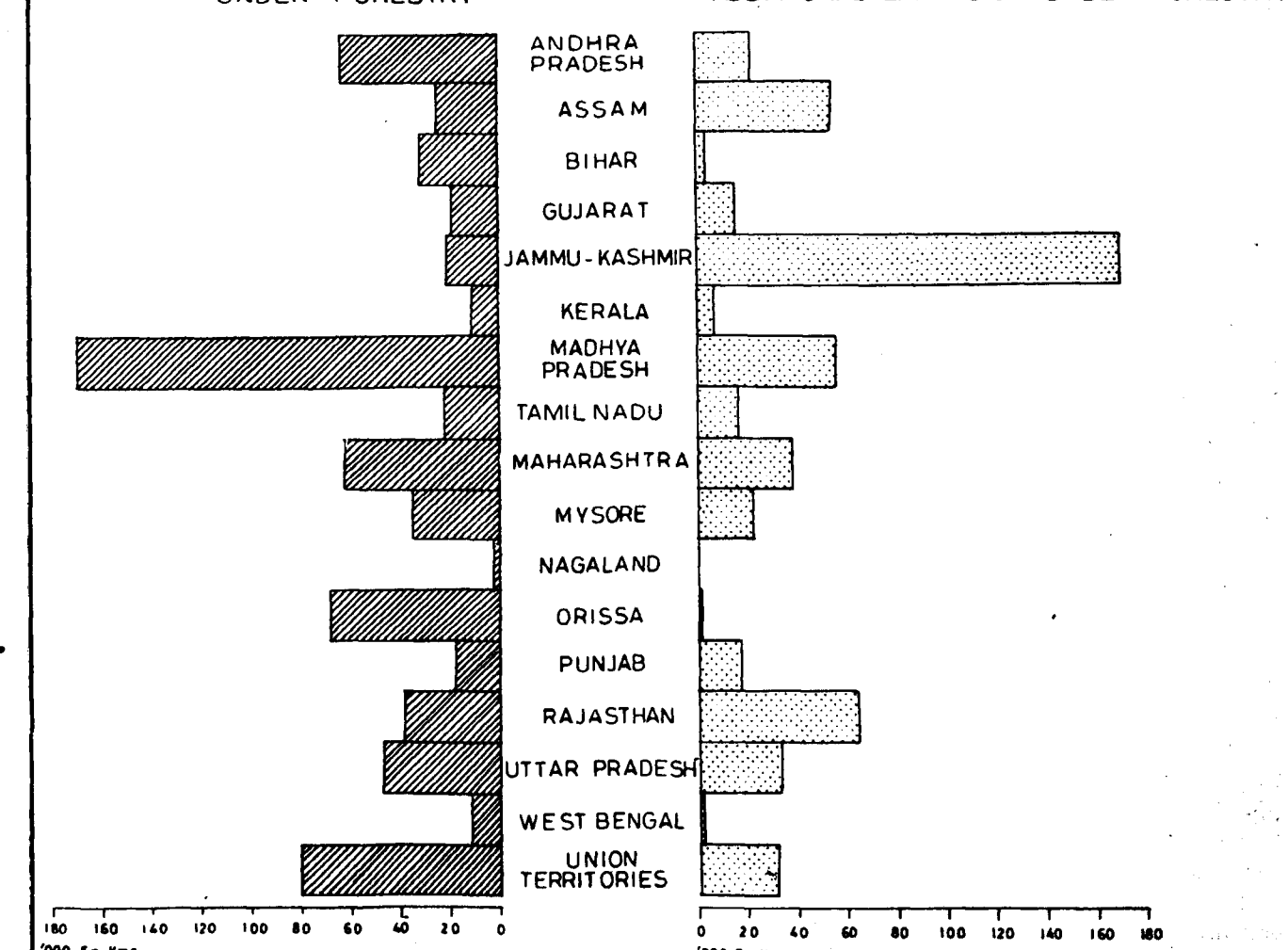
PRESENT AND POTENTIAL REQUIREMENTS AND SUPPLIES OF INDUSTRIAL WOOD AND FUELWOOD

| Requirement  |                 | in million tonnes |      |
|--------------|-----------------|-------------------|------|
|              |                 | 1970              | 1975 |
| Requirement  | Industrial wood | 12                | 17   |
|              | Fuel wood       | 121               | 130  |
|              | Total           | 133               | 147  |
| Supplies     | Industrial wood | 10                | 14   |
|              | Fuel wood       | 95                | 97   |
|              | Total           | 105               | 111  |
| Net shortage |                 | 28                | 36   |

PRODUCTIVITY AND CONSUMPTION OF FOREST PRODUCTS IN INDIAN STATES

|                   | million hectares  |                         | ,000 cu. metres                             |                                                | cubic metres                        |                                             |
|-------------------|-------------------|-------------------------|---------------------------------------------|------------------------------------------------|-------------------------------------|---------------------------------------------|
|                   | Total forest area | Exploitable forest area | Present output of industrial wood per annum | Present output per hect. of exploitable forest | Present per capita output per annum | Estimated out-turn per hect. of good forest |
| Andhra Pradesh    | 6.8               | 4.4                     | 1.44                                        | 0.03                                           | .004                                | 15                                          |
| Assam             | 9.3               | —                       | 2.60                                        | 0.03                                           | .03                                 | 30                                          |
| Bihar             | 3.35              | 2.13                    | 6.22                                        | 0.17                                           | .016                                | 5                                           |
| Kerala            | 1.26              | 0.72                    | 1.25                                        | 0.16                                           | .008                                | 15                                          |
| Madhya Pradesh    | 18.2              | 14.3                    | 9.00                                        | 0.06                                           | .03                                 | 7                                           |
| Maharashtra       | 6.7               | 4.6                     | 3.58                                        | 0.08                                           | .01                                 | 5-10                                        |
| Mysore            | 3.3               | 1.7                     | 3.71                                        | 0.22                                           | .015                                | 10                                          |
| Orissa            | 6.25              | 3.75                    | 3.50                                        | 0.09                                           | .024                                | 5                                           |
| Punjab & Haryana  | 1.4               | —                       | 1.18                                        | 0.08                                           | .006                                | —                                           |
| Tamil Nadu        | 2.1               | 1.6                     | —                                           | 0.18                                           | .009                                | 7                                           |
| Uttar Pradesh     | 5.7               | 3.13                    | 4.21                                        | 0.13                                           | .006                                | 5-7                                         |
| West Bengal       | 1.2               | 1.08                    | 1.60                                        | 0.15                                           | .005                                | 5                                           |
| Union Territories |                   |                         |                                             |                                                |                                     |                                             |
| Andaman           | .65               | 0.48                    | 1.02                                        | 0.03                                           | —                                   | 20                                          |
| Himachal Pradesh  | 1.05              | 0.3                     | 6.31                                        | 2.00                                           | .55                                 | 5                                           |

EXTENT OF PRESENT AREAS UNDER FORESTRY POSSIBLE EXTENT FOR ADDITIONAL EXPANSION UNDER FORESTRY



SOURCE: 'Forest Statistics' 4, 1968 by Central Forestry Commission, New Delhi

gained through pilot projects. Secondly, application of suitable land reform measures seems inevitable.

The non-arable lands constitute the potential forestry development regions. The total area involved in the non-arable lands is about 1,30,000 sq. kms.

Land reforms must precede forest settlement and forest consolidation. It has to be examined whether the lengthy procedure of forest settlement as laid down under the Indian Forest Act, 1927, can be drastically curtailed and a saving effected in time and the cost of management of non-arable land. Land reform measures will also help expeditious implementation of soil and water conservation programmes on the non-arable lands.

In this context the suggestion for setting up a Planning Board for Plantation Forestry made by Eric Lundqvist, who has made a special report on development of India's forest resources, must be heeded. Such a board may include forestry authorities, silviculturists, industrialists, land use experts and economists.

Forage potential of forest areas is far too under-utilised and is expected to remain so in the Fourth Plan in view of the small outlay which is less than one per cent of the total forestry outlay. Enforcement of a rotational grazing scheme, preferably in the areas taken up for improvement under the programmes of soil and water conservation, would go a long way in increasing forage utilisation.

Other aspects deserving better attention are:

(a) Provision of incentives for the use of non-traditional and low grade timbers.

(b) Development of wood-hydrolysis industry for the production of glucose and proteins from the fermentation of wood sugars. In addition, it will offer raw materials for the plastic, resin and fibre industries.

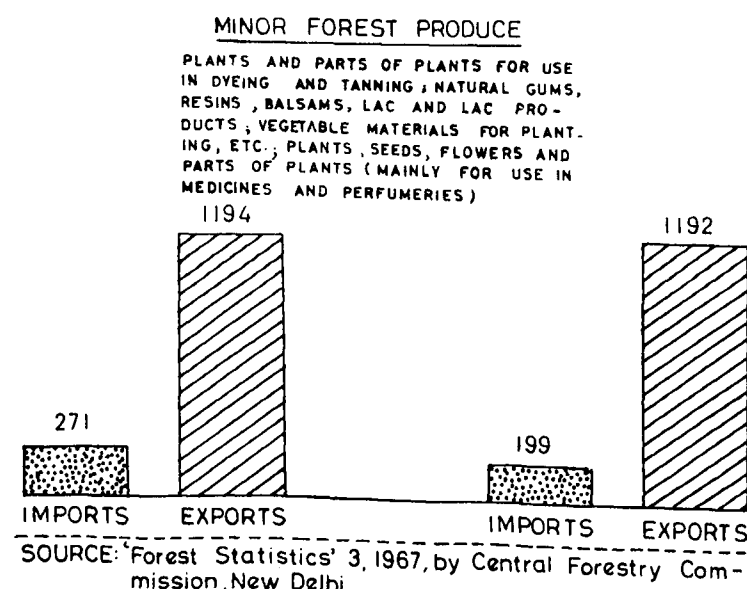
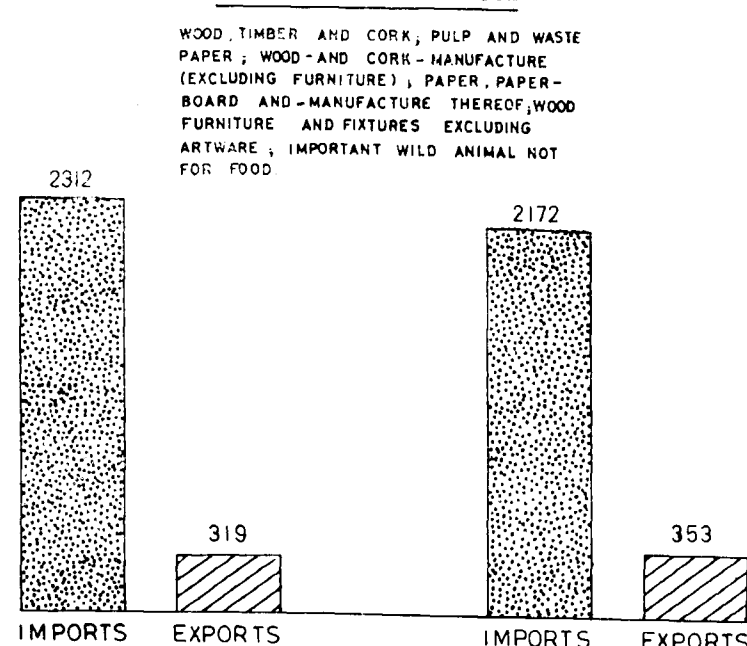
(c) Popularisation of *chulas* in the rural areas for economising consumption of firewood.

(d) Control and stabilisation of shifting cultivation.

(e) Undertaking Forest research which has been grossly undermined.

Investment in forestry has so far been increasingly short of the required level. This has created problems which now call for higher investments.

## INDIA'S TRADE SITUATION OF FOREST PRODUCTS AND THEIR DERIVATIVES (VALUE IN LAKHS OF RS)



SOURCE: Forest Statistics 3, 1967, by Central Forestry Commission, New Delhi

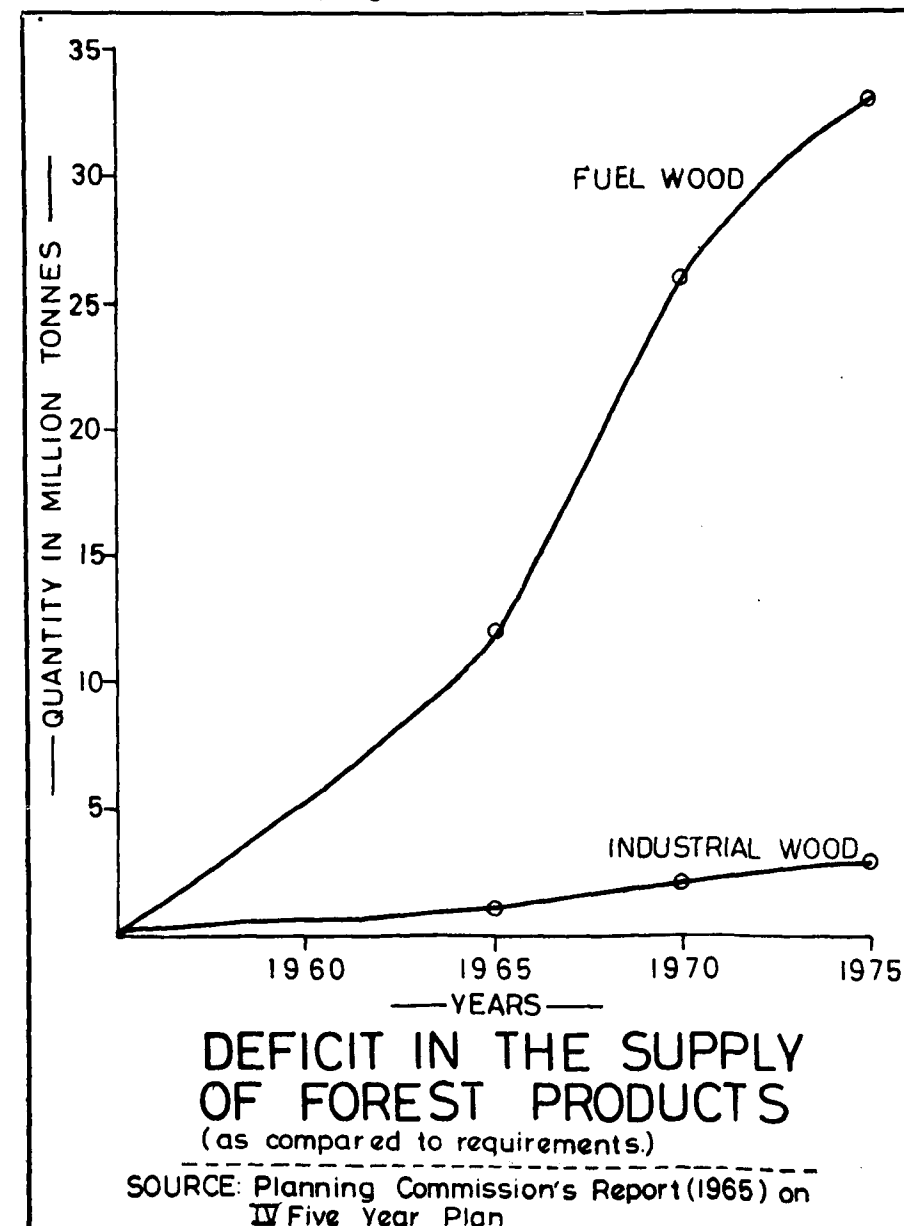
The fluctuating investment pattern can be seen from the following:

|                                                                       | Rs in crores |
|-----------------------------------------------------------------------|--------------|
| Preliminary draft July 1964 by Union Ministry of Food and Agriculture | 130.00       |
| Preliminary plan prepared by Planning Commission                      | 225.00       |
| Draft Plan prepared by Planning Commission                            | 87.18        |
| Revised Plan prepared by Planning Commission March, 1970              | 89.98        |

The outlays in the previous three Plans were even more modest—Rs 8.5 crore in the First, Rs 21 crore in the Second and Rs 45.8 crore in the Third. Taking the rising costs into consideration, the proposed outlay of Rs 90 crore in the Fourth Plan really does not mean much. Therefore, high ex-

pectations of a multiple nature from the forest resources may not be fully realised.

It is felt that the share of forestry development for a particular objective should be accommodated in the parent scheme itself. For example, expenditure on soil and water conservation in a river valley project should be provided for in the irrigation project itself. Similarly, the industrial plantation programme should be accommodated in the outlay for the industrial sector; for flood control and famine measures under the general welfare schemes; for wild life development programmes under 'tourism'; for the welfare of tribals and other forest dwellers under the social welfare schemes; for the activities of the 'Forest Products Export Promotion Council'—under 'Trade and Commerce' and so on.



## BHILAI EXPORTS MORE

THE Bhilai Steel Plant despatched pig iron and steel products valued at Rs 34.5 crore for exports to about 20 countries during the year 1969-70.

For the second successive year, the Plant exported nearly 200,000 tonnes of heavy and light structurals to the Soviet Union. The Plant exported more than 37,000 tonnes of steel products to the United States. It also exported about 320,000 tonnes of pig iron to Japan during the year under review.

The exports-despatches totalled 320,514 tonnes of pig iron and 359,110 tonnes of steel products during 1969-70, compared to 351,133 tonnes of pig iron and 394,461 tonnes of steel products in 1968-69.

The exports of billets during 1969-70 totalled 26,937 tonnes only which were sent to Ceylon (17,167 tonnes), and Iran (9,770 tonnes).

The total rails despatched for export from Bhilai during the year 1969-70 were of the order of 89,993 tonnes and were sent to South Korea (46,178), Iran (39,190), Malaysia, (2,658) and New Zealand (1967).

The Bhilai Steel Plant has an installed annual capacity of 500,000 tonnes of rails whereas the present yearly requirements of the Indian Railways are about 160,000 tonnes only.

The entire quantity of 320,513 tonnes of pig iron despatched from Bhilai for export during the year 1969-70, went to Japan.

In addition, to iron and steel products, 2,708 kilolitres of benzene were also exported to Japan and Argentine during the year.

Other countries to which Bhilai exported its products during 1969-70 included Sudan, Thailand, Indonesia, Saudi Arabia, Algeria, Dar-e-Salam, East Africa, Kuwait, Singapore, Mombasa, Hong Kong, and Baghdad.



Pipelines leading to the Refinery, In the background can be seen the main plant.

**D**URING the short span of its existence of four years, the Cochin Refineries Ltd. has completely changed the face of Kerala. Located at Ambalamugal, once the site of a small temple, the Refinery has developed, over a stretch of 80 kilometres, a huge complex of large and highly sophisticated engineering, chemical and electrical industries, thus fulfilling to some extent the industrial needs of Kerala.

The Refinery which went on stream in September 1966, is a joint

venture of the Government of India, Phillips Petroleum Co. of the U.S.A. and an Indian firm—Duncan Brothers & Co. Ltd. of Calcutta; with the Government of India holding the majority shares (52.4%).

Initially, planned to have a capacity of 50,000 barrels of crude oil each stream day or 2.5 million tonnes per annum, the refining capacity is proposed to be increased to 70,000 barrels per stream day by the middle of 1972.

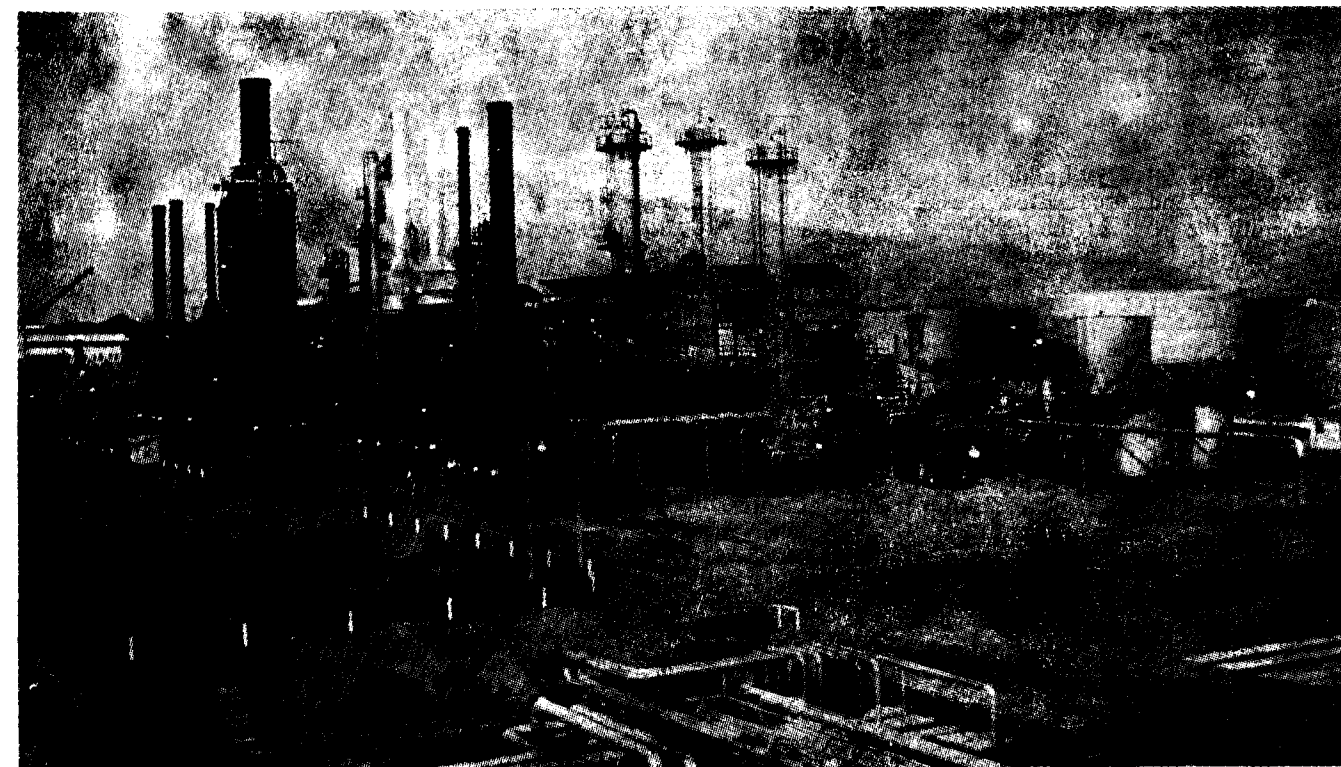
## COCHIN REFINERY STREAMS FORWARD

JASBIR BATRA

*The story of Cochin Refinery, one of the five public sector refineries in operation, is one of success at the start. Reaching its rated capacity in the very first year of operation, the Refinery exceeded its designed capacity and earned a profit of Rs. 2.47 crore in 1968-69. In 1971, the refinery's crude intake is expected to rise to 3.5 million tonnes.*

One of the most sophisticated and compact units in the country, the Cochin Refinery has five units to carry out the five-phased processing of the crude oil.

The first step is a simple process of separating the crude oil into its narrower fractions by heating it to a very high temperature and injecting this liquid into a fractionator, called the Crude Tower. The second step begins when the residue from the Crude Tower flows into another unit called the Vacuum Unit, for



Refining and storage units of the Refinery.

Photographs by S. KUMAR, Photo Division

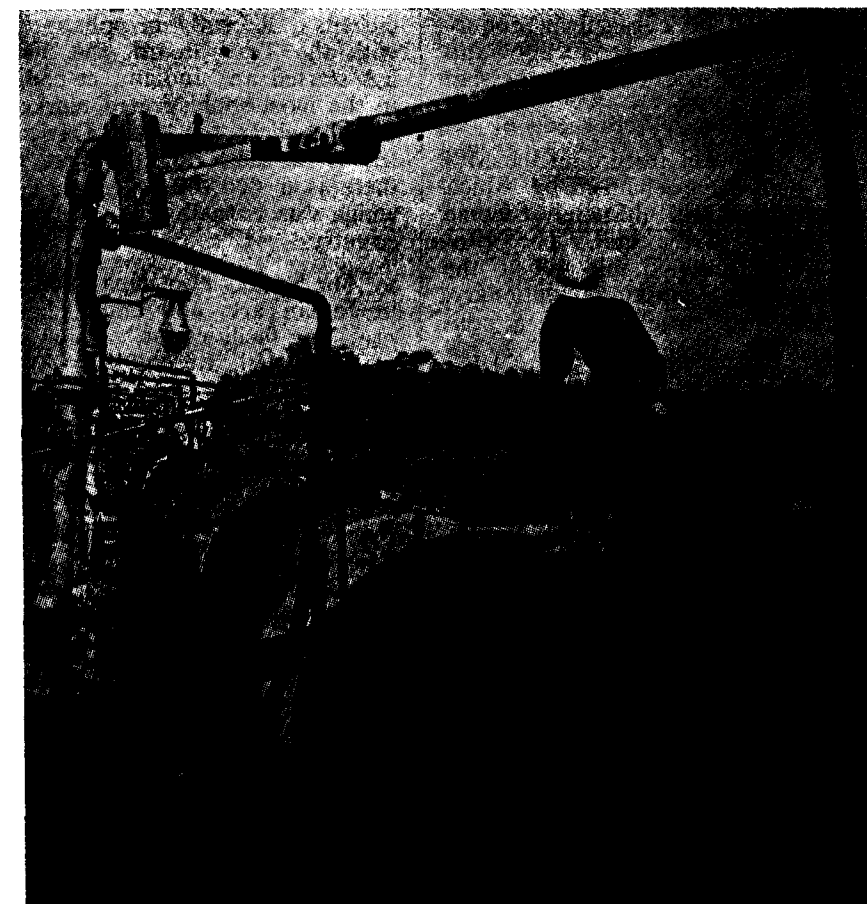
distillation. This process yields products like asphalt and heavy gas oil. The heavy gas oil then flows into a third unit called the Visbreaker, where, by a process of thermal cracking, furnace oil is derived. Naphtha and kerosene are fractionated in the fourth unit—the Hydro-Desulfuriser. The special naphtha fraction, now free of sulphur, is passed on to the fifth unit—the Catalytic Reforming Unit, for transforming certain hydrocarbons in the naphtha fraction to new chemical structures with anti-knock characteristics.

In addition, the Cochin Refinery undertakes a sixth, and rather special, operation for the farmers of Ambalamugal. This is the process of effluent treatment, which involves physical removal of oil contamination and chemical and biological treatment.

The Refinery which started commercial production only in May 1967 made spectacular progress right from the start. During the very next year of its production (1968)

turn to PAGE 24

Oil being filled in the wagons of a special oil carrying train.



## ASSAM JUTE MILL

from page 15

storing raw jute on the western side of the factory. Most modern in its design, the factory building has 38 pre-cast and pre-dressed truss supporting the roof of the building. This special structure does not require a large number of pillars to support the roof.

The factory has, at present, 70 labourers besides a staff of over 60 technical persons. Two labour barracks capable of accommodating 60 and 45 workers respectively have been completed at a cost of Rs 1.50 lakh. A few other barracks are soon to be put up to house the full strength of workers.

The mill will draw 15,000 gallons of water a day from Brahmaputra. As the permanent power lines will take another few weeks to be fully installed the Mill will get its power supply from the State Electricity Board.

The Mill will ultimately have a total of 150 looms, fifty of which have already gone into operation. 100 looms will produce sacks while the rest will be engaged in producing hessian. The production ratio between the sacks and the hessian will be 84 to 16.

A significant feature of the Mill is a built-in mechanism by which the growers will ultimately become the owners of the mill. The procedure is quite simple and at the same time most revolutionary. Each grower would make a non-refundable deposit of Rs 2 per maund of jute he sells to the mill. The amount would be deducted from his sale proceeds at the time of actual transaction. The accumulated deposits of the growers would in the long run be sufficient to pay off whatever the mill owes to the Government or to any other financing agency.

The jute mill now stands as a great symbol. If it succeeds it would give filip to the co-operative movement in the entire north-eastern India and achieve people's solidarity against the tyranny and conspiracy of private monopolists.

## Indian Women's Co-operative in Lebanon

*A Unique Institution that Promotes Co-operation and International Understanding*

Indian women living in Beirut have the distinction of running a unique institution—a Consumers' and Production Co-operative Society in the Lebanese capital. Although it was started by Indian women, its membership is open to women of other nationalities. The society aims at improving the economic and social well-being of its members, and to develop cultural contacts between the peoples of India and Lebanon.

Although the experiment is barely two years old, its results are startling and the prospects are full of interesting possibilities. On the commercial side the Society has succeeded in creating interest in a number of Indian products. Its achievements, particularly in the field of popularising Indian silks and handicrafts, have been noteworthy. The Society has organised bazars and exhibitions which were well-attended by local citizens. Recently in collaboration with the Tea Board, the Society has started an "Indian Tea Salon" in the most sophisticated market of Beirut, where the finest Darjeeling tea is served. For the first time there is a demand for Indian Tea which was virtually unknown in the country.

The Society also imparts training in Indian arts and crafts, besides providing facilities for learning some of India's delicate crafts.

On the cultural side, the Society organises lunches, dinners and tea mornings for which cards are sold and at which guests are served Indian snacks and culinary specialities. Indian documentary films are shown, talks on Indian culture are arranged and demonstrations of Indian dresses are given. The Society has held a number of fashion shows of Indian costumes, saree demonstrations and displays of Indian jewellery. These shows have become popular and the Society is receiving requests to arrange more such displays and demonstrations. Many Arab and foreign women are now buying sarees and wearing them on festive occasions.

The Society, which started with negligible share capital, has now accumulated surpluses of the order of half a lakh of rupees. The Lebanese Government has fully encouraged it and extended to it all desired facilities. The Society is an example of how the co-operative system can be put to use to bring about better understanding between peoples of different countries. It has shown how co-operative effort, which was till now confined within the borders of nationalistic States could really transcend these boundaries and, by increasing mixed contacts between different nationalities, achieved a greater measure of mutual appreciation between diverse peoples.

### INDIAN AID TO BHUTAN

India contributed the entire amount of Rs 10.5 crore of Bhutan's First Plan expenditure, and will grant Rs 22 crore as grants-in-aid in the Rs 22.15 crore Second Plan of Bhutan. In addition to developmental aid, India is providing technical know-how, educational scholarships, essential raw materials including foodgrains and essential foreign exchange to Bhutan.

Bhutan which started her First Plan in 1961, has recently drafted her Third Plan with an outlay of Rs 37 crore, as against the Second Plan outlay of Rs 22.15 crore. The proposed outlay excludes the expenditures on industries, amounting to Rs 2 crore. The Draft Plan gives priority to agriculture, irrigation, education and communications.



POLAND

demand for animal products growing more rapidly, it is necessary to ensure a higher rate of development in animal breeding than is the case in vegetable growing.

As there is no scope for extending the cultivable area, the only way to increase production is to raise the yields of basic agricultural commodities to have more animals per 100 hectares and to raise the productivity of breeds.

Taking into account the dynamism of the increase in grain yields in Poland in recent years and the introduction of the new intensive varieties of cereals, as well as a substantial improvement in case of fertilisers, the 15 per cent

about 10-14 per cent. At the same time it will be necessary to raise the productivity of animals substantially. The per head milking capacity of cows will have to be increased by 200-300L and the production of cattle and pigs for slaughter by 30-40 kg. per hectare of cultivable land.

A decisive role in the promotion of agriculture and its development will be played by the investments connected with agriculture. The bulk of the State's investment will go for strengthening the State Farms by expanding and modernising their technical and production base.

In the coming 5-year period the proposed amount of investments in the State Farms will allow them to

## AGRICULTURE IN 1971-1975

DURING the last twenty years the population of Poland has increased by nearly 8 million. Because of this and the progressive urbanisation of the country, the area under agriculture has decreased from 0.80 to 0.61 hectare per head. In spite of this the production of foodgrains has increased by approximately 33 per cent per head since 1950.

If one takes the average level of agricultural production from 1950-1952 as 100, then it reached 132.1 in 1960 and 171.3 in 1968. The rate of growth of agricultural production in the last eight years has been appreciably higher than in the previous decade. An improvement in the means of production in recent years has brought about an increase in production, particularly of cereals. The production of cereals during 1950-1960 increased by 2.7 million tons, while in 1960-69 it went up by another 3.3 million tons. What contributed to the attainment of these results was the increase of yield per hectare. Between 1950-1960 this amounted to 3.4 quintals, and in the last 8 years to 5.3 quintals, which means an average annual increase of 66 kg. per hectare in yields. A similar increase in yields was noted in respect of potatoes, sugar beet, rape and meadow hay.

The rapidly growing demand for food calls for 20 to 22 per cent increase in the years 1971-1975. The

rise in the yields in the next five-years seems to be a realistic target. Similarly, the yields of potatoes should grow by 12-15 per cent, the yields of sugar beet by 7-10 per cent and meadow hay by 15-20 per cent.

The increase in yields in the State Farms is expected to be distinctly higher. In the next five-year period the cereals production

Prof JOZEF OKUNIEWSKI\*

in State Farms is likely to be 4-5 quintals per hectare higher than the average yields obtained in the years 1966-1970. The production of potatoes, sugar beet, and especially of meadow hay in the years 1971-1975 will grow more rapidly in the state sector than on private farms. New varieties of grain, higher doses of fertilisers, increased acreage under wheat and barley, exact technique of field-crop production worked out for different varieties, and plant protection and weed combating will be the main factors for increasing the yields.

These factors will find greater play in State Farms than in more than 3.5 million private farms.

The demand for animal products, which will continue to grow rapidly in 1971-1975, will require an increase in cattle population by about 17-20 per cent and in pig population by

meet the most urgent needs, that is, to increase the production of seeds, and dried potatoes, to develop the breeding of pedigree animals and to increase the cattle population by 25-28 per cent and the pig population by 30-33 per cent. It will also make it possible further to improve the housing and living conditions of the workers at the State Farms.

One-fourth of the total agricultural investment will go into further mechanisation of agriculture. The number of tractors will exceed 34,000 by 1975. New types of tractors and machines, of greater power and capacity, will be in use in the years 1971-1975, including a 70 HP tractor, combine-harvesters of a capacity by 2-3 times higher than now, green fodder harvesters and new type of fertiliser distributor. The supply of tractor-drawn machines will increase in proportion to the increase in the number of tractors.

It will be necessary to improve the agricultural training system and to expand the basic agricultural schools. The expansion and modernisation of scientific centres and experimental and servicing stations will also be necessary. The total increase in the outlays for agricultural schools, science and experimental stations will be more than 20 per cent.

\*Vice-Minister of Agriculture, Poland

## COCHIN REFINERY

(from page 21)

It produced 24.19 lakh tonnes of refined products, and declared a profit of Rs 3.36 crore for the fiscal year ending August 1968. During 1968-69 its crude throughput exceeded its designing capacity marginally and the net profit declared by it was Rs 2.47 crore.

Plans are underway to increase its design capacity to 3.5 million tonnes per year by 1971. All this will be achieved at a relatively low cost because of the built-in provision for expansion in the original design.

As there is greater demand for middle distillates like kerosene and diesel in the country, special care was taken to meet these needs in the designing of the Refinery. The chief products of the Refinery are motor spirit 79 ON and 95 ON, high speed diesel oil, superior kerosene, light diesel oil, furnace oil, asphalt and naphtha.

Tremendous progress has been made in the past few years in oil exploration and oil refining, particularly the latter. It could not have been thought possible, 15 years ago, that the country would become practically self-sufficient in almost all the petroleum products (except kerosene). In fact today there is even a little exportable surplus in motor gasoline, diesel oil and furnace oil. Cochin Refinery's share in its exportable surplus is fairly large. During 1968-69 it exported petroleum products worth nearly Rs 2.79 crore. Providing raw materials to the existing industries, the Refinery triggered off all-round development in the surrounding areas. Already a big fertiliser factory has come up as an adjunct to the Refinery. It has also provided the neighbouring people with new avenues for gainful employment.

### INDIA'S TRADE IN APRIL 1970

India's exports including re-exports totalled Rs 127.97 crore in April 1970. Imports during the same month were about Rs 142.59 crore, leaving an adverse trade balance of Rs 14.62 crore.

## 'HAM DO - HAMARE DO'

### I.U.C.D. AND VASECTOMY

SINCE the inception of the family planning programme in India 6,297,379 sterilisations and 3,006,210 IUCD insertions have been done. As a result of an intensive drive, 380,293 sterilisations and 136,464 IUCD insertions were done during the first two quarters of the year 1969-70.

At present, there are about 4,935 main centres and 20,684 sub-centres of family planning. Of these 1,782 are urban centres. Some 6,985 rural medical centres are also assisting in the family planning work.

The largest number of IUCD insertions, numbering 25,514, was performed in Uttar Pradesh while Maharashtra, with 66,349 sterilisations, tops the list in the latter aspect of the programme.

The message of family planning has reached even distant areas like the Laccadive, Minicoy and Aminidivi Islands. However, the number of acceptors of sterilisations and IUCD was only 17 and 1 respectively.

### NEW SCHEMES FOR NIRODH PROGRAMME

New schemes for Nirodh distribution programmes have come into operation as part of the massive drive for family planning. This will further increase the sale of Nirodh, which has gone up to 29.39 million pieces during the second quarter of 1969. Under the scheme, 20,000 selected post offices throughout the country will sell Nirodh at a nominal price of five paise for three pieces. Another development in the programme was direct mailing of Nirodh to 80,000 medical practitioners, so that they could popularise it among the patients. At present, Nirodh is distributed free at all the family planning centres in rural and urban areas and sold at 55,000 retail outlets of six leading commercial houses.

The bulk of the requirements of Nirodh come from the Nirodh factory in Trivandrum, with a production capacity of 144 million pieces a year. So far it has supplied 45 million pieces and is in the process of packing another 18 million pieces.

### SURGICAL EQUIPMENT FOR FAMILY PLANNING PROGRAMME

The Central Department of Family Planning has announced that 3,000 Government and private hospitals throughout the country engaged in family planning work will get surgical equipment for IUCD and sterilisation.

The institutions will furnish a quarterly report of work done by them to the State Governments, who in turn, will forward their reports to the Central Department of Family Planning.

The equipment will be withdrawn if performance is not satisfactory for two consecutive quarters.

### PILL PILOT PROJECTS

About 16,000 women have enrolled for the new pill programme for family planning in India. The pill provides an effective method of contraception, and the programme, carried on by 274 pill pilot projects with the help of 479 medical and 477 other personnel, has become more popular with the young, educated, urban women with less children.

The pill, which can help spacing of children to a large extent, should be used for a continuous period of three years and after a stoppage of three months it can be resumed, only if no side-effects have been noted. Mostly because of this disadvantage, about 5,000 women have discontinued it. In general, it has been found that about 23 per cent acceptors drop out in the first three months, while during the next 12 months, 20 per cent discontinue its use.

The cumulative discontinuance rates are 40.5 per cent within 12 months of use and 43.9 per cent within 15 months of use, which indicate the need for proper follow-up of cases after acceptance.

The pill programme, at present mostly confined to urban users, can also be started at primary health centres and sub-centres in rural areas, having proper follow-up services.

## BOOKS

### Models For Planned Growth

*Planning for Growth. Multisectoral, Intertemporal models, applied to India by Richard S. Eckaus and Kirit S. Parikh. The MIT Press, Massachusetts Institute of Technology, Cambridge, Massachusetts and London, England, 1968. Pages 208. (Price not given)*

B. N. Nair

ECONOMISTS in India are apt to consider growth-model-building as the acme of their professional expertise and there are many, these days, who are assiduously trekking this highway with an ill-assorted kitbag of tools. However, seldom do we come across any work such as this book under review, so generously permeated with the spirit of good-humoured bonhomie or evenness, peppered with panchatantra aphorisms (for a welcome change from the worn-out quotations of *Alice in Wonderland*), all written in a constructive mood of imparting weighty esoteric knowledge to the novice in the field. In this respect, this joint product of Indo-U.S. scholarship has many commendable features.

Indian planning which had started with an extension of the Harrod-Domar model and with limited policy implications in regard to foreign exchange availability entered the phase of the Second Plan, armed with the Mahalanobis models and re-emerged with minor scratches and bruises, though with a renovated outlook, and also with a series of models by Ian Sandee, Reddaway and Ashok Rudra and Manne, during the Third Plan. The Fourth Plan models of Manne and Rudra, on the one hand, and those by Chakravarty, Eckaus and Lefebvre (the CEL model), on the other, pushed forward the discussions from static multi-sector models towards dynamic multi-sector

models. The present work makes an overview of the past developments and takes up the thread for a pilot study.

Basically, the authors attempt to develop linear programming models as tools of planning for development. The authors consider the existing multi-sector models, as being essentially static and view the dynamic models as less aggregated. It has been their declared aim to work out multisectoral intertemporal, dynamic models specifically in order to use more information and to obtain greater insight into our development problems and prospects.

The essential merit of the book lies in the deep insights as well as in the synthetic abstractions in the model-building techniques and their inadequacies in the content of experience. Their conclusions are open-ended, free from didactic finality and judgments least arbitrary with benefits of doubt distributed to one and all. They have succeeded in developing short-term and long-term models using computer technology. Their models supply a great deal of empirical guidance to the economist and stimulate his interest to a high degree in these exercises. The authors, discuss the structure of their models and also explain the trial solutions presented in rather clear terms. The language used is remarkably translucent and captivating unlike that of other votaries of dismal science.

That the authors have strained themselves to give the treatment a pragmatic quality is amply borne out by the content of the various chapters. According to them the best test of models is their actual confrontation with practical problems. Besides, it is seen that the treatment of various theoretical issues has a direct bearing on Indian conditions. There is a sure touch of realism when the authors conclude their study with an explicit warning in the following lines,—

"Ambitious plans, that cannot be attained, may lead to less desirable results than more modest targets set and achieved. As a specific, important example, if

high rates of saving and capital accumulation are realised but consumer targets are not met, the welfare objectives of the plan are likely to be seriously impaired. Moreover, there are grave political dangers in setting targets that require high saving rates and in treating consumer goods as residual sectors with only secondary investment and organisational priorities. Yet well-conceived ambitious plans, purposefully carried out, can assist in achieving growth rates substantially higher than those now being realised in many developing countries." (p. 205)

The book is at once a promise and portent of what a healthy collaboration between Indian and foreign scholars can achieve in terms of intellectual middlemanship for providing the basis for improving economic policy in the future.

### People's Participation

*Voluntary Efforts in a Rural Community. A Case Study. Published by the Central Institute of Research and Training in Public Co-operation, New Delhi. Pages 58. Rs 3.*

THIS publication, on the basis of a survey of the village Deoli near New Delhi, tries to offer an optimistic picture of people's co-operation and participation in rural development.

The survey projects the revolution of rising expectations among the people of the village, who are no longer traditional in their attitude. On the other hand the village people demanding more pucca roads, better agricultural inputs, electricity, better transport and medical services, "have not only become development-minded but are also willing to work for their own development, and not rely only on state aid." The fourth chapter of this book describes how the villagers helped building up a community centre. The keen interest shown by the people in family planning and small savings also reveals the change in their socio-economic outlook.

The survey examines the catalytic role of social education workers and voluntary organisations in bringing about the desired changes. Due coverage has been given to organisations like the Youth Club, Mahila Mandal, Radio Rural Forum, T.V. Club which, with healthy cooperation among themselves, have galvanised the people. Some practical suggestions about the role of the social education workers have also been appended in the concluding chapter of the book.

There are, however some obvious limitations of this particular case study. Firstly, the study of one single village, almost at the heart of the capital, does not represent the problems, attitudes, and aspirations

of millions of villages all over India. The concluding chapter frankly recognises this limitation. Again, the impact and relevance of Community Development Programmes have not been examined at all. The problem of financing of developmental schemes has also been overlooked.

However, in spite of the limitations of all such empirical case studies, the present publication provides some interesting information regarding the villagers' 'opinions and attitudes'. Short accounts of some of the interviews with different rural personalities, could have brightened up the fifth chapter of the book.

P. G.

## "Strange Little Brown Man"

*That Strange Little Brown Man Gandhi : by Frederick B. Fisher : Orient Longmans : Pages 151. Rs 13.50.*

C. N. C.

THE readers of Gandhiji's speeches and writings and literature about the Mahatma's ideals and methods will find little new in this volume. The book has some other significance, for it presents Gandhi and his ideals from the view point of one of his earliest admirers in America. In later decades the Gandhian approach to the struggle for emancipation and equality of the oppressed and the underprivileged captured the imagination of many sections in the United States and elsewhere in the West—Martin Luther King, for example, went so far as to use the Mahatma's technique to give purpose and direction to the struggle of the Negroes in America. But Bishop Fisher has tried to convey to the Western world the essential identity between Gandhi and Christ at a time when large numbers of people in the West had either no interest in India or looked upon the 'half-naked fakir' as a saintly crank with mysterious power over millions of Indians. Only the British Government, aware of the revolutionary change the Mahatma was bringing about in the outlook and attitude of the masses in this country, feared that Bishop's book would undermine the British pres-

tige; and proscribed it when it was first published almost four decades ago.

Fisher discovered Gandhi through the light of his faith in Christ. He takes the reader through the eventful years in South Africa and the subsequent two decades of ferment in India to show that Gandhi, whose "mind...is fluid, ready to run into new channels as they open up," was consistently loyal to his basic principles of truth, love and justice. His idealism did not prevent him from recognising his people's shortcomings which had to be overcome, if they were to qualify to be true soldiers in the peaceful war. His insistence on discipline and good conduct among those closest to him is almost proverbial in significance. The power he achieved over the millions by communicating with them in the language they could comprehend and by rousing in them awareness of their own strength is nicely summed up by Fisher in these lines: "Had Gandhi organised a violent armed revolution, under the national control that he had achieved over the mind and heart of India, it would have been impossible for England to hold India at this time without the loss of somewhere between six hundred thousand and a million British soldiers." The author illustrates this power of the Mahatma by giving an account of a march by thousands of men,

women and children in Bombay, undaunted by flying bullets.

What strikes Fisher most is that Gandhi lived the sermon on the Mount. Pointing to the weaknesses of the foreign missions in India, he concludes that in India of the twenties "Christ has become so real, so vital, that a new expression of his living life is here" and that what was required of those who believed, was to have "the grace to step aside and let the truth sweep forward."

Fisher also deals with several other aspects of India, including its massive poverty, the phenomenal emancipation of its women typified by Kasturba, Hindu-Muslim unity and the capacity that the people of India under Gandhi's leadership had demonstrated for ruling themselves. The author concludes on a note of hope for a world in which people will live and grow as equals, each contributing his best to the welfare of the rest. That dream world is still far off, but there is no doubt that it will continue to be the goal of all sane human beings in the decades and centuries to come.

## RISE IN MINERAL PRODUCTION

The value of mineral production in India was Rs 292 million in April, 1970 as against Rs 283 million in March, 1970. This excludes mineral production in Goa, and the value of petroleum, natural gas, minor minerals, 'prescribed substances' and common salt.

The share of mineral fuels (coal and lignite), metallic minerals and non-metallic minerals in the total production were 78 per cent, 13 per cent and 9 per cent respectively. Iron ore and manganese ore, the most important constituents of the metallic group, accounted for Rs 19 million and Rs 6 million respectively. Among the non-metallic group, limestone contributed Rs 16 million and mica accounted for Rs. 1.5 million.

With 1960 as base year, the overall index of mineral production rose to 178 in April, 1970, as against 177 in March 1970 and 175 in April, 1969.

## LETTERS

### JOB-ORIENTED EDUCATION

A recent survey conducted by the Extension Department of the Rural Institute, Wardha, revealed that 76% of the Diploma holders in Rural Services Course were absorbed by 14 different departments. Diploma in Rural Services Course is a graduate course with specialization in subjects like Co-operation, Social Education, Social Welfare Public Administration, Home Science and the like. It was found that 46% of them were employed as secondary school teachers, 11% as Extension Officers for which they were duly qualified and rest of them were employed as Cooperative Bank Manager, Assistant Cooperative Officer, Cooperative Instructors, Group Secretaries, Statistical Assistants, Gram Vikas Officers and Social Welfare Officers. Out of the total number of diploma-holders, it was found that 13% of the students had entered Universities for completion of Post-graduate courses. As regards the remaining 11%, it was found that they either did not seek appropriate opportunity of employment or they preferred to remain in the villages. The note-worthy finding was that 100% of the students came from the rural areas.

The survey further disclosed that the diploma holders of the Rural Services Course could have been more profitably employed, because these students have specialized themselves in Community Development work and their rightful place is in the field of economic development.

As regards the students of the Agricultural Science course, 75.8% of them were employed. Majority of them i.e. 60.5% were absorbed as Agricultural Assistants, 10% of them were employed as Gram Sevaks, rest of them got employment as Soil Survey Assistants, Seed Production Supervisors, Milk Supervisors, Canal Supervisors and Demonstrators in fertiliser Corporations. Out of the unemployed, it was found that 9.86% of them preferred to work over their farms rather than go out as farm Supervisors. This is

a good aspect and is to be encouraged at all levels of education.

As regards Overseer's course in Engineering, it was found that 87.17% were engaged as Overseers, 8.97% as Surveyors, and 1.28% as Clerks. Similarly, 2.56% of them were employed as Technical Assistants. Thus 99.98% of the students of the Engineering Section were employed. The remaining 0.02% have taken to contractor's job.

The position of employment in the Engineering Section of this Institute improved considerably, it was found that the employment bureau of the Institute was instrumental in helping the students to get appropriate jobs.

If brief job-oriented education is the need of the hour and if public institutions and Government Departments care to select job-oriented personnel, as has been done by the Cooperative Department of Maharashtra State by issuing a circular to give preference to the diploma-holders of the Rural Institutes (where specialized job-oriented education is imparted), the position of employment would improve a great deal.

Wardha

D.J. Hatekar

### FOREIGN TRADE AND AID

Mr Kaliaperumal seems to denounce the role of foreign trade in economic development (Yojana, May 17). True, substantial investment in intensive farming will increase per capita income of the rural folk. But where must it come from? We cannot mop it up from the meagre internal savings. The only remedy is foreign trade and aid. Again the argument that as a result of a fall in the price of agricultural raw materials there can be a reduction in wage rates cannot be accepted. Wages do not tend to go down in the present economic set up where trade-union activities are permitted.

As a solution to the unemployment problem in rural areas the writer proposes to install cottage industries for making wooden furniture and fancy baskets. But the problem is who would buy these articles? A small number of industrially employed persons cannot be expected to buy the articles, produced by the vast army of rural unemployed. The

writer asks for government subsidy to enable the producers of these goods sell the products at cheaper prices. But if it is possible, why should not the Government subsidise export?

Changanacherry K. Madhavan Nair (Kerala)

### BOOKLETS ON WORLD ECONOMIC DEVELOPMENT

I have been subscribing to *Yojana* for the past two and a half years, and I am happy to say that you are doing valuable service to the people. You are also giving useful information about planning in India for the benefit of students who have taken up Economics as a subject of study. I am keeping all issues of *Yojana*, because it cannot be thrown away. I am really indebted to *Yojana*, and I have greatly benefitted by reading the journal regularly.

I, however, have a few suggestions to make, so that *Yojana* can help us to know what other countries are doing with regard to Planning. One of your readers has suggested that *Yojana* should publish booklets on planning in other countries at a cheaper cost as 'Forum of Free Enterprise, Bombay, is doing. These will help us know how other countries are faring in respect of economic development.

Madras

K. Vijayaraghavan

### IGNORAMAN

One of the features I like best in *Yojana* is your brain-child, "Ignoraman". Here is a small contribution for his spiritual welfare:

"IGNORAMAN wants to know if riot detection radars couldn't be installed in the State capitals."

Poona

Philip Cheruvellil

—IGNORAMAN appreciates reader Philip Cheruvellil's interest in him but prefers to remain ignorant about such sensitive devices. In any case, he is jealous of his copyright and does not want to think "second-hand".

Chief Editor

## BIG DEEDS HUMBLE MEN

*In this feature Yojana seeks to present the outstanding achievements of some of the many millions of obscure men and women who are working to build tomorrow's India.*

### A MIRACLE OF GREEN REVOLUTION IN ALWAR

One hundred and twentysix maunds of wheat per acre! This miracle of Green Revolution has been achieved by a 32-year old farmer, Jai Singh, in Bas-Kripalnagar in Alwar district of Rajasthan.

It took six years for this young Ahir farmer to achieve this record production. He tried different high-yielding varieties of crops in his farm year after year before taking to the Kalyan Sona variety of wheat. In June last year, he even sowed jute to increase the fertility of his land.

Before sowing Kalyan Sona on November 13, Jai Singh ploughed his field as many as six times. He made a liberal use of compost; 10 cart-loads per acre. Chemical fertilisers like calcium ammonium nitrate, super phosphate and potash were applied at the rate of 151 kg, 125 kg and 25 kg per acre respectively. He also took precautions against damage by white ants and other pests.

Twentyfive days after the sowing, and before the first watering he again treated his land with ammonium nitrate at the rate of 50 Kg. per acre; 25 Kg. of urea per acre was also applied at the time the crop bore corn ears.

In spite of all these efforts to secure a bumper crop, young Jai Singh was agreeably astonished

by the size of his harvest, which the officials of the agriculture department estimated at more than 126 maunds per acre.

The success of this progressive farmer has become a source of great inspiration for other farmers in the area. In order to help the cultivators to avail more and more of the modern scientific facilities, Jai Singh has opened an agency shop of improved seeds, fertilisers and pesticides at Kishangarh-Bas Crop competitions are also organised by him where the winners are awarded improved agricultural implements as prizes.

### "PRACTICE WHAT YOU PREACH"

Somavarapu Narasimulu Naidu, an elementary school educated Sarpanch of village Brahmanapalli, is a great enthusiast of family planning. However, he strictly believes in the motto "practice what you preach."

Before launching his campaign for family planning Naidu first underwent vasectomy operation himself, so as to be an example to others. He did this after the birth of two children. But this was not liked by the whole village. This was not very surprising considering the fact that Brahmanapalli, an interior village in the Chittoor district of Andhra Pradesh, is for all practical purposes a very backward village, with neither a bus nor a rail link nor a high school or a health centre. Poverty and ignorance are rampant in this village.

Undaunted, however, Naidu took up the challenge of bettering the lot of his people by limiting their numbers. Though in the beginning he had to face a lot of criticism from the elders of the village, he did not lose patience. In fact he adopted the tactics of talking to people individually, in his leisure hours, about the benefits of a small family.

Slowly he won the confidence of some people and took them to the nearly vasectomy camp at Tirupathi. The efficient services provided by the Family Planning authorities under the able guidance of Dr V.S. Maruthirayalu, soon attracted some more people to this movement. This time Naidu arranged for the vasectomy camp to be held in his village.

The response to this camp was so good that within a few months he had to organise another camp.

Today, thanks to the efforts of Naidu 'the Sarpanch', 80 percent of the eligible couples in Brahmanapalli have undergone vasectomy operation. But all this has not slackened the efforts of Naidu. "I want every man in my village to practise family planning after two or three children" says he.

### CARPENTER'S UNIQUE INVENTION

Sunder Singh never had it so good. A mere door and window carpenter, it took him years of hard labour to perfect a very practical thresher machine which saves the farmer a great deal of time and money by performing two important functions effectively—separating the grain and preparing fodder for cattle.

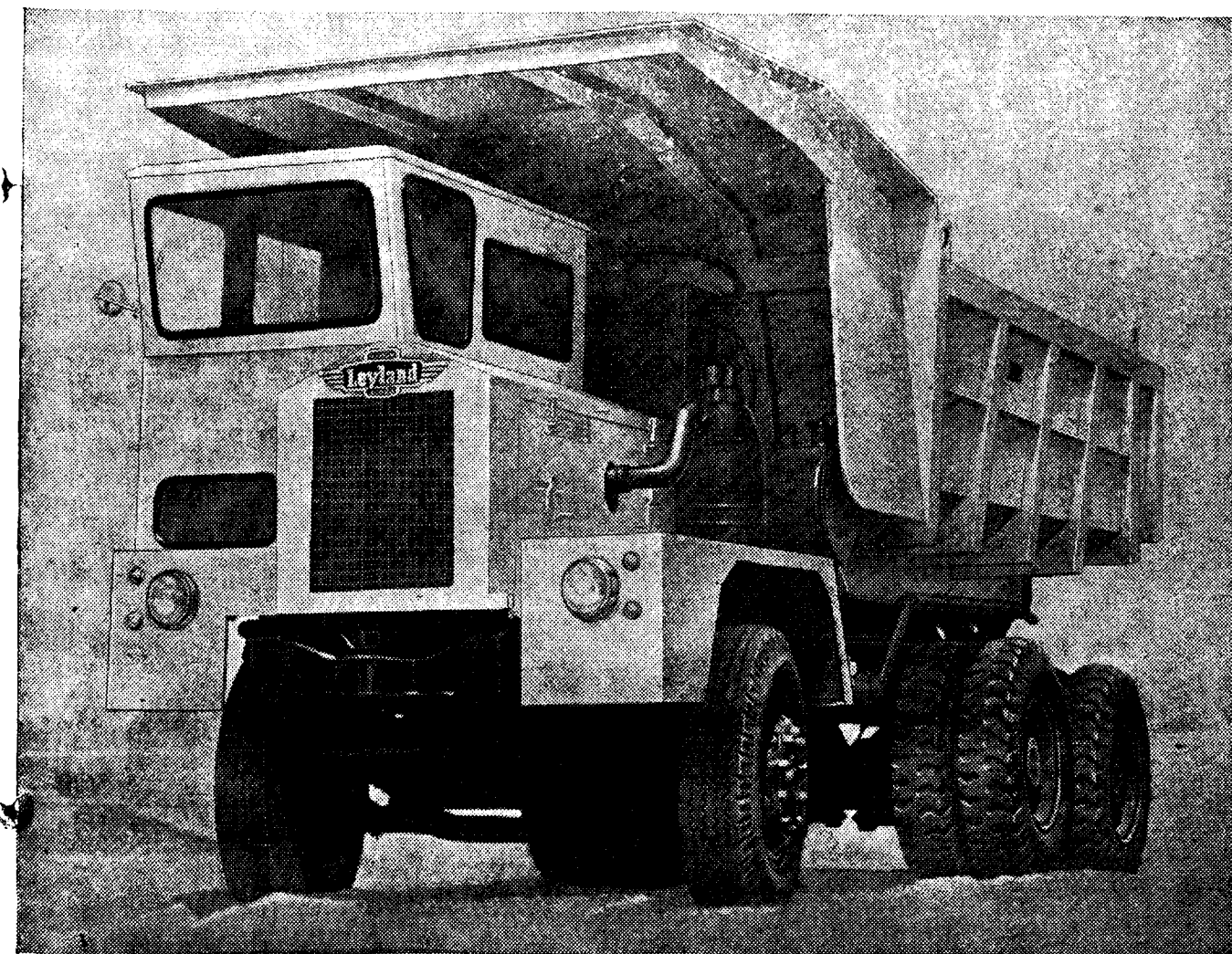
Sunder Singh owes his success to his own enterprise. He saw peasants in Punjab wielding a "Toka" (a kind of chopper) for hours together to cut fodder stalks into small bits in order to feed a few cattle.

"If only this tedious process could be mechanised", thought Sunder Singh. He produced a model and submitted it to an engineer's inspection. The model was not good enough. But the engineer encouraged him.

Model after model was produced and submitted to the engineer's scrutiny, and the work of improving the prototype went on. But Sunder Singh, with his time taken up by this job, could not earn a proper living.

With the help of his patron-engineer and official blessing he got a loan to carry on his job. Working with renewed energy, Sunder Singh at last succeeded in perfecting the model which was approved by his patron-engineer. Today the model is sold as soon as it is manufactured. It is a simple box-like machine which cuts the wheat stalks very fine and blows them out with great force.

Sunder Singh now has a full-fledged factory employing 50 skilled workers.



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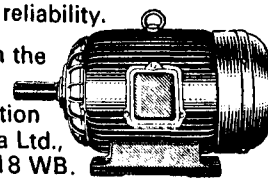
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## ENGINEERING NOTES

### 33,000 KW WATER TURBINE & GENERATOR

The first 33,000 kilowatt water turbine and generator set at the Obra Hydro-electric power station in Uttar Pradesh has been successfully commissioned. The additional power generated here will be made available for agricultural and industrial development of the country through the U.P. grid system. The turbine and generator were supplied by the Heavy Electricals (India) Ltd., Bhopal.

The water turbine set at Obra is the first of the three generating sets being supplied by HEIL for the 1,00,000 kilowatt hydro power at Obra Power Station. The remaining two sets are in an advanced stage of erection at site.

The spiral casing of this set, which carries about 200 cubic metres of water per second, is among the largest in the world. The rotating portions of the generating set alone weigh 240 tonnes. In the completion of this gigantic job, accuracies up to a fraction of a millimetre had to be achieved.

A team of about 50 engineers, technicians and workers of the HEIL factory were associated at various stages in the successful installation of this unit at site.

Commissioning of the first set at Obra is yet another achievement of HEIL factory in making the country self-reliant not only in manufacture but also in erection and commissioning of equipment for large power stations.

Obra is the first among the fourteen large hydro-electric power stations in different parts of the country being equipped with generating plant and equipment by HEIL.

### COUPLING CAPACITORS

Heavy Electricals (India) Ltd., Bhopal, will manufacture coupling capacitors and capacitors for capacitor voltage transformers up to 220 kV class for the first time in India. An agreement for providing technical know-how for this manufacture was signed on May 12 between HEIL and British Insulated Callenders' Cables Ltd., United Kingdom.

Capacitor Voltage Transformers are used in high voltage network for voltage measurement and protection; coupling capacitors along with wave traps and carrier equipment are used for voice communications. Appreciable savings can be achieved by installing capacitor voltage transformers because of their dual functions.

With the expansion of electrical network throughout the country, the demand for carrier equipment is increasing. By manufacturing coupling capacitor, which is a major portion of the above equipment, considerable foreign exchange would be saved.

### SHELLAC MICA FOLIUM WRAPPING MACHINE

The Works Engineering Division of Heavy Electricals of India Ltd. Bhopal has successfully designed and manufactured a shellac mica folium wrapping machine. The machine contains cent per cent indigenous components and thus our valuable foreign exchange has been saved.

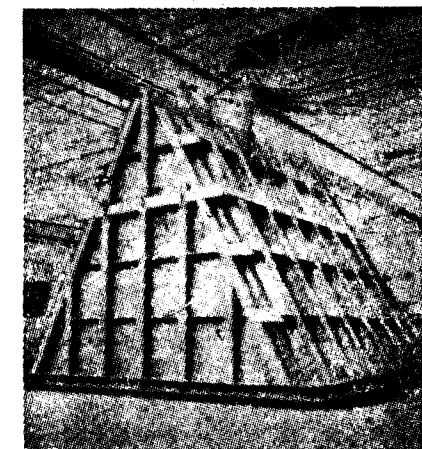
The cost of the machine, commissioned and working very satisfactorily, is Rs 15,000 as against Rs 50,000 for the imported one.

The compact wrapping of mica folium insulation around the slot portion of stator and armature coils of traction machine posed a bottleneck with growing production demand. Hand taping process is time-consuming and costly. To meet reduction needs a special purpose machine was to be imported from abroad on payment of foreign exchange. The Development Section of the Works Engineering Division accepted the challenge and successfully manufactured the machine.

### BUNKERS FOR BHATINDA

In April this year, the BHEL High Pressure Boiler Plant, Tiruchirappalli, manufactured P.F. bunkers for the 100 MW Bhatinda power station. The four bunkers are designed for a storage capacity of 400 tons of coal per boiler and have a capacity of 100 tons each.

The pulverised coal from the drum mill, after passing through the classifier and cyclone separators, is collected in the pulverised coal bunkers. These bunkers store the required quantity of pulverised coal ready for use. From here the coal



One of the four P. F. bunkers manufactured at the Tiruchi Boiler Plant. It can store 100 tonnes of coal.

powder is fed to the burners along with the air from the primary fan, after being mixed in the mixing nozzles.

The bunker consists of two parts, vertical or sloped side walls in the upper part and toughed hopper at the bottom. To ensure effective discharge of coal powder the angle between the side walls and the horizontal is kept at not less than 50°. The side walls are provided with vertical stiffeners to resist the lateral pressure of coal powder. Secondary horizontal stiffeners give proper support for the main stiffeners and the walls of the bunker.

TO KNOW INDIA

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## Development Diary

\* A twelve-nation Consortium has agreed to provide \$ 700 million non-project assistance to India for this year. It has also agreed to meet the additional commitments of about \$ 400 million project assistance.

\* The Indian Petro-Chemicals Corporation has signed an agreement with a British Company, for technical assistance for Rs 31 crore Naphtha Cracker plant, being set up near Baroda.

\* Under an expansion programme the production of nitrogenous fertilisers at the Trombay unit will be increased to 2.12 lakh tonnes per year. The feedstock for the programme is to be imported.

\* The Bihar Government has approved a Rs 5.78 crore scheme for the construction of 280 km. long irrigation canals and a long barrage over the Bagmati. The scheme will provide irrigation facilities to over two lakh acres.

\* Under an Indo-Burma trade agreement signed in Rangoon, India will buy one lakh tonnes of rice from Burma this year. Burma will buy from India a wide range of engineering goods and industrial products, and will also sell to this country teak wood and minerals besides traditional items. This is expected to reduce the present trade imbalance between the two countries.

\* The State Bank of India has started a scheme for granting loans upto Rs 1 lakh to help agricultural graduates in setting up modern farms in villages. Under the scheme the graduates would have to settle down in villages.

\* Punjab leads in the use of fertilisers in the country, followed by Kerala and Delhi. The State consumed a little over 29 kg of fertilisers per hectare of cropped area in 1968-69. The average for Kerala was about 25 kg and for Delhi 24.6 kg.

The consumption of fertilisers in Orissa was the lowest. But with the introduction of the high-yield-

ing varieties, it rose by 28 per cent last year, as compared to the previous year.

\* A multi-purpose industrial estate in the private sector has been set up at a cost of over Rs 1 crore near Cochin.

\* The keel for India's first sophisticated air-conditioned passenger liner (10,000 tonne) has been laid at the State-owned Mazagon Dock in Bombay. The liner will be designed to attain a speed of seventeen knots.

\* India's handloom exports to non-traditional markets shot up by over 41 per cent in 1969 compared to the previous year. Exports to traditional markets went up by about twenty per cent. The highlight of the performance in non-traditional markets was the increase of Rs 2.38 crore to West Germany, Rs 2.26 crore to France, and Rs 96 lakh to the United States.

The European Common Market countries together accounted for a 400% increase.

\* A paper corporation has been set up in the public sector. It will produce paper, pulp, newsprint and other allied materials. The undertaking which will have an authorised capital of Rs 60 crore will be known as Hindustan Paper Corporation. It is expected to take up immediately the setting up of three paper plants in Kerala, Nagaland and Assam.

\* A Bombay firm has entered into an agreement with a group of three companies in Argentina for making available to them know-how and technical assistance for the manufacture of reactive dyes. This is for the first time India will be providing technical know-how to South America.

\* A new variety of maize, rich in nutrition, has been developed by the Indian Agricultural Research Institute, New Delhi. Its properties of protein are very much similar to those of milk. It is likely to be released for cultivation towards the end of this year.

The journal of the Planning Commission published fortnightly in English, Hindi, Assamese, Bengali and Tamil

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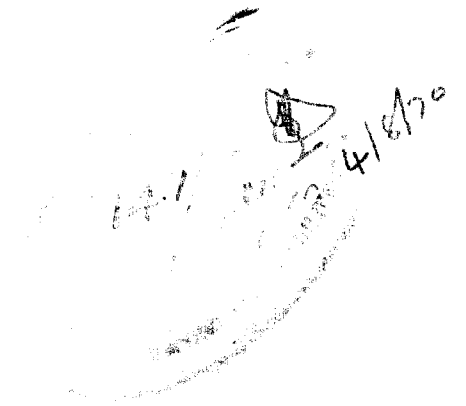
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### LEST WE FORGET

Sandy soil yields no crop because it does not stick together...It is the same with human beings. Where the chasms between them are wide, their strength is of no use.

— Rabindranath Tagore

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## AS WE SEE IT

WHEN the leaders of India assumed full responsibility for national development in August 1947, they planned to do something more audacious and idealistic than had ever been attempted by any democratic country before. Starting with less, India planned to do more, and in much shorter time, than any other under-developed country. Within two years of Independence, a Constitution was adopted, spelling out the kind of society the country desired and was determined to build. But a constitution is only a charter, not a plan for development. Accordingly, in March 1950, three months after the Constitution came into force, the Planning Commission was set up to prescribe the steps to be taken to realise the economic and social goals enunciated in the Constitution.

The Planning Commission laboured for more than two years, and the first Five Year Plan was presented to Parliament in December 1952. The Plan, in the words of Jawaharlal Nehru, raised "the vision of something vast—the mighty theme of a nation building and re-making itself". The task of preparing a blueprint for the economic and social regeneration of the country was not, however, an easy one. Apart from the inherent difficulties confronting any newly independent, under-developed country similarly situated, the Indian Planners were faced with stupendous problems peculiar to the country: widespread poverty, mass illiteracy, an outdated agriculture with one of the lowest production yields in the world, a decadent village industry and a meagre urban industry, a rigidly stratified social structure, a meagre transportation system and an inadequate communications system and an administrative structure oriented to police, tax-collection and regulatory functions. Behind these conditioning factors lay the fact of a vast country with the tremendous diversity of peoples, languages and cultures. The Planners had to create conditions of a new life for more than 350 million people, a vast majority of them living in the 550,000 villages, and psychologically oriented more to survival than to hope and expectations.

The objective of planned development was, however, not merely "to get more money and more production", but ultimately to create "better human beings". It was realised that "economic growth by itself does not necessarily mean human growth or even national growth. What India sought to achieve was "an integrated plan for the economic growth of the country, for the growth of the individual, for greater opportunities for every individual, and for the greater freedom of the country".

It is from these beginnings, more than 18 years ago, that the country has travelled along the uncertain and difficult course towards the goals set out in the Constitution. India's progress in this task since 1947 stands as one of the historic examples of human advancement. There is no doubt that "no other great nation has ever before made so many and so great gains in the short

period of time that has passed since India began her first 'decade of development'. This does not mean either that India's planning effort has been a complete success or that it has been able to keep pace with the goals of its planners or the imperatives of current needs. In spite of the significant gains made since the First Plan, poverty, hunger and low levels of living and income still persist. This is primarily due to the fact that the population explosion has largely offset the gains made so far.

After long years of privation and denial, the morrow of Independence saw a new hope surge through the entire country. The people's expectations were naturally high, and there was a general feeling that, in a very short time, a new wave of prosperity would sweep through the land. When these hopes were not fully realised, as was inevitable, the popular feeling of disappointment and frustration began to become more widespread. In the process, the many achievements, which are the direct result of the planning process, have receded into the background, leading to an overemphasis on failures rather than successes, significant as these are. It has become fashionable today to harp constantly on the seamy side of things, and to cast the Nelson eye on the good things that one can see all around. As a result of this tendency, the good is invariably interred in silence, and the bad is banded about.

Yojana published a feature until recently, *This India*, which was open to our readers who wished to share their experiences of the rich and varied life of India. It was our expectation that our readers would be encouraged to project the brighter side of things. In course of time, however, the feature degenerated into a mere catalogue of the darker side of Indian life. Even minor irritations were magnified into major social evils; and individual human aberrations were sought to be used as evidence of national degeneration. Curiously enough not many contributions reflected the good things that abound in this country. This distorted view of life in India compelled us to discontinue the feature.

With this issue we begin a new feature, *This I Like About New India*, which replaces *This India*. The object is obvious: we desire to encourage our readers to tell us about the country's achievements, which are significant. We want to encourage our readers to look around for the great things that have been achieved since India started on the road to a new life, only to place things in proper perspective.

In this national endeavour to write a new chapter in our history we have necessarily to draw upon the experience of the past, with the liberty of making mistakes in the present, for the realisation of our dreams in the future. This is not a plea for wrong-doing, nor is it meant to be a justification for avoidable mistakes. It is merely to emphasise that carping criticism and refusal to acknowledge the nation's achievements is not the way to progress.



Photo : USIS

## THIS I LIKE ABOUT NEW INDIA

SWAMI RANGANATHANANDA

### All Nations Have Learnt the Hard Way

SINCE the attainment of political Independence in 1947, a new India has come into being, bubbling with, new energies and aspirations and engaged in diverse activities in search of their realisation.

Behind it lies a century of effort and struggle of the modern national renaissance. The first achievement of new India was the framing of a Constitution for itself giving voice and form to its vision of human dignity and equality, and the establishment of a sovereign democratic republican state as the instrument of the

national will to translate that vision into reality in the life of a sixth of the human race.

The second achievement is the initiation of a many-sided economic and social development programme through its successive Five Year Plans.

A third achievement is the successful holding of four General Elections involving, in the fourth, over 210 million voters, and giving the Indian people a political education which they did not have during the five thousand years of their history.

Through all these processes, including the slow but steady spread of a common system of education throughout the nation, new India is evolving into a full-fledged nationality, irrespective of caste, creed and sex, for the first time in its long history. This evolution needs for its completion a fourth achievement on the part of its democratic national forces, namely, the adoption of a common national civil code through democratic consent. The nation has to bend its energies to get this done as soon as possible.

These achievements are impressive in themselves. In them we see the stimulus of the new-won freedom helping to compress a century of history into two or three decades. But they are inadequate when viewed against the background of the long suppressed urges of the people longing for fulfilment. This explains the political and social tensions and turmoils of our nation today. These are not the signs of national decay but of national health and vigour. They are in fact, the challenges of freedom; freedom has no meaning unless it involves freedom to learn and to experiment, and freedom even to commit blunders in the process.

We cannot make some other nation's wisdom our own; we have to acquire wisdom ourselves through our own experiences, through our own successes and failures. All the contemporary developed nations have not started with wisdom but have blundered into whatever wisdom they now possess through the hard way. Viewed in the perspective of history a hundred years ahead, our post-Independence years up-to-date will appear as the dynamic seedtime of bumper national harvests ahead.

Some of us may be disturbed by the tumult and tension in our country today and feel even anxious for its future. Such anxieties can be digested if we can learn to view our national scene through the eyes of far-seeing leaders such as Swami Vivekananda.

When Swami Vivekananda was returning to India in 1897, to be received as a conquering hero by the people after his four years of successful cultural and spiritual work in the Western world, a western fellow-passenger and friend on the ship told him that his country, India, was a highly moral country. He asked her what made her think so. She replied that there was so little crime in India whereas in England and America there was so much crime. Any patriot will be proud to receive such a tribute to his country from a foreigner; but not Swami Vivekananda. He heaved a little in deep feeling and said to the amazement of the friend: 'I wish it were otherwise with my country. There is no energy in my people even to commit a crime.'

He saw India sunk in the inertia of *tamas*: he wanted his people to shake off their centuries-long *tamas* and develop the energy of *rajas*, and then raise it to the highest level, the level of *sattwa*. The energy of *rajas* is the energy of awakened humanity; it is the energy behind all social transformation; but, for this it needs chastening by *sattwa*. Under the touch of *Sattwa* it becomes capable of grasping the nation's problems of poverty, social injustice, and general inefficiency, and taking energetic steps to tackle the same. Without the touch of *sattwa*, *rajas* energy becomes self-centred and exploitative, unethical and self-cancelling. *Sattwa* channels it into social purposes, raising it in quantity and quality

in the process, and divesting it of all fuss and noise. It then becomes the calm, silent, creative energy of man-making and nation-building.

If Swami Vivekananda were to come today to present-day India, he would be happy to witness the enormous energies manifested by his people. He would say to our people: Yes, you are no more under *tamas*; you have woken up from your centuries-long sleep. You have learnt even to commit crimes, you can burn buses and trains and even kill each other. You have captured the energy of *rajas*; you have thus taken the first step in man-making and nation-building; but only the first step. You are now to take the second step, namely giving a constructive and creative direction to your energies by channelling them into socially useful goals and purposes. That is man-making education and man-making religion in one.

Herein is found the reaching out of the more palpable physical and intellectual growth of man into an impalpable, yet most significant, dimension of human growth, namely his spiritual growth. Ancient *Vedanta* and modern biology recognise this as the special line of human evolutionary advance. The whole nation must educate itself at least in this second step, even if most people may be unable to proceed to the further steps of spiritual growth available to every human being. And Swami Vivekananda would congratulate those patriots and national workers who have educated themselves in this second step and have been in the vanguard of national development. He would tell them to have faith in themselves and inspire it in others. He would re-emphasise the motto he had given: 'Be and make.' Be men yourselves and help others to be men. In the light of this, the whole India will become an institution for human growth and fulfilment. And he would whisper into the ears of one and all in the nation his favourite clarion call: Arise! Awake! and stop not till the goal is reached.

SHIRISH V. VAKIL

## Education For All

WHAT I like about "New India" and of which I am proud and happy is the easy availability and equal opportunities for education offered to the people. Education is essential for the betterment and enrichment of human life.

Before Independence, opportunities were scarce, even to acquire primary education. Higher education was a day-dream. There were few colleges and universities in the country. Consequently the percentage of literacy was low. But today the situation has changed in the field of education due to the implementation of three Five Year Plans. Facilities for primary education have increased to the extent that almost every village with a population of four or five thousand has a primary school. Higher education has become easily available to everyone. Higher studies in science and technology are now within easy reach of everybody. The people of "New India" are free today to make use of educational opportunities without any distinction of caste and religion.

HIREN MUKERJEE

## Amazing Talent of Our People

IT was in 1956, when Chou-En-Lai was on a visit to India, and asked to specify what had impressed him most, is reported to have replied: "The National Physical Laboratory and the National Discipline Scheme." The latter which the late General Bhonsle had nursed with love and care, is in a process, for some time now, of not easily intelligible metamorphosis. The former may well be doing valuable work, but for all one knows, not everything seems right with our science effort while China sends a satellite into space and we sulk, understandably, with a sort of sullen feeling about being left behind in the race. This does not mean, of course, that there is not a lot of things we like about New India, which is what the editor is keen to ferret out.

Perhaps a caveat at this stage, however, will be permitted. Even if some of us are unhappy with much that we see around us, there can be no question about the bewitchment of India which keeps us in loving thrall. Jawaharlal Nehru once told Frank Moraes that though he often felt he did not "quite belong", he knew that "India was in my blood". And as Jawaharlal "discovered" India, he wrote: "She is a myth and an idea, a dream and a vision, and yet very real and present and pervasive. There are terrifying glimpses of dark corridors which seem to lead back to primeval night, but there is also the fullness and worth of the day about her. Shameful and repellant she is occasionally, perverse and obstinate, sometimes even a little hysteric, this lady with a past. But she is very lovable and none of her children can forget her wherever they go and whatever strange fate befalls them. For she is part of them in her greatness as well as her failings, and they are mirrored in those deep eyes of hers that have seen so much of life's passion and joy and folly, and looked down into wisdom's well".

It is harder to answer the editor's query about what one particularly *likes* in today's India. He has even prompted several replies, suggesting that one might have found some special project or some item of sophisticated technological facility which could be singled out. They could, no doubt; it is easy to recall Jawaharlal's description of scientific laboratories and project sites as "modern temples". By and large however, and with all respect to those who work them, they have turned out, it seems, somewhat people-disoriented—which is why one feels like shying away from mentioning them.

What brings me unalloyed joy however is something fairly unpretentious but is one of the few present-day factors which make for the brightening of what is so often called the "image" of India. I mean the facilities that have been made increasingly available in independent India for making known to our people as well as to people abroad the limitless wealth of this country in the production of handicrafts of varying kinds.

There are few things in the world to compare the amazing talent of our people working with their hands

in generally ancestral occupations and getting very little indeed in return. At any point of time, if one is jaded, a walk into the Cottage Industries emporium, the Handicrafts Centre, even the *Khadi* and village industries shops, or the often beautifully named stores where the States of India advertise their typical ware brings balm to the spirit. Behind the pretty facade which since 1947 we have looked after with some success, there may, of course, be a lot of human deprivation and administrative callousness. But, by and large, this aspect of life in new India which corresponds also to a certain revival of interest in our music and, broadly, in the four arts appears something to be genuinely jolly about. Most readers, one fears, will be disappointed at this finding, but there is no help.

B. SHIVA RAO

## India Helps Remove the Long Nightmare of Yesterday

THERE is an aspect of New India which does not easily strike most people in the country as of major significance. The U.N., which is celebrating its twentyfifth anniversary this year, has 126 member-States with Africa claiming the largest number. At its birth in 1945 in San Francisco, which I witnessed, there were barely 50 such members: Asia and Africa were feebly represented, both in numbers and in the quality of their representation. On my return to New Delhi, I spoke about it to Jawaharlal Nehru and to the Indian Council of World Affairs. The result was the Asian Relations Conference in New Delhi in April 1947, with 28 Asian countries sending their delegations. With prophetic vision, Nehru declared at the Conference that Asia extended her hand of co-operation to Europe and America, but on terms of equality and partnership: to Africa he gave a pledge that India could support a policy that meant the early end of colonial exploitation.

In that spirit, India's leaders first carved the destiny of this country, overlooking the wounds and the sufferings of the past. They did not rest on their oars on the completion of their self-assigned task of framing a Constitution for free India. Many countries under imperial subjection were encouraged to follow our example and our technique in discarding their shackles.

India's representatives at the U.N. worked ceaselessly for the freedom of colonial areas in other parts of the world. Burma's constitution, based on complete independence, was actually drawn up in New Delhi under the guidance of Sir B. N. Rau, our Constitutional Adviser. The first step towards Indonesia's independence was taken by a U.N. Regional Conference called at Nehru's initiative, and held in the chamber in Parliament House now used by the Rajya Sabha. Three former Italian colonies in North Africa—Cyrenaica, Tripolitania and Somaliland—might have continued indefinitely to be in subjection because of procedural wrangles in the U.N., but for India's formula which was readily accepted by all sides. Year after year, India has actively participated in the yet inconclusive fight in the world body for the restoration of liberty to South-West Africa from her cruel oppressor, South Africa.

Problems of political domination still remain to be solved in odd corners of the world, but the back of old-style colonialism has been broken. Former imperial powers which had asserted their authority for centuries over alien peoples in distant lands have shrunk today to their original modest dimensions. Much remains to be achieved before the world can claim that man's domination over man has ceased, never to be revived again. New forms of Imperialism have, of course, arisen—economic, racial or ideological. These are the tasks for today and tomorrow. But India can legitimately claim that in the lifting of the nightmare of a long yesterday, she has played a noble and remarkably successful role.

KHEM SINGH BHATIA

## More "Made in India"

WHENEVER I visit the market I am very much impressed by India-made articles of daily use like bicycles, radios, transistors, pressure cookers, electric goods and sewing machines. Many of these items are also exported to foreign markets and thereby earn valuable foreign exchange for the country. The quality is improving day by day and more and more people are anxious to purchase these articles for their homes.

### CALLING ALL READERS

Yojana invites contributions from its readers to this new feature, "This I Like About New India". We desire to encourage our readers to tell us about the country's achievements which are significant. Contributions, not exceeding 300 words, should deal with some positive aspect of individual or collective endeavour in New India. Contributions stating age and field of activity and address of the contributor, should be addressed to:

Chief Editor, Yojana  
Yojana Bhavan, Parliament Street  
New Delhi 1

## THE DISSENTERS

*In this first instalment of contributions we are publishing a few "letters" which sound a discordant note and do not, for that reason, fit into the feature. We are doing this merely to show that there are some who do not "like" anything about "New India".*

E.M.S. Namboodiripad

I am afraid that, holding as I do certain strong views on planned development in India, I shall be a mis-fit in your feature. For, I am not among those with "views critical of certain aspects of development". I am critical of the very basis on which development is being planned and executed. It would not, therefore, be fair either to me or to you or to the readers of your journal if I were to write within the scope of your feature "This I like about New India".

C. D. Deshmukh

...my over-all feeling about New India is of serious concern as I take a poor view of the capacity and motivation of those who have come to power for governing it.

M. Chalapathi Rau

I do not know what I like about New India. It has done nothing for me or for my "kith and kin". I received the Padma Bhushan award but I returned it.

I have not contributed to "the nation's glory" in my "chosen field". I did not choose the field where I am. It was forced on me. There is nothing of "inspiration" or "solace" I can offer to others, including you.

## MARCH OF PLANNING

## FIVE PER CENT MORE EMPLOYMENT IN THIRD PLAN

### Over 4.5 Million Opportunities Added

MORE than 4.5 million additional workers were employed in public sector and non-agricultural establishments during 1961-69, as against a total of 12.09 million in 1961. There was five per cent increase during the Third Plan period, which brought employment in these sectors to 15.46 million by 1966. The growth of employment, which had suffered in 1966-69, recorded a two per cent increase in the last year, reflecting the country's economic recovery.

Industry-wise the highest employment growth was recorded in trade, commerce and services sector, followed by the manufacturing sector. The lowest growth was in mining and quarrying.

The Fourth Plan development strategy is in broad conformity with the International Labour Organisation's advice to integrate employment with economic development by utilising full productivity of available labour to accelerate economic growth and by substituting labour for scarce capital, where economically feasible. To achieve this, comprehensive rural development programmes, labour-intensive public works and fuller utilisation of industrial capacity, promotion of labour-intensive industrial products for domestic and foreign markets and application of labour-intensive techniques in industrial production were adopted.

This strategy is of far-reaching implications for investment planning. More investment (at least of certain kinds) in "human as compared with physical capital" will be needed and a unit of it will have to be channelised into rural rather than urban development. Preference will have to be given to small-scale ones. Investment in capital-intensive industries would have to be limited to those where intensive technology is available and necessarily needed to exploit particular natural resources of the country. Priority would have to be given to essential rather than non-essential consumer goods.

The emphasis in the Fourth Plan on labour-intensive programmes through development of agriculture, rural infrastructure including communication and transport links, rural electrification, water management, rural industries, decentralisation and dispersal of industrial investments, rural and urban housing in the investment programmes is in line with this strategy.

While creating employment opportunities was a prior consideration, productive employment on a sufficiently high level of efficiency has also been emphasised.

The Fourth Plan lays considerable emphasis on labour-intensive schemes such as roads, minor irrigation, soil conservation, rural electrification, village and small scale industries, housing and urban development. Effective steps to remove any restrictive policies which inhibit the faster growth of employment have been envisaged in the Fourth Plan.

A major objective of the Fourth Plan is to create more employment opportunities in the rural sector on

an increasing scale. This will be achieved by adopting labour-intensive schemes like minor irrigation, soil conservation, ayacut and special areas development and private house building. Extension of irrigation and multiple cropping is expected to increase the demand for agricultural labour in many areas.

Support at a much higher level is to be given to institutional finance for rural development. In determining the volume of urban employment, manufacturing industry plays a crucial role. Here the growth of employment depends on public sector investments in industry and minerals, transport and communications and power.

The indigenous manufacture of plant and equipment, coupled with increased investments and resumption of industrial growth, will help achieve fuller employment and wider job opportunities. As a consequence of the increased tempo of agricultural and industrial activity, larger employment is expected in the tertiary sector, particularly in road transport.

### EMPLOYMENT GROWTH

(in millions)

|                                                 | 1961  | 1966  | 1969  |
|-------------------------------------------------|-------|-------|-------|
| Plantations, livestock, forestry, fishing, etc. | 0.851 | 1.10  | 1.07  |
| Mining and quarrying                            | 0.60  | 0.66  | 0.60  |
| Manufacturing                                   | 3.39  | 4.26  | 4.53  |
| Construction                                    | 0.84  | 0.99  | 0.99  |
| Electricity, gas, water and sanitary services   | 0.26  | 0.35  | 0.41  |
| Trade and commerce                              | 0.25  | 0.39  | 0.35  |
| Transport, storage and communications           | 1.81  | 2.21  | 2.23  |
| Services                                        | 4.01  | 5.50  | 6.26  |
| Total                                           | 12.09 | 15.46 | 16.63 |

# PRICE STABILITY IN FOURTH PLAN

## Comparative Price Indices in India and Abroad

**S**TABILISATION of the price level in general and of food-grains prices in particular is the sheet anchor of the Fourth Plan. Building of sizeable buffer stocks of foodgrains, non-inflationary financing of Plan programmes, all-round increase of agricultural and industrial production and expansion of services are the basic instruments of this strategy.

The assumption that the price levels in general will remain stable and, more or less, under control is amply borne out by a comparative study of price indices in India with certain countries in Europe and the U. S. A. during the years 1967-70.

The general index of wholesale prices in India in 1967-69, (with base year 1963 equal to 100) rose by 1.3 per cent. As against this, in the United Kingdom and France the increase in the corresponding period was as high as 8 per cent and 9.5 per cent respectively. In Yugoslavia and Spain, the increase was of the order of 4.4 per cent and 5.1 per cent respectively. In the U.S.A. the rise in price index was of the order of 6.6 per cent. It rose by 15 per cent in 1967 over the previous year mainly due to drought conditions. In 1968, the index decreased by 0.5 per cent and was at 165.3. In 1969, however, there had been an increase of 1.5 per cent in the index, as compared to 1967.

The increase in the index during 1968 and 1969 was accounted for by rise under tobacco and liquor, fuel, power, light and lubricants, industrial raw materials, chemicals, machinery and transport equipment and manufactures—the increase under liquor and tobacco being the highest at 39.9 per cent.

Food articles was the only major sub-group where there was a decline.

During the four months of 1970, the index number of wholesale prices increased by 5.8 points from 169.6 in December 1969 to 175.7 in April 1970, with prices increasing in each month except in February

1970. This increasing trend is evident in almost all the sub-groups except liquor and tobacco.

The average of prices in the four months, January-April 1970, recorded a rise of 6.7 per cent over the corresponding period in 1969. The increase has been registered in all the sub-groups, except in liquor and tobacco where there has been a decrease of 14.2 per cent. The increase in food articles, industrial raw materials and manufactures was 7.3 per cent, 11.0 per cent and 8.4 per cent.

In preparing the index of wholesale prices nearly 50 per cent weight is allotted to the bare necessities of life such as food articles, fuel and clothing. The weight assigned to food articles is 41.3 per cent, liquor and tobacco 2.5 per cent, fuel, power, light and lubricants 6.1 per cent, industrial raw materials 12.1 per

cent, machinery and transport equipment 7.9 per cent, chemicals 0.7 per cent and manufactured articles 29.4 per cent.

The food articles, whose weight is 41.3 per cent in the wholesale price index in India, recorded a decrease of 5.5 per cent in price in 1969 as compared to 1967.

In France and Yugoslavia, on the other hand, there has been an increase in the index of food articles by 10.9 per cent and 5.4 per cent respectively. Figures for West Germany, Italy and the Netherlands are not available for 1969. In 1968, however, the index of wholesale prices of food articles went down in Italy and Netherlands by 0.2 per cent and 1.7 per cent respectively. In Germany, in 1968, however, index of food articles rose by 4 per cent. In U.S.A., in 1969 the increase was 8.8 per cent.

|                                   | General Price Index (base 1961-62 equal to 100) |       |       |                                 |
|-----------------------------------|-------------------------------------------------|-------|-------|---------------------------------|
|                                   | 1967                                            | 1968  | 1969  | Percentage variation in 1969-67 |
| Food articles                     | 204.4                                           | 200.5 | 193.1 | -5.5                            |
| Liquor and tobacco                | 145.2                                           | 178.5 | 203.2 | 39.9                            |
| Fuel, Power, light and lubricants | 139.8                                           | 147.2 | 153.2 | 9.6                             |
| Industrial raw materials          | 161.1                                           | 152.7 | 175.4 | 8.9                             |
| Chemicals                         | 154.7                                           | 165.3 | 180.8 | 16.9                            |
| Machinery and transport equipment | 131.1                                           | 132.3 | 134.7 | 2.7                             |
| Manufactures                      | 130.9                                           | 132.7 | 140.9 | 7.6                             |
| All commodities                   | 166.2                                           | 165.3 | 168.7 | 1.5                             |

|                                   | Price Averages (January—April, 1970) |       |     | Percentage variation |
|-----------------------------------|--------------------------------------|-------|-----|----------------------|
|                                   | 1969                                 | 1970  |     |                      |
| Food articles                     | 184.9                                | 198.4 |     | 7.3                  |
| Liquor and tobacco                | 217.6                                | 186.7 | (-) | 14.2                 |
| Fuel, power, light and lubricants | 150.8                                | 157.9 |     | 4.7                  |
| Industrial raw materials          | 167.3                                | 185.7 |     | 11.0                 |
| Chemicals                         | 176.9                                | 187.4 |     | 5.9                  |
| Machinery and transport           | 133.2                                | 139.5 |     | 4.7                  |
| Manufactures                      | 136.8                                | 148.3 |     | 8.4                  |
| All commodities                   | 163.7                                | 174.7 |     | 6.7                  |

|                | Price Movements in 1967-69 |                    |      |      | (Base 1963 equal to 100)     |      |      |
|----------------|----------------------------|--------------------|------|------|------------------------------|------|------|
|                | 1966                       | General index 1967 | 1968 | 1969 | Percentage variation in 1967 | 1968 | 1969 |
| U. K.          | 111                        | 112                | 117  | 121  | 4.5                          | 3.4  | 8.0  |
| France         | 105                        | 105                | 106  | 115  | 0.9                          | 8.5  | 9.5  |
| Germany (West) | 105                        | 104                | 99   | 101  | (-)                          | 4.8  | 2.0  |
| Italy          | 107                        | 106                | 107  | NA   | 0.9                          | —    | —    |
| Netherlands    | 115                        | 115                | 116  | NA   | 0.9                          | —    | —    |
| Yugoslavia     | 133                        | 136                | 136  | 142  | —                            | 4.4  | 4.4  |
| Spain          | 116                        | 117                | 120  | 123  | 2.6                          | 2.5  | 5.1  |
| India          | 134                        | 154                | 153  | 156  | (-)                          | 0.6  | 2.0  |
| U. S. A.       | 106                        | 106                | 108  | 113  | 1.9                          | 4.6  | 6.6  |

## Side Track

### ADVENTURE ON THE HIGH SEAS

“THIS is a great, great moment,” heaved 55-year old trans-Atlantic voyager, Thor Heyerdahl as he sailed his 16-ton Papyrus craft, Ra II, into Bridgetown port of Barbados, West Indies, before sun-down on July 12. This marked the triumphant culmination of a 5,100 km. voyage which is more adventurous than historic. The 56-day adventure on the high seas beginning from Safi, Morocco, on Africa's north-west coast on May 7 and ending on the West Indies port of Bridgetown on July 12 is a re-enactment of the epoch-making Columbian voyage of the discovery of the land of the Red Indians. If it is little short of a rediscovery of the Americas, it is no less significant in other respects. Establishing that Papyrus boat-making is still a living tradition, the voyage has confirmed the absolute possibility that ancient Egyptian mariners could (and might) have crossed the Atlantic 4,000 years ago.

Named after the Egyptian Sun god and bearing his symbol—a yellow disc—on its solitary blood red sail, the Papyrus boat had no gadgets of modern navigation. It faced the same trials as explorers and navigators would have faced four thousand years ago. Its triumphal entry into Bridgetown is a definite affirmation of the sea-worthiness of Papyrus boats.

There is yet another significance to this adventurous exploration: Ra II flew the U.N. flag and included in its crew eight men from eight different nations who lived in a small cabin, less than two metres across, as one family. This signifies that man can transcend all barriers in his quest and exploration of the unknown.

Undeterred by the failure of Ra I, whose voyage was bedevilled by sharks last year, Ra II demonstrated Man's indomitable spirit and resolve to establish his supremacy on land, air and sea. It recalls the remarkable feat of the lone voyager Sir Francis Chichester of England who sailed round the globe in 1968. Its mission, accomplished historic

Ra II will now go to Oslo's Kon-Tiki Museum to be placed there as a permanent edict of this Norwegian explorer's adventure on the high seas.

### RADIO WAVE NEWSPAPER

Radio wave newspapers are round the corner as the latest means of mass communication. A radio wave newspaper thus combines the characteristics of radio, television and the newspaper.

Asahi Shimbun, one of Japan's biggest dailies, has installed this system for business use and it is being operated between its head office in Tokyo and branch office in Hokkaido. The “radio wave newspaper” uses the same format as an ordinary newspaper, but it is smaller in size—32 cm x 46.6 cm. It takes about five minutes to transmit one page. The article is transmitted from an antenna on the roof of the newspaper's office by an exclusive radio wave allocated for it and the facsimile receiver at the receiving end turns out an automatic reprint of the article.

Another Japanese firm has come out with a variant upon this. Their “Home Facsimile” uses the same radio waves as have been allocated for television and FM radio broadcasts without interfering with the picture and sound transmission by TV or radio. This system can be built into a TV or a radio receiver.

When these inventions receive mass acceptance, the newspaper will be reaching the drawing rooms directly and instantly.

### MEDITATION IN SPACE

**H**UMAN frailty, isn't it! A thing, accepted and hailed today, is rejected and scoffed at tomorrow and the next day it is revalidated and reinstated. That is exactly what happened to Maharishi Mahesh Yogi and his transcendental meditation. After several globe girdling trips with a battery of news, TV and film cameramen chasing after him, the Maharishi was left high and dry once the Beatles' flirtation with



### IGNORAMAN

Wants to Know

If

It is not safer  
to have a larger  
Council of Ministers  
than the Opposition

transcendental meditation and Mia Farrow's “quest” for inner peace ended on the rocks. Transcendental meditation and its best known exponent were both discredited and laughed at until recent Japanese research showed that while Zen monks are in meditation their breathing rate, oxygen consumption and skin resistance decrease. Similar physiological changes were observed by American researchers in several students of transcendental meditation. American health science experts, noting that the methodology of transcendental meditation is simple to adopt, have discovered therapeutic possibilities of the Maharishi's discipline. They are now contemplating to use it to provide relief from mental and physical strain. In prolonged space voyages where mental alertness has to be kept steady while keeping oxygen consumption as low as possible, transcendental meditation may serve as a convenient device. It requires no gadgets, no computers and no inputs.

The renewal of interest in this metaphysical activity, especially in the context of space exploration, may spark another round of frenzied interest in the Yogi and his equally fascinating pursuit.



The convicts have turned out to be good farmers. Picture shows them carrying a rich harvest of paddy.

## ASSAM'S OPEN-AIR JAILS

R. N. BEZBARUAH

THE absence of physical and mental barriers against escape from jails is a strange phenomenon. Especially so, when most of us regard jails as institutions in which law-breakers are held in custody as a punishment to them and as a protection to the society. However, there is an open-air institution for convicts in Assam, where the convicts are kept in the open day in and day out in their barracks without any security or armed guards. The regime is totally based on mutual trust and responsibility. Sincerity and honesty of the staff and their wholesome influence and friendly relationship with inmates are some of the important features of this open air jail.

The only minimum security prison in eastern India, it was founded by the Government of Assam on October 2, 1964 as an 'open air agricultural-cum-industrial colony' for the positive rehabilitation of the convicts. Located on a plot of land measuring about 20.23 hectares adjoining the Jorhat District Jail, it can accommodate 100 inmates in five barracks. It is provided with one kitchen attached with dining hall, one store house, one implement shed, a five-roomed guest house, warders'

*The experiment to give convicts a feeling of freedom within their confines has strengthened their moral fibre*

Cane sugar harvesting by the convicts. They are now able to sell their produce in the neighbouring areas.



barrack and a cow-shed. Two paddy granaries have also been provided for storing paddy.

At the outset, the colony had a skeleton staff of one special officer and six warders. The warders were provided not to guard the inmates but to maintain order and discipline and also to provide amenities to the inmates as and when necessary. The staff was increased in 1966 with the addition of a Superintendent of the colony and an Assistant Jailor.

Initially, 50 well-behaved convicts of certain categories with long-term sentences, mostly lifers, were selected from different jails of the State for transfer to the open-air jail. The idea was to build up their character, work habits, industriousness and thereby to help them become honest citizens of the society after their release from the jail.

The experiment paid rich dividends. The land, which had been infested with big trees and jungles six years ago, was soon cleared and brought under profitable cultivation. Within three months the colony became self-sufficient in respect of vegetables and by December, 1964 it started marketing its produce. Significant improvements were made in the following years when it took

to the cultivation of cash crops like sugarcane and paddy. During 1967-68 and 1968-69, the outturn of the colony was Rs 27,491 and Rs 30,318 respectively.

The open-air colony has now become totally self-sufficient in respect of rice and vegetables and the State Government has to spend very little on its maintenance. On the other hand, it has even started earning extra money by sending extra vegetables and molasses to nearby jails and the market. The institution even plans to open a fishery and cottage industry section.

The excellent services of the inmates have not, however, been left unrewarded. Each of them gets a sum of Rs 100 annually for his outstanding work in increasing agricultural production in the colony. While most of the inmates remit the whole or major portion of their 'earnings in jail' to their families, a few of them even deposit it in the savings bank.

The most significant feature of this open-air jail, however, is that home leave is granted occasionally to its inmates, with the sanction of the Inspector-General of Prisons by entering into a personal bond with them.

The open-air convicts are also allowed to a certain extent to mix with the neighbouring community during the *Baisakh Bihu* (spring festival) and Idd, with only a nominal guard present.

Guest house facilities are also extended to the relatives and friends of the inmates, who are allowed to stay in the guest house up to three days with the permission of the superintendent of the colony. The inmates are allowed to have their meals with them and even to stay with them for the night.

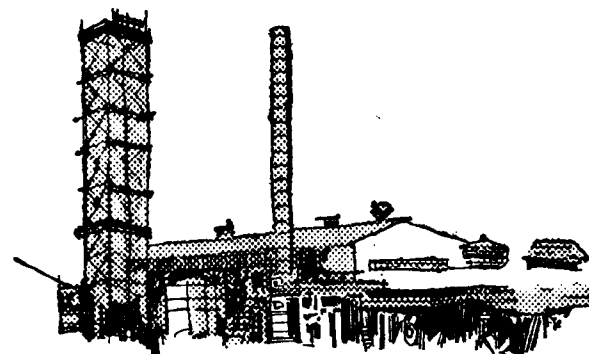
To do away with illiteracy, an evening school of primary standard was started and is run under the direct supervision of the Superin-

tendent. When they came in, about 80 per cent of the inmates were illiterate; now almost all of them can read and write. The inmates themselves constructed the benches and tables for their school out of their *Bihu* collections.

The entertainment aspect has also not been neglected. Each year on October 2, the inmates stage a drama or a '*Bhaona*' (a traditional theatrical performance) to celebrate Gandhi Jayanti and the foundation day of the colony. Every Sunday, the inmates perform '*Nam kirtan*' in which all the inmates irrespective of caste and creed participate. Occasionally cinema shows are arranged. A radio set and a language daily have also been provided to them.

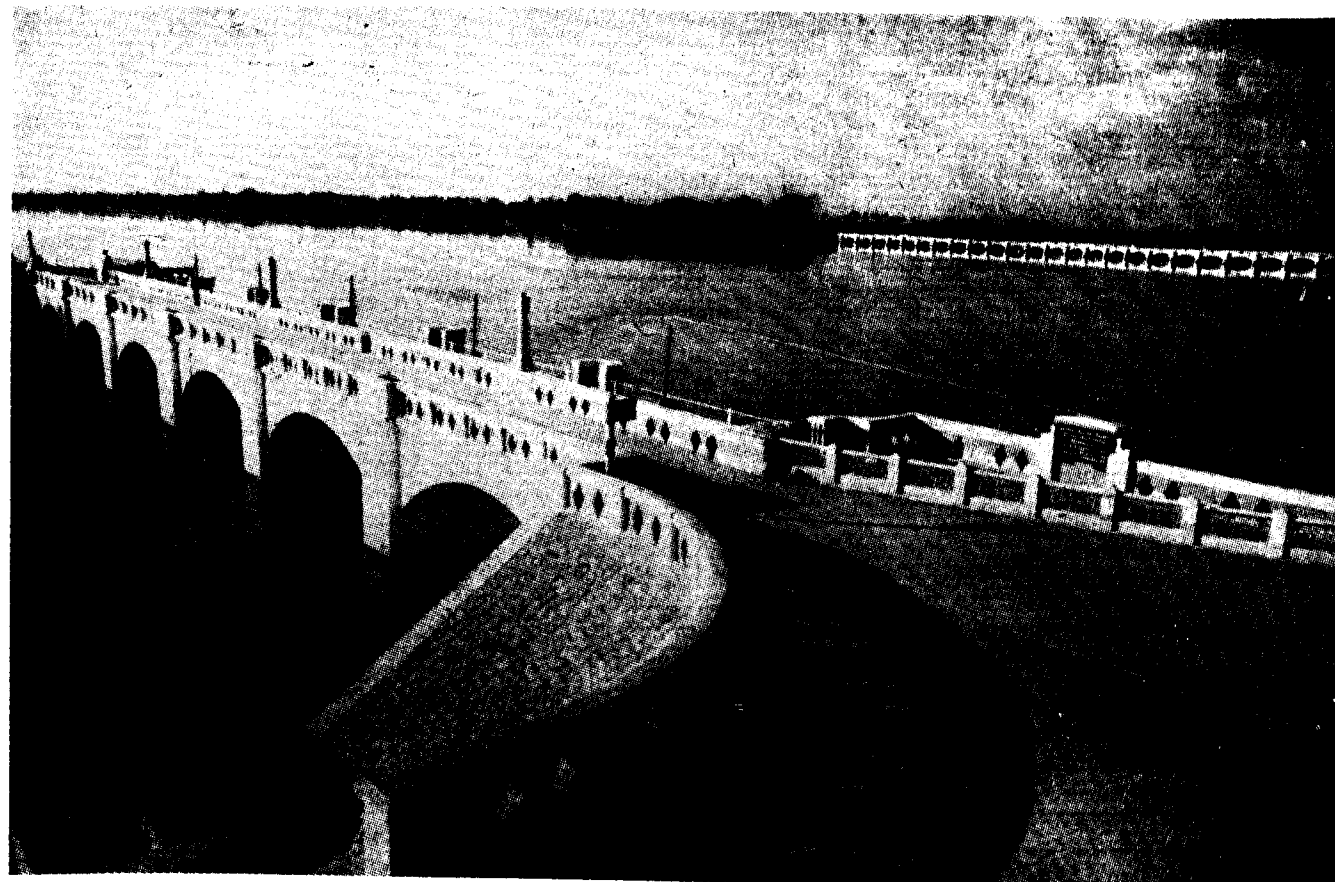
Since its inception there have been only four escapes. These cases are rather negligible considering the absence of physical and material barriers against escapes. Up to now there has not been a single case of violence.

10 years ago Rameshbhai and Sureshbhai put together their small savings and started a biscuit factory. Today they have a flourishing business with annual turn-over of over Rs. 8 lakhs.



They didn't have much capital but what they lacked in finance, they more than made up in ability and determination. That's why the State Bank readily gave them the loan they needed. The loan that helped make their long cherished dream come true. The State Bank offers enterprising small-scale industrialists who possess ability, integrity and experience, loans to start or expand their industries. So if you're a man with brilliant ideas and the ability to see them through, come to us. We may be able to help.

STATE BANK FOR SERVICE



A view of the Grand Anicut across the Cauvery as it stands today. The anicut was first constructed around 46 A.D. mainly to control floods.

## CAUVERY DELTA MODERNISATION PROJECT

RENOVATION OF AN ANCIENT IRRIGATION NETWORK  
WILL DOUBLE PADDY YIELD TO 2.1 MILLION TONNES

*Better Water Management  
Will Ensure  
Better Irrigation*

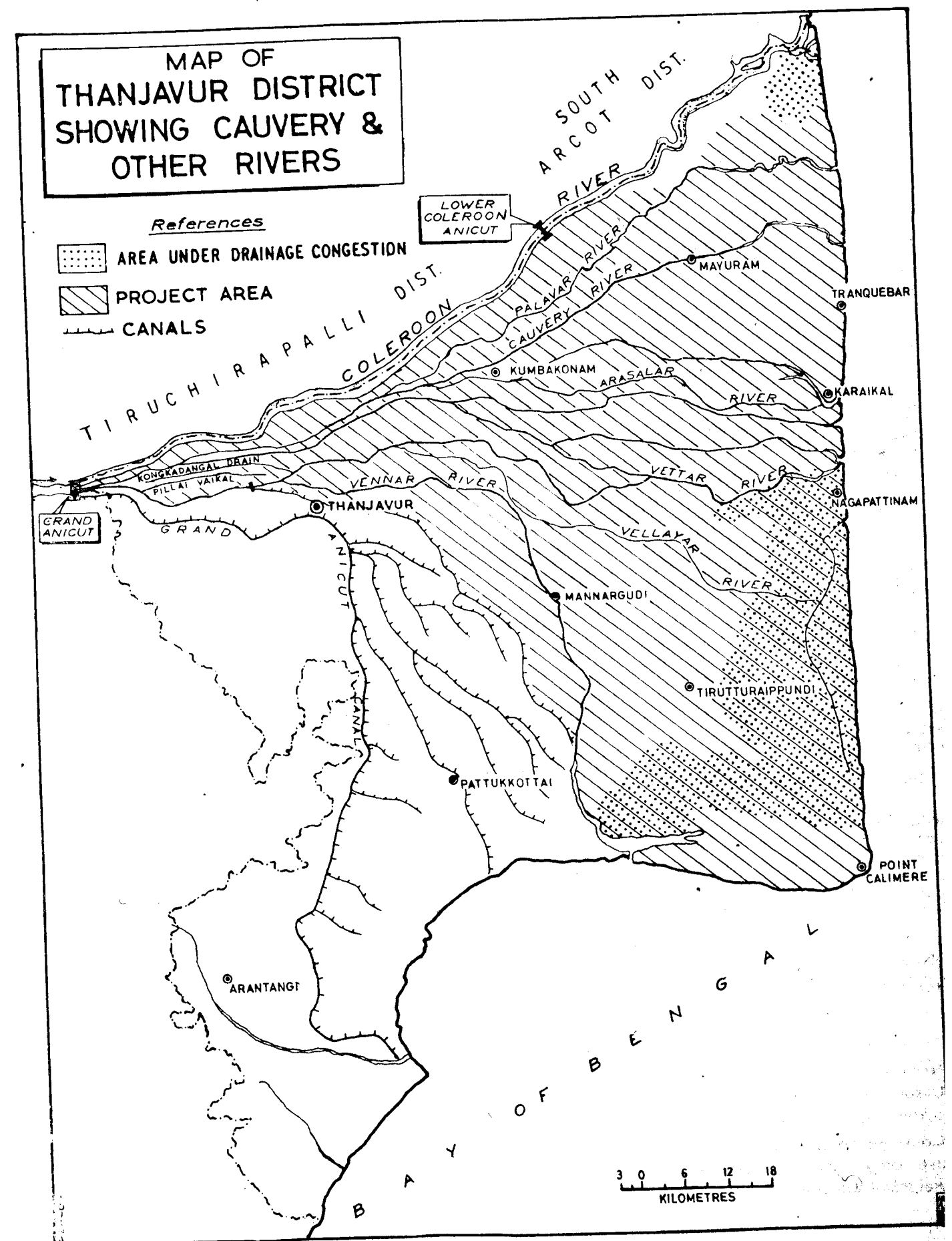
A YOJANA Report by  
S. V. RAGHAVAN  
Our Madras Correspondent

FROM the earliest times in recorded history, the Cauvery has played a vital role in the economy of the Thanjavur district. Its beneficent waters have made the district the "Rice Bowl of the South."

The Cauvery delta on the south-east coast of India presents one of the oldest continuously operating irrigation systems in the world, dating back to 46 A.D. At present the Cauvery system irrigates about 3.8 lakh hectares under the Cauvery and the Vennar. The distributary system

consists of about 36 main and ancillary rivers running to over 1,600 kms. in length, and channels, 30,000 in number, run along 24,130 kms.

The Cauvery system adopts the inundation or flood irrigation technique. The Grand Anicut, about 20 kms. east of Tiruchi, prevents the waters of the Cauvery from escaping into the Coleroon. It was built about 46 A.D. mainly to control the floods. Only the surplus waters were allowed into the Coleroon. Subse-



quently, the Upper Anicut, about 20 kms. west of Tiruchi, was built across the Coleroon in 1836 for the purpose of diverting normal supplies into the Cauvery, which was otherwise flooding the Coleroon. The Lower Anicut was built at the tail-end of the delta, to divert water into South Arcot and Thanjavur for irrigation. In 1934, the Mettur Dam was constructed.

An area of 1.21 lakh hectares is served by the Cauvery Mettur Project. The new delta area was developed in accordance with the 1924 agreement between Mysore and Tamil Nadu.

One defect in the system is that the supply is not equitably distributed between the upper (western) and the lower (eastern) reaches. Nor does the available supply reach all parts in time. This is because the channel sections are wide and the flow velocity low, being less than a metre per second. Sometimes, it takes a month for the water to reach the lower areas. At places, there is heavy seepage. It is estimated that there are about 35,000 open outlets in the channel system which draw more than the required quantity for irrigation. There are bed dams across the channels and the rivers to improve the command levels. These are in need of further improvement by the provision of shutters. Heavy silting and bad embankment have also been noticed.

#### Better Water Management

The modernisation of the old delta aims at better water management, specially equitable distribution of water and timely supply throughout the delta. It also aims at inte-

grating the surface flow with ground water supply in order to usher in a new cropping pattern whereby the single crop area will be reduced to over 1.2 lakh hectares and the double crop area increased to over 2.4 lakh hectares. The traditional pattern of irrigation covers over 2.6 lakh hectares under single *samba* crop, and over 1.01 lakh hectares of double cropped area, consisting first of *kuruvai* crop (June to October) followed by *thaladi* (November-December to March).

For ensuring additional water supply filter point wells and deep bore wells will be dug up in the delta area. This project is estimated to cost Rs 49 crore. This will be the first project of its kind aiming at renovating an ancient delta and at integrating surface and ground water supplies.

The project also envisages improved drainage facilities in the area. The modernisation scheme is expected to double the paddy yield to 2.1 million tonnes.

Early in 1969, a World Bank reconnaissance team visited the area followed by the visit of an appraisal mission which confirmed the Bank's interest in financing the Project.

The three phase project suggested by the State Government has been modified by the Bank into a two-phase programme. During the first phase, an area of over 2.32 lakh hectares will be developed at an estimated cost of Rs. 30.2 crore. The modernisation proposals for flood control include (i) construction at the Grand Anicut of a barrage across the Cauvery, (ii) strengthening of the existing Cauvery and Vennar regulators at the Grand Anicut to divert excess flow into the Coleroon, and (iii) replacement of the regulating gates at the Lower Anicut.

Another feature contemplated in the project is the lining of the bed and slopes in restricted sections of the river to prevent loss of water due to absorption and evaporation. Similar lining is to be done in the channels where seepage is found to be heavy.

On-farm development works to ensure independent irrigation supply and drainage for each field is also envisaged over an area of over 1.2 lakh hectares. Open outlets will be provided with controlling arrangements, and bed dams will be converted into regulators.

#### TO THOSE WHO DESERVE

**FARMERS** in the drought-affected Purulia and Bankura districts in West Bengal will receive liberal assistance from the United Bank of India. Loans up to Rs 1,000 will be provided for masonry work for *kachcha* wells, and for sinking of shallow tube wells, while a maximum amount of Rs 3,000 will be granted for installation of pump sets.

At least one scheme of dry farming in a selected area in each State will get finance from the State Bank of India, which will meet 75 per cent cost of agricultural inputs by direct payments to suppliers. The farmers will have to meet the remaining 25 per cent of the total cost from their own resources. The loans, will be repayable out of the crop proceeds within a maximum period of 12 months.

#### HELP FOR 'SELF-EMPLOYED'

'Self-employed' persons, including artisans, craftsmen, repair-shop owners, tailors, bakers, carpenters, laundry-owners, hair-dressers, photographers, picture-frame makers, and technically qualified persons like chartered accountants, engineers, doctors, and technicians will get necessary loans from the Bank of India.

The loans repayable with nominal interest will assist these skilled persons to run their trade or vocation successfully.

#### RURAL ARTISANS

The State Bank of India, under its special credit scheme has sanctioned Rs 25 lakh to the small entrepreneurs in 49 Rural Industries Projects. The total credit is proposed to be raised to Rs two crore by the end of this year.

The scheme has operated quite successfully in different project areas like Kozhikode and Alleppey in Kerala, Nalgonda and Anantapur in Andhra Pradesh, Durgapur and Barasat in West Bengal, Deoband and Mauraipur in U.P., Dumka in Bihar, Bhadravati in Mysore and Nagaur in Rajasthan.

## RAJASTHAN'S FORWARD MARCH

# A Saga of Power Development

S. L. KHURANA

**AT** the time of Independence, the total installed and firm capacities in Rajasthan were only 13.27 MW and 7.48 MW respectively. During the First Plan period, the power development programme, despite being given high priority, remained restricted to the renovation of the uneconomical units and the extension of the benefits of power. The installed and firm capacities increased to only 34.90 MW and 16.39 MW respectively after the end of the First Plan.

The State's Second Plan aimed at the completion of the Bhakra and Gandhisagar hydel projects, in partnership with the Punjab and Madhya Pradesh and the augmentation of the existing thermal stations. An outlay of Rs 19.99 crore i.e. 18.99 per cent of the total Plan provision of Rs 105.27 crore was allotted to Power and about 50.93 MW of hydel power including 16.43 MW of installed capacity from Bhakra Nagal and 34.50 MW from Chambal was added to the thermal generation, which increased from 34.9 MW to 57.78 MW. By the end of the Second Plan, the installed and the firm capacities increased from 34.9 MW and 15.39 MW to 108.72 MW and 64.83 MW respectively.

With a view to tapping up the vast potential for the rapid industrialisation and meeting the increasing demand for power, an ambitious programme was launched during the Third Plan. The objectives were :

(i) To utilise fully the known hydel power resources. It implied the completion of the Rana Pratap Sagar Project, initiation of work at Kota Dam and Mahi Projects and the utilisation of power to be generated from the Right Bank Power Plant of the Bhakra Project.

(ii) To develop thermal power

(both steam and diesel), to meet the increasing requirements of those areas which could not be fed from the hydel system. It envisaged the construction of a thermal station (250 MW), increase in the existing diesel capacity by 10 MW, and the installation of 3 MW Steam Station at Jodhpur.

In the Third Plan, Rs 35 crore i.e. 14.8 per cent of the total Plan provision were allocated to power and the target of additional installed capacity was set up at 253 MW, out of which 140 MW was to be available through Hydel Projects and 113 MW through Thermal Projects. However, achievements fell far behind the targets. Rana Pratap Sagar project was delayed. The commissioning of the first Unit of Right Bank Plant of Bhakra Project had to be deferred due to inadequate storage capacities in Gobindsagar. The Satpura thermal station also went into operation much later.

Moreover, owing to the failure of the monsoon in the Chambal catchment area for three successive years only 1/5th to 1/3rd of the capacity from the Gandhisagar hydel project could be utilised. The reservoir level at the Gandhisagar went down to 1256 M.S.L. during 1966-67, and consequently the supply of power declined steeply from 250 MKwh during 1964-65 to 49 Mkwh during 1966-67. However, the bountiful showers in the catchment area led to the rise in the reservoir level and during 1967 and 1968 power generation increased to 73 Mkwh and 142 Mkwh respectively. This, along with the commissioning of the various units of Satpura and Rana Pratap Sagar Project during this period, brought to an end the three long years of shortages. The progressive increase in the installed

and firm capacities is shown in the following figures:

| Year    | Installed capacity | Firm capacity |
|---------|--------------------|---------------|
| 1966-67 | 287.00             | 122.00        |
| 1967-68 | 379.00             | 123.00        |
| 1968-69 | 472.00             | 170.00        |
| 1969-70 | 581.00             | 259.00        |

By the end of the Fourth Plan with the completion of the Chambal Projects, and commissioning of the Rajasthan Atomic Power Project, the installed and firm capacities are expected to increase from 472 MW and 170 MW to 1030 MW and 654 MW respectively. During the Fifth Plan period, in addition to 30 MW of power from Mahi Project, 190 MW of power will be available after the completion of Units of the Beas Project by 1975-76.

For catering to the consumers' demand, a fairly extensive transmission network is now available in Rajasthan. The 220 KV Single Circuit Hissar-Khetri-Jaipur line, 132 KV Double Circuit R.P.S. Bhilwara line, 132 KV Single circuit Bhilwara-Pali line, 132 KV Single circuit Ajmer-Beawar line and 132 KV Single circuit Alwar-Bharatpur line can be mentioned among them.

#### Rural Electrification

Considerable importance has also been laid upon the rural electrification programmes. The number of localities electrified has gone up from 42 at the time of Independence to 66 during the First Plan, to 131 during the Second Plan, to 1,252 during the Third Plan and to 2,647 during the period from 1966 to March 1970. Up to the end of the First Plan not a single well was energised in the State, but during the Second and Third Plans 1038 and 5823 wells were energised respectively. About 18934 more wells were given connection in recent years and as such, at present the total wells energised in the State are 25795 in number. This has led to an appreciable increase in the quantum of power consumed for agricultural purposes. It has gone up from 5.28 million units, claiming 1.9 per cent of the total sale during 1963-64, to 67.22 million units, claiming 10.32 per cent of the total sale during the year 1968-69.

#### To Our Contributors

Articles which are not accepted for publication in *Yojana* will be returned only if they are accompanied by self-addressed stamped envelopes.

Unsolicited articles will not be acknowledged.

Contributors are requested to use only metric system of weights and measures.

## UN ASIAN INSTITUTE

### Asia's Apex Training Centre for Development Personnel and Planners

IT has long been recognised that in any plan for economic development, especially in an under-developed or developing country the first need is to create a cadre of trained personnel to undertake development work. Some years ago, in response to this real need, the countries of the ECAFE region agreed that economic planning in this part of the world would be greatly advanced if a training institute was established for persons working in the vital field of economic planning and development. It is in pursuit of this objective that the United Nations Asian Institute for Economic Development and Planning was set up in Bangkok in January 1964. The sole object of the Institute is to remove one of the main bottlenecks restricting development in Asia by training competent personnel to provide imaginative, practical development policies and, perhaps more important, to implement them. The Institute attempts to remedy this situation by serving as a staff college for officials of the region whose work deals with economic and social development in their own country.

Supported financially by the United Nations Development Programme and twenty-four governments, it also depends heavily on the teaching staff and the trainees of the Institute to achieve the objectives set for it. In addition to some of the European associate members, countries ranging from Korea to Australia, from Western Samoa to Iran, provide financial assistance, staff and trainees for this

ambitious, joint undertaking.

The Institute has three basic objectives: training, research work aimed to support the teaching programme, and advisory services provided to governments on request. So far emphasis has been laid on the training programme. The courses are intended for government planners and administrators and senior officials of private industry. Although some theory is included, the training emphasises practical aspects of the work to be done. The objective is to equip trainees with up-to-date, practical tools for their day-to-day work on the job in their own country. These courses consist of a six-month general course, and five "special

courses" of three months each. A wide range of subjects is covered, including techniques of planning economic development, development of human resources, international trade, agricultural development, and social and educational planning.

For these courses, governments select their candidates, whose qualifications are reviewed by an admission committee of the Institute. Selection is eventually made of about forty students for each course, with the widest possible representation of countries and backgrounds. Usually, trainees in any one course come from some 15 to 20 countries. This variety within each class, and the opportunity for discussions

with colleagues of different countries and similar experience, provides one of the most valuable aspects of the experience trainees gain at the Institute.

The staff of the Institute consists of experts from 15 countries, including India, Japan, Canada, Thailand, Holland, Pakistan and Philippines. Ever since it was set up, an Indian has been the Director of the Institute. He is Dr. P.S.N. Prasad, a senior official from the World Bank. Other Indians on the staff are experts in agricultural economics, development economics, econometrics, fiscal and monetary policy, international trade, and manpower planning. India has, in addition, a representation on the Institute's Governing Council.

Since it was established the Institute has trained over 1,200 executives of government and private industry from sixteen countries of the region. All of them are now back in their home countries, applying to their day-to-day work the specialised knowledge and up-to-date techniques which were given

to them by the Institute staff. So far, some eighty middle and senior level officials from India have been trained at the Institute. Their sponsoring agencies have been the Ministries of Industry, External Affairs, Commerce, Finance, Industrial Development and the Industrial Development Bank, the Reserve Bank of India, the Planning Commission, and various State governments and Companies in the public and private sectors.

The Institute's courses take two main forms: courses given in Bangkok, and courses given in countries of the region. The number and selection of the courses given at the Institute have changed over the years, in response to the changing needs of the countries it serves. In 1969, fourteen separate courses were given, ranging from highway transport programming, through agricultural development planning and development of human resources, to what is currently the most in-demand course, project analysis.

Country courses, set up at the

request of the government of a country, are designed to suit the requirements of the country at that particular time. The curriculum is worked out by the Institute staff in conjunction with the sponsoring agency, and staff members deliver the course in the country itself. These courses have been found to be so effective that seven of the nine countries receiving them have already repeated their requests and two or three courses have been given in each one. The country course makes it possible for a substantial group of officers—up to forty or so—to receive training at the same time, to share a new way of approaching development techniques, and creates a nucleus of trained officials.

Courses given at headquarters in Bangkok on the Institute's annual programme consist of a six-month General Course in Planning Techniques, and a series of Special Courses—a three-month training programme in specialised sectors of development, such as development finance, project analysis, econo-

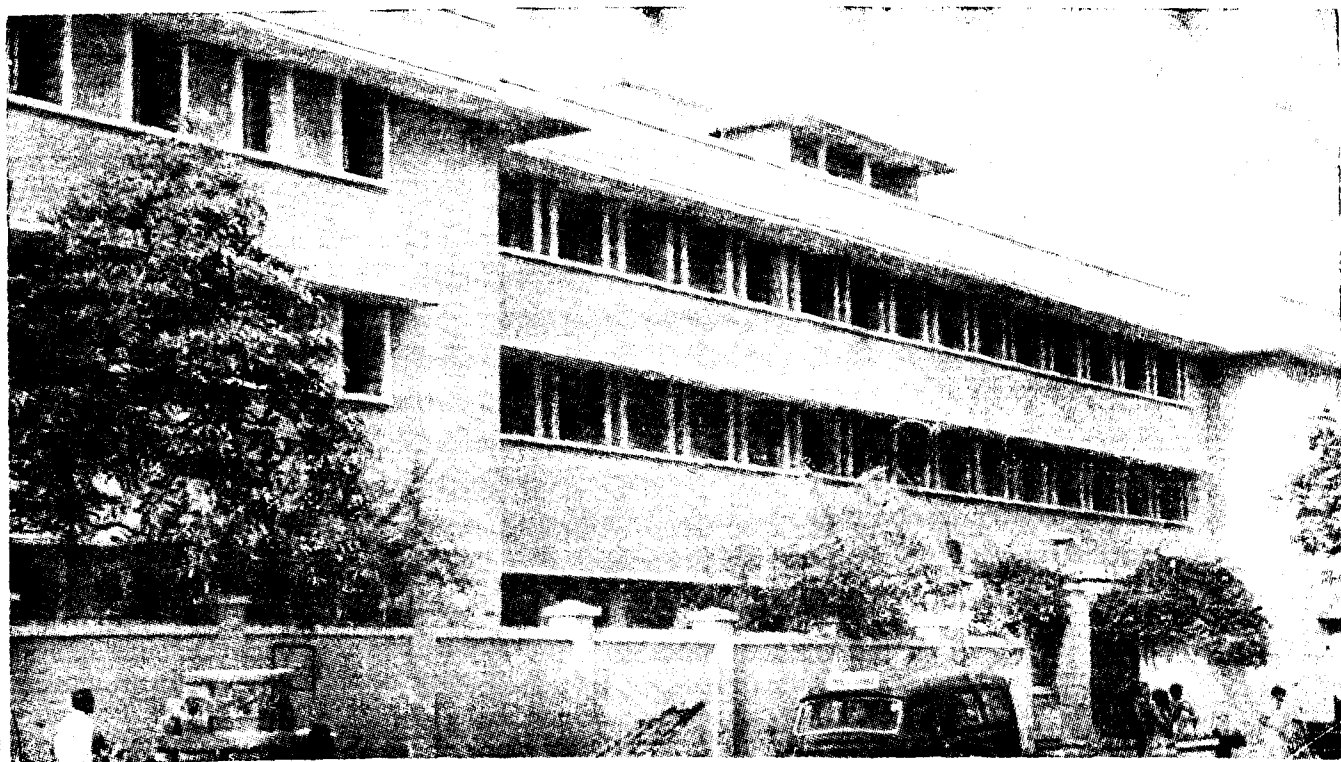
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Temporary headquarters of the U.N. Asian Institute at Bangkok. Some time next year, the Institute will move to Singapore, where it will be permanently housed in one of the University campuses.



Trainees at the Institute after discussing a problem at a seminar look on, while Mr Venkataram Iyer of India clarifies a point. In the centre is Dr P.S.N. Prasad, Director of the Institute.



CALCUTTA'S "NATIONAL TEST HOUSE"

## QUALITY TESTING OF INDIGENOUS

THE National Test House came into existence in 1912 in Calcutta to help the Railways in their programme of import substitution. It was a time when the quality of Indian products was not considered to be satisfactory. But imports were costly and as a measure to cut down their import bill, the Railways decided to open a departmental laboratory to test the suitability of indigenous materials for their use.

The laboratory did this job admirably well. During the first World War, it ensured that only indigenous stores of desired quality entered the Railways. This incidentally brought about a consciousness of quality among the Indian industries which were struggling hard to survive in the face of stiff competition from abroad. The new awakening impelled them to turn out progressively products of such quality and standard as were acceptable to the consumer. Thus, before long, the small laboratory

## PRODUCTS

*The National Test House, Calcutta, has nearly sixty years of tradition behind it. Started in 1912, it is today South-East Asia's foremost institution having a chain of 188 specialised laboratories where more than 35,000 samples are tested every year.*

assumed an all-India stature. Different departments of the Government and later some industries also began referring to it stores and products for quality assessment.

After Independence the laboratory was renamed as the National Test House and had to be considerably strengthened, reorganised and reoriented to meet the growing

S. C. BASU

*Our Calcutta Correspondent*

demands of development. Today, nowhere else in the entire South-East Asia there exists a test house of this kind, having under one roof a chain of 118 specialised laboratories equipped with a large variety of scientific equipment and machinery.

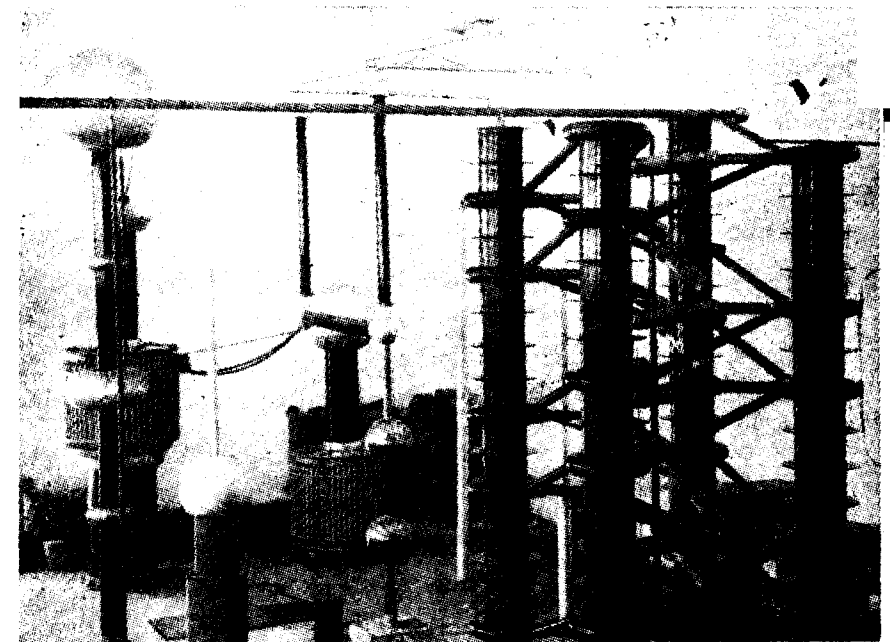
In these laboratories, a team of some 130 technical experts test, on an average, more than 35,000 samples in a year and earn for the exchequer annually over Rs 23 lakh by way of testing fees. The materials tested and evaluated vary from a pin to a plane or from soil to a ship—in fact, everything under the sun, except medicines and food.

The methods of testing also vary. It may be a straightforward

job or a complicated process of material analysis involving ultrasonic examination. The period varies too, from, say, a couple of hours, as in the case of ascertaining the strength of railway screw couplings by the impact testing machine, to 365 days, as is necessary to assess the durability of paints through atmospheric exposure. The nature of testing also differs widely. It may be cement to see the extent of its purity, or tea for its contents of leaves and buds.

### Standards of Testing

Whatever the method or nature of testing, it is done according to some standard specified by a recognised authority, be it the Indian Standards Institution or the International Standards Organisation or some foreign authority. At



The high-voltage laboratory with its 2.8 million-volt impulse generator at right.

times, the manufacturers themselves provide such specifications when, for instance, they intend to put new products in the market. There are also occasions when in the absence of any standard whatsoever, the Test House is asked to undertake laborious research to formulate a comprehensive test schedule.

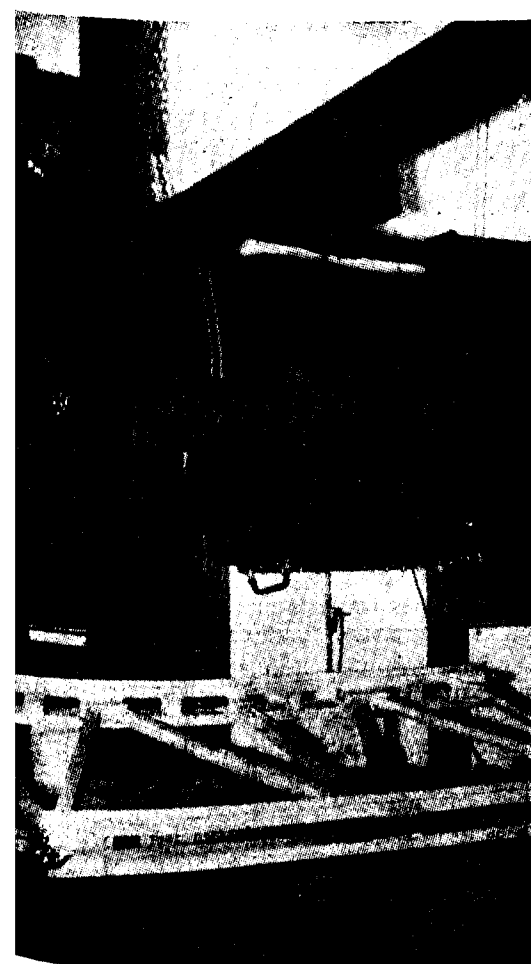
After testing, a detailed certificate giving complete results of analysis is issued to the party which referred the material to the Test House. These certificates are the hall-mark of quality, and, in fact, form the very basis for purchases running into crores of rupees every year by Government, public bodies and a large number of private organisations.

In the past, investigational researches by the Test House gave rise to the erstwhile Indian Stores Department standards which later formed the core of a large part of over 4,500 Indian Standards adopted by the I.S.I. so far. Efforts are also made to develop newer, quicker and more accurate methods of testing, and, as a result, several Indian Standards have been amended. Besides, the standards adopted by the different countries abroad are continuously reviewed to explore their applicability in Indian conditions.

For such expertise in testing, the Test House is closely associated with about 250 technical committees of the I.S.I., which are entrusted with the formulation and adoption of standards, and also with similar international bodies. In disputes arising out of testing and related matter, the Test House acts as the final arbiter. It also imparts specialised training to technical people sponsored by the different organisations and under different schemes.

The Test House tenders technical advice to individuals and organisations, private or public. In this respect, it pays particular attention to small industries. Apart from evaluating their materials, the Test House offers technical guidance to help them improve their products.

A good deal of research is being undertaken in the field of import substitution. To give a few instances, the composition of a large number of machine parts has been examined to facilitate their indigenous manufacture. The possibility of substituting copper by aluminium in cables and wires is also being investigated with a view to saving foreign exchange spent on the import of copper, which is costly.



A section of an aluminium bridge is being radiographically examined by the use of static X-ray plant.

The enormous volume of testing work in the Test House is handled by five divisions supported by one of the best technical libraries in India which has no fewer than 48,000 books and 150 journals. The library contains almost all the editions of standard specifications published so far in India and abroad. The Physical Division handles the largest number of samples, exceeding 15,000 a year. It examines the physico-chemical, mechanical and thermal properties of a material and studies its behaviour under different climatic conditions.

The Electrical Division of the Test House tests a whole range of electrical goods, appliances and accessories, as well as various other electronic equipment. The high voltage laboratory of this Division studies the behaviour of insulating materials under electrical stress.

After the National Test House introduced and popularised industrial radiography in the country as an elegant and powerful method of assessing the soundness of materials, without destroying them, there has been a growing demand from industries for such testing facilities. Today this Division is equipped with several X-Ray and Gamma-Ray plants using a cobalt-60 source, X-Ray disraction equipment, ultrasonic flaw detectors to test soundness of materials, and fluorescent and magnetic crack detectors for surface or sub-surface crack detection. It also has three mobile units complete with non-destructive testing appliances.

The use of radioactive isotopes has proved highly efficacious for the examination of thicker materials like bridge bearings, castings, weldings and forgings. Similarly, the metallographic laboratory of the Division checks the soundness of metals and alloys and also investigates into the causes of premature failure of engineering materials in service.

The two Chemical Divisions of the Test House handle between them on an average of 9,000 samples a year. The techniques of chemical analysis have been revolutionised with the introduction of sophisticated instruments like spectrophotometer, spectrograph,

pollarograph, etc. for metal and paint analysis and chromatograph for testing gases and solvents.

The General Chemical Division undertakes elaborate tests to determine the chemical composition and purity of the organic and inorganic chemicals, industrial gases, water for industrial use, cleaning materials and compounds, minerals, alloys, ferrous and non-ferrous metals as also gold, silver and platinum. To meet the needs of agricultural development, the Division tests insecticides and fertilisers of various types to study their efficacy in increasing crop yield. A variety of disinfectants and detergents like D.D.T. are also tested according to the WHO or ISI specifications to know their germicidal strength. For this purpose a bacteriological laboratory has lately been added to the Test House.

Climatic testing forms an important function of the Test House. The physical, chemical and electrical testing of samples involves in many cases an accelerated climatic test to ascertain their behaviour in different climatic regions, particularly in tropical conditions.

A branch Test House with equipment and machinery worth over Rs 1.25 lakh was opened in Bombay in 1964 to enable the manufacturers in the western and central regions to get their products tested at less cost and time. The branch has been testing an increasing number of samples from year to year—over 3,380 samples in 1967-68; nearly 4,000 in 1968-69 and about 5,000 in 1969-70. This branch earns Rs 5 lakh a year. It is also proposed to open branches at Delhi, Madras and Kanpur.

## U. N. ASIAN INSTITUTE

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metrics, agricultural planning and development of human resources.

In addition, *ad hoc* courses are made available through sponsorship and cooperation received from governments and from other UN agencies. Early this year, a three-month course in Industrial Development Administration brought specialists from 14 countries to Bangkok; this was the second in a series of such courses provided by the Government of the Netherlands with the co-operation of the Centre for Management and Industrial Development, Rotterdam. The Government of Japan provided assistance for the first course in Export Promotion, which opened in Tokyo last April and for which twenty-three fellowships were awarded. A good deal of emphasis has been given recently to courses in national health planning. Medical officials and administrators from countries of the region are given a comprehensive course in Bangkok who then proceed for field studies abroad under the guidance of the Institute staff.

While in its early years emphasis was laid on training, the Institute is also developing its research wing

and makes its staff available to serve as advisers on requests. The main research project currently under way at the Institute is a comparative study of China (Taiwan), Indonesia, Korea, Malaysia and Thailand. The purpose of this work is to answer the questions: Why has this country succeeded and that one failed? What growth factors are the crucial ones? Can the success of one country be transplanted effectively to another? Other current research projects include studies on terms of trade and balance of payments in ECAFE countries, trends in production, demand and supply of primary commodities for external trade, and on motivation for development.

The Institute is also looking into new courses which might be developed advantageously for the region: among recent innovations are courses in industrial development, highway transport programming and health planning. The Governing Council, at a recent meeting, considered that the future of the Institute might lie in its becoming increasingly a "trainer of trainers"—a staff college for lecturers in national development institutes, a catalyst for the development of regional thinking.

# BREAKTHROUGH IN INDIAN AGRICULTURE

A. K. BHATTACHARYYA

THE transformation, in recent years, on India's food front from chronic shortages to a state of plenty is one of the most striking developments of recent times. The devastating drought years of 1965-66 and 1966-67 brought home the acute need to increase food production. A new strategy to boost agriculture was evolved and substantial improvements followed in the late sixties. Foodgrains production shot up to 95.05 million tonnes in 1968-69, the area under high-yielding varieties increased and, in spite of unfavourable weather conditions, the foodgrains production remained nearly steady at 94.01 million tonnes.

The Rockefeller Report on Indian agriculture narrates the sustained endeavour undertaken to tone up the production potential of the agricultural sector. The efforts made by the Government of India in dynamic collaboration with various international agencies, particularly the Rockefeller Foundation, have ultimately salvaged the economy from stagnation. The Report recounts the brave and determined attempt made by India's enlightened peasantry to come out of the outmoded patterns of subsistence agriculture and to enter a phase of commercial food production. In this it was assisted by appropriate Government policies and encouragement, coming in the form of inputs and incentives of the right type.

A remarkable feature of the country's agricultural development is the great change in wheat production which the Report appropriately refers to as the "Miracle in Wheat". In 1967-68, wheat production stepped up to 16.5 million tonnes as against the annual average of 11.0 million tonnes for the previous five years and the highest level of 12.3 million tonnes achieved

*This is a review article on A SPECIAL REPORT FROM THE ROCKEFELLER FOUNDATION—A partnership to Improve Food Production in India.*

till 1965-66. In 1968-69, the production of wheat went up further to 18.7 million tonnes. The introduction from Mexico of the new dwarf wheat, now grown in Northern India, has revolutionised wheat production in the country. In this the Rockefeller Foundation's contribution has been commendable.

Alongside the phenomenal success story of wheat is the dramatic breakthrough in rice yields. 1967 was the first year when high-yielding varieties of Indian breed were tried on a nation-wide scale. Indian breeders are coming up with several varieties of rice. India has set for herself a target of 13.13 million hectares under the new high-yielding varieties of rice by 1971. Having started with the new varieties just three years ago, India already has 2.8 million hectares acres under high-yielding varieties.

The story of maize is also following the same upward trend. A crop that attracted little attention a few years ago has now become one of the important cereals of the country.

In tonnage, *sorghum* is India's third most important cereal after rice and wheat. Requiring less water than most other crops is one of its great merits; for three-fourth of the entire cropped area in the country is non-irrigated and urgently in need of a good cereal crop. The Rockefeller Foundation's involvement with *sorghum* in India began in 1957.

Then there are millets, the hope of the dry regions. Millet is a coarse grain but is a healthy food for millions of people in the drier parts of the country. India has 40 million acres under millet cultivation.

The Report says that soya-beans, a profitable crop for farmers, may be India's next big protein source. Soyabeans are 40 per cent protein and fit well into a multiple cropping pattern.

Once the quantity of food crops has been raised, the quality—improved nutrition—becomes the next goal. The Indian diet today is still drama-

tically short of protein. The goal is to overcome the protein shortage in India.

The march of the new agricultural universities and colleges augurs well for the continued progress of Indian agriculture. The Rockefeller Foundation has worked closely with several outstanding institutions in this epic endeavour.

The sudden abundance of foodgrains has brought urgent second generation problems. What is needed is more irrigation, fertilisers, machinery, pesticides and storage facilities; better roads, easier credit and firm price supports. The crux of the new strategy is to concentrate on the still-scarce seeds of the high-yielding varieties of cereal crops and the still-inadequate supplies of fertiliser and plant protection materials on 13.13 million hectares of the country's best land—the land most assured of irrigation. To a large extent, the fate of the whole high-yielding varieties programme in India, so excitingly begun, depends on the quality of seeds supplied to farmers. If the quality declines, the country's cereals programme declines along with it or, at least, fails to move forward.

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# ENOUGH ATTENTION NOT PAID TO BACKWARD STATES

P. D. MAHESHWARI

THE basic goal of economic planning is the realisation of higher standards of living for the people; no particular region of the country should lag behind the others. However, the disparity of economic growth in the various States today is very wide. For instance, the per capita income of Punjab is much higher than that of Bihar and Jammu and Kashmir. Therefore, the need for securing development of backward areas is of vital importance. This depends on an all-round increase in production in all major sectors, including agriculture, industry, transport, power and education. But, according to statistics available, Maharashtra, Punjab, West Bengal, Tamil Nadu and Gujarat are on the top in this respect while Bihar, Rajasthan, Orissa and Madhya Pradesh are relegated to the bottom position.

It is a fact that the development of any State or region depends mainly upon the available natural resources. But it is also true that some of the backward States have sufficient mineral resources and are rich in forest and agricultural wealth. Each State or region has its own characteristic economic potential which can be used as a base for development.

The Working Group on Identification of Backward Areas identified the following States as backward: Nagaland, Jammu and Kashmir, Orissa, Uttar Pradesh, Assam, Madhya Pradesh, Rajasthan, Bihar and Andhra Pradesh. States having average development are: Kerala, Mysore, Haryana, Punjab, Maharashtra, Gujarat, Tamil Nadu and West Bengal.

## Balanced Development

Economic planning, both at the Central and State levels has a predominant role to play in bringing about a balanced development. Economic and technical considerations of location are always important, yet by making regional dispersal,

it might be possible to secure the development of backward areas. The investment trend during the successive Five Year Plans is shown in the table given below.

It is clear from this table that during the last 18 years of planning sufficient attention has not been paid to the betterment of the backward States. Uttar Pradesh, Rajasthan, Madhya Pradesh and Bihar have received per capita investment which is lower than the all-States average. This has resulted in widening the gap. The pattern of Plan invest-

provision of land or building in selected areas; (ii) assistance in the preparation of project reports; (iii) rebate in electricity duty; (iv) financial assistance; (v) preferential treatment for industries located in backward areas in Government purchases; and (vi) provision of technical guidance and training facilities.

The present position with regard to industrial development in various States is somewhat discouraging. About 60 per cent of the total number of factories are located in the States of Maharashtra, West Bengal,

States' Expenditure During the Plan Periods

|                 | First Plan | Second Plan | Third Plan | Annual Plans 1966-69 | Total 1951 to 1969 | Per capita Plan outlay 1951 to 1969 | 4th Plan 1969-74 |
|-----------------|------------|-------------|------------|----------------------|--------------------|-------------------------------------|------------------|
| Andhra Pradesh  | 108        | 181         | 349        | 210                  | 848                | 243                                 | 90               |
| Assam           | 28         | 63          | 132        | 86                   | 309                | 269                                 | 161              |
| Bihar           | 102        | 177         | 330        | 212                  | 821                | 181                                 | 82               |
| Gujarat         | 99         | 147         | 240        | 199                  | 685                | 346                                 | 188              |
| Haryana         | —          | —           | —          | with Punjab          | —                  | —                                   | 212              |
| Jammu & Kashmir | 13         | 27          | 62         | 61                   | 163                | 453                                 | 382              |
| Kerala          | 44         | 79          | 182        | 127                  | 432                | 264                                 | 133              |
| Madhya Pradesh  | 59         | 149         | 287        | 179                  | 674                | 223                                 | 96               |
| Madras          | 85         | 187         | 342        | 219                  | 833                | 254                                 | 136              |
| Maharashtra     | 125        | 214         | 435        | 382                  | 1156               | 300                                 | 174              |
| Mysore          | 94         | 139         | 264        | 162                  | 659                | 292                                 | 122              |
| Orissa          | 85         | 89          | 224        | 123                  | 521                | 309                                 | 81               |
| Punjab          | 163        | 151         | 252        | 178                  | 744                | 395                                 | 206              |
| Rajasthan       | 66         | 100         | 213        | 123                  | 502                | 260                                 | 101              |
| Uttar Pradesh   | 166        | 228         | 557        | 431                  | 1382               | 190                                 | 114              |
| West Bengal     | 154        | 156         | 305        | 173                  | 788                | 243                                 | 79               |
| Nagaland        | —          | —           | —          | —                    | —                  | 715                                 | 75               |
| All States      | 1,391      | 2,087       | 4,147      | 2,865                | 10,517             | 253                                 | 123              |

ment does not seem to be tending in favour of the comparatively backward States.

A major physical factor in economic development in backward States is the availability of infrastructure facilities which are scarce in almost all States. It is, therefore, essential that facilities like availability of power, roads, irrigation etc. should be made available in the shortest possible time in these areas. Recently all States have extended infrastructure facilities and incentives to attract industries. The general features of these schemes are: (i)

Tamil Nadu and Gujarat. These four States were able to get the maximum number of licences between 1952-1967, : Maharashtra—3,084 West Bengal—1,854, Tamil Nadu—1,149 and Gujarat—963. Maharashtra and West Bengal accounted for nearly half the licences issued during the same period. However, in recent years, the share of States such as Maharashtra and West Bengal in overall industrial output and the number of factories has been comparatively reduced, while States like Gujarat, Kerala, Madhya Pradesh and Orissa have made considerable strides.

It is true that scarcity of capital is the main reason for the slow growth of industries in the backward States. Central financial institutions like the Industrial Development Bank, the Industrial Finance Corporation and the Industrial Credit and Investment Corporation have allotted the lion's share to the States which are already the most developed States. The first four States, which have received the largest share from these institutions, are as shown here :

It is not only the responsibility of the State Governments to provide adequate investment in the public sector for the rapid growth of their economy but also the responsibility of the Central Government to provide them with proper financial assistance. In this context the following points may be considered as the important factors for a planned strategy for backward regions or States:—

(a) sizeable financial provision

|             | I. F. C. Loans (Up to 1968) | I. D. M. Funds (1964-68) | I. C. I. C. Aid up to 1966 |
|-------------|-----------------------------|--------------------------|----------------------------|
| Maharashtra | 44                          | 57                       | 66                         |
| Gujarat     | 15                          | 30                       | 23                         |
| Tamil Nadu  | 35                          | 22                       | 20                         |
| West Bengal | 23                          | 15                       | 16                         |

Similarly, the advancing pattern to commercial banks reveals that their advances are heavily concentrated in four States : Maharashtra, West Bengal, Madras and Gujarat. Of the total advances by the commercial banks during the nine-month period from April 1968 to December 1968, about 52 per cent went only to two States, Maharashtra and West Bengal, and the remaining 48 per cent to the other 14 States.

## Role of Agriculture

Economic development does not depend on the contribution of the industrial sector alone; it also depends upon the development of the other sectors. India is a rural country and a majority of the people depend on agriculture. In some States, a developed agriculture has made a greater contribution to the State income, while in others industry and trade have been responsible for higher percentage in the State income.

It is, therefore, clear that the governments of the backward States, while considering the possibility of opening new industrial areas, cannot ignore the agriculture sector. A significant increase in the per capita income could easily take place if the farm sector is modernised with adequate facilities for irrigation, improved seeds and chemical fertilisers. Punjab, which has topped in the productivity of agricultural commodities, can be cited as a good example.

for infrastructure facilities, like power and communications;

(b) Supply of inputs for the development of agriculture and allied occupations;

(c) provision of financial incentives to attract industrial entrepreneurs in the backward areas; and

(d) streamlining of import licensing and allocation of procedures for scarce materials.

## TARAI GETS TRACTORS

The Tarai Development Corporation at Pant Nagar in U.P., formed for the purpose of meeting a large portion of the country's requirements of quality seeds, recently asked for tenders for supply of 750 imported tractors to be financed by the World Bank. The Corporation, which aims at undertaking all business concerning the production, processing and marketing of quality seeds and attends to land-levelling and similar activities on behalf of the farmers, obtained a substantial loan to be utilised for the import of such large tractors, combines and other heavy farm machinery.

Out of its requirements of 750 imported tractors the Corporation has decided to have 260 Massey-Ferguson and 152 IMT tractors.

## OFF-SHORE NUCLEAR POWER STATION

A floating nuclear electric power station is being designed by some of Japan's biggest business groups. It is a new answer to the problem of finding sites for new power stations, with their environmental pollution hazards.

The station will be moored in waters about 100 metres deep and some five or six kilometres off the coast. It will be a huge steel box, mostly submerged. Measuring 190 metres long, 157 wide and 87 high, the structure will contain two generators each capable of producing 1000MW. It will have living quarters for the crew and other facilities on its top platform supported on pillars above sea level.

The 2000 MW nuclear power station will cost an estimated \$400 million to build and will be designed to minimise commotions due to the actions of waves. Its maximum inclination will be not more than two degree under these forces. A special boiling-water reactor is being built to withstand this movement.

## RUSSIAN GAS FOR WEST GERMAN INDUSTRY

By 1973, part of West German industry will be operating on natural gas from the Soviet Union. A 5,000 km pipeline through Czechoslovakia will carry the gas from the West Siberian fields. Under a contract signed recently, West Germany is providing credit loans for goods to the USSR, as payment against future gas supplies. Two West German firms are fabricating giant pipes, including ones specially designed for cold climates.

The barter arrangement between the two countries is particularly useful to the USSR where vast resources of natural gas have been discovered during the past 10 years. The West Siberian region, where the largest deposits have been found is an underdeveloped area with a sparse population. The development of the oil and natural gas resources in the area has been hampered by lack of pipelines—a deficiency that will now be removed.

# HOW TO MAKE SCIENCE REACH MILLIONS

Report by ROSSCOTE KRISHNA PILLAI

WHETHER one likes it or not, developing India has to rely more and more on science and technology in her voyage towards prosperity and self-reliance and in her efforts to secure to every citizen decent means of work and living. If this premise is accepted, the need for popularising science among the common people and their chosen representatives who are the real pillars of her democratic system, is indisputable. That the Indian National Science Academy (till recently the National Institute of Science of India), the premier society representing all branches of science in this country, has been aware of and has keenly felt the need for the dissemination of scientific knowledge has become evident in a seminar on 'Popularisation of Science in Indian Languages' held in the second week of this month in New Delhi.

Although Dr T. R. Seshadri, Professor Emeritus of Delhi University, who was the principal speaker at the Seminar, lamented the thin attendance at many of the popular science lectures held even in the Capital, this particular Seminar on the subject was well-attended. Of course, the so-called Common Mass was conspicuous by its absence. Scientists, science-writers and a few journalists made up the audience.

In its earnestness and to coordinate the haphazard efforts made in different parts of the country to popularise science and put them on proper rails it had gathered a few science writers in Indian languages. Professor Seshadri suggested that popular lectures on the pattern of those held at the Royal Institution, London, could be organised under the auspices of the Academy, in schools and relayed on television. He lamented the meagre interest shown by newspapers in science and the limited space given by them to science news and compared it with the importance that sports has acquired in newspaper coverage in recent years. He wanted that science should be given at least as much importance as given to sports.

The speakers in general did not seem to be fully seized of the enormity of problems involved in popularising science in a vast country like India with a large majority of the population remaining illiterate and speaking a multiplicity of languages. Dr B. K. Nayar, who posed the problem and invited the audience to suggest guidelines for a programme of science popularisation to be undertaken by the Academy, did bring forth a number of salient facts in a paper that he presented at the Seminar.

Dr Nayar pointed out that in 1968 India had about 15 million people educated beyond the matriculation or high school stage. Of them, about 3 million were graduates. Over 6 lakh had degrees in science, engineering, technology or medicine and nearly 2 1/2 lakh persons had diplomas in engineering or medicine. Although most of the matriculates and those who had passed the higher secondary examinations had received their instruction in Indian languages, popularity seemed to have evaded the science publications in these languages. In a country in which language agitations have taken a heavy toll, 70 per cent of the 738 periodicals devoted to science are in English. Out of 216 science periodicals in Indian languages listed in *Press in India*, 1969 only 30 had circulation exceeding 2000. Only two of them dealt with science and both of them were in Hindi. One of them, *Vigyan Pragati*, had a circulation of over 12,600. One half of them dealt with health and medicine and 10 with agriculture and animal husbandry. Since the publication of the report, three popular science journals had been started in Malayalam but their circulation is reported to be below 2,000. Of the ten most widely circulated periodicals in agriculture, medicine and allied sciences, the first place goes to *Kerala Karshakan*, a Malayalam monthly on agriculture and animal husbandry, published by the Government of Kerala. Dr Nayar also mentioned this fact adduced its popularity to the simple non-technical language in which its contents are commented. He also pointed out how *Kheti* a Hindi monthly published by the Indian Council of Agricultural Research has fallen from the top place with a circulation of 40,000 to the tenth with a circulation of only 6,800 in 1968. A more tragic story was that told by the editor of a Marathi science magazine which was 44 years old but still had a circulation of only a little over 500. In the editor's request for a remedy for this sad state of affairs, Mr T.V. Kunhikrishnan, a publishing executive, suggested closure of the journal as in his view not many people were interested in it.

Although the Academy did well to make a beginning with this Seminar on Science Popularisation, such desultory discussions would not help it much in fulfilling one of its major purposes, namely the promotion of natural knowledge in India including its practical applications, to problems of national welfare. What is needed is an overall perspective of the country's vast majority of illiterate people in the villages to whom science and technology do not mean anything but among whom these will have to percolate in order to eradicate the evils of communalism, obscurantism linguism and regionalism and to create science-consciousness and a forward-looking view.

## LETTERS

### LAND REVENUE

Mr Matloob Ali Khan in his article on "Abolition of Land Revenue" (*Yojana*, May 31) has ignored certain points which justify the abolition of land revenue. These are:

(1) Except in Andhra Pradesh, Bihar and U.P., the income from land revenue in other States is not much. But the cost of collection of land revenue is quite heavy and so it is uneconomical. It is true that with the abolition of the tax the staff will not be terminated, but in course of time they will be transferred to other departments.

(2) Land revenue is not totally abolished, except on the small holdings. It remains as it is or even increased, as in West Bengal.

(3) Though the Finance Commission has suggested an increase in the tax, there is very little scope for increasing the land revenue which is an inelastic tax in character. Moreover in our country the burden of land revenue is very excessive, specially on the small holdings. The most serious objection is that land revenue is not levied in accordance with the well-known Canon of Equity of Taxation. The incidence of land revenue is not uniform and the inequalities do not bear any relation to the productive capacities of the land.

It is, therefore, imperative to examine the question of abolition of land revenue, particularly on the small holdings. The abolition will encourage the small tillers. In West Bengal about 30,000 peasants have been relieved from land revenue, though only holdings up to 1.28 hectares are exempted from tax.

Instead of increasing the land revenue it would be better if a single income tax is levied on both agricultural and non-agricultural income, which will further have the advantage of a united system leaving no scope for evasion by showing greater income in undertaxed or non-taxed sectors. Moreover, the deficit in the state exchequers due to abolition of land revenue can well be recouped.

Calcutta Subir Kumar Chandra

### UNEMPLOYMENT

The summary of the Fourth Plan and the Prime Minister's speech published in *Yojana* (April 5) bring out the bright spots in the nation's economy. But there was no reference anywhere to the grave unemployment situation causing frustration to the youth of this country. Having unashamedly searched for a job for long, I have finally got one with a tolerable salary. I have given up all hopes of getting a job suitable to my qualifications. I am a post-graduate final year student of Economics at the Jadavpur University from where I obtained an honours degree in Economics. My performance in the school-leaving examination had earned me a scholarship. I continued my studies with new hope, but I am disillusioned.

I am afraid you will think that I am indulging in Bengali sentimentality. But I am undone. My voice is the voice of the entire youth of the country.

Calcutta Kalyan Guha

—Reader Kalyan Guha may please see Page 10 of the same issue.

—Chief Editor

### 'THIS INDIA' vs 'NEW INDIA'

'Yojana' has invited contributions from its readers on 'This I Like About New India', which is to replace "This India". Allow me to say something on this.

India is a country consisting of 5 lakh villages where 80 per cent of the total population lives. Therefore, the real picture of the country can be judged only from the lot of our villagers. What do we see after 23 years of Independence? It cannot be denied though that the development of railways has brought them nearer to civilisation; electricity has reached them; and schools and hospitals are coming up. Agriculture too has improved. Urbanisation and urban development are making headway. But what does all this mean?

A large number of villages are still in darkness and the villagers continue to be the victims of many social evils. They do not get two square meals a day. Nor do they get proper education. The old agri-

cultural practices still persist. Even proper medical care is not available.

The workers in industries are no better off. They do not have enough to eat or to wear. They cannot ensure proper education for their children. The few fortunate ones who get a little education are not sure of securing a job of their choice. Therefore, in every sphere of life there is grievance resulting in unrest. Side by side with this we see a few rich people becoming richer day by day. They live a life of luxury. How can this be reconciled? The sacrifices of the poor to the cause of freedom were no less than of those who now enjoy its fruits. Is this social justice?

Calcutta

Sibnath Sarkar

### THIS INDIA

Regarding "This India" feature, you have advised your readers (Letters column, *Yojana*, May 3) to see the bright side of life in the country instead of "going on an inspection of the gutter". I want to ask why a person who, day and night, sees corruption, frustration and inhumanity around him, should not bring it to public notice through your journal? I think if these evils are not weeded out the planned economic development of the country will have no meaning to the common man. Truth is always bitter. By showing the dark-side the bright side will also stand out in contrast.

Digboi

Narayan Chhetty

—Reader Narayan Chhetty is welcome to feel the way he does and to express it in our columns. We, however, felt that "This India" feature had begun to read like a complaint book. Obviously, 'Yojana' cannot allow people to use it as a forum for projecting only human aberrations, which can be seen in any country. Instead, we have decided to start a new feature to make people look for the bright spots around them. Reader Chhetty is welcome to send in his contribution to "This I Like About New India", to share his more pleasant experiences.

—Chief Editor

## Prosperous Farmers of Saraud

*Illiteracy & Sanitation are their only Problems*

OUTWARDLY as backward looking as any other village in the vicinity with dirty lanes and stagnant pools, Saraud is really a progressive village. Its people are well aware of the winds of change blowing through the country and are keen to improve their lot. In the past few years they have readily taken to the increasing use of the high-yielding varieties of seeds, chemical fertilisers and improved implements. Tractors have become quite popular with the farmers and most of them are ambitious to own them.

A socio-economic survey of the village was carried out by the Planning Forum of the Government College, Malerkotla, Panjab. Taking its name from the musical instrument 'sarod', the village is about 5 kilometres from Malerkotla. A kachcha road links it with the town.

The village has about 273 households, with a total population of 1761; out of which 961 are males and 800 females. The average size of the family is 6. At the time of 1961 census, the population was 1558. Thus over a period of 9 years, the population has increased by about 13%. People are generally aware of the need for family planning.

Agriculture is the main occupation in the village and a large majority of people earn their livelihood from it either as owners or tenants. Together with the families which carry on farming as a subsidiary occupation the percentage of those dependent on agriculture is as high as 80.

Farming on the whole is done on a medium or small scale. Since cultivation of land has become very profitable, more and more of the village waste land is being reclaimed. Investigations, however, revealed that villagers had scant interest for co-operative farming or for guidance from the Gram Sewak.

The gross area under cultivation is 812 hectares. Its crop pattern shows that greater emphasis is being laid on the growing of wheat and fodder crops in the case of winter crops and on maize and cotton, both *desi* and *narma*, in the case of summer crops. Groundnut and sugarcane cultivation is also becoming popular. However, crops like barley, millets and pulses have lost their old importance.

### Intensive Farming

Cultivators in general have taken to intensive farming of land. The use of fertilisers, improved varieties of seeds and of insecticides is increasing day by day. Though a small village, Saraud has 8 tractors, 250 pumping sets, of which 10 have electric motors. The village has in addition two Government tubewells which supply water on payment basis.

The farmers are keen listeners of the Radio and are quite aware of the many steps which the Government was taking to help them to improve their agriculture and living conditions. However, they are dissatisfied with the procurement price fixed by the Government for wheat which at Rs 76 per quintal, was too low to cover their cost of production and the labour charges of their families. The price, they felt, should be at least Rs 100 per quintal.

Rent receiving or money lending did not occupy an important place in the economy of Saraud. The people mostly lent or borrowed from among themselves or from the Government. The Co-operative Society, which was founded in 1952, is also rendering a great service in this connection. By 1970 it had given loans up to Rs. one lakh for productive purposes like the purchase of pumping sets, fertilisers, seeds and implements. The Society has also one spray pump which is rented out to the farmers, and to even non-members of the Society.

The income survey of the village showed that quite a few families had

an income of Rs 20,000 or even more per year. As regards expenditure, food was the major item of expenditure, followed by expenditure on drinking and on social ceremonies. Quite a lot of money was also being spent on construction and furnishing of latest design houses. Expenditure on medicine was quite high in almost all cases, as most of the respondents preferred to patronise the private doctors or *Vaids* and *Hakims* in the town.

### High Living Standards

The standard of living had obviously gone high. Every family had a cycle and a transistor, while some even had scooters. Every family also kept some milch cattle. Many of the families sold milk to the milk-sellers coming from the town daily. Only the rich families prepared butter and *ghee* for their use. Bullocks and bullock-carts could be seen in almost all households.

Though the older generation mainly consisted of illiterates they invariably sent their children to the Government primary school, where the local Panchayat, on its own initiative, had started midde classes. Again though generally illiterate, almost all the respondents were very well informed about the problems facing the country. About shortage of food in the country they said that they could increase the yield further if the Government provided them with necessary facilities and help. They did not like the country begging for food from outside.

The Village Panchayat seemed to be functioning very efficiently and effectively. According to the Harijans and other people of the lower strata, whenever they took any problem to the Sarpanch, they got full response and help.

The relations between different communities in the village were very cordial.

Despite all this, however, the village had its dark side. The sanitation of the village was anything but satisfactory. The drains did not seem to have been cleaned for days or weeks, and dirty water was overflowing into the streets.

## BOOKS

### INVESTMENT PRIORITIES IN TRANSPORT DEVELOPMENT

*Regional Transport Survey of Kerala. Published by the National Council of Applied Economic Research, New Delhi. 416 pages. Rs 45.*

P. P. Lakshamanan

THE transport survey of Kerala State undertaken by the National Council of Applied Economic Research gives an analytical account of the transport inventory in the State for all modes—rail, road, inland and coastal waterways, and air transport. The Council estimates traffic in a base year and makes projections for 1970-71 and 1975-76 on the basis of the anticipated increases in the State's population, production and income, by sectors and by districts.

On the basis of the transport requirements for 1970-71 as visualised by the Council, it recommends investments totalling Rs 66.1 crore.

The origin and purpose of the survey as stated in the Preface to the Report have limited the scope of the studies undertaken by the Council. None-the-less, this should be treated as a good bench-mark survey and the survey should be repeated periodically. Transport planning is not a one-shot affair but a continuous process. It would be unfortunate if the survey is not repeated for want of funds. A repeat survey is likely to cost much less than one per cent of the total investments required to be made in the State for a plan period which may be five years, ten years or even longer, for the reason that transport investments are frequently large and lumpy and have longer life.

A few comments may be in order. In the first place, pre-investment evaluation of projects based on limited cost-benefit appraisal would have enhanced the value of the Council's recommendations, and would have also enabled the Council to indicate the *inter se* priorities of the schemes recommended. Secondly more than half the total investments

proposed by the Council relate to additions to the fleet of trucks and buses, mostly in the private sector. In view of the slow progress in the development of roads and bridges and the unbalanced development of road communications in the State, as also the existing Government restrictions on road transport, one is not sure whether the private sector

### Guide to Modern Economics

*A Guide to Modern Economics by J. K. Mehta and Mahesh Chand. Somaiya Publications Pvt. Ltd., Bombay. Rs 35.*

B. N. Nair

THE teaching of economics in Indian Universities has had a chequered history during the last three decades. Textbooks and guides by Indian authors have not reflected any orderly evolution. Hence, textbooks by Frederic Benham down to the latest edition of Samuelson have tenaciously held the ground, assisted by some hackwriting that passes for "guides" and the intellectual middlemanship of foreign journals and young university professors.

The present volume comprising of a series of papers by Professors (late) J. K. Mehta and Mahesh Chand divides the treatment of modern Keynesian economics into four parts: (i) mathematical tools of analysis, (ii) techniques of analysis, (iii) modern features of economics and (iv) modern concepts of economists. The book has the important merit of having dealt with, in outline, all the major concepts, features and technique of analysis and presented the viewpoints of a number of important writers in succinct form. The policy implications of modern economics have been kept in view and such accessories to decision-making as differential calculus, Theory of Games, linear programming, input and output analysis and functional finance

would be induced to go in for such large investments. Thirdly, taking a long-term perspective, transport projects like Cochin-Coimbatore pipeline transport, Mysore-Tellicherry rail link, broad-gauging Ernakulam-Trivandrum rail section, some of which have already been surveyed, might perhaps tend to correct the transport system in Kerala. Lastly, inland waterways have been a special natural endowment for Kerala transport system but again one is not sure whether past experience and the suggested cost-benefit appraisal would justify an investment of the order of Rs 16 crore, even if the necessary resources were available.

outlined with a lucid exposition of the underlying principles. As if to give the coping stone to their treatment of modern economics, the authors have not failed to deal with fluctuations and growth model building, the uses of the electric computer, social accounting and econometrics. With a concluding chapter by Prof. Mahesh Chand on "An underdeveloped system", the reader of the book is guided through the dark and tortuous paths of mathematical economics and ushered into the correct realities of underdevelopment.

The overall impression about the book is its positive usefulness, close adherence to the school of positive economics and the somewhat reluctant betrayal of a dilettante interest in sociology, history, humanities and other disciplines. Perhaps, it is high time that we realised that modern economics that deals condescendingly with underdeveloped economies cannot any longer clothe its ideas with the symbolic language of mathematics by overly holding a brief for 'quantophrenia' and 'economic philistinism' but has to acquire, anon, a framework, special data, design, inspiration and last but not the least, an ethical morality grounded on social reconstruction.

Positive economics and its practitioners can well afford to dispense with value premises or social purpose *per se*. By hastily forging an alliance with mathematically oriented sociology, they might become venturesome, lackadaisical, and conceive of be-

havioural models, short-term projections and through the trap doors of supply and demand functions, production functions and a series of effects e.g. Ricardo, Harrod, Domar, Pigou, Kalecki and sigma effects) masquerade as social doctors as well as economic experts with the best kitbag of tools. Nevertheless, it is an unpleasant truth that the highly elaborate analytical systems of modern economics based on inadequate premises have succeeded merely in flagrantly falsifying Indian realities rather than uncovering them in their social matrix and convincing all interested students and researchers about their undeniable multidisciplinary dimensions.

## Export Pricing

*Export Pricing. Published by Indian Institute of Foreign Trade, New Delhi. Pages VI+104 Rs 8.50.*

R. N. Kapur

**M**OST of the present-day export pricing decisions, particularly in developing countries, are based on intuition and guesswork. With a view to removing this lacuna, the IIFT Seminar on Export Pricing, on which the report, *Export Pricing*, is based, attempted to emphasise the role of pricing in an overall export marketing strategy. The Seminar also aimed at concretising the concepts used in export pricing and providing a forum for evaluation of alternative pricing strategies in different marketing situations. Being the first seminar on this subject in India, its "conclusions and recommendations", though not entirely original, have the semblance of pioneering ideas.

The most important contribution of the Seminar relates to evolving a "strategy of pricing for exports". The Seminar recommended that marginal costs, which in the case of industrial products are lower than average costs, should constitute the basis of export pricing. The Seminar, however, recognised that marginal costing may not have much relevance to industries, which have a small home market, or a home market with a limited capacity to recover total fixed costs. This is also true of the industries which have

Let us admit that static and dynamic analysis of modern economics are of limited use only in this direction and have to be replaced by systematic approaches. Hence the need for a follow-up of this guide by other competent writers. In the meanwhile, this volume will be found to be eminently suitable to serve the short-term purpose of a textbook for in-service training of government officers by institutes and staff training colleges that have successfully reversed their role from learners to educators through political patronage.

The book has been produced with an eye for excellence and is worthy of emulation by some of our less important publishers of textbooks.

insignificant overhead costs because of the predominance of raw materials. These limitations notwithstanding, profitability of exports, it was stressed, should be assessed not in relation to average cost, as is the prevalent practice, but with reference to marginal cost.

The Seminar emphasised that the strategy of dual and differential pricing in exports is no less significant than that of marginal cost pricing. A product may not fetch the same price in every market nor a multi-product firm need sell all its products on the basis of the full cost of each.

The Seminar recognised the important role of export incentives in influencing pricing decisions at the micro level by (a) making the adoption of marginal cost pricing policy feasible; (v) recovering fixed costs specially where the domestic market cannot bear their full load; and (c) sustaining export operations even when direct costs are higher than the foreign market price. The Seminar, however, stressed that export incentives and assistance policy should be declared well in advance and should also be sufficiently enduring to enable "planning for export production on a long-term basis".

While recognising cost to be one of the dominant influences in decisions on export pricing, the Seminar rightly appreciated that a number of factors other than cost, namely,

market conditions abroad, prices quoted by alternate sources of supply drought, and floods, also influence export pricing decisions. The need for foreign trade earnings, moreover, assumes sometimes such an overwhelming urgency that cost considerations become irrelevant. And export price quotations have, at times, political overtones too.

Apart from outlining a strategy of export pricing, the Seminar deliberations covered four major areas of the subject, namely, mechanics of export pricing, pricing information and information system, implications of floor and agreemental pricing, and evaluation of pricing decisions.

The report includes 11 papers submitted to the Seminar on various aspects of export pricing by experts in the field. These constitute a variety of background views—complementary and sometimes contradictory—to the consensus emerging from the Seminar. Literature on export pricing being so meagre in India, *Export Pricing* is indeed a useful work for the benefit of Indian exporters and policy-makers in the Ministries of Foreign Trade and Finance.

### OTHER BOOKS RECEIVED

*Industrialisation through Industrial Estate, A Pattern of Economic Decentralisation* by Kalyani Bandyopadhyaya. Published by Bookland Private Ltd., 1 Shankar Ghosh Lane, Calcutta-6. Pages 254. Rs 25.

*The Methodology and Scope of Economics*, by Ashalata Bose. Published by Bookland Private Ltd. Pages 73. Rs 6.

*Rural Industrial Development* by S. D. Sundram. Published by Vora & Co., Publishers Pvt. Ltd. 3, Round Building, Kalbadevi Road, Bombay-2. Pages 181. Rs 12.50.

*America and Swaraj: The U. S. Role in Indian Independence* by A. Guy Hope. Published by Vora & Co. Publishers Pvt. Ltd. 3, Round Building, Kalbadevi Road Bombay-2. Pages 136. Rs 3.

*External Debt of India* by Chandra Dalaya. Published by Vora & Co. Publishers Pvt. Ltd., 3, Round Building, Kalbadevi Road, Bombay-2. Pages 117. Rs 12.

*Agriculture in Economic Development* by Carl K. Eicher and Lawrence W. Witt. Published by Vora & Co. Publishers Pvt. Ltd. 3 Round Building, Kalbadevi Road, Bombay-2. Pages 415. Rs 10.

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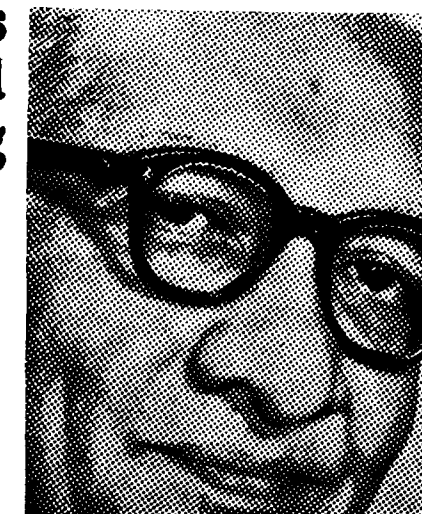
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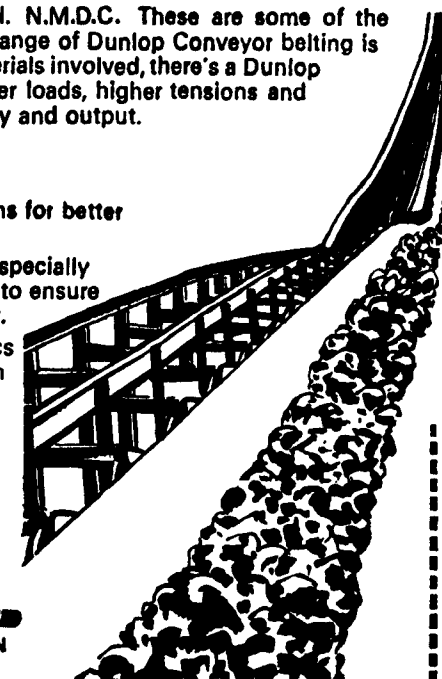
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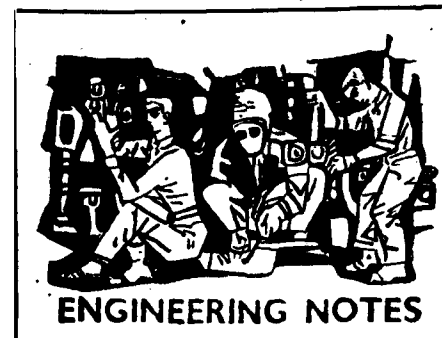
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ENGINEERING NOTES

#### A FOREMAN'S INGENUITY

Mr Amar Singh, Foreman, Roll Turning Shop, at TISCO has been awarded Rs 1,300 for two of his suggestions regarding the utilisation of old rolls for one extra run before they are finally scrapped. Mr Singh suggested that the rejected rolls, used for making flat sections in Merchant Mill No. 2, could be utilised on the same stand by making passes for round and square sections without reducing the barrel diameter. The same procedure could also be adopted with plain rolls of the Medium and Light Structural Mill where rounds and squares are also rolled.

Mr Singh also suggested the utilisation of discarded rolls of stands No. 5 and 6 in Merchant Mill No. 2 by cutting grooves in them without reducing the barrel diameter and then using them for one more run. The used passes could again be deepened for use in stand No. 4 to roll an extra tonnage before being finally scrapped. This meant that rolls normally scrapped before reaching the lowest diameter could be used for one more run. As a result of Mr Singh's suggestions the consumption of rolls is reduced, thereby effecting a saving in foreign exchange.

#### AUTOMATIC VOLTAGE REGULATORS

Heavy Electricals (India) Ltd. has made the first batch of nine sets of voltage regulators for use on the electric trains of the railways (1500 volts DC EMUs).

This has saved foreign exchange worth Rs 50,000. These regulators have been handed over to the Indian Railways.

#### HMT's Drum Turret Lathe

Drum turret lathes belong to the second generation of machine tools meant for economic batch production of components for the engineering industry. These are now being made at the Kalamassery Unit of Hindustan Machine Tools.

Basically meant for producing "Symmetrical jobs of rotation", the turret lathe can index as many as 16 preset tools and directly apply them into the job. The drum turret

is ideally suited for medium and large batch production.

The Kalamassery unit manufactured 15 of these machines during 1969-70, the average import content remaining at about 60 per cent. During 1970-71, the factory has a programme for building 20 of these machines with an import content of about 35 per cent, the import content tapering off completely by the end of 1971.

#### TEN YEARS OF HEIL

TEN years ago, on July 1, 1960, India's first undertaking of its kind, the Heavy Electricals India Ltd. went into production with only a few machine tools installed. The first products manufactured were switchgears, control gears and transformers. Other products followed gradually. Now HEIL manufactures a wide range of sophisticated heavy electricals equipment like capacitors for power factor correction, silicon rectifiers, industrial machines, reactors, instrument transformers, traction equipment, power plant for thermal and hydro power stations, marine turbines, condensers and butterfly valves etc. and geared type generators for sugar and other process industries and some insulation items and complicated tools and gauges.

This public sector undertaking can now undertake complete design, manufacture, supply, installation and commissioning not only of switchyards and power stations, but also a variety of other electrical equipment. These include AC and DC motors and generators, control panels incorporating Ward-Leonard closed loop controls, switchgear and relay panels for steel and fertiliser plants, machine tool industry, ships, cranes and material handling equipment, mining industry, paper plants, plastic and rubber industries, sugar mills, etc.

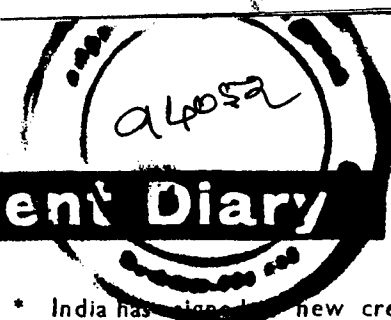
During the short span of its existence HEIL has produced equipment worth about Rs 100 crore. This includes 11000 circuit breakers, 1500 motor starters, over 450 power transformers with an aggregate rating of 9000 MVA, about 2500 traction machines, 500,000 KVA of capaci-

tors, 600 nos. industrial motors from 150 hp to 2000 hp ratings, four water turbines of total 96 MW, five water turbine generators and one steam turbine and two generators each of 30 MW.

At HEIL, accent is always on self-reliance. The design know-how for almost all products has been acquired and most of the designs are being made by Indian engineers now with specifications of indigenously available material or components. To support this activity, there is an elaborate Materials and Standards set-up where complete intelligence is available on all the Indian standards and indigenous materials. There is another wing which specialises in establishing Indian suppliers for hitherto imported components and materials. HEIL has undertaken the design and manufacture of some of the plant and equipment. In spite of the fact that the heavy electrical industry is totally new to the country and the supplies to this industry are not developed, these comprehensive efforts have resulted in reducing import content of products.

Among the new designs developed here are the motors and generators for DC locomotives and diesel electric locomotives, 25 kV single phase oil circuit breakers for traction duty, 11 kVA outdoor Kiosk, 220 kVA sine wave generator, 60 kVA current limiting reactors, and homopolar inductor alternators.

The factory has succeeded in exporting switchgears, motors and control gears to UAR, Iraq and Singapore. Thus, this pioneering public sector complex has spearheaded a revolution in the field of electronics in the country.



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## Development Diary

\* An area of over 11,300 hectares has been selected in Bellary district of Mysore for establishing the first unit of an Integrated Dry Land Agricultural Development Scheme, sponsored by the Centre. Experiments for achieving improvements in different crops including kharif jowar, kharif cotton, bajra, groundnut, rabi jowar, rabi cotton and tobacco will be undertaken at this unit.

\* In Uttar Pradesh, the first stage of the Ramganga river project, estimated to cost Rs 119 crore, has been completed. The project envisages the construction of a 124-metre high earth and rock dam, and is expected to be completed by the middle of 1973.

\* A high-level bridge across Luni river in Barmer—Sanchole—Suigam in Rajasthan has been formally opened to traffic. Built at a cost of Rs 52 lakh, this bridge has been executed in an area which has very trying climatic conditions.

\* Under a contract signed with North Korea, the Minerals and Metals Trading Corporation will export one lakh tons of coal and 20,000 tons of high-grade manganese ore to North Korea, costing about Rs 1.5 crore. This is the first time that the Corporation will export coal to that country.

Under another contract, India will import five hundred tons of electrolytic zinc from North Korea.

\* The United States has extended a grant of \$ 20 million (Rs 15 crore) to India help finance an expanded family planning programme during the Fourth Plan. The grant which is in foreign exchange, will be used to import commodities such as fertilisers, iron and steel, chemicals and dyes required by Indian industry and agriculture. India will spend an equivalent amount in rupees—Rs 15 crore—for increased family planning activities, especially training, research and evaluation, and extension of family planning services to different areas in the country.

\* India has signed a new credit agreement with Austria under which it will receive a credit of 38.6 million Austrian schillings equivalent to about \$ 1.5 million as debt relief assistance from Austria.

\* The Bharat Electronics Limited, a public sector undertaking, has declared a dividend of ten per cent for the second year in succession.

\* India, Indonesia and Malaysia have agreed to form a pepper community to co-ordinate efforts to promote export of the commodity and prevent price fluctuations. They have also agreed on joint action to remove traffic and trade restrictions in importing countries.

\* The foundation of a Sal Seed Oil Extraction Plant has been laid at Palrangpur in Orissa. To be set up with an initial capital of Rs one crore, it will exploit sal seed for producing natural hard fat needed for manufacturing high grade confectionary.

\* In Haryana a 72-kilometre long canal, built under the Jui Lift Irrigation Project, has been commissioned. It will provide water to nearly 34,000 hectares of arid land in the Bhiwani and Laharu sub-divisions of Hissar district.

\* Production of natural rubber, which has recorded a considerable increase in the past decade, is expected to touch a new high of 90,000 tonnes in the current year.

\* The Bharat Heavy Electricals, Hyderabad, has successfully carried out a trial run of the hydrogen-cooled turbo-generator manufactured by it with Czech collaboration. This 1.10 lakh KW generator the largest of its kind to be made in India, embodies latest design features and compares well with the best generators manufactured anywhere in the world.

\* A Survey Settlement Training Institute has been inaugurated in Mysore. It will train officials in the technique of measuring lands and verification and demarcation of boundaries.

## YOJANA

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