

Yojana

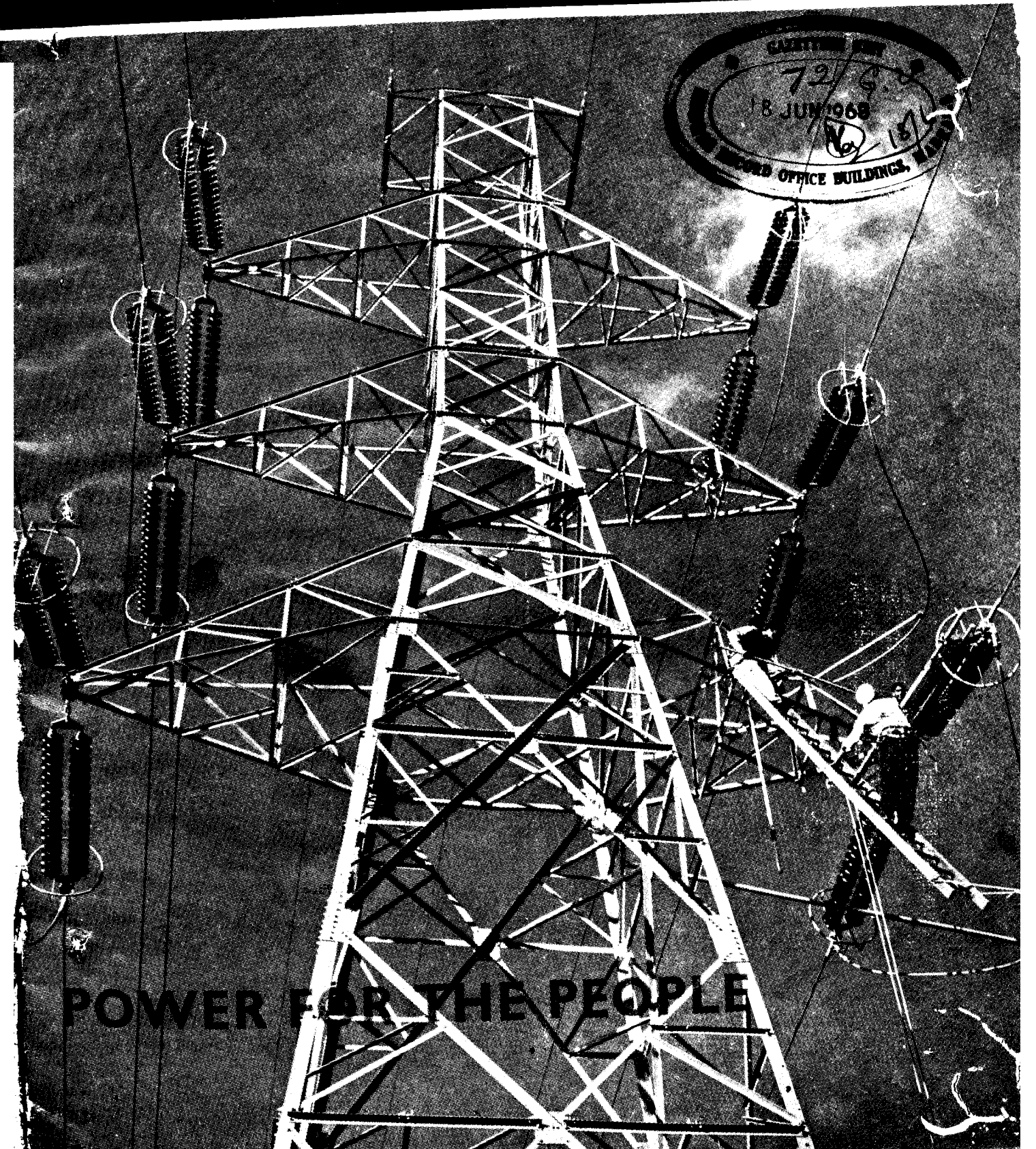
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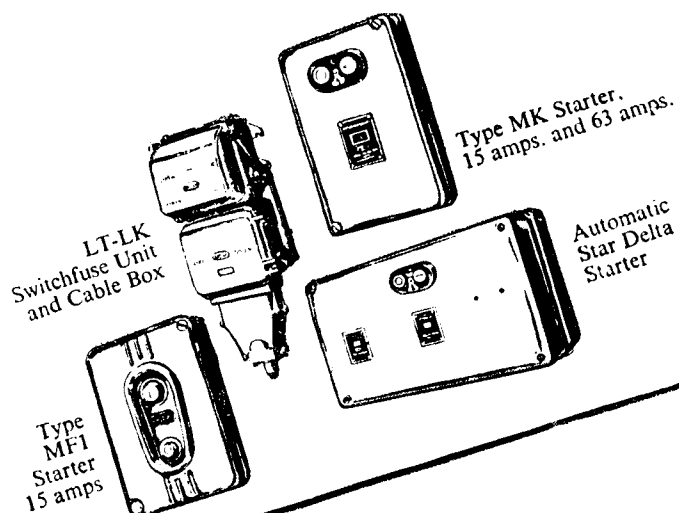
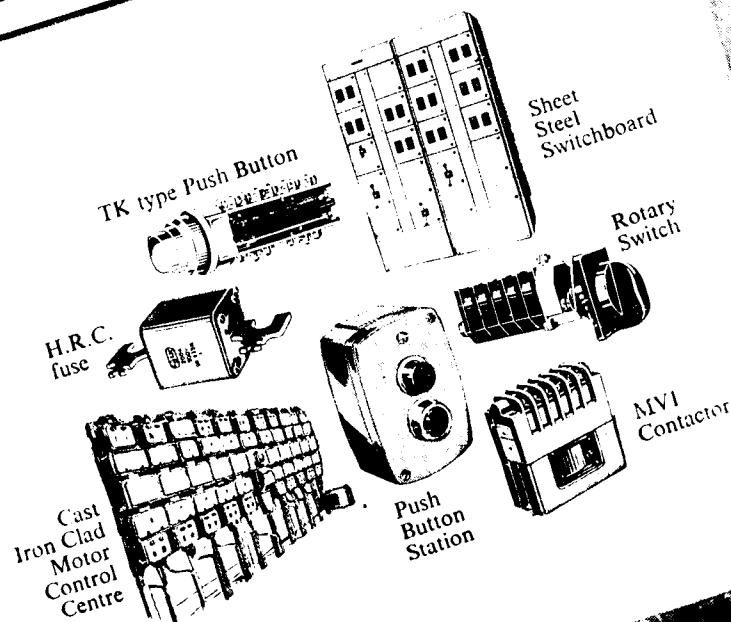
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YOJANA

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Commission

Vol. XII

No. 11

June 9, 1968
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LEST WE FORGET

The strains and the problems we are facing are real enough. But they have to be approached in a spirit of renewed faith in the voyage of development on which we have started.

—T. T. Krishnamachari

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

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THE GREAT DEBATE

THE "Approach to the Fourth Plan" is now before the country, and the "Great Debate" has begun. With this issue we begin a discussion on the Plan Approach, which vitally concerns the prosperity of the nation today and for years to come.

The trend of the debate, as is evident from comments appearing in the Press, are not entirely favourable. In the main, the complaint against the document prepared by the Planning Commission appears to be on the score of its being an over-simplification of a complex problem. It is pointed out that the Planning Commission's entire approach to the task of planning is based on certain erroneous assumptions; and its concepts and conclusions are consequently unrealistic.

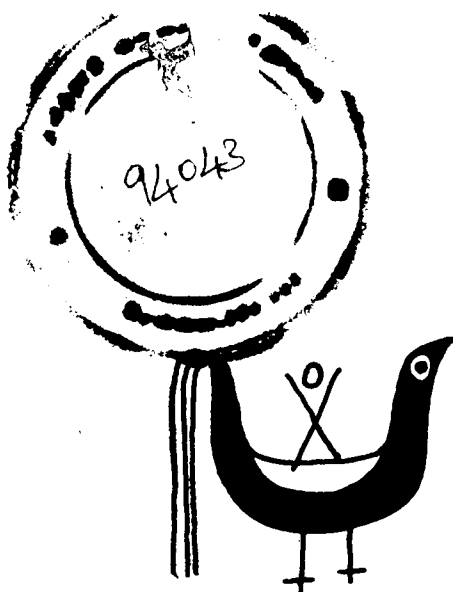
The 'Approach' is not intended to be a "blueprint" of the Fourth Plan; but a document based on loud thinking inside the Planning Commission on the various considerations that would have to be taken into account in preparing the Plan itself. Its main purpose was to serve as 'talking points' for the National Development Council, on the basis of which the Council could offer guidelines on specific issues. As far as this objective is concerned, it has served its purpose.

The Planning Commission has reiterated certain "musts" for the successful implementation of the Fourth Plan. The mere fact that these are well known or that these have only turned out to be "pious wishes" are irrelevant. It has been said that in spite of these essentials being written into the First Plan, nothing could be done to translate them into reality. There is no denying that the conflict between economic necessity and political compulsions has been responsible for many of the basic requirements of planned growth remaining just empty words. Nevertheless, the Planning Commission can hardly be blamed for underlining the importance of these "musts" for the successful implementation of the Fourth Plan.

It is only fair that the suggestions regarding the need to ensure certain basic conditions for successful Plan implementation, should be considered only as such. Obviously, the Planning Commission cannot be saddled with the responsibility of ensuring that these conditions are, in fact, fulfilled. No one can deny the need for workers to work harder, for economies in administrative expenditure, for reduction in waste, for spending less and saving more, etc. These are essential for the growth of the economy and for development; and will continue to be so, whether or not the nation is able to translate these imperatives of planned development into practice.

It has been suggested that the Planning Commission has laid down conditions, which have not been fulfilled in the past, and are likely to meet the same fate in future. Even assuming that this is so, it is not quite clear how the authors of the "Approach" paper can be blamed for lack of realism. The fact is that planning cannot succeed unless certain conditions are fulfilled; and the entire "Approach" is founded on the belief that these conditions will be fulfilled.

The Planning Commission is of the view that "given determined, well-directed and fully co-ordinated internal effort, planned economic progress can be accelerated". This is the essence of the matter. In the main, planned economic development and, for that matter, no national effort of any magnitude, can succeed without united endeavour. National economic development cannot be brought about by waving a magic wand, and the best of schemes and plans are only as good as the people make it. It is going to be no different with the Fourth Plan. Unless the people whole join together in the glorious adventure of building India, planned development will remain a mere chi



FOURTH PLAN APPROACH

COMMENTS

"The Approach to the Fourth Plan" is now before the country. It is intended to serve as a body of 'Talking Points', as far as the formulation of the Plan is concerned. Beginning with this issue, YOJANA will bring to its readers, a cross-section of opinions and comments on the document.

CRITICS who complain that the 'approach' paper of the Planning Commission is not an inspiring document are barking up the wrong tree. The paper was not meant to be a clarion call to the nation. It was meant to be a paper which would present available choices along with their implications to the National Development Council to enable it to take basic decisions with regard to the guidelines to be given to the Planning Commission for the formulation of the Fourth Five Year Plan. Has this been done?

On reading the 'approach' paper, one gets the feeling that the facile formula of the two droughts and two armed conflicts having been the sole factors behind the poor economic performance during the Third Plan seems to have carried conviction even with the Planning Commission. Otherwise one would have expected the paper to begin with a critical reappraisal of our planning performance, especially when it refers to "an analysis of the economic situation and an assessment of the potential" it has made. One fails to understand why the fruits of this analysis were denied to the National Development Council. All that they were told was: "We are convinced that given determined, well directed and fully co-ordinated internal effort, planned economic progress can be accelerated."

The main goals of the Fourth Plan, as enunciated by the Planning Commission, namely, 5 to 6 per

cent rate of overall growth, reduction of dependence on foreign aid and acceleration of exports are, more or less, what was promised in the Third Plan too—the figure for exports is somewhat higher this time.

So far as these goals are concerned, there does not seem to be much room for choice. Keeping in view the fact that the population of the country is increasing every year by 2.5 per cent, a 5 to 6 per cent annual rate of growth seems to be the very minimum necessary. Similarly, given the present outlook of the aid-givers, the decision to reduce dependence on foreign aid by about a half during the Fourth Plan period is a matter of ordinary precaution. Given these two rather externally determined decisions, the need to increase export earnings at the rate of 7 per cent per year is a question of simple arithmetic. Thus the nature of these goals being as compulsive as it is, there is not much room for choice. The National Development Council need not deliberate long on these goals. But where the question of choice and the need for guidelines arises is on alternative policies to reach these goals.

It seems obvious that all the major aims of the Plan, whether expressed in terms of the rate of over-all growth, or stoppage of imported foodgrains and reduced quantum of foreign aid or stimulation of exports, will revolve round the effort that will be made to raise domestic savings. The Commission has not much to say concretely on this subject beyond enumerating the magnitude of the sums required—additional 200 to 300 crore rupees annually. It does not even say how these magnitudes have been arrived at; presumably, they are the result of the application of some global capital-output ratio.

If the average rate of domestic savings is to be raised to 12 per cent from the present rate of 8 per cent, one does not know how the consequent sharp increase in the marginal rate of savings will be brought about.

Granting that in the existing political circumstances of the country, marked by an intense competition between political parties, taxation is not part of political prudence, one would like to know not only what other methods would be employed for raising additional resources but how

their success would be ensured. To be sure, the Deputy Chairman has mooted the idea of floating rural debentures. But even if the idea is materialised, how much dent will it make on the domestic resource gap?

Again, the surpluses to be generated by the public sector undertakings have been mentioned. The Commission's plea that these enterprises should be revitalised has wide support. But whether or not this can be affected in time to raise resources for the Fourth Plan remains to be seen. The problem of raising surpluses from the public sector enterprises is only partly a matter of better management; it is also a matter of pricing policies of these enterprises. There is no reason, for example, why the price of electricity or of water should not be economic, especially in areas where the new agricultural strategy has caught on.

The paper also suggests that "large farmers should progressively plough back more of their own resources for development purposes. This phased shift to self-financing by middle and large farmers is a corollary to the large incomes that accrue to them through modern agriculture." One can see this so-called corollary as one of the possibilities but one does not see how, in the absence of certain policy measures about which nothing is said, it is inevitable. It need not happen, especially when the rich farmer is also able to make use of co-operative credit made available to him at concessional rates. He can have other uses for his own savings. In fact one of the major weaknesses of the 'approach' paper is the absence of an analysis of the impact of sizeable increases in agricultural output (as during the Rabi of 1967-68) on the pattern of investment. If the increasing income of the farmers is not channelised into planned investment, it could be a powerful distorting factor. The prospects of socialist planning are bleak if the rich farmer is allowed to rule the roost. This is an economic as well as a political problem which cannot be skirted as the Planning Commission has done.

In its search for resources for investment, the Planning Commis-

sion is precluded from looking into the forbidden areas where enormous resources have been flowing in recent years. The administration and the defence together have cut deep into investible funds. But unless some restructuring of these establishments is brought about, this drain of resources into unproductive channels will continue.

The truth of the matter is that we have reached a stage now when we must formulate an over-all strategy which co-ordinates the objectives of our defence, economic and foreign policies. The development plan can no doubt provide the supporting economic logistics for an overall strategy. But to sort out and reconcile the competing claims of an accelerated rate of

economic growth, an independent foreign policy and a viable defence system needs a higher direction of policy in which Planning Commission can be only one of the participants. At the moment the Planning Commission has no way of knowing, for example, if some resources can be squeezed out of the defence budget for economic development. Defence expenditure cannot be left to the discretion of the military brass alone as economic development cannot be left to economists alone. For ought we know, we may be buying more defence than we need or we may be able to buy the same amount of defence but a little more cheaply with some modifications! Who knows?

Right Emphasis On Farming

M.L. DANTWALA

THE most common comment one hears on the Approach to the Fourth Five Year Plan is that "there is nothing new in it". Personally, I feel it is a great mercy that the Planning Commission—in spite of the change in its membership—has not succumbed to the juvenile itch to appear original or radical. Previous attempts at originality on the part of the Commission have often hindered rather than helped the progress of the economy.

That no attempt was made in the document to review the achievements and failures of planning efforts so far, should also help to concentrate attention on tasks ahead. The achievements and failures are too well-known to need encore; and their further recital would have provoked only another bout of breast-beating.

Confining comments to the chapter on Agriculture, one can say that the task ahead is well-defined and the approach is mercifully free from forays into wishful thinking. The major hope is placed on high-yielding varieties and the 'intensive development' approach. One is glad to note that the emphasis on this strategy has not been relaxed, reacting to the persistent criticism that the programme was tending

to widen regional and even intra-regional disparities. The way to handle this side-effect is to devise appropriate programmes for dry areas and for those sections of the rural population—small cultivators, landless labourers, etc.—who do not directly benefit from the intensive strategy. This aspect of the problem has received adequate attention in the 'approach' document.

The Planning Commission is less explicit on the question of approach to mobilisation of resources from the agricultural sector. Agricultural taxation has not been mentioned at all, but this is counter-balanced by non-reference to price incentives. The latter will anger the politician and disappoint foreign experts. It is good to see that the Commission, at least so far, has resisted these two powerful influences.

There is a slight Gadgil-Venkatappiah touch when the document says, "wherever possible, a large number of production and distribution activities for the rural economy may be handed over to the co-operative and other (six) agencies". Fortunately, no monopoly is claimed for the co-operative sector, but it is doubtful whether, at this stage, the advice to "entrust to co-operative agencies progressively" activities like production and

distribution of pesticides, is wise. Regarding credit also, a grudging role has been assigned to commercial banks; for only "if the co-operative institutions show no promise of being adequate, it will be necessary to think of other institutions". Obviously, inadequacy of performance is not enough, inadequacy of promise has to be established, and only then we would think of the alternatives! Commercial banks have been provided with one more alibi: they would welcome it.

In contrast, the limitations of land reforms have been well recognised—though this will annoy the 'radicals'. There is of course the usual homage to land reforms. "Land reforms acquire an added importance in the present context". If anyone thought that by this what the Commission meant was "lower ceiling on holdings and land redistribution, or co-operative farming (of Nagpur fame) he would be disappointed. So would be the visionaries of "co-operative village management". Instead what is emphasised, and rightly, is that "gaps in tenurial legislation should be quickly filled and tenancy laws and other measures of land reform should be properly enforced". This, by itself, will be a great achievement, and nothing more is perhaps needed.

Lastly, it is most gratifying to note the recognition by the Commission of the fact that "because of the existing pressure of population on land, improvement in the organisation of agriculture becomes increasingly difficult (in our view, is not possible) as long as large additions to working population have to be supported on land". A pre-condition not only of improvement in agricultural productivity, but also of rationalisation of the agrarian structure through land reform and other measures, is a much faster rate of absorption of the labour force in non-farm employment. In other words, a faster all-round economic development. Priority for agriculture does not imply postponing development in other sectors and imposing further strains on them through higher (and higher) agricultural prices, cost of living and cost of production. This may or may not be 'new', yet it is worth emphasising.

A Class Approach, With A Difference

H. VENKATASUBBIAH

IN his Foreword to "Approach to the Fourth Five-Year Plan", the Deputy Chairman of the Planning Commission, Prof. D.R. Gadgil, has drawn attention to the resolution of the Government of India reconstituting the National Development Council in October 1967. The first function of the Council is to prescribe guidelines for the formulation of the national plan, including assessment of resources for the plan. Prof. Gadgil says that the main purpose of the 'approach paper' (as it has come to be called) is to seek guidelines from the N.D.C. Past experience shows that the N.D.C. seldom "prescribes" guidelines for planning in any comprehensive sense. It rather expects the guidelines to originate from the Planning Commission and comments on them when they are placed before the Council. These comments are not exhaustive either.

If guidelines should really emanate from the N.D.C., that body must meet continuously for a number of days, converting itself into some sort of a 'workshop'. It is hardly likely that a body of States Chief Ministers can assume this character. By all accounts, what happened at the last meeting of the N.D.C. before which the approach paper was placed was not very different from what has always happened in that body. Guideline-seekers and guideline-givers exchanged roles. The approach paper seems to have been itself looked upon as the guideline paper on which members of the N.D.C. made some comments and dispersed, leaving the baby back on the Planning Commission's lap.

In October last, not only the N.D.C. but the Planning Commission itself was reconstituted. The public rightly attach more significance to the reconstitution of the Commission, for it knows that the main intellectual exertion for planning must come from the membership of the Commission. The N.D.C. itself probably looks upon the Commission as its 'brains trust'. Against this background one can better appreciate why the

approach paper produced a feeling of inadequacy. The criticisms of the Second and Third Plans related not only to the economic calculations they embodied but to the process of planning itself. The process is the concern of the institutions, at various levels, which are engaged in administering and implementing the plan formulated by the Planning Commission in close collaboration with the Central and State Governments.

There was a general expectation that a new dimension would be given by the new Planning Commission to such an institutional approach. The approach paper indeed suggests this task. But it is a skeletal paper. For flesh and blood the N.D.C. and the country must perhaps wait for the Draft Fourth Plan. In the past more extensive drafts of the plan used to be issued for public discussion. The experiment of offering an approach document for public discussion is new. Prof. Gadgil has hoped that in the coming months it will serve as the basis of a lively discussion in the country of the various problems connected with the formulation of the ensuing five-year plan. It may require the Draft Fourth Plan itself to produce such a lively discussion.

The approach as adumbrated in the approach paper is not strikingly original. It was probably not intended to be. Over a wide area the approach paper is not dissimilar to the approach of previous plans and a certain continuity in the process and methods of planning has been maintained. This may not be a merit in itself, but in the absence of a workable alternative, such continuity becomes a merit. It is also an implied tribute to some of the thinking that went into the previous plans. In certain areas such as the operation of a mixed economy, bringing the prosperous peasantry into the main stream of the development process, and measures to stimulate the energies of entrepreneurs over a wider area of enterprise, the approach paper has a distinct, though brief, contri-

bution to make.

The most significant feature of the paper is the attention it tries to focus on the contribution that 'middle' entrepreneurs—both urban and rural—can make to the gross national product. This emphasis is of course not proletarian but 'petty bourgeois'. It can have no appeal to one section of Marxist opinion which sees in it no addition to the proletariat that can be used as an explosive factor. It adds to the number of people who own and man their enterprises with a relatively small number of hands to assist. These constitute a stabilising factor in a democracy. It is necessary that they should play their part in the economy's modernisation and not be a drag on it. For this they must be brought under the discipline of technology, as in Japan.

In the urban sector a good deal has already been done to assist small-scale enterprise. Yet in the past ten years the area of potential small and medium enterprise has steadily extended. Its class is not yet fully drawn into the development process. The lag in this regard is more striking in the rural sector. The middle peasants are waiting with their surpluses and their energies, and some way has to be found to harness them to the wider task of rural development, as distinct from the more limited task of increasing agricultural production.

Basically, the approach of the approach paper is a class approach, with a difference. Unfortunately, it has not been conveyed as tellingly as it might have been. The paper's radicalism is implicit in some of its suggestions rather than explicit in its language. The ultimate test of any Indian manifesto or set of proposals is what it means in terms of social relationships to achieve economic development within a democratic, federal framework. In India such relationships are extremely complicated and no set of answers can be exhaustive. The approach paper suggests one set of answers.

Whether the Fourth Plan should be preoccupied with growth rates is a debatable point. The growth approach to economic development is itself undergoing change, both in free market economies and cen-

trally-planned economics. In the former, some have questioned whether growth of assets necessarily breeds growth in the firm. This becomes relevant to the Indian experience since one-third of the plan investment still takes place here in the private sector. This sector has matured so rapidly in recent years that its growth problems are not dissimilar to those of the large firm in advanced economies. The theory of stages of economic growth, made fashionable by Ros-tow, has also been questioned. Similarly, in centrally-planned economies the efficiency of centralised allocation of resources has been questioned. These economies which had destroyed the concept of the firm, with its own judgment or resource allocation, are re-examining their revolution in productive relationships. Most growth theories point to a polarisation of economic development in two directions—an industrial society largely organised on capitalistic lines or a totally socialised economy that leaves nothing to private capital, small, medium or big. For the sort of growthmanship that India is attempting there is perhaps no parallel at all in any one theory. The Draft Fourth Plan should examine how much of the intellectual frame of reference of Indian planning is still valid.

The central problem of growth, whatever be the nature or the framework of the economic plan, is the efficient use of capital. Indian planning has now reached a stage when the planners should be more preoccupied with tackling the problem of efficiency in the use of capital than with centralised allocation of resources or even with resource mobilisation. The priorities of the Fourth Plan are not different in material respects from those of earlier plans. Given this, and given a certain quantum of resources, as well as agreement on principles of its distribution, the work of allocation would be more or less automatic. But efficiency in the use of capital is not so automatic. There is no reason to believe that organised industry of the private sector has been conspicuously successful as compared with the public sector. There is considerable scope for improving the capital use of large private corporations. Their

less-than-efficient use of capital is partly attributable to Government policy itself. Liberal State assistance to industry, both rupees and foreign exchange, not to mention assistance through import policy for its maintenance needs, has made them less careful about the use of capital than they should be. This of course is even more true of the public sector.

The situation lends itself to the view that in Indian conditions of subsidised capital formation, there is a certain relationship between bigness and inefficiency in the use of capital. It is against this background that the case for the promotion of medium enterprises becomes strong, for it is in them that the entrepreneur's personal involvement in the use of capital is more intimate and hence there is legitimate expectation that it will be more efficiently used. On the other hand, it can also be argued that where already a fairly strong and diverse industrial base has been created, as in India, it would be a more efficient use of capital to employ more capital in existing productive units that are relatively efficient. Moreover, increasingly, there is an export angle to all productive effort. All these need to be more closely examined before any particular approach is decided upon.

Planning has to proceed in a certain political atmosphere. This atmosphere will be more real for the Fourth Plan than it was for earlier ones. What is said in the approach paper, especially in respect of development of the rural sector, suggests that the Fourth Plan will be more decentralised than earlier ones. This is perhaps as it should be. The role of the States in planning must be transformed from a rather passive one to an active one. Such transformation can take place only when the States, for so long conditioned to Central responsibility for providing funds as well as for the framework of the plan, are given a certain initiative in the development process. Such an initiative no doubt carries its own risks, especially in States not under the rule of the Congress Party. But it is a risk worth taking for at least those States which have no mental reservations about the approach to the Fourth Plan and its framework generally.

Growth Rate For Exports Is Feasible

H. D. SHOURIE

THE "Approach" furnishes an excellent basis for discussion on the possible rates of growth the country should attempt to reach during the five years beginning 1969. It indicates two feasible rates of growth, 5 per cent or 6 per cent per annum, depending on whether the Central and State Governments are willing to raise additional resources to the order of Rs. 200 crore or Rs. 300 crore annually. It emphasises the necessity of achieving self-reliance through progressive diminution of dependence on foreign aid. The Planning Commission envisages that foreign aid net of interest and loan repayment should be reduced by 50 per cent by the end of the Fourth Plan. The achievement of this objective is sought to be related to the pursuit of policies which will have the effect of cutting down imports to the bone and promoting exports in all possible ways.

I would limit my comments on this document only in relation to the targets of exports. The thesis put forward by the Planning Commission is that the Indian economy is capable of annual growth of 5 to 6 per cent and that this rate of growth is possible of achievement on the basis of reduced foreign help. The possibility of 6 per cent rate of increase of national income with reduced foreign aid is linked up with a minimum of 7 per cent rise in exports per annum. In other words, unless the country succeeds in raising exports at the rate of 7 per cent per annum, there cannot be any progress in the direction of self-reliance.

Let us examine whether a 7 per cent annual rise in exports is feasible. In adjudging the feasibility of this target, it is inescapable that one should take a look at the past performance in the field of exports. The years 1965-66 and 1966-67 were abnormal years which witnessed the worst droughts in the country. The bulk of our exports being based on agricultural products, there was inevitably a

severe decline in exports during these years. However, it can be open to doubt whether even on the basis of performance of exports in the best years from 1959 to 1965, the assumption of 7 per cent annual increase in exports would be justifiable. The average which has been the highest for these years, works out at 4.5 per cent rate of annual growth. The performance of exports for 11 months of 1967-68, estimated at Rs 1100 crore, constitutes a basis for some little optimism. The exports have grown at the rate of 5 per cent this year. On the basis of these facts it is obvious that it would take an enormous effort to attain the increase of even 6 per cent during 1968-69. It would, therefore, strain to the maximum the capacity and resources of the country and its export effort to attain an annual increase of 7 per cent, and it would indeed be nothing short of a miracle if this could come about in the next couple of years.

The attainment of 7 per cent increase in India's exports will involve a radical rise in the volume and value of our exports, both traditional and non-traditional. For years to come, the agro-based products will still continue to account for the bulk of our exchange earnings. The biggest constraint on the expansion of agricultural exports is the lack of availability of surpluses in a number of commodities. Some obvious examples of insufficient export surpluses include tea, oil-seeds, oil-cakes, cashew-nuts, sugar, etc. Increase in the quantum of exports of such items will depend on an immediate and sustained increase in their production. One can only hope that this year's production in Indian agriculture signifies a break-through which will be sustained in the coming years, and if this progress is maintained, the exports of agro-based commodities will undoubtedly be able to show substantial expansion.

The exports of agricultural commodities, however, represent a

declining sector in the world trade. The world export trade is expanding at the fastest rate in the manufactured goods. Only a massive increase in the exports of manufactures and semi-manufactures will help to boost India's exchange earnings in the long run.

It is indisputable that increases can be brought about in the volume of almost all the non-traditional items. In this context, the selective approach to the promotion of non-traditional exports favoured by the Planning Commission deserves special consideration. As an example, the country has exported a little over Rs 41 crore worth of engineering goods during 1967-68. This is a satisfactory achievement. In the exports of iron and steel, likewise, we are making satisfactory headway, and during the years 1968-69 the exports of these items are expected to exceed Rs 50 crore. In other non-traditional fields, including iron ore, cement, paper, chemicals, drugs and pharmaceuticals, plastics and synthetic products, etc., there will be distinct possibility of achieving substantial expansion of exports.

The possibilities of bringing about substantial increase in exports undoubtedly exists. The exploitation of this potential will necessitate greater dynamism to be brought into the export field, both at the level of the government as well as the industry and trade, and prompt and effective measures will have to be taken for removing the impediments and bottlenecks wherever they exist. It is obviously necessary that the field of exports should receive the same priority treatment as is now being accorded to agriculture and industry. It is also necessary that measures should continue to be devised for throwing up surpluses which should be available for export. It would become necessary to utilise measures for restraining consumption wherever necessary. Long-term trade agreements would need to be entered into for enhancing the exports. Facilities would need to be made available to the trade and industry for larger export credits on easier terms.

The area of export promotion is very wide and it will require the sustained initiative and effort of the

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"In a developing society, institutions of technological education have no justification to exist if they do not directly and substantially contribute to productivity. Does the technological education in our country fulfil this condition?" asks Dr Pylee in this article. He suggests certain measures to forge an effective collaboration between education and industry.

Linking Education with Productivity

M. V. PYLEE

IN a developing society like that of India where competing claims are made on the scarce resources of the country, huge expenditure on education can be justified only if it is related to productivity. Expansion of education should lead to an increase in national income which should, in turn, facilitate larger investment in education. Education and productivity should thus play a mutually supporting and sustaining role and accelerate the tempo of development.

If education is thus interlinked with productivity, technological education hardly needs any special emphasis. In a developing society institutions of technological education have no justification to exist, if they do not directly and substantially contribute to productivity. Does the technological education in our country fulfil this condition? May be to some extent; but certainly not to the measure desired or required.

Of the several reasons which can be advanced to explain the situation, the most important seems to be the cleavage between the world of study and the world of work that still exists in our society. A conspicuous character of our education, including technical education, which continues to hold its sway, is the "babu-mentality" of the student who looks down upon work, particularly manual work. This was understandable in the traditional society where education was gene-

rally the privilege of the upper classes and work was the burden of the lower classes. Work was looked down upon by the educated elite because of its drudgery and the primitive techniques of production, because it did not require high intellectual ability or special skills and also because it was low-paid and generally undignified.

The situation is entirely different in a modern society which has adopted science-based technology for its development. In a modern society the complex techniques of production require higher forms of education—general, technical and technological—as well as a higher level of intellectual ability. High talent is required to do research in technology and, even at lower levels, brain becomes more important than physical strength. As a result, the traditional resistance of educated persons to engage themselves in productive work tends to disappear. Work in an industry becomes more remunerative and hence ceases to be looked down upon socially. The educated person thus becomes an important agent of production and productivity.

This process, which has already started in our country since we embarked on a programme of rapid industrialisation, needs to be strengthened and accelerated and, there-

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fore, the inclusion of work-experience as an integral part of our technological education, indeed of all education, acquires an urgent significance. It is in this context that collaboration between industry and technological institutions assumes special importance as it would facilitate the most pragmatic and effective provision for the realisation of our objective.

It is a common sight in industrial establishments that newly appointed young technologists are subjected to varying periods of training before they are entrusted with any responsibility. Industrial executives often consider them as "raw products." This results in a great deal of waste which can be avoided if there is proper collaboration between industry and institutions of technological education. To make technological education serve our developmental needs, it has to become truly industry-oriented.

Collaboration between industry and educational institutions is possible only when both the parties are convinced of the need for collaboration and of its beneficial results. The parties must also be prepared to give every collaboration effort an honest trial so that it can succeed. Much of what happens today under the name of collaboration, wherever it exists and whatever its nature, is mostly on paper rather than actual work in the field. On the part of the industry it calls for spending a

part of their resources, opening their portals for outsiders to investigate and study, sending their key personnel for additional work outside and, above all, creating an atmosphere conducive to academic pursuits within their factories, laboratories and administrative offices.

On the part of teachers it calls for a new outlook, to come down from their ivory-towers and take troubles to visit industrial establishments, take up projects of study which involves establishing contacts with men in industry and bringing practical problems of industry to class-rooms and laboratories. The teacher must fully accept the fact that industrial problems of an era of rapid technological change can be mastered only with close collaboration with those who work in industry and with such mastery alone he can continue to discharge his functions effectively.

INDUSTRY PARTICIPATION IN TEACHING

Collaboration between industry and educational institutions may take many forms. One of them is the participation by industry in the teaching process. It begins with the determination of objectives of the different programmes or courses of study, prescription of the curricular and other requirements and the preparation of the curriculum and course materials. Industry should offer services of some of its senior men for a period of one or two years, either on a full-time or a part-time basis. This type of collaboration is a common feature in the advanced countries, particularly in the United States and Canada. The arrangement is mutually beneficial as the person so deputed brings with him new knowledge and a fresh outlook when he returns to the parent institution.

To facilitate such arrangements, many of the archaic rules which regulate the appointment of teachers at present in most of our educational institutions will have to be modified. Educational institutions should also invite leading industrial managers to give special courses of lectures on specific subjects. This is an assignment which even a busy executive may be tempted to undertake as it poses a challenge to his abilities and experience.

TRAINING IN INDUSTRIES

Providing facilities for training in the industries is another form of collaboration. Any amount of theoretical knowledge will not make a student of technology capable of taking up his profession with confidence unless he has practical experience of work. The theory must be tested against existing practices. Properly planned and effectively executed field work for reasonably long periods alone can ensure rich dividends from technological education.

What is going on today in the name of practical training with industries, wherever it exists, is a mockery of the very idea. The student spends a few days holidaying in the premises of the factories as a ritual. Often, instead of getting any insight into the practical problems of his chosen field, he comes away with all sorts of funny ideas and misconceptions of the industry and its working. Mostly the educational institution and partly the industry are responsible for this state of affairs.

Practical training to be effective should be of reasonably long duration. Since an engineering degree course lasts for at least four years, the student must work during the three summer vacations. Further, practical training for a period of three to six months should be made compulsory at the end of the course. During these periods the student should be attached to an industry to work like any employee of the concern with specific assignments and under strict discipline and guidance. The industry concerned should supervise the student's work under a programme chalked out in advance in consultation with the educational institution. The performance of the student should be evaluated on a periodical basis and regularly reported. A senior member of the faculty should work as liaison with the industry to facilitate the successful execution of the programme.

In many advanced countries such students are not only given specific assignments but are also paid a regular salary or a handsome allowance during the period of work with the industry. A small amount of finance set apart for such a programme by our industries would

go a long way to get the best out of the project.

No survey or study is required to assert that the bulk of the teachers in technological institutions in our country have no intimate knowledge, leave alone practical experience, of present day problems confronting our industry. Because of the lack of intimate contacts with industries they do not get an opportunity even indirectly to familiarise themselves with such problems.

TRAINING OF TEACHERS

The teacher himself has thus to be equipped to meet the challenge of his profession and industry alone can help in this task. Industry should provide the opportunity and necessary facilities to teachers. One way of doing this is to supply relevant material to those who are engaged in research and to assist them in every possible manner to conduct their investigations satisfactorily. Many industries are reluctant to extend these facilities. In fact, most of them look upon such research workers as a nuisance. It should be remembered that every successful research scholar is a potential teacher.

Another way is to give interested teachers full-time assignments in industry for periods varying from one to three years. Wherever possible, this may be done on an exchange basis between the industry and the educational institution, although this is a formidable problem under our present system of rigid organisational constraints. If this is not practicable, industry should at least show its willingness to accept a teacher for a specified period if the educational institution requests for such an assignment with a view to developing the professional competence of the teacher. On its part, the educational institution should provide for additional teaching hands to make the arrangement a regular and continuous feature in the process of building up a competent faculty.

Teachers and technical men from industry can also be encouraged to work in collaboration on problems of common interest. Specific problems may be assigned for such collaboration which will prove stimulating and rewarding

for both the parties. This method has been very usefully adopted in the U.S.A. and the Soviet Union.

RESEARCH AND CONSULTANCY

The practice of industry entrusting educational institutions with research assignments is little known in our country. This again is basically a result of the existing relationship between them. On the one hand, industry has no confidence in the ability of the educational institutions to deliver the goods. The educational institutions, on the other, have yet to demonstrate their interest and competence to deal with practical problems which confront the industry. Our Governments, both at the Centre and in the States, have contributed to this deplorable situation. It may be of interest in this context that the United States Government spends billions of dollars every year to finance research projects entrusted to universities and other higher educational institutions.

Consultancy as a profession is

still in its infancy in India. Although the big cities like Bombay, Calcutta and Delhi have a few well established consultancy firms, their impact on industry as a whole is yet negligible. Consultancy has so far no place in our educational institutions. If a problem which an industrial concern wants to investigate is entrusted to a technological institute, the institute can handle it by pooling its expertise, and as the institution gains experience it can create suitable machinery for handling the consultancy work.

A beginning is called for in this new area. The initiative should come from the industry and the educational institutions should accept the challenge. In due course, the consultancy work will improve immensely the quality of both teaching and research.

There are several other possible forms of collaboration for mutual benefit between industry and technological institutions, such as organising seminars, conferences and group studies, in which both parties can profitably participate. At present conferences are organised on an

annual basis by industrial undertakings as well as educational institutions which provide a common platform for the industrialist and the educationist. Such conferences are also held from time to time on an *ad hoc* basis. But yet they are too few to make an impact on a vast country like India.

There is also a great scope for group studies of special problems which affect industry such as water pollution, air-pollution, transportation problems and industrial housing. Such group studies can ensure a fusion of theory with practice for the benefit of those who teach as well as those who run industries.

As a developing society, we are today faced with many challenges. But the greatest of them all is the challenge to change—to change our old habits and methods and adopt new ones which would facilitate rapid development. In this context there is great need for better collaboration between industry and educational institutions in the technological field.

FARAKKA BARRAGE PROJECT

Superintending Engineer, Design Circle, Farakka Barrage Project, P.O. Farakka Barrage, Dist. Murshidabad (West Bengal), on behalf of President of India invites sealed tender from bonafide and resourceful contractors upto 3.30 p.m. on 28.6.68 for construction of a R.C. Regulator across river Bhagirathi on the left afflux Bund of the Farakka Barrage. Estimated cost Rs. 44.46 lakhs. Time for completion 16 months. Tenders will be opened on 28.6.68 at 4 p.m. in the presence of attending tenderers. Earnest money Rs. 20,000/- should be deposited in Treasury Challans or Bank Draft and sent with the tenders. Tender forms, specifications, conditions of contract drawings etc. can be had from the office of the Executive Engineer, Design Division No. 2, Farakka Barrage Project, @ Rs. 100/- in cash between 11 a.m. and 3 p.m. on working days from 1.6.68 to 24.6.68 on production of the following documents and to the satisfaction of the issuing authority. a) Income Tax and Sales Tax Clearance Certificate. b) Statement of works done previously and works in hand. c) List of equipments in possession.

davp-580(8)/68

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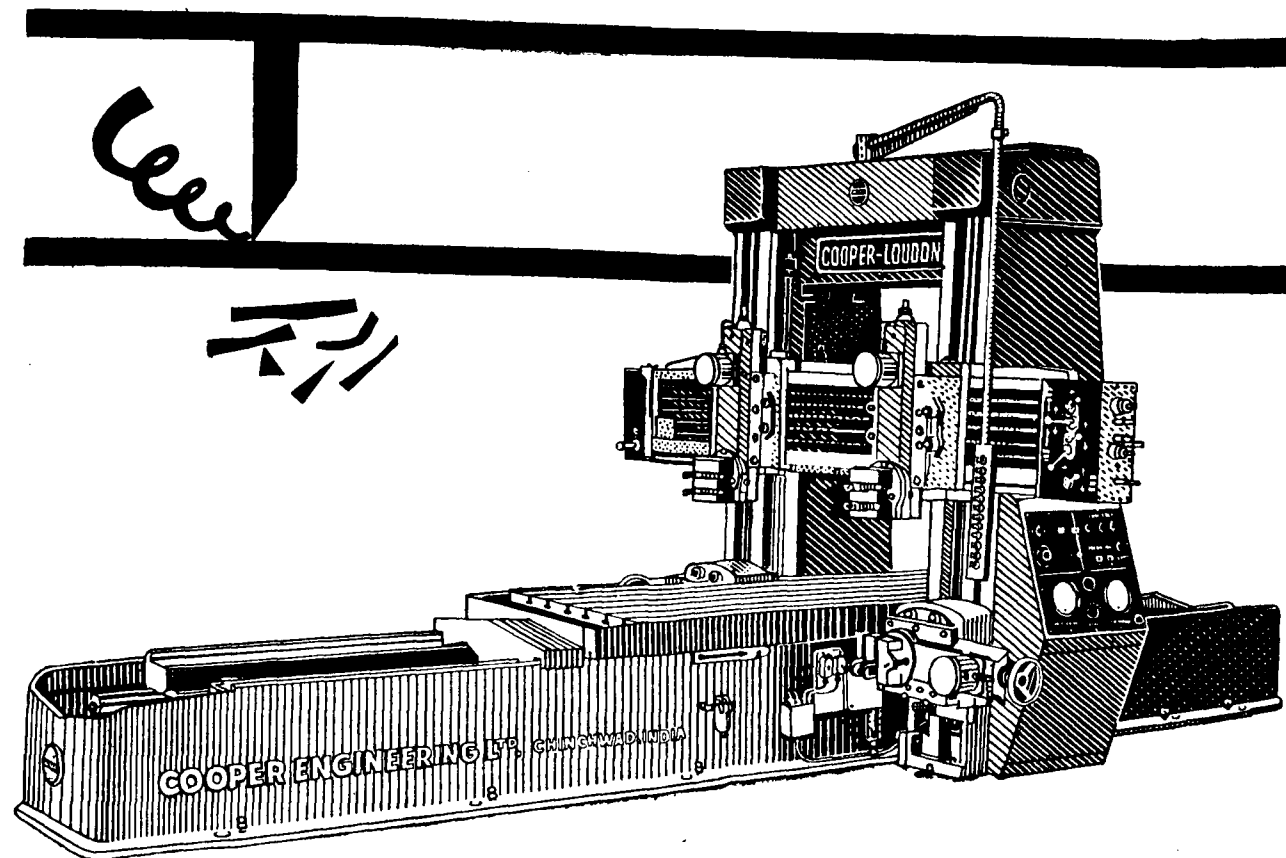
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Side Track

LAND FROM THE SEA

DURING her recent visit to Singapore, Prime Minister Indira Gandhi saw some of the massive building effort going on to house the growing population of this Island City-State. The shortage of land to build upon is particularly acute in Singapore, isolated at the tip of the Malay peninsula, where there is no "hinterland" into which it can expand.

The government has, therefore, undertaken a remarkable programme designed to win land from the sea. The broken, hilly regions of the coastal strip are being levelled off and the resulting masses of earth are being dumped into the sea directly along the water's edge. The hilly region on the edge of the city is being transformed into possible building land and new land is being reclaimed along the coast.

Since 1964 lorries have been carrying earth in the Toa Payoh suburb, making about 1,000 trips a day. Some 3 million cubic metres of earth will have been moved and dumped in the sea by 1969.

The next, and considerably larger, project to be started was the Bedok reclamation scheme to the east of the city. Here conveyor belt equipment and bucketwheel excavators are being employed and will make it possible to move seven times as much earth within 3-4 years. Altogether more than 20 million cubic metres are to be removed, transported up to 9 km away and dipped into the sea. As a result of this vast scheme 4 million square metres of coastal building land will be reclaimed and a further 1.2 million square metres will be levelled as the hills are removed.

There are four bucketwheel excavators at present in operation, each of which digs out 500 cubic metres per hour. Each 175-tonne machine works continuously and is controlled by one man. The earth to be removed consists of about 70 per cent of sharp-edged quartz rock

with the intervening spaces filled with clay. Because of this extremely hard formation it has proved necessary to have excavator teeth made of specially toughened steel.

The conveyor belt system is about 10 km long. Essentially the dismantling begins in the farthest inland regions and proceeds in the direction of the sea. Conveyor units are removed from the hilly side, which becomes shorter, and added on the dumping side, which grows steadily longer. The excavated earth is dropped into the sea by a massive machine with an hourly capacity of 4,500 tonnes. This machine is mounted on broad caterpillar tracks and, fed by the conveyor system, proceeds up and down the newly laid coastal strip, dumping and spreading earth in the water, creating a new strip as it goes.

The 600 metre-wide reclamation area extends along 9 km of the coast. The height from the sea-bed to the proposed level of the new land in general does not exceed 5m. Wind and current conditions are so favourable that earth tipped into the open sea is not washed away, and there is adequate time to complete dumping and spreading operation before it is necessary to erect protecting structures. The layers are compressed and bedded down for subsequent building by vibrator rubber rollers which follow immediately behind the dumper.

Poverty in Affluence

POVERTY, it has been said, is invisible; but it does not mean the same thing everywhere. Indeed, it has many hues. It is not the same in affluent America as it is in India or any other developing country, where it is easily distinguishable by outward evidence of want. Poverty in the American context is both physical and psychological. As far as its physical manifestations are concerned, it is not visible in the same way as in other parts of the world. Paradoxical as it may appear, even in the "poorest" American communities, 37 per cent of the families own washing machines, 48 per cent drive their



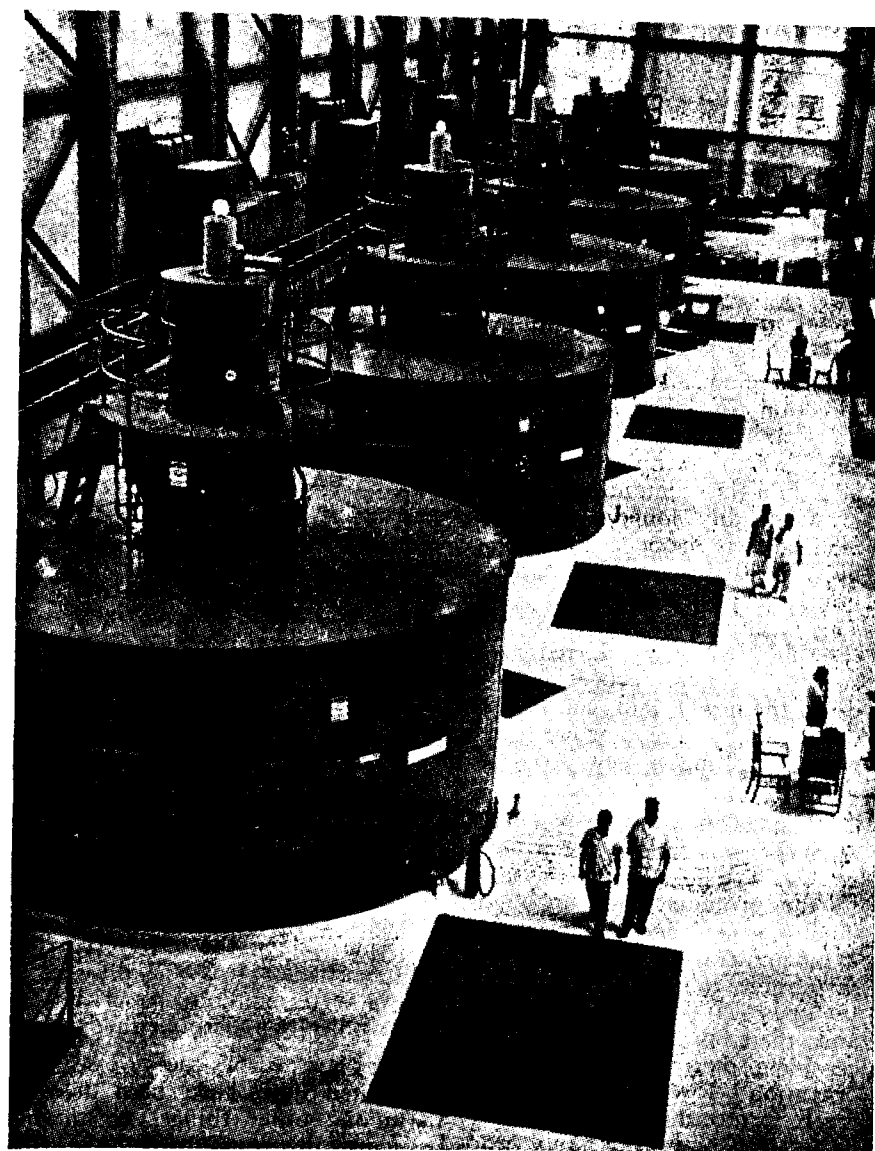
IGNORAMAN

Wants to Know

Who is Privy
to the abolition of
Privy Purses

own cars and 52 per cent have TV sets. And yet, by U.S. standards, these 30 million Americans are living below the "poverty line". Nevertheless, it is officially estimated that 10 million Americans are chronically undernourished.

The recent race riots in the United States have been attributed among other things, to the poor economic condition of the Negro population. This is not quite correct. Of the 15 per cent of the U.S. population that are poor, only five per cent are Negroes, and the rest are white. Poverty is nationwide in its distribution, and no region has a monopoly; but most of the American poor live in the 16 Southern and border States. Inadequate nutrition accounts for "organic brain damage, retarded growth and learning rates, increased vulnerability to disease, withdrawal apathy, alienation, frustration and violence". This sounds incredible in connection with a fabulously rich country like the United States which can boast of 60 million motor cars, and 70 million TV sets. Yet it is true that in the midst of this unparalleled abundance, nearly 30 million citizens of the world's richest nation live a life of grinding deprivation.



Generators at the Sharavati power house

20 YEARS OF POWER

H.N. BALIGA

and

H.B. RAO

Electricity is the modern man's "genie", that has transformed our lives.

Its impact in India has been slow; but it is expanding rapidly since Independence.

Today, the magic light that dispels darkness, powers industry and helps agricultural development has invaded even the remotest village.

The process of expansion is going on, and it will be continued until it reaches every home.

In the early decades of the present century, electricity was considered a luxury in India which was largely associated with lighting and such other amenities which people in the low income group could hardly afford. As a result, the growth of electricity services was extremely low. The industry received impetus after the Second World War.

Immediately after partition of the country in 1947, the installed generating capacity in the country was 1.4 million kw. in the public utilities. In addition, certain industrial establishments had their own power plants, their total capacity being about 0.3 million kw.

In the next three years, various State Governments took up programmes of power development, and

by March 1951 the total installed capacity increased to 2.3 million kw. Besides, a number of power projects were under implementation.

Before independence the supply of power was, by and large, a private enterprise. The power plants were confined to large cities, industrial centres and capitals of princely States. Most of the private electric companies were set up under licences issued under the Indian Electricity Act, 1910. In the United Provinces, Madras and Punjab, the Provincial Governments had set up small hydro-electric stations and had laid transmission lines for feeding important cities and towns. Except for such stray instances, the Government in the country did not evince interest in power development and confined its activities to passing regulatory and control measures.

FIRST STEP

With the fast growing requirements of the economy, it became necessary to integrate power development with development in other sectors in a rational manner. The programme also needed to be

systematically planned and carefully coordinated to ensure satisfactory and speedy results. In view of this need for the organisation and development of power supply in a planned way, the Electricity (Supply) Act 1948 was passed by Parliament.

The Preamble to the Act pointed out the importance of coordinated development of electricity on a regional basis, and the need to extend power supply facilities to the semi-urban and rural areas. The Act laid down detailed procedures for achieving these objectives, for controlling the operations of the existing licensees and formulation of grid tariffs and tariff policies. It directed the States to constitute State Electricity Boards.

Accordingly all the States, except Jammu and Kashmir, have set up Electricity Boards which are generally responsible for power development in the respective States. However, in some States, the Government itself has undertaken the construction of major power stations. The Industrial Policy

Resolution of the Government of India placed the generation and distribution of electricity in Schedule 'A', that is the category of industries, the future development of which would be the exclusive responsibility of the respective States.

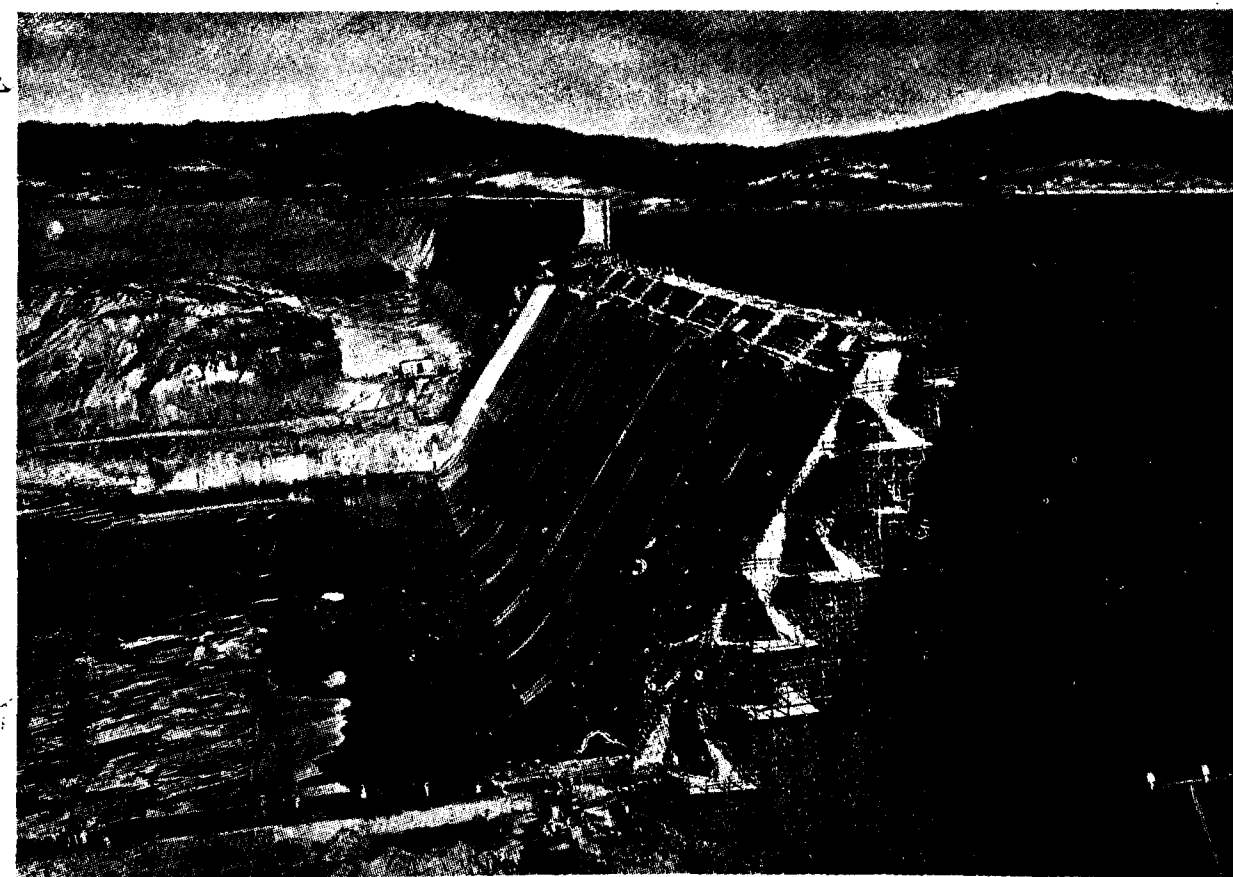
Then began the planning era in 1951. The Planning Commission sets down quinquennial targets for power development as for the other sectors. These have to fit into the framework of the coordinated and balanced development of the economy. The three Plans aimed at sizeable increase in power capacity. The priority given to power development in the Plans is evident from the following table:

GROWTH IN INSTALLED CAPACITY AND GENERATION (1946-66)

Period	At the end of the period	Per cent growth during the period
Installed capacity (million kw)		
1946-51	2.3	39.4
First Plan	3.42	48.7
Second Plan	5.65	65.2
Third Plan	10.17	80.0

turn to PAGE 18

One of the big dams that help the generation of power in the country



From Darkness To Light

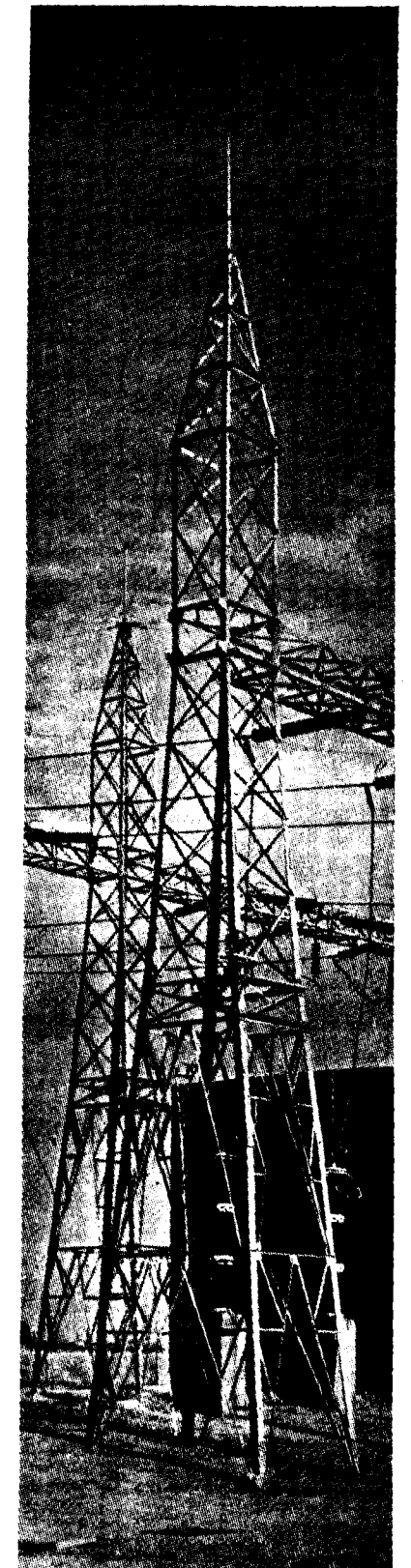
Electricity has invaded Indian homes—in cities and in hamlets—in a really big way. It is playing a dominant role in agriculture and in industry, thereby contributing to national prosperity.



Above : Water gushing out from a tube-well operated by electricity to irrigate a farm somewhere in Mysore State.

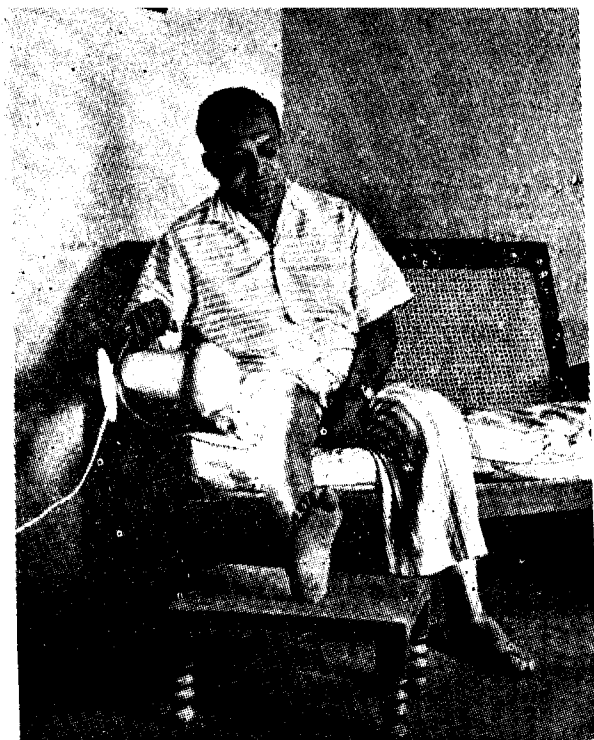
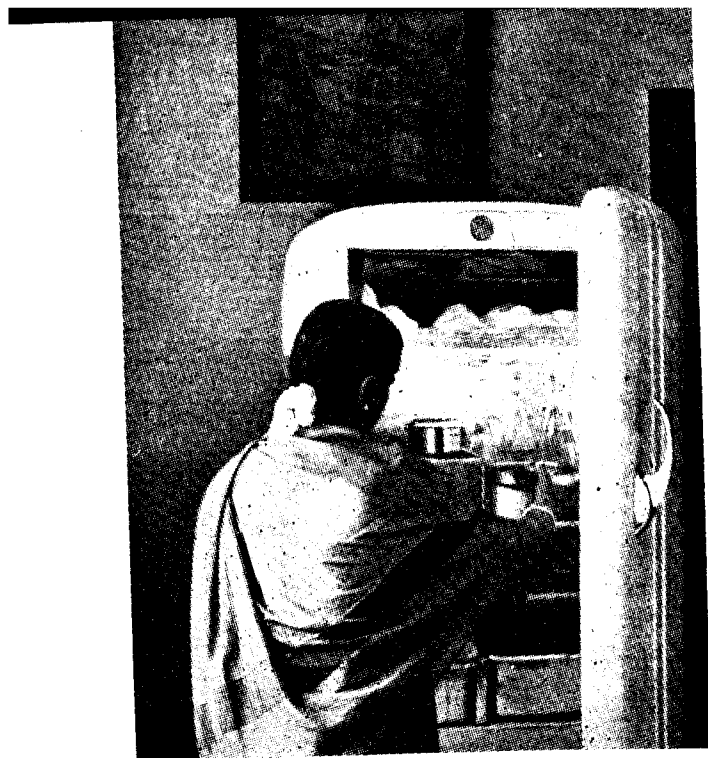
Right : Gleaming pylons carrying wires charged with the electricity are a familiar landmark in the countryside.

MORE PICTURES OVERLEAF

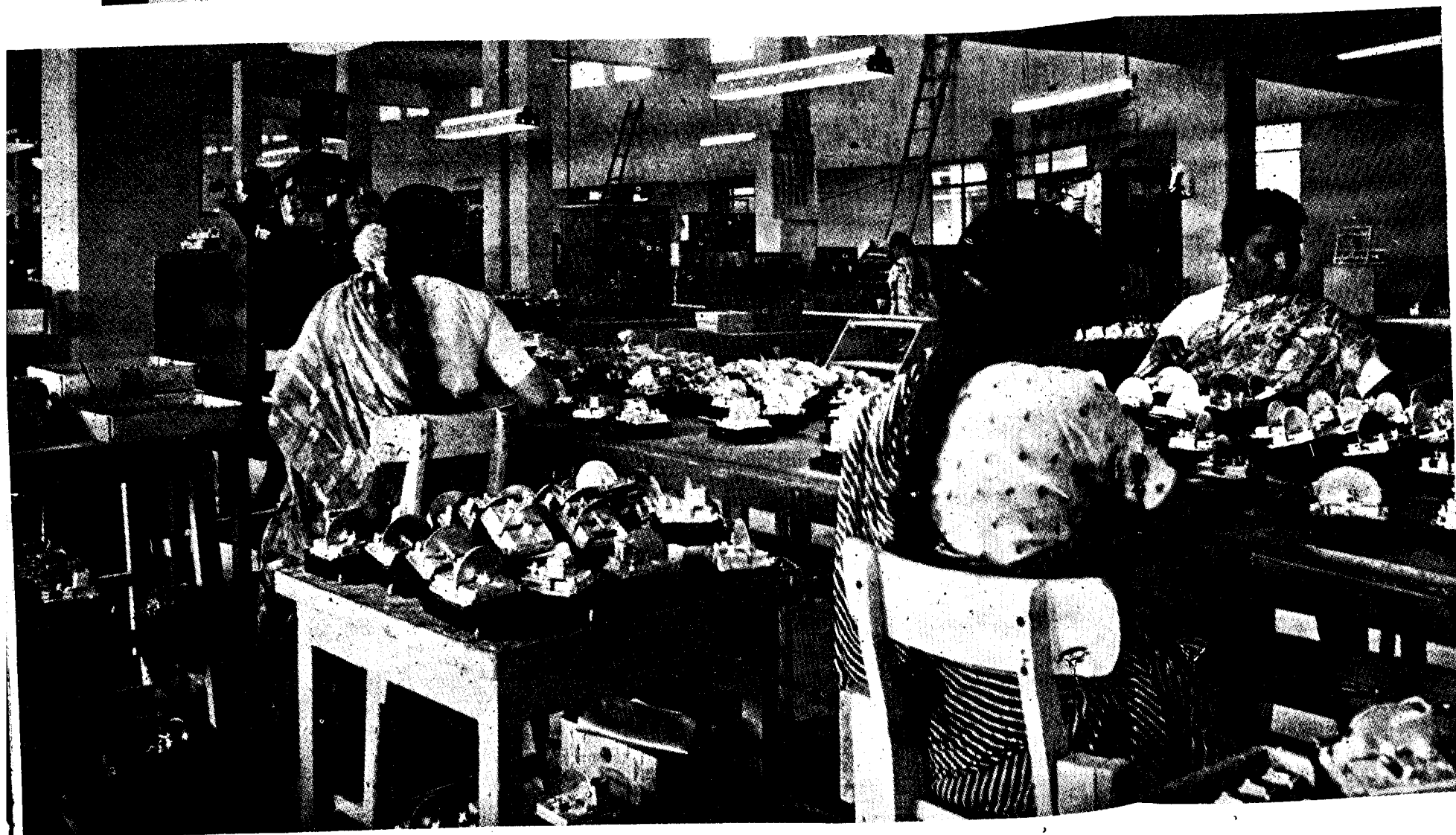


In a country like India, where a vast majority of people live in villages, rural electrification is of particular significance. The villager, who has learnt to depend only on his hands and limbs and who cannot undertake anything which is beyond the capacity of his sinews, will find a great help in electricity.

Dr. Rajendra Prasad



With the development of electricity many modern conveniences in the home are readily available. A housewife keeping cooked food in her refrigerator (extreme left); and a patient of gout taking infra-red treatment at home (left). Small-scale industry has also benefited from electricity. A one-man enterprise working an electrically operated machine (right). Women, who have found employment in factories manufacturing electrical goods, engaged in delicate assembly work (left).



Generation		
1946-51	6575	31.5
First Plan	10777	64.0
Second Plan	20123	86.7
Third Plan	36500	81.5

The growth in the installed capacity on ownership basis as well as by type of plant since 1947 is given below:

INSTALLED CAPACITY BY OWNERSHIP (MILLION KW)						
	1947	1950	1955	1960-61	1965-66	1966-67
State owned	0.50	0.63	1.52	3.35	7.30	8.57
Company owned	0.86	1.08	1.18	1.36	1.65	1.65
Industrial establishments	0.35	0.59	0.72	0.94	1.22	1.22
Total	1.71	2.30	3.42	5.65	10.17	11.44

INSTALLED CAPACITY BY TYPE OF PLANT (MILLION KW)						
	1947	1950	1955	1960-61	1965-66	1966-67
Hydro	0.51	0.56	0.94	1.92	4.14	4.81
Steam	0.75	1.59	2.27	3.43	5.61	6.21
Oil	0.44	0.15	0.21	0.30	0.42	0.42
Total	1.70	2.30	3.42	5.65	10.17	11.44

The marked growth in installed capacity also changed the pattern of distribution and generation among the utilities. The State-owned utilities, which accounted for about 29.4 per cent of the total capacity in 1947, increased to 75 per cent of the total capacity at the end of 1966-67.

The per capita consumption of power, which was only 17.8 kwhr per annum in 1951 increased to 61 kwhr per annum during the three Plan periods. The investment in the power development programme during the three Plans is given in the table below:

INVESTMENT IN ELECTRICITY UNDERTAKINGS (Rs. crore)				
	March 1951	First Plan	Second Plan	Third Plan
State-owned	75	260	460	1301
Company-owned	75	32	37	72
Industrial establishments	40	10	28	10
Total	190	302	525	1383

LATEST TECHNOLOGY

Every effort has been made to adopt the latest advances in technology in power supply, and to effect economy in power projects. There has been a general trend to concentrate power generation in a few large power stations with capacities above one million kw each. The installation of large steam turbo-alternator units and the adoption of higher pressures and temperatures has led to sizeable reduction in the capital cost of power stations and to increase in the thermal efficiency. The Third Plan provided for a large additions in thermal capacity by using turbo-alternators of 50 to 140

MW most of which are now in operation.

With the increase in the size of turbo-alternators, the average operational efficiency is expected to go up, resulting in appreciable savings in coal consumption. The rate of consumption of coal in the

thermal stations came down from 0.94 kilogramme per kwh in 1947 to 0.72 kilogramme per kwh in 1965-66. The output of coal middlings at the washeries in West Bengal and Bihar region is linked with the new thermal stations planned or under construction in the vicinity of these washeries. The boilers for these power stations are being designed to burn coal to the maximum.

The earlier tendency to locate coal-fired power stations near the consuming centres is now gradually yielding place to the policy of locating them near pit-heads and washeries and transmitting the power to the towns and villages in the radius of 320 kilometres. The highest voltage currently in use in the country is 230 kv. Because of the long distances to be covered and the economics of establishing a few large favourably located plants, the adoption of higher voltage of transmission (400 kv) has become imminent and a few schemes of this voltage have been planned.

In recent years, gas turbines are being developed. Some gas turbines of 10 mw capacity have already been installed at a few places. Natural gas has also been used, for the first time in the country, at Naharkatia power station in Assam. A few more gas units will be installed in Gujarat.

The hydro-electric potential of India is estimated to be 41 million kw, of which about 10 per cent had been developed by the end of the Third Plan. Special emphasis is being given on intensive investigations for hydro-electric schemes.

Investigations are under way at 62 sites with a potential of 12 million kw.

NUCLEAR POWER

India has also launched a programme of nuclear power stations. The programme is to be carried out in three stages. The first stage will utilise the natural uranium as fuel. In the second stage, reactors using plutonium and thorium will produce power and in the process convert part of the thorium into uranium-233. In the third stage, uranium-233 with thorium will be used in breeder reactors, so that while electricity is generated, more uranium-233 is produced than is burnt in the process. The cost of fuel in this stage is expected to be lower than in the first two stages. In view of the extensive resources of thorium in the country, the long term development of nuclear energy has to be oriented to the use of thorium.

As part of the first stage, two uranium-fuelled power stations are nearing completion—one at Tarapur in Maharashtra with a capacity of 380 mw, and the other at Rana Pratap Sagar in Rajasthan. The Tarapur station is expected to begin production this year and the Rana Pratap Sagar station in 1970-71. A proposal for the third atomic power station at Kalpakkam in Madras and the expansion of the Rana Pratap Sagar by adding 200 mw to the capacity have been accepted by the Government.

GRID SYSTEM

The power systems have been built by inter-connecting a number of stations into a grid. The adoption of extra high voltage transmission, load frequency control and telemetering, have helped to expand the power systems and operate power stations in an integrated manner. The power programmes in the three Plans had provided for the construction of certain inter-State lines, most of which have either been completed or are nearing completion. A significant development was the inter-connection of Rihand power system in Uttar Pradesh with the Bihar-DVC-West Bengal grid. Although the available surplus was only 20 mw continuous, the inter-connected and parallel operation of the two grids has enabled DVC to utilise 100 mw of

peaking power. This, as also the supply of 10 mw from Hirakud, has considerably eased the power scarcity in the area. Similarly, to overcome the power shortage in Andhra Pradesh, Madras and Kerala during 1965-66, arrangements were made for the supply of surplus power from Mysore to these three States. This supply exceeded 100 mw. Delhi has been drawing about 80 mw from the Bhakra-Nangal system in Punjab.

The country has been divided into five regions for the formation of grids. Regional Electricity Boards have been set up in all the five regions for ensuring an integrated operation of the constituent power systems.

The three Plans have given special attention to rural electrification as an effective instrument of rural development. The number of towns and villages served with electric power has been increasing from Plan to Plan. The progress of electrification during the three Plans is shown in the table below:

Towards the end of the Third Plan, the rural electrification programme was reoriented to electrifying motor driven pump sets for increasing agricultural production and 5,07,231 pump sets and tube wells had been electrified by the end of the Plan period. The draught in 1965-66 and 1966-67 necessitated the stepping up of the programme and in 1966-67 alone 1,42,931 pump sets were connected with special efforts. In Bihar more than 14,000 pump sets were electrified during the year, exceeding the total number of pump sets electrified during the previous fifteen years.

The country has also been building capacity to manufacture power plants and equipment. The Heavy Electricals Bhopal has been producing generators, transformers and other equipment in a wide range. The annual manufacturing capacity at the three public sector factories at Bhopal, Hardwar and Hyderabad is expected to reach 2.9 million kw of steam turbo-generators and 1.7 million kw of hydro-electric generators by 1971. Boilers required for the thermal plants will be manufactured in the public sector factory at Tiruchi and the private sector factory at Durgapur. Self-sufficiency in power plants is expected to



The Sabaragiri Power Project

Towns and villages with population of	By 1951	By 1956	By 1961	By 1966
Over 100,000	40	73	73	80
50,000 to 100,000	88	111	111	114
20,000 to 50,000	240	366	380	387
10,000 to 20,000	260	330	719	848
5,000 to 10,000	258	1200	1909	2780
Less than 5,000	2792	5300	21017	50607
Total	3687	7400	24209	54816

be attained by 1971.

Apart from generating units, the factories at Bhopal, Hardwar and Hyderabad will manufacture large power transformers, high tension switchgears, large motors and other equipment. There are several factories in the private sector which produce transformers up to 33 kv, switchgears upto 11 kv and motors upto 200 h.p. It is estimated that the capacity being created in the country to manufacture large power transformers of 60 kv and above, H.T. switchgears of 110 kv and above, motors above 200 h.p. and distribution transformers will meet the country's requirements.

Standardisation of designs for large thermal stations, EHV lines

and substations is one method of economising in the construction costs and maintenance expenditure. The Central Water and Power Commission is now occupied with this problem.

To render consultancy service to project authorities in preparing designs of specifications and layout of large thermal and hydro-electric stations, a specialised organisation has been set up in the C.W. and P.C.

For meeting the requirements of trained personnel for operating large thermal power stations, a training institute has already been established at Neyveli. Another such institute is to be set up at Durgapur.

DUNLOP EXPORTS REACH Rs. 2.27 CRORES

A New Record in Tyre Exports

Dunlop India's exports in 1967 reached a new record of Rs. 2.27 crores—an increase of 65% over the 1966 figure of Rs. 1.38 crores. This is the first time a tyre company in India has exceeded the Rs. 2-crore mark in export.

■ Dunlop India's exports represented 62% of the total exports of all tyre manufacturers in India.

■ In the highly competitive hard currency areas, Dunlop India's exports increased by 118%—to Rs. 1.63 crores.

■ Dunlop India exports to over 40 countries including the U.S.A., the U.K. and the U.S.S.R. The export drive has now been extended from automotive tyres, cycle tyres and rims to industrial products, and a market for transmission and vee belts has been opened in the Far East, and for hoses in the Middle East.

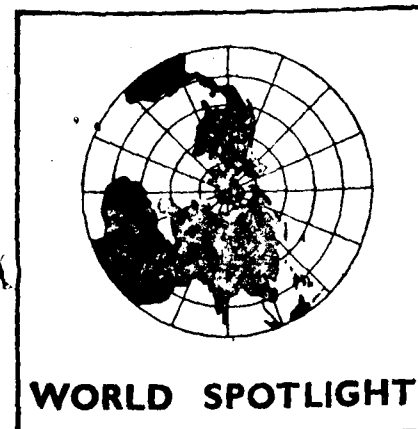


DUNLOP INDIA

—keeping pace with India's Export Drive

DPRC-34

YOJANA June 9, 1968 Page 20



It has been estimated that by 1980, the expenditure on primary education in Asia will be 4.3 U.S. dollars per child. The estimate, made in 1960, was based on certain assumptions regarding the rate of growth of population and the increase in the number of school-going children, to be covered under a scheme of universal and free primary education. Ceylon was already spending 3 dollars per capita on compulsory education, and the target of 4.3 U.S. dollars per capita did not appear to be on the high side. Besides, in many Latin American countries the annual cost per pupil at the primary level ranged between 15 and 90 dollars. The target was 20 dollars per pupil cost by 1980, but because the per capita income did not exceed 60 dollars in the Asian region, it was felt that foreign aid would be necessary for the development of primary education in Asia.

The Tokyo Conference widened the scope to all levels of education instead of confining its attention to the development of primary education. It did not specify the aggregate cost of educational development. Instead, it recommended that Asian countries should gradually move by stages to invest 4 to 5 per cent of the Gross National Product (GNP) on education provided their rate of growth as individual countries could afford it. By bringing in the proviso regarding the rate of growth of GNP, the Tokyo Conference focussed attention on the inter-dependence between the development of education and economic development of Asian countries.

The Asian Model for educational development, formulated at the

Economic Development and Education

A MODEL FOR ASIA

Ministers' Conference, held at Bangkok, also emphasised the inter-dependence between the development of education and economic growth. It divided the countries of Asia into three groups—*Group A* consisting of Afghanistan, Laos and Nepal, which are likely to achieve universal and free primary education of seven years duration beyond 1980; *Group B* consisting of Burma, Cambodia, India, Indonesia, Iran, Pakistan and Vietnam, which are likely to achieve universal primary education around 1980; and *Group C* consisting of Ceylon, Taiwan, Korea, Malaysia, Philippines, Singapore

rate of 5 per cent it would be 5.10 per cent; and for a GNP of 6 per cent, it would be 4.2 per cent.

The expenditure on education in the developing countries is included in the Social Services programme, which includes education, health and other social services. In almost all developing countries, the ratio of expenditure on social services to the total budgeted expenditure has been growing in recent years. This will be clear from the following table:—

C. B. PADMANABHAN

		per cent
Ceylon	1958	35.7
	1965	34.5
India (all the States put together)	1951-52	21
	1955-56	30
Mexico	1958	19.2
	1965	40
Venezuela	1960	27.6
	1966	33.6
Korea	1958	15.9
	1965	20.6
Philippines	1961	37.9
	1966	48.7
Thailand	1960	28.1
	1966	28.5

and Thailand which are likely to achieve universal primary education before 1980. The Asian Model accepted the ability to attain seven years' universal and free primary education as the criterion for grouping the countries in the Asian region and thereby emphasised the importance of the achievement of 100 per cent enrolment at the primary level. But, in regard to the development of other levels of education, the Asian Model envisaged a flexible development programme to suit the needs of individual countries, depending upon their national circumstances and the stage of economic development.

The expenditure to be incurred by 1980 is laid down on the basis of 4 per cent, 5 per cent or 6 per cent rate of growth of the Asian economies. Thus, if the GNP were to grow at 4 per cent, the expenditure on education in 1980 would be 6.18 per cent of the GNP; for a growth

At the same time, in Asian countries also, the expenditure on education, incurred by the public authorities has increased appreciably. The following table, which shows the expenditure in the base year at 100, makes this fact evident.

		per cent
India	1955	100
	1965	316
Pakistan	1957	100
	1963	339
Mexico	1960	100
	1964	240
Senegal	1961	100
	1964	149

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	per cent
Tanzania	1956 100
	1963 173
Tunisia	1959 100
	1964 275
Venezuela	1960 100
	1964 218

Looked at from a different angle, it will be seen that expenditure on education in relation to the public budget has also gone up in recent years. The figures for the various countries make this abundantly clear:

	per cent
India	1955 11.2
	1963 11.5
Ceylon	1955 15
	1963 15
Tanzania	1955 11.9
	1963 13.7
Iran	1955 20
	1963 20
Laos	1960 17
	1963 21.5
Malaysia	1955 8.4
	1963 16.8
Philippines	1955 25.6
	1963 26.9
Thailand	1955 22.2
	1963 17.6
Vietnam	1960 9
	1963 8.8
Argentina	1961 9.7
	1965 11.4
Mexico	1961 15.7
	1965 24.1
Pakistan	1961 6.5
	1964 10.6
Afghanistan	1955 6.3
	1963 10.5
Burma	1960 11
	1963 9
Cambodia	1955 12
	1963 18.9

The share of the public sector in educational finance in all the countries is not, however, the same. It is, therefore, necessary to consider the average annual rate of increase of public expenditure, which is shown in the table below. It shows the rate of increase in expenditure on education between 1954 and 1964. Of course, the growth of expenditure is at current prices and, therefore, the fall in the value of money has to be discounted while considering the growth of expenditure.

	per cent
Afghanistan	17.5
Burma	6.2
Cambodia	16
Ceylon	13.5
China	15.5
India	11.2

Iran	16
Laos	19
Malaysia	14
Nepal	22
Pakistan	17.5
Philippines	10.5
Thailand	8
Vietnam	20.5

The trend of expenditure on education as a percentage of the GNP has increased in all the developing countries, but it is smaller than in the developed countries.

	per cent
India	1955 1.7
	1965 2.9
Ceylon	1965 5.3
Korea	1965 4.1
Cambodia	1960 2.4
	1964 3.10
Mexico	1960 1.7
	1964 2.8
Senegal	1961 4.6
	1964 6.4
Venezuela	1960 3.1
	1964 4.8

Generally speaking, the rate of annual growth of expenditure on education has been twice or thrice the rate of growth of the economies of the developing countries. It would be ideal to have as a guideline a definite relationship between the rate of growth of an economy and the actual rate of growth of expenditure on education. However, it is not possible to think of this at present. In fact, certain studies have shown that the rate of growth of expenditure on education has got an inner dynamism of its own and it cannot be made to depend on the rate of growth of the economy alone.

The developing countries are spending a smaller percentage of GNP on education when compared with the developed countries. The size of the gross national product in the developing countries is smaller than that in the developed countries. Therefore, the actual expenditure on education is much smaller in the developing countries than in advanced countries. If the size of the gross national product is increased, the same percentage of GNP will mean a greater amount of expenditure on education than on the smaller gross national product. Thus, the developing countries have to aim not merely at a greater percentage of gross national product on education, but

increase the size of the gross national product itself. From this point of view it would sometimes be better to earmark a certain portion of the increased gross national product for education.

Secondly, the size of the public sector and the percentage of national income spent by the Government is important in achieving a targeted expenditure of a certain percentage of the gross national product. The same percentage of the gross national product on education can be obtained either with a small public sector, the bulk of it being spent on education, or with a big public sector and a small portion of it devoted to education. Therefore, when the expenditure on education is discussed as a percentage of GNP and as a percentage of public budget, it is necessary to take into account the size of the public sector itself.

REGIONAL DISPARITIES

A third consideration to be taken into account, while deciding on the percentage of GNP to be spent on education, is the extent of regional disparity of income within a country. In all Asian countries, and more especially in the larger ones, there are regional disparities in the levels of income. It will thus be inadvisable to aim at the same percentage of GNP as expenditure on education. In such cases, the yardstick will have to be the per capita expenditure on education. Thus in a country like India, in the last fifteen years, the expenditure on education has grown by nearly 13 per cent of the national income; but the per capita expenditure on education in different States varies from Rs 16 to Rs 4. Moreover, there are also variations in the per capita expenditure from district to district.

A fourth point to be considered is the per capita expenditure on education in relation to per capita investment. The development plans of all the countries provide for expenditure on education as part of the total investment in social services. The amount allocated to education will thus depend on the expenditure on social services as well as per capita investment. Therefore, what is necessary is not

only an increase in the allocation for education under the social services sector at the cost of investment, but an increase in both per capita investment and expenditure on education.

As GNP grows, expenditure on education is also bound to increase, because of an increase in the demand for education. Similarly, it is now widely accepted that educational expenditure will have to rise in order that GNP may rise. But it is not yet possible to say to what extent expenditure on education will have to grow so that there can be an increase in GNP. This is due to various reasons. A given amount of expenditure can imply a different structure and content of education. Besides, the same type of education, but with different amounts of capital and labour, can produce different rates of growth of the economies.

Professor Edding found a high correlation coefficient between per capita income and per capita expenditure on education and, therefore, concluded that the freedom for deciding on expenditure on education was more limited than was normally assumed. On the basis of this analysis educational efforts cannot exceed a certain relationship to national products. Recent reviews of expenditure on education have shown that expenditure on education has grown at a more rapid rate than the growth of national income. But the relationship between the growth of national income and educational expenditure can be changed and, in fact, has been changed by different methods of planning for education, methods adopted for financing education and the responsiveness of the tax system to the rise in income. The ratio of domestic revenue to gross national product shows great variation in the countries of the Asian region. In Afghanistan, it is only 8 per cent of GNP. While in Ceylon, China and Indonesia it is 20 to 25 per cent. Nor has the response of revenue to rise in income been quite high. In countries where the tax response to rise in income is not high, it is necessary to consider whether the educational system can mobilise more resources for itself which

other sectors will not be in a position to do.

The Asian Model, as has already been pointed out, has suggested three alternative percentages of GNP on education depending upon the rates of growth of the economies. This would give the impression that the growth of expenditure on education and growth of GNP are apparently unrelated to each other, which is, however, not the case. A certain amount of expenditure on education is indispensable for generating a certain rate of growth of GNP. When the problem is posed in this way it is no longer sufficient to specify the percentage of GNP to be devoted to education. It becomes equally

important to consider the distribution of expenditure on different levels and sectors of education. Problems of substituting education and physical capital, and the sectors in which this can be done, methods of imparting education in the formal educational system or outside and other complementary methods of improving human resources by better food will assume importance. For example, in countries like Sweden and Japan, primary education is said to have been a substitute of physical capital in the early stages of their economic development. In the same way in countries like India and in agriculture, primary education can be a complementary factor to other factors of production.

QUOTATION BOX

Well, a lot of politicians are in show business.

—Mr. Bob Hope (quoted in London Diary by James Cowley)

It is not customary for our State Governments to admit the occurrence of 'starvation deaths'; such deaths being usually attributed to their immediate cause—diarrhoea, or the like, instead of to their underlying cause—hunger.

—'Weekend Review'

The failure of discipline and intelligence is widespread, and not confined to railwaymen's duties. The difference is that, in this field, the failure results in disasters that must be splashed in headlines in the press, whereas in other fields people suffer quietly, having been now long used to it and believing it to be part of Swaraj.

—C.R. in 'Swarajya'

Indian languages do not even have a word for 'conscience' and democracy cannot work without conscience.

—Mr. Raja Rao

I like Delhi because it gives me time away from routine work.

—Mr. C.N. Annadurai

It is said that 'NEWS' stands for North, East, West and South. Actually, this is incorrect. The word means 'New things'—this is how the word was originally used and by no less a person than Shakespeare.

—'Indian Oil News'

The history of the English pub is the history of England.

—Mr. M.A. Pryor in 'The Times'

Chaos breeds further chaos and ultimately brings cosmos

—Pushpa Maya Das Gupta in 'The Radical Humanist'

According to John Lennon, the Beatles took up meditation because it seemed to be nice, like cleaning your teeth.

—A.P. Agency news item from New York

India's foreign policy is the antithesis of the Dale Carnegie's famous technique.

—Louella Lobo Prabhu in 'Swarajya'

Archaeologists are repairing damage to the temple of Zeus here (Athens) caused by the God's own favourite weapon—a thunder-bolt.

—A news report in 'Acropolis'

Mr. Morarji Desai, it seems, has dedicated his life to banish all the good things of life and laughter. He is also, it appears, dedicated to sermons and soda water.

—Mr. Yadav Shumsher in 'The Hindustan Times'

Japan is a complex country to visit at this time of her booming self-confidence.

—Mr. Chanchal Sarkar in 'The Hindustan Times'

A born satyagrahi was nearly allowed to be a dead satyagrahi

Mr. V. Achutha Menon in 'The Statesman'

Pragmatism which betrays ideals is bad enough; pragmatism which fails to get things done is simply ridiculous.

—'The New Statesman'

Ajeet for a New Life into the land

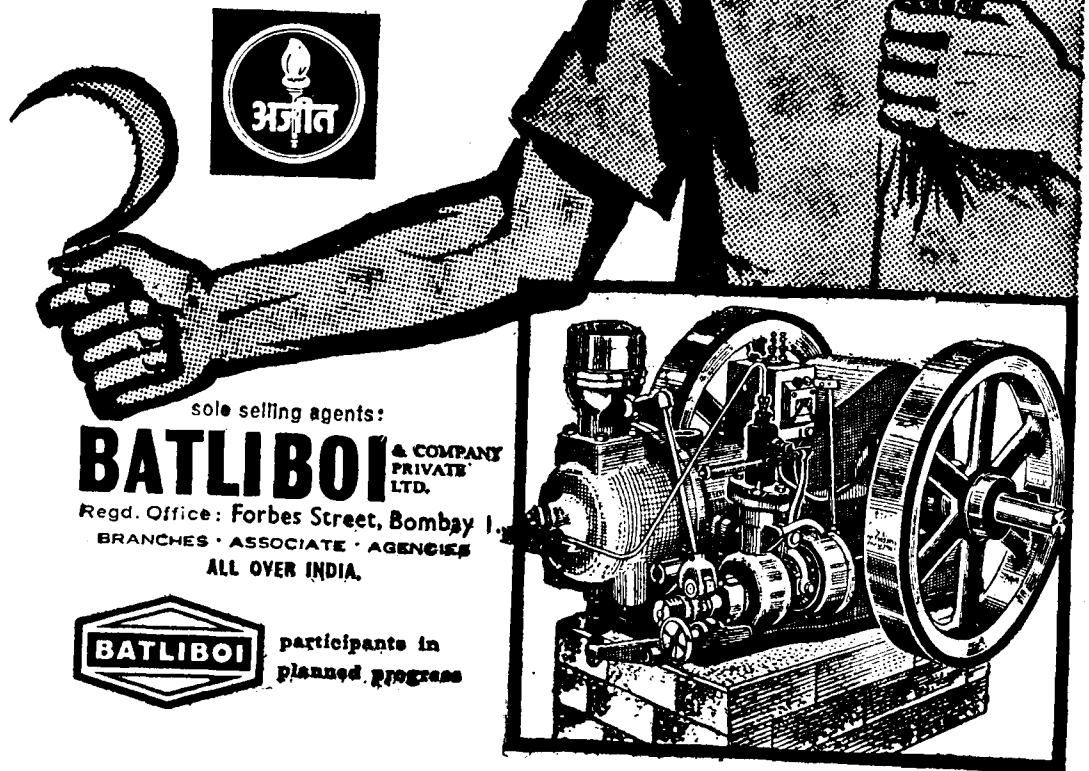
Kisan's heart is full with joy; as life-giving water goes coursing through the fields. The steady throb of 'Ajeet' is music to his ears.

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THIS INDIA

YOJANA invites contributions to this feature from its readers all over the country. Each anecdote must be true to life, of less than two hundred words, capturing something significant of India's rich and varied life. Each published anecdote will be paid for.

I still remember the widow, whom we called 'Pani-Wali-Mai' (mother who gave water). She must have lived there for the past fifteen to twenty years, perhaps even more.

My school was about three furlongs from my home. As the bell rang for the recess, we used to run out whistling, dancing and perspiring with our satchels on our heads to protect us from the scorching heat of the sun. And there was the widow sitting by the road, with four pitchers full of water. She would say in her trembling voice, "Putra Pani Peele. Bhara Thandha Hai" (Son, take water, it is very cool). Sometimes, mostly on full-moon nights, she used to add sugar to the water. Children used to collect around her, shouting and crying and drinking tumblers after tumblers of water.

I still vividly recollect the deep contentment peeping through her wrinkled and lustreless eyes, while children gulped the water from her pitchers.

For the rest of the day she used to beg.

Jammu *Bharat Bhushan Arora*

The other day I had to go to Tis Hazari Courts in Delhi. I was in hurry. No sooner did I move into the lawyers' booth than I met a young shoeshine boy.

Focusing his look at my shoes, the boy said, "Boot Polish, Sahab?" I said, no. "Sahab, they look dirty, they need polishing", he pleaded.

Ignoring him, I moved on. But he would not leave me. Coaxingly he said, "I will make them shine like mirror, you will remember my work, Sahab".

Annoyed, I bluntly told him that I would not give in to his entreaties, and passed over a few more booths when I heard him say, "Couldn't make a rupee, Sahab, though it is past two. My mother must be waiting for me: she will buy atta only after I get her money".

I observed his frail figure and weighed his words. Visibly moved I thrust a rupee into his palm.

For a while he was nonplussed. Then as if his whole manly self was attacked, he muttered, "I would prefer my mother did not buy atta to accepting alms," and gave back the rupee note to me.

I got my shoes cream-polished for the rupee.

New Delhi *R.S. Rawat*

I was the guest of my friend at Trichur for three days. Our pleasant tete-a-tete in the morning of the first day was disturbed by the shouts of a beggar at the gate. The embarrassed master of the house told me how the beggar, who was a daily caller for several years, was being appeased by his over-religious, superstitious wife.

He was about to drive the beggar out when the lady of the house appeared and all was quiet. She not only gave the beggar a coin and a few handfuls of rice (E.M.S. complains of scarcity of rice in Kerala) but warned her husband that he would not attain heaven

for his uncharitable disposition.

The beggar came the next day and left with his daily ration. On the third morning, the lady was not in. The dirty fellow's hefty appearance and audacity roused my curiosity. I called him near and enquired about him.

Yes, he was healthy but was not ashamed to beg because work would not bring him easy money, he said. And he needed about 300 rupees a month for running the household. He had kept a woman who had two school-going children.

"Do you earn that much by begging?" I asked.

"I used to get more, sir", he replied, "but now people have lost their faith in religion and the world has degenerated".

Just then my friend's wife returned home. She was furious. She scolded us for harassing the poor beggar and lamented that all the charity she had been doing for years had gone in vain. This was particularly regrettable because her neighbour was sure to attain heaven by her liberal alms-giving. Hastily dropping a coin in the beggar's bowl, she asked him to come by the back door from the next day.

My friend's monthly income is only his pension of Rs. 200 and he has a daughter to be married.

Bombay *S.K. Aier*

In Poona we had a maid servant whose husband had three wives besides her. One day, out of curiosity I asked her how she felt about her husband having three more wives. This is what she told me.

"I have nobody in this world to care for me. If I die, nobody will weep, nobody will attend my funeral. I will die like a dog. But, since I have three co-wives, I feel that I have somebody who will weep for me on my death. Their son will perform the last rites as though he was my own son".

Bombay *(Miss) M. Gupta*

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Books

Can India Make Atom Bomb?

India's Nuclear Dilemma by G.G. Mirchandani. Published by Popular Book Services, New Delhi. 253 Pages. Rs 27.50.

G.S. Bhargava

WITH the U.N. General Assembly seized of the draft treaty to stop the dissemination of nuclear weapons and India having decided not to subscribe to the treaty in its present form, the Bomb is on the lips of every thinking Indian. Not many of us may be capable of considering the finer points of the concept of non-proliferation and its application to present-day conditions but the style is never cramped when the issue is to make or not to make the bomb.

In this extremely topical publication, Mr. Mirchandani exhaustively examines the pros and cons of the bomb controversy. On the positive side, he first lists the imperative need for India to possess nuclear weapons because a deterrent strategy against a nuclear China cannot but include nuclear weapons. In this context, he draws the line between the character of the continuing Chinese threat — which remains to be with conventional weapons — and the nature of the deterrent which India needs to meet the Chinese challenge. In other words, the Bomb is more to thwart political blackmail by Peking than to be used militarily.

Secondly, the cost factor should not be overplayed when the task is safeguarding national security. After all, the nation has been willingly putting up with increasing defence outlay which has risen from Rs. 866 million in 1947-48 to Rs. 8,425 million this year. Further, going in for nuclear weapons might reduce the outlay on conventional weapons.

Though the author has, to a large extent, resisted the temptation to air his own opinions, he has not omitted to mention the loopholes

in the rival arguments for and against the Bomb. He has thus pertinently pointed out that while making the case for a modest nuclear weapons programme for India, the obvious limitations of a small retaliatory force against China's much larger nuclear capability are ignored. "The value of nuclear weapons in Indian hands should be assessed in purely military terms, and not in terms of the psychological satisfaction these would generate. In military terms, going by the example of the U.S.S.R. and the U.S.A., it is not necessary to achieve strict equality in nuclear weapons with China. But what is indispensable is, firstly, the capacity to absorb a Chinese nuclear first strike and, secondly, the ability to inflict on the Chinese, in retaliation, nuclear damage which would be 'unacceptable' to them — or would, in other words, hurt them sufficiently..." Therefore, the author rejects the idea of a nuclear half-way house. In his view, an Indian nuclear defence system worth the name "must develop a high degree of invulnerability against an enemy attack and must, in addition, be known in advance to the likely attacker to possess the reserve capacity to strike back and cause 'unacceptable' damage." He quotes in support of this attitude the expert opinion of Major-General Y.S. Paranjpe.

Mr. Mirchandani then brings out the fact that a mere nuclear arsenal without a delivery system is not worth the effort. Since the threat is mainly from China, India will have to be able to reach Chinese industrial centres like Anshan, Mukden and Shanghai covering not less than 2,000 aerial miles. "The task of covering such vast distances, penetrating air defences before reaching them, refuelling in flight and returning to base pose problems which are not easy to solve. The conclusion is, therefore, inescapable that if India intends to develop a

nuclear weapons programme, she will have to develop a missile programme as well."

What does all this cost? Following a remark by the late Dr. Homi Bhabha that making the Bomb by itself was not a forbidding enterprise in terms of cost, a tendency had developed that atom bombs would be cheaper by the dozen. Mr. Mirchandani corrects this impression by citing the estimates of experts like Leonard Beaton. According to Beaton, the average annual cost of a nuclear programme would be of the order of Rs. 1,725 million spread over a ten-year period. This would cover the cost of the delivery system also; but in terms of our present-day defence outlay, it would mean an increase of one-sixth, excluding, of course, the maintenance charges and the cost of conventional arms.

In this context, the author rejects the facile theory that going in for nuclear weapons would be balanced by economies in expenditure on conventional weapons. Far from it. First, the nature of the terrain in the Himalayas and the fact that we have to reckon with two threats, from both China and Pakistan, will obviate total dependence on nuclear weapons. Secondly, a lopsided development of nuclear defences will be a sure invitation to aggression with conventional weapons, forcing us either to eat the humble pie on the battle-field or be the first country to deploy nuclear weapons. Therefore, "to obtain a more practical cost picture, it would be realistic to assume that India would not only have to maintain her conventional force at its present level of efficiency but would even have to strengthen it."

As in other aspects of the defence programme, nuclear capability will bring in its train the inevitable question of frills. The military realist would ask whether it was worthwhile developing such an expensive system of nuclear defence and then stopping short of the manufacture of thermo-nuclear warheads. This would mean, according to Beaton, a total annual expenditure of Rs. 2,250 million or a quarter more than our present defence budget.

The author has also alluded to an estimate of costs worked out by

a team of international experts, including Dr. Vikram Sarabhai. The study team was set up by the U.N. Secretary-General in 1966 and gave its report last October. It puts the cost of "a modest but significant nuclear force" at Rs. 1,275 million per year over a ten-year period. The force would include a sophisticated delivery system represented by thirty to fifty jet bomber aircraft, fifty medium-range missiles and 100 plutonium warheads. The estimates were for nations with a sufficiently developed industrial and technological base and would, therefore, require upward revision in the case of developing nations like India.

Therefore, the author sums up: "The price of entry into the nuclear

Have Banks Failed the Country ?

Banking and Economic Growth (with special reference to India) by Dr. B.M.L. Nigam. Published by Vora and Company, Bombay. 207 Pages. Rs. 15.

R.C. Saxena

THE book evaluates the role of banking in stimulating economic growth of the country. The author first makes a broad division of the Indian banking system into several categories such as commercial banks, institutional agencies of industrial finance, the indigenous bankers, the post office savings banks and the Reserve Bank of India, and then discusses in detail the various aspects of banking such as mobilisation of resources, financing of private investment, the structure of investment portfolio, term finance and time and demand deposits. He expresses satisfaction over the rate of expansion in commercial banking credit for financing private investment which, according to him, has increased from 4.9 per cent in the First Plan period to 20 per cent in the Third Plan period.

He points out that the figures of debits of deposit accounts, cheque clearance, the velocity of circulation of deposit money and its percentage to money supply ever since the beginning of the Third Plan, unquestionably denote growth in the banking habit of the people.

club is a perpetual and long-term financial commitment. China has paid the price because her government does not have to consult the convenience of its people and can through its political system impose privation and suffering on them. Can a young democracy like India afford this cost?"

In short, here is an exhaustive and extremely useful compendium of the different facets of the nuclear question. The two horns of the dilemma for India are economic and ethical; can we afford it and should we cast to the winds our consistent opposition to nuclear weapons for doubtful military advantage? Does psychological satisfaction act as a deterrent against a regime built on cold-blooded calculation?

However, he finds that the Indian banking system still suffers from a low geographical coverage, functional inconsistencies and structural weaknesses. It is true there has been a big increase in commercial bank offices since 1951, but it has not kept pace with the requirements of the economy. Judged by the proportion of bank deposits to total money supply, which went down from 30 per cent in 1951-52 to 27 per cent in 1960-61, the commercial banking system has not succeeded in promoting banking habit among the people. The scheduled banks' percentage of paid-up capital and reserves to deposits also show a downward trend year after year. In the field of lending and investment, the commercial banks have made good progress. The annual rate of growth in bank advances, however, has been many times more than the rate of growth in investments. This trend, the author argues, indicates that increased lending operations were not fully financed out of increased deposits and capital resources but to some extent out of liquidation of government and other securities or by little investment in government securities. This he considers as a signal failure of the commercial banking system. He tries to relate this trend to the peak borrowings from the Reserve Bank of India as also the credit-deposit ratio in recent years.

Of the various forms and modes

of advances of the commercial banking system, the author points out that cash credit remained one of the most important forms followed by overdrafts, loans and bills purchased and discounted. Further, the bulk of the advances were secured, that is pledged or hypothecated, and only about 17 per cent of the advances were 'clean' or unsecured and, that too was mainly confined to big clients of the major scheduled banks. Another finding of the author is that the commercial banks showed investment preference for 'guilt-edged' securities simply for considerations of security and liquidity. Investment in shares and debentures of the companies formed hardly 4 per cent of their total investment.

On an analysis of the bank deposits, the author notices a shift from 'demand' to 'time' deposits since 1958. On a sectoral analysis of the bank finance, he finds little change in the relative proportions of advances to industry and commerce up to 1955, and a shift thereafter from commerce to secondary industries such as mining, building and manufacturing. So far as agriculture was concerned, the position had deteriorated lately both in amount and percentage of bank credit. Small industries and exports also did not benefit much. The author offers some suggestions for correcting this imbalance.

Unlike the joint stock companies as a source of agricultural credit in the industrially developed countries, the institutional agencies for rural finance in India are clustered around the primary credit co-operative societies at the base level and the central land mortgage banks at the apex level. The result was that long term co-operative credit was prevented from assuming an intermediary role and the co-operative sector could not develop into a three-tier structure.

The author also discusses the role of the specialised agencies for industrial finance and that of the Reserve Bank of India in regulating credit and stabilising the monetary system.

Giving his broad conclusions in the last chapter, he offers a few suggestions among which are his views on the nationalisation of banks, rationale of dear money

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YOJANA

invites

COMMENTS

YOJANA invites comments by readers on the strategy for the Fourth Plan enunciated in the Paper produced by the Planning Commission and discussed by the National Development Council recently.

The full text of "The Approach to the Fourth Plan" was published in our issue dated May 26, 1968.

Contributions should not exceed 200 words.

A token payment of Rs 10 will be made for every published contribution.

Strides

Spectacular strides in industry and technology in the last two decades have considerably enlarged the variety and scope of Indian exports.

Indian goods are increasingly finding access not only to the markets of other developing countries but also to the advanced market economies. In 1967-68 alone, more than Rs 7 crore worth of engineering products were sold in countries of Europe and the two Americas.

Industrial exports—metallurgical, engineering, chemical and allied products—have shot up in value from Rs 10 crore to Rs 125 crore in the last decade.

Currently, 400,000 tonnes of pig iron and about half a million tonnes of semi-rolled and fully-rolled steel are exported annually. In engineering products, the export range has widened and now includes sizeable quantities of internal combustion engines, centrifugal and turbine pumps, automobiles and ancillaries, machine tools, power cables and dry and storage batteries. Various types of industrial plant, including textile and sugar machinery, have begun to be exported.

Chemical products—vitamin and antibiotic preparations—have also made a dent in the markets abroad. India has acquired the potential to export basic acids, alkalies, synthetic drugs and pharmaceuticals, paints and varnishes, soaps and cosmetics.

An appreciable increase in the export of automobile and cycle tyres and tubes and rubber footwear is reflected in large orders from the U.S. and elsewhere.

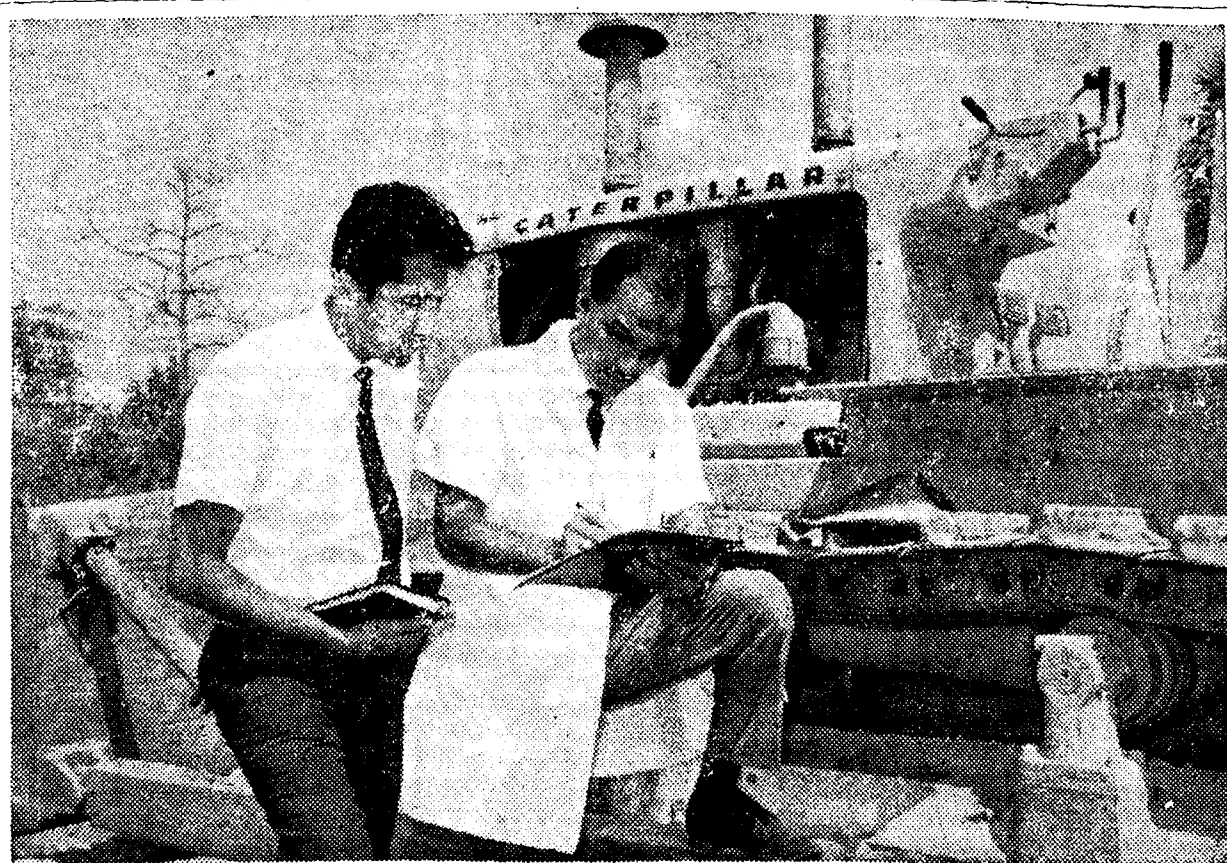
The present export list includes 150,000 electric fans and 100,000 bicycles every year.

The technical competence of India's industrial exports is increasingly reflected in the range and character of turnkey contracts being won in the face of needle-sharp competition and executed abroad. These contracts are for packages of preparatory engineering surveys, design fabrication and erection of projects. At present more than 50 such joint ventures are under implementation by Indian entrepreneurs in the developing countries of Asia and Africa.

Despite very stiff competition, Indian exporters have secured a number of international contracts from the advanced countries for the supply of railway wagons and coaches, power cables, complete power transmission lines, electric overhead travelling cranes and hydraulic structures.

Foodstuff exports include India-made biscuits. Indian bananas, not hitherto known beyond the Suez, are being sold in both Eastern and Western Europe. There has been a spectacular rise in the exports of frozen and canned sea foods and prawns. Export of sea foods and allied marine products rose from Rs 4.63 crore in 1960-61 to Rs 17.36 crore in 1966-67.

The glass industry has also found new export markets, and the main items of export include bottles and phials, glass lampware and scientific equipment.



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LETTERS

FOR OFFICIAL USE ONLY

Since 1951, vast development has taken place in our country. A number of projects have been completed under the three Plans. Hundreds of miles of new roads have been constructed in the rural areas and more buses are plying on them. Lakhs of acres of land have been brought under irrigation. For example, in the Dhulia district of Maharashtra, the increase in irrigation during 1961-66 was 32 per cent. In the administration, several cumbersome rules and procedures have been changed to suit the new era. However, in the research sector, the old rules are as rigid as before. The vast and precious data collected officially are not thrown open to research students. I have come across several teachers and students who were helpless in getting land distribution statistics of their districts. If a student desires to study the mechanisation of agriculture in a particular area, his work is practically held up for want of data which are locked in "For Official Use Only".

Dhulia

S.R. Hawaldar

Regulated Markets

The article on "Benefits of Regulated Markets" published in 'Yojana' of April 28, 1968, gives the number of regulated markets in the country as 1590. It is not correct. The total number of regulated markets, including sub-market yards, was 1855 on April 1, 1968.

Nagpur

Mohinder Singh

This India's Other Side

Needless to say that your excellently edited fortnightly does a good deal to dispel many of the general misconceptions about the Plans.

A bouquet for the interesting anecdotes regularly published in

the column, 'This India'. Only one could wish, however, that the anecdotes related to some topic not necessarily bordering on the grotesque and freakish, but something of the constructive side of certain public or individual activity, which is likely to inspire the readers with zeal and energy to do likewise.

Secretary
Assam Chah Karamchari
Dibrugarh Sangha

Good Samaritan

When I turned over the pages of the April 14 issue of your renowned journal 'Yojana', I could not find words for expressing my deep sense of gratitude and indebtedness to you. You have not only encouraged me by publishing the findings of my survey on 'Cost of Cultivation' but have also obliged me by correcting the errors and omissions in it. I am highly impressed by your sense of responsibility and quick responsiveness which I never expected from a Government official or institution.

Jodhpur

P.C. Sharma

BOOK REVIEW

from Page 28

policy and modernisation of the banking system. However, there was need to analyse the trends in annual increments in savings deposits and time deposits as percentage to household incomes and the reasons for high and low percentage. The author also failed to examine the price behaviour and its effect on incentives to save. However, the book provides useful information on banking except for some inconsistencies and conceptual discrepancies here and there. For instance, the amount of Rs. 23,750 crore (page 180) given as investment outlay is actually the total outlay for the Fourth Plan which, apart from investment, includes current outlays on the plan. Similarly, the figures relating to national income in table VII appear to be incorrect; the national income estimate for 1965-66 was Rs. 14,660 crore and not Rs. 14,400 crore.

It is not possible, within the space of a small write-up, to enumerate the various areas which will need to be strengthened and the measures which will need to be taken for enlargement of India's exports. One can only say that the potential undoubtedly exists for this country to substantially expand its exports and that a great lot will have to be done by the Government as well as industry and trade for reaching anywhere near the targets which have been envisaged in this document of the Planning Commission.

H.D. SHOURIE

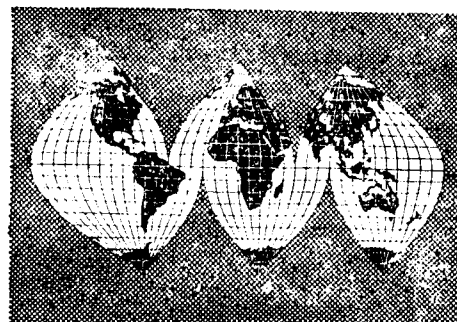
from Page 6

government and industry to effectively penetrate the world markets. Besides direct exports, there would also be other areas which would need to be strengthened for earning foreign exchange in invisibles as well as by establishment of ventures abroad. Policies would need to be formulated for encouraging and facilitating the establishment of joint ventures abroad which would yield annual returns on investments and also effect sale of domestic equipment and machinery and the employment of technical personnel and consultants from India. One important area in which the export potential has hitherto not been fully exploited is that of public sector enterprises. It is necessary that the public sector enterprises should be stimulated towards greater participation in the export effort. In the field of 'invisibles', tourism, shipping and banking constitute important fields which offer considerable scope for earning foreign exchange.

For the expansion of exports it is of fundamental importance that there should be a systematic and consolidated endeavour of reducing costs and improving the quality. All possible factors will need to be examined for determining the areas of cost reduction, including the provision of materials and components at international prices and utilising the techniques and procedures leading to increased productivity. It is also of equal importance that the industry and trade should pay attention to the improvement of marketing operations and to the development of expertise, capacity and resources for meeting the competition in world markets.

SIEMENS

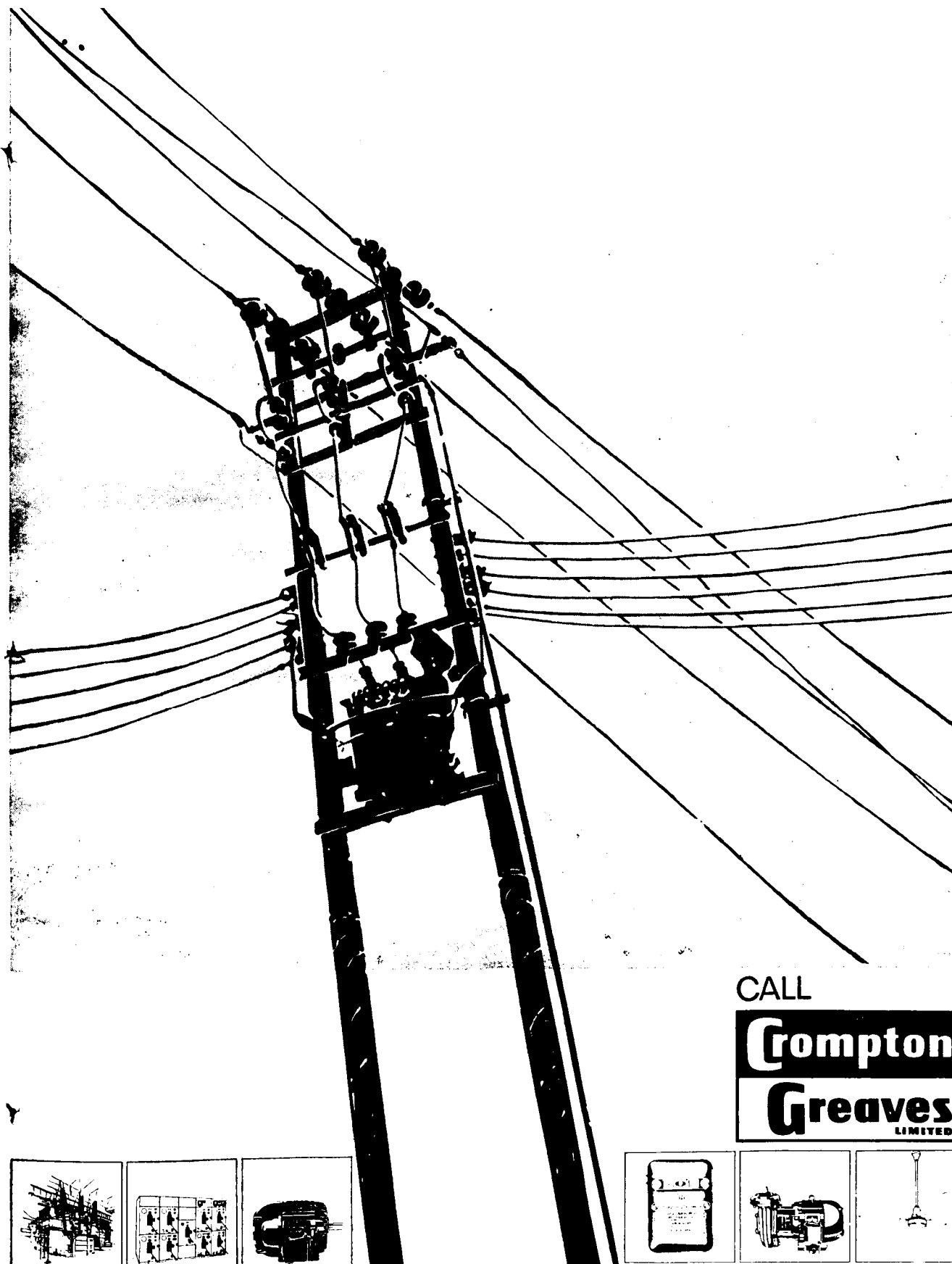
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Jawaharlal Nehru inaugurating the Bhind Dam. Photograph—U.S.



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YOJANA

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LEST WE FORGET

Never have we been faced with such tremendous challenges as today when the goal of a better life is within sight and the means to attain it are within our grasp.

—Indira Gandhi

Cover designed by R. Sarangan

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

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JAI KISAN

THE remarkable and dramatic change that is sweeping across rural India today cannot be adequately described by such well-worn clichés as “agricultural revolution” or “agricultural breakthrough”. What is happening in the agricultural sector is much more than this. There is a veritable transformation in the minds and activities of the vast army of unknown heroes who are toiling to feed the country's growing population. But, even among them a few are singled out each year for special recognition; and it is then that one realises how much the country owes to the millions who toil on field and farm throughout the year.

This year sixty farmers have been awarded prizes for excellence in the production of wheat, paddy, sugarcane and urban compost. The achievements of these few help to project the great upsurge that is helping to increase agricultural production in the country. The factors that have contributed to this happy state of affairs are a plentiful monsoon, increased use of fertilisers and widespread cultivation of high-yielding hybrid varieties of seeds. The first of these is obviously exogenous and can hardly be the basis for long-term optimism. But, the other two, clearly demonstrate a new trend in agriculture on which our hopes for the future are based.

Although agriculture has always occupied a place of pivotal importance in India's life, for decades before Independence it was the most neglected sector of the country's economy. Tied to traditional moorings, its growth hampered by the inertia and indifference of the farmers, it deteriorated beyond measure. Unaffected by the advances in science and technology, the agricultural scene presented a dismal sight. It suffered from an overabundance of agricultural labour and comparative scarcity of land and capital. The yields were miserably low compared to other more advanced countries, as a result of which production fell far below the needs of the population.

When the First Five Year Plan was launched, there was acute shortage of foodgrains, and the highest priority was given to the stabilisation of agriculture. The effect was immediate; and, in 1955-56, foodgrains production had increased by about 33 per cent. The upward trend was maintained until 1964-65; but two consecutive years of drought had its fell effect, and there was a steep fall in production. Once again agriculture is looking up; and the 1967-68 crop, which is placed at 95 million tonnes, is the highest in the history of the country.

The omens are good for the country, and there is a new confidence among our farmers, who have demonstrated their ability and willingness to meet the challenges of the present, and are prepared to do their part to make the country prosperous. Their acceptance of new techniques and their willingness to make full use of the instruments forged by science and technology to increase production, are an index of the changing face of rural India. The 60 men who have been honoured this year for raising record yields on their land will serve as an example and an inspiration to many more who are striving to emulate their example.

FOURTH PLAN APPROACH

COMMENTS-2

"The Approach to the Fourth Plan" is now before the country. It is intended to serve as a body of 'Talking Points', as far as the formulation of the Plan is concerned. Continued from the last issue, YOJANA brings to its readers, a cross-section of opinions and comments on the document.

Down-to-Earth Approach

MAHABIR DASS

THE Planning Commission's "Approach to the Fourth Five Year Plan" has been recognised as a bold bid towards a major break-through in development. The document accepted by the National Development Council, depicts a realistic approach worked out in a down-to-earth manner. It has forthrightly stressed that, before implementing or formulating any scheme, it will not be enough to assess the needs of the country but also to explore the possibility of resource mobilisation in order to meet these needs. This formula would go a long way to save our energies from being dissipated in utopian ambitions. The approach provides a so-far-and-no-further line struck around the available means and sets out in unequivocal terms the precise objectives to be followed and the policies which make the realisation of these objectives feasible.

The three objectives of the Fourth Five Year Plan are: (i) growth with stability, (ii) move towards self-reliance, and (iii) regional balance. Of the three, the first objective of growth with stability is the main theme of our Plan. Without reading between the lines, the formula of growth with stability indicates the determination of a feasible growth rate and also the measures necessitated to forestall general inflationary forces in the economy. After appraising the recent performance of the industry and encouraging crop conditions, the Commission feels that the compound growth rate of 5 to 6 per

cent would neither be a tardy pace nor an excessive growth to invite menacing inflationary forces. One has but to appreciate the cautious approach of the Commission. Agreed that we can grow even faster but at the same time we cannot afford to face the natural corollary of inflation that would etch the very mosaic of our economic base.

A sector-wise dissection of the compound growth rate indicates that agriculture has been assigned with the responsibility of attaining the growth of 5 per cent per annum while the industry has been earmarked to grow at the rate of 8 to 10 per cent. Virtually, these two sets of growth rate can be termed, in a broad sense, as the contributions of rural and urban India to the national plan.

The second key objective of the Fourth Plan formulates a move towards self-reliance as speedily as possible. It will be a mere wishful thinking if one calls to cry a total halt to foreign aid. But, at the same time, we have to agree with the Commission that a beginning should be made towards this direction. To begin with, the Commission has recommended to reduce the quantum of foreign aid,

Mr. Mahabir Dass is a Member of Parliament and Vice-Chairman of the Central Silk Board.

the rate of interest and loan repayments to about half the present level by the end of the Fourth Plan. This is no doubt a formidable task with a lot of inherent complications, but it is imperative in order to boost the national morals and swadeshi spirit visualised by our leaders.

TAXATION ? NO

The elected rate of growth set in the background of diminishing foreign aid calls for much greater efforts in raising indigenous resources. As computed by the Planning Commission, a huge sum of Rs. 250 crore to Rs. 300 crore will have to be raised by the Union and State Governments to achieve the growth target. Where will the money come from? The Planning Commission does not spell out the details of the avenues through which these resources are to be mobilised. It simply indicates that the additional resources should be raised through loans, profits of public enterprises, through streamlined performance and price adjustment, through more effective drive for small savings, particularly in the rural areas, and also through recourse to additional taxation. Obviously, this gives a wide latitude to the State Governments to determine the exact proportion in which each one of the aforesaid sources should

contribute to the necessary resources. This particular approach of devolving added responsibility on the States is a clear departure from the past practice whereby the Planning Commission used to work out details of targets of resource mobilisation to be achieved from each channel. This is a bold step particularly to suit the new political set-up of the country where opposition parties have formed the Government in many States. It would leave less scope for misgivings and ideological differences.

A recourse to fresh taxation for raising additional revenue would not find favour in the country as the people feel that the present burden of taxation has already reached a point of climax. Taxation is an inevitable evil and it has to be contained within reasonable limits. At the recent meeting of the National Development Council, the Chief Ministers of the States minced no words in cautioning the Commission of the likely public opposition to fresh taxation. The correct way will be first to impress upon the people that greater sacrifice would bring forth individual prosperity. At least for the first two years there should be a moratorium on taxes which can be adjusted with less progressive reduction in the quantum of foreign aid. Meanwhile, a widespread propaganda should be launched to convince each individual that the Plan is their own and has a direct relation with their home economics.

ASPECTS OF STABILITY

The word "stability" has two facets—economic and social. The basis on which this has been worked out is that agricultural prices determine the general level of prices. In our bid to maintain the stability of prices a well built-up buffer stock of agricultural commodities is bound to play an effectively pivotal role. This will also naturally forestall a general rise in prices and, if a chain of fair-price shops is opened, there would be no difficulty in keeping the retail prices at a reasonable level.

The social aspect of stability forms the third objective of the Fourth Plan. It is for achieving social stability that the Planning Commission has recommended

wider dispersal of industries which would also do away with present regional imbalance. By the virtue of an overall control over prices, discretion on the location of the industry and check over the credit policy, the Government would wield sufficient command to direct private investment in desirable channels.

In a nascent stage of development, where people expect too much from the Plans, some despondency is bound to creep in. That is a universal symptom and hence it will be a gross mistake to treat it as national frustration. I shall be parrying from truth if I do not concede candidly that despite our past achievements the flow of benefit did not seep down to the masses and the real income per head has so far been exceedingly low. This was admitted even by our Prime Minister.

To say that the international economic conditions have been ignored in the Plan guideline, also does not sound correct. As no man is an island, India, too, cannot grow in isolation. Yet, the emphasis on the infrastructure of economy and modicum of fluctuating foreign aid would definitely provide a cushion round us to make the shifts in western economy less felt. As the human body with sound infrast-

structure of fighting cells makes it less susceptible to external diseases, the infrastructure of economy is plausibly motivated to safeguard the nation from external economic upheavals and reluctance in aid.

The infrastructure, as interpreted by the Commission, is a precondition for intensification of productive efforts in agriculture and for establishment of dispersed small-scale industry. This is the only way through which even the most backward areas could begin to develop. It is also fraught with wide avenues for employment. Nobody, therefore, should doubt the wisdom of stability which is equally necessary to tap, to the brim, the installed capacity of the industry. We cannot afford to have new industries in a hackneyed way each suffering with the cavity of idle capacity.

A point for consideration while intensifying agro-based industries like sericulture, for instance, is that the objective of regional balance in dispersal of industries should not blind us to the climatological or economic predisposing factors. Efforts should be to develop such industries for which potentialities exist as otherwise the results will be unrelated to the inputs. In this context the strategy adopted by ECC countries is worth attention.

All Implications Not Fully Thought Out

RANJIT KUMAR SAU

THE Planning Commission's 'Approach' lays down two basic objectives, namely, growth with stability, and even distribution of the benefits of development. In it, the strategy for achieving the latter lies mainly through the widest possible dispersal of industries in terms of ownership and region.

The first objective, in a sense, has two dimensions—growth and stability. As for growth, the Commission feels that it might be reason-

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able to expect and aim at about 5 per cent rate of growth in the agricultural sector and 8-10 per cent in the industrial sector. For in agriculture the high yielding varieties and other similar programmes have proved successful; and every effort is going to be made to extend these programmes to pulses and other food crops as well as commercial crops, such as cotton and jute, where the impact of the programmes has not yet been substantial. In industry, the structure now is much more diversified than in the past and over the last few years enough

capacity has been created which yet remains to be fully utilised. On the basis of these considerations, the Commission believes that an over-all rate of growth of 5-6 per cent per annum (compound) appears practicable.

Let us hope so!

Stability rightly occupies a central position in the 'Approach'. "Experience of recent years has emphasised the importance of maintaining relative stability", it says. Further, it adds, "During this period instability has been associated chiefly with wide fluctuations in agricultural production and with a rapid rise of prices". As for the measures for stability, the Commission relies largely on buffer stocks of the main agricultural commodities, which could even out physical supplies between years and also stabilise agricultural prices. And this in turn would help to a large extent in checking a general rise in prices.

But what about stability in industry? Is a smooth flow of agricultural goods, if at all achieved, enough to ensure that industrial fluctuations would be ironed out? Apparently, the Commission has not yet given much thought to this.

Public Sector To Be Alert

Five-year planning in India so far has been, by and large, an affair of two years—the base year and the end year. Usually targets are set and projects are formulated in terms of what is to be achieved at the end of five years. But what the actual process towards that achievement would be, how the economic system would evolve in order to meet the targets, or, how the momentum would be generated from year to year, has not received proper attention so far. Thinking in terms of multiples of five years needs to be supplemented with well-co-ordinated plan of action year by year. Fortunately, now the 'Approach' is partly aware of this; and it proposes that for all public sector enterprises detailed target setting as well as full annual budgeting, financial and physical, will be undertaken.

But this is not enough. The 'Approach' envisages a mixed economy "with a minimum of

controls" on the private sector. "Industrial activity in the private sector may be left free to develop within the general framework of policy", that is, the Industrial Policy Resolution of 1956. This approach, however appealing it may be, requires that the public sector must always be alert to identify the likely bottlenecks in agricultural as well as industrial activities, and be prepared to take necessary steps to overcome them. This means that the public sector may be called upon from time to time to undertake new unforeseen projects, or to import goods and services from abroad in order to meet critical gaps in crucial times. Otherwise, stability and thereby growth may be affected. The public sector, therefore, must set aside some resources, domestic as well as foreign, for such contingencies.

Ability To Diversify

Secondly, however well-co-ordinated the Plan may be, the economic system has to be so designed as to be capable of absorbing occasional shocks and disturbances. Indeed, the industrial structure as a whole is more diversified today. But what is no less important is the ability to diversify in each and every factory as far as possible, so that varying pattern of demand in the market does not result in periodic lay-off. Every factory should be advised to explore the possibilities of switching over to other products within the limits of technological constraints, if and when the situation so demands. Readiness for diversification at factory level is the second line of defence against instability.

In the mixed economy of India, prices do have an important allocative function, and price stability is a big step towards over-all economic growth. But the concept of such stability is not always unambiguous. For price changes in certain selected goods may still be consistent with aggregate price stability. In any case, the Commission should make its price policy more clear.

Perhaps, as a matter of historical necessity, the growth aspect of the Indian economy, which has remained more or less stagnant over centuries, has drawn more attention than the other aspect, namely,

stability, although the former cannot be separated from the latter. And the 'Approach' of the Planning Commission seems to have missed the full implications of planning for growth with stability. Here we have pointed out three areas for further consideration — (a) continuous identification of critical gaps in the economic structure and flexible reserve of resources in the public sector to bridge them up, (b) preparedness of every farm and factory to diversify as far as feasible, and (c) an unambiguous price policy.

To the extent the 'Approach' emphasises increase in agricultural production through massive inputs of water, fertilisers, etc., insists upon greater utilisation of the existing industrial capacity, prepares for self-reliance, and underlines the need for more equitable distribution of income, it is a welcome approach. But the high-flown objectives should not obscure the urgent need for fuller realisation of the responsibilities of the public sector. At the same time, the private sector must understand that the 'minimum control' attitude of the 'Approach' is a compliment to it with the hope that it would strive for the growth with stability of the Indian economy as indicated by the Planning Commission.

NEXT ISSUE

SPECIAL NUMBER ON RIVER VALLEY PROJECTS

On July 7, the Damodar Valley Corporation will be 20 years old. On the occasion YOJANA is publishing a Special Number (July 7).

Book your orders now.

No Guidance on Urban Development

ASHISH BOSE

IN four of the eight sections of the Planning Commission's paper, there are references to urban development, but these do not add up to any coherent policy or even approach to urban development and planning in India. The inadequate attention to urban development has, however, been a feature of all the Five Year Plans so far. In all these Plans, urban development has been treated rather casually in the chapter on housing.

It has become almost a ritual to talk of slums whenever there is a discussion on urban development. But is the problem of slum clearance the basic problem of urban development in India? How many of our 2,700 cities and towns are industrial? Is sub-standard housing confined only to the cities? Are conditions in rural areas better? Can urban problems be solved by merely providing proper housing standards?

It is high time we put urban development in the wider perspective of economic growth and social change, and not get stuck with slum clearance programmes alone. We must consider urbanisation in the context of the industrial location policy, the development of the power grid, the emerging transport links and such other factors. In short, the emphasis has to be on the creation of the urban infrastructure to generate the process of industrialisation - urbanisation and economic growth.

Not that the Planning Commission is not aware of this. However, in the Approach Paper no clear guidance emerges on these points. For example, the section on 'Industry' says:

"The Indian economic situation calls for a very widespread increase in non-farm employment. This means the development of industries in all parts of the country based on relatively small scale, dispersed units. This indicates the establishment of a large number of small industrial urban complexes as compared with the recent development

pattern of concentration in very small number of continuously over-crowded metropolitan centres." (p. 26)

But in the section on 'Operation of the Mixed Economy' it is pointed out:

"Concentration of economic activity in particular locations is presenting an increasingly difficult problem. The socio-economic costs of servicing industrial centres above a given size are particularly heavy. Active steps will have to be taken to plan the future of metropolitan regions in the country." (p. 43)

I do not think the Planning Commission has made these observations on the basis of any statistical evidence on the relationship between the size of towns and the socio-economic costs of industrialisation. That a small industry should be located in a small place may be good philosophy, but not always good economics. And incidentally, the concentration of industries in a few big cities is not a "recent development pattern", as the Approach paper suggests, but an old development pattern.

In the context of urban development, apart from slum clearance programmes, another favourite topic of the Planning Commission, as reflected in all the previous Plans, is the mopping up of unearned increments on urban land values. This again is a ritual. The Approach paper is no exception to this. The section on 'Development and Distribution' says:

"One of the largest existing sources of unearned increments in income and capital is the increase in land values in developing urban centres. The mopping up of these warrants early attention." (pp. 49-50)

This no doubt is a worthy objective; but what is our experience in this field during the last fifteen years of planning? In no city in India have the authorities succeeded in mopping up unearned increments on urban land values. From time to time various committees have gone into this matter and suggested measures to check speculation and mop up unearned increments. For example, the Report of the Commit-

tee on Urban Land Policy appointed by the Government of India in 1965, contains a fairly extensive discussion on this subject. But it seems no effective measures can be taken unless certain legal hurdles are overcome which may even require an amendment to the Constitution. Then there is the related question of compensation for land acquired for a public purpose. Recently a Parliamentary committee has been appointed to look into the revision of the Land Acquisition Act of 1894.

What then is the approach of the Planning Commission to this problem? It is not enough to say that the subject "warrants early attention". In fact, a lot of attention has been paid to this subject without any concrete results. The whole question of urban land values is linked up with black money which is used in the land market in a big way. The ceiling on urban property is often put forward in the name of socialistic pattern of society, but such a ceiling in the absence of a well-developed housing industry will only mean a further deterioration in the housing situation. The experience of Delhi during the last decade has amply demonstrated the utter inadequacy of the Governmental authorities to solve the housing problem or reduce the price of urban residential land. The naive attempt to introduce socialism by putting a ban on persons owning urban property in Delhi bidding at land auctions of the Delhi Development Authority has encouraged the rich people from other cities to buy land in Delhi and build expensive houses for the affluent chunk of Delhi's population. This has only encouraged further polarisation in the housing standards of Delhi.

To sum up, our planning process has so far failed to come to grips with the problems of urbanisation in the context of economic growth and social change. Perhaps deep in the sub-conscious minds of the planners is the thought that urbanisation is an evil; perhaps their hearts bleed at the thought of the wretched slum dwellers in the big cities and perhaps their conscience is pricked when land speculators get away with huge wind-fall profits. But problems cannot be solved by being sentimental. Let us have more of economics and less of sentiment on this issue.

Mr Ashish Bose is in the Indian Institute of Economic Growth, New Delhi.

Foundations of Success Ignored

G. M. MODI

SINCE the end of the Third Plan in March 1966, the country is having an unplanned Plan holiday. This has been a period of unprecedented stress and it, in fact, called for a bold programme of economic action. Planning was absent precisely when planning was most needed. Now, after the uneasy silence of two years, the Planning Commission has come out with an Approach to the Fourth Plan which was discussed by the National Development Council.

It is unfortunate that we take planning rather casually. This is not, however, without reason. The First Plan was no plan at all. The Second Plan did mean considerable progress and provoked much interest. But the Third Plan again proved a failure. No analysis has so far been made of the failures of these Plans. Unless we know what has gone wrong we cannot improve. This is the first step to success. But "because of its limited purpose", the Deputy Chairman of the Planning Commission says in the Foreword to the Approach, "no attempt has been made in this Paper to review achievements and failures of planning efforts so far". That such an analysis is the basis of future planning should be, I think, almost self-evident. Any correct approach to the Fourth Plan has necessarily to eschew mistakes and errors contained in the Third, at least to the extent that they are related to policy. To avoid discussing them because the Paper is brief is to refuse to look at the very foundations of success.

The Approach is based on three main objectives: First, it is proposed to achieve a growth rate of 5-6 per cent per annum. Second, the Plan framework is designed in a manner that would make the economy more self-reliant. Third, economic development is expected to be achieved within conditions of stability. These objectives have, no doubt, the highest priority in the present economic conditions. We

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have been depending on foreign aid too much and for too long. Also, in the last five years, prices had been rising at a high rate and had undermined the very confidence of the people in the value of currency. Therefore, development of the economy in the Fourth Plan has necessarily to be achieved in a manner that would reduce our dependence on foreign aid and reestablish people's faith in the currency. In fact, these objectives can be, in themselves, a means to promote faster growth.

The NDC was to debate the feasibility of 5-6 per cent growth in the next five years. This decision the NDC was probably expected to take not on the basis of any analysis but merely as opinion. What are the specific implications of achieving 5-6 per cent growth rate? Where will the resources come from? The Approach leaves these questions almost unanswered. A plan which sets out a growth target and then recommends measures to raise resources to achieve that target must be considered presumptuous. "Recent developments in agricultural production", the Approach points out, "indicate that it might be reasonable to expect and aim at about 5 per cent rate of growth in the agricultural sector during the Fourth Plan. Industrial sector is also capable of growth at the rate of 8-10 per cent per annum". There is no scientific analysis in the Approach to justify these assumptions. The question of raising the resources for achieving the target of 5-6 per cent growth is left unsolved. Unless the Planning Commission makes a thorough assessment of the resources position it would be futile to discuss what growth rate should be aimed at.

Chapter VII on 'Operation of the Mixed Economy' reviews certain basic premises on which economic policy must be based. Many suggestions are thrown up possibly for a public discussion. What is surprising is that the Planning Commission has shown great concern about issues which are ideological rather than technical. On the

contrary, the Planning Commission should have confined its observations only to matters which promote the highest possible growth under given conditions. From this point of view, the suggestions regarding the allocation of foreign exchange, industrial licensing, etc., are certainly constructive. But the suggestions regarding the expansion of State trading do not seem to have been based on past experience. Further, when the Planning Commission itself has realised that there should be "minimum of controls", it would be incorrect to recommend that the Life Insurance Corporation should exercise its "full rights including the appointment of representatives to the Board of Directors".

In Two Minds

The Planning Commission seems to be in two minds. It does see practical advantages of greater freedom of enterprise, but apparently it cannot get away from ideological considerations. What gain such a measure would achieve is questionable. But it is most certain that any interference by public financial institutions in the management of the affairs of the company would be dangerous.

The Approach does not give much thought to Plan implementation. Not only the administrative machinery is not fully geared to the Plan requirements, but the very techniques and methods are not sound. It would be better, in my opinion, if the Plan is divided into two parts, the first consisting of the 'core' which has to be implemented in any case and, therefore, should be provided with full financial and organisational facilities, and the other, of supporting programmes. The core will comprise priority schemes on which the future development of the country depends. For example, the core programme will have to include production of agricultural inputs, irrigation, rural electrification, power generation, import substitution, export promotion, transport and completion of public sector projects already under construction. Project reports in respect of these programmes have to be done sufficiently in advance to facilitate implementation at the right time.

The Approach was probably only a feeler. The Planning Commission would have profited by the discussion in the NDC and was enabled to assess the views of the Chief Ministers about planning and progress in the different States. The draft Plan which will now be prepared by the Planning Commission will give a better indication of

the positive programmes that have to be undertaken. I hope the Planning Commission draws up this Draft Plan in consultation with all other interests concerned. Unless the Planning Commission involves other sections of society at the stage of Plan formulation, the successful implementation of the Plan will remain a far cry.

Putting the Cart before the Horse

N. DANDEKAR

THE First Five-Year Plan was successful because the resources required were *ab initio* within our *practicable* capacity to mobilise, the physical targets set were *achievable* and the consequent growth rate contemplated was therefore *attainable*. The Second Plan was a failure precisely because these preconditions of success were absent. I said so in 1956 at a meeting in Bombay. And the Third Plan was *predictably* disastrous,—and I said so in 1960 and again in 1961,—because it was geared to a wholly unwarranted assumption that the economy was already so well developed and balanced in all respects, and so well poised for a "leap forward", that all that it then needed was a final powerful thrust to "boost" it for a "take off" into a "self-generating" momentum such as would ensure its "self-sustained growth". Additionally, during the currency of the Third Plan, the planners and the Government alike proclaimed their flat refusal to lower the plan sights to the entirely new situation created by the formidable demands for defence expenditure resulting from the war with China in 1962 and with Pakistan in 1965.

The Planning Commission's "Approach" to the Fourth Plan is an excellent example of how *not* to plan. For example, from the experience of just *one outstandingly good year* of agricultural production—the result mainly of excellent and timely rains making possible the fruitful employment of improv-

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ed techniques—it is assumed that it "might be reasonable" to expect a growth rate of 5 per cent per annum in agriculture. Again, merely because a growth rate of slightly above 8 per cent per annum was achieved in the industrial sector in some exceptional years in the past, it is assumed that this sector is also "capable of growth" at a rate of 8-10 per cent per annum and that this "appears feasible". But the real gem is the wishful conclusion drawn from this illegitimate data that an overall rate of growth of 5 to 6 per cent per annum (compound) "appears practicable". As an exercise in simple arithmetic, this may pass muster. But as an attempt at what is practicable or likely to be achieved in national planning, it is just plain nonsense.

The Planning Commission's "Approach" also affords an excellent example of putting the cart before the horse. Instead of first attempting a sober estimate of the resources that can be mobilised as a *practicable proposition*, both in the private sector and in the public sector (by the Central and State Governments), and then attempting to gear the practicable growth possibilities to those resources—in other words, instead of cutting the coat according to the cloth—the Planning Commission follows its own beaten track of proceeding in reverse. And so we get the fantastic situation that :

(1) At the outset, there is no attempt at all to estimate, realistically or even fancifully, whether the average rate of domestic savings can possibly be stepped up from its current rate of 8 per cent a

year to as much as 12 per cent (implying thereby a fantastic rate of growth of marginal or incremental saving);

(2) In the second place, there is no mention at all of what resources can be raised (or will be required) in the private sector to fulfil its part of the growth rate of 5 per cent in agriculture and 10 per cent in industry;

(3) Thirdly, there is no attempt realistically to estimate the extent to which it would be *practicable* significantly to cut down imports any further and to boost exports by as much as 7 per cent per annum *without raising the internal price level*;

(4) Fourthly, there is no attempt to estimate realistically the extent to which, without causing inflation, it would be practicable for the Central and State Governments to mobilise *additional* resources to the extent of Rs 200 crore *per annum* for a 5 per cent rate of growth, or "Rs 250 to 300 crore" per annum for a 6 per cent rate of growth, from :

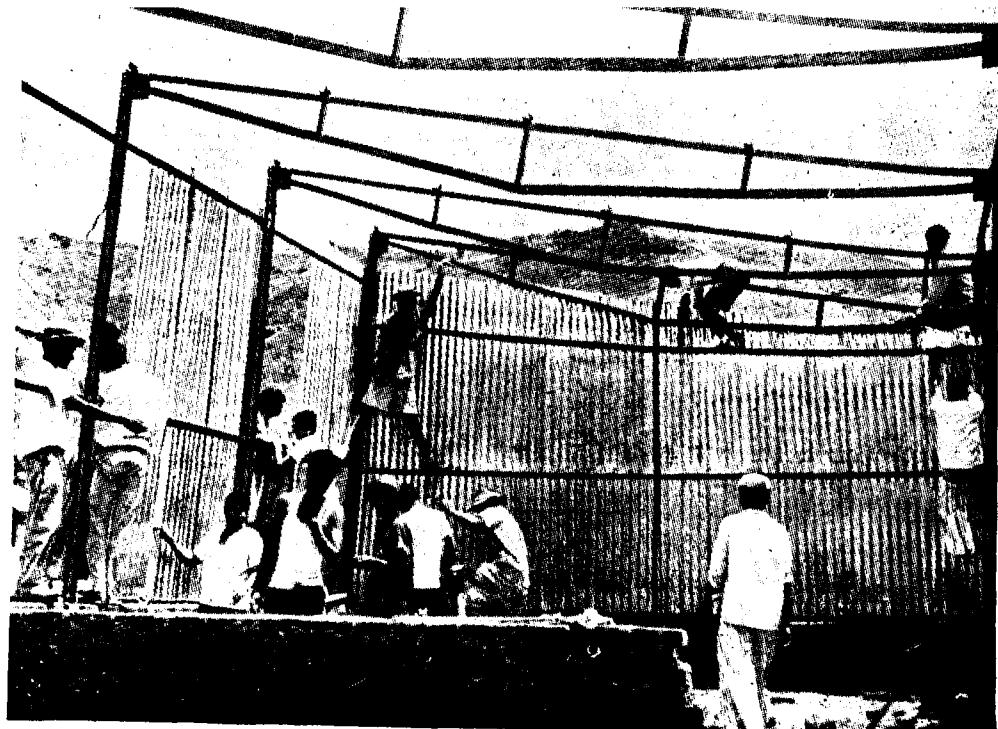
—public loans;
—small savings, especially in rural areas;
—profits of public enterprises ("through better performance and price adjustments");
and
—additional taxation; and

(5) Finally, there is no indication at all of the magnitude of deficit financing involved.

In these circumstances, it is not surprising that for this sort of planning the by-now-thoroughly discredited structure of controls, licences, permits and quotas will be continued. This formidable apparatus has been tried for twenty years and found wanting. It has succeeded in achieving nothing except increasing administrative cost, delays and inefficiency, eroding civic rights and liberties and generating corruption all round. It cannot be too strongly emphasised that *controls in any form do not promote but inhibit production and growth*. (And even where they are conceivably needed, as in the case of foreign exchange alloca-

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STUDENTS BUILD SCHOOLS



Courtesy : Maharashtra Information Centre, New Delhi.

IN THE DEVASTATED KOYNA LAND

WHILE many students were spending their summer vacations away from the sweltering heat of the plains or with their parents at home, a dedicated band of 500 students, denying themselves the luxury of a summer holiday, was busy constructing schools in the Koyna region of Maharashtra, devastated by a severe earthquake last December. It was a unique sight to watch them digging foundations, fetching water, sand and other material from distant places, and working round the clock under scorching sun. To many of these students, drawn from arts, science and engineering colleges, polytechnics, industrial training institutes and similar other institutions in Maharashtra, this exciting adventure of constructing schools for brother students was a labour of love as of sweat and toil. These determined groups of youngsters had a different outlook on life. No job was too strenuous or hard for them. They accomplished the task of constructing 109 primary school building rooms in 53 villages of Satara and Ratnagiri districts of Maharashtra in record time of one month, much before the advent of monsoon when the work was expected to be completed.

Under the Youth Welfare Programme, the Directorate of Technical Education, Government of Maharashtra, had launched the Nav-Nirman or Reconstruction Project to harness the energy of youths in the task of rebuilding Koyna.

SIX CAMPS

Construction work in six camps set up for the purpose started on April 21, 1968 and progressed according to schedule. Of the six camps, Kumbhargaoon Camp covered 12 villages, Dhebewadi 15 villages, Tarale 8 villages, Helwak 10 villages, Deorukh 3 villages and Chiplun 5 villages.

The first four camps were set up in Satara district, and the remaining two in Ratnagiri district. The largest number of school rooms, 34, was constructed in villages under Dhebewadi camp followed by 25 in Kumbhargaoon, 17 in Helwak, 13 in Tarale, 12 in Chiplun and 8 in Deorukh.

The nerve centre of the project was the base camp, which regulated the activities of the six camps from its headquarters at the College of Engineering, Karad. It controlled the field camps and supplied men,

material and vehicles according to the needs of respective areas.

All the six camps hummed with activity. A small tented township had sprung up at each camp site, accommodating the students and the staff. It ran under the over-all control of a camp commandant who had been doing his utmost to look after the comforts and conveniences of the young student volunteers. He was assisted by two to six assistant commandants depending on the needs of each camp. The strength of the students in each camp ranged from 40 to 120 depending upon the number of schools being constructed under each camp.

The work would start at six in the morning and last for 12 hours with a lunch-break of two hours. Evenings were set apart for games like volley-ball, ring tennis, carrom and cards. Relaxation was a 'must' to keep the students in proper trim. An atmosphere of mirth and merriment prevailed in various camps. The students availed of half holiday once a week when they were taken to pleasant picnic spots. While some students formed themselves into

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SUMMER INSTITUTES HELP SCIENCE TEACHING



TREMENDOUS strides are being taken in modern science and technology. These are revolutionising our life every minute. In order to keep abreast with the world of science, it is essential that the scientific education imparted to young students in schools and colleges takes into account the latest developments in science.

This is not an easy proposition. The basic pre-requisite for this is that science teachers in schools and colleges are fully acquainted with

the latest scientific trends. The summer science institutes have been trying to do this.

The Union Ministry of Education, the University Grants Commission and the National Council of Educational Research and Training have been instrumental in exposing the teachers to new concepts and developments to enable them to improve their competence and effectiveness through the programme of summer science institutes, schools, seminars and conferences.

Summer science institutes are organised every year in the summer vacations at various places in the country. The decision to organise them was taken by the U.G.C. in 1961 "to provide opportunities to teachers to acquaint themselves with current developments in their respective field of knowledge and modern curricula, and techniques of instruction". The U.S. National Science Foundation and the U.S. Agency for International Development help the U.G.C. and the National Council for Science Education in conducting the institutes.

The institutes are held for secondary school and college teachers in physics, chemistry, mathematics and biology. The main objectives of these institutes are: to establish channels of communications between schools and universities; to improve the subject

Above right : A student participant experimenting at a summer institute.

Below : An experiment at the biology summer institute at Aligarh University.



matter competence of participating teachers by acquainting them with recent developments in their subjects; to enable teachers to develop a better understanding of the basic concepts in their field of specialisation; to enable teachers to conduct experiments, wherever possible, with simple and improvised apparatus, and to encourage further experimentation along suggested lines leading to a consideration of theoretical ideas growing from experiments; to strengthen the capacity of the teachers for motivating able students to develop an aptitude for research; to stimulate interest in teachers by bringing them into contact with eminent men in the field of their study; and to enable teachers to exchange views with their colleagues in the profession and thus promote a great understanding and appreciation of each other's teaching problems.

During the period 1963-67, the U.G.C. organised 172 summer institutes at various universities and these were attended by 6,680 teachers in mathematics, physics, chemistry and biology and 4,813 university teachers.

The U.S. Agency for International Development provided equipment, films and literature, besides 750 leading professors from the various American universities to assist the academic programmes at the institutes. More than Rs. 75 lakh have been spent on the project and the programme during the current year is expected to cost about Rs. 40 lakh.

The institutes are held at the science departments of the various universities all over the country. Generally, senior professors or heads of the department are put in charge of the programme courses. Courses to be covered during the institutes are left to the director, but general guidelines are laid down by the U.G.C. For example, this year, in mathematics, texts and commentaries prepared by School Mathematics Study Group (SMSG) in the U.S.A. have been used. Emphasis has been placed on developing real understanding of the foundations of and logical relationships within mathematics. Thus new dimensions have been added and the older concepts have been reorganised and



Dr. Winston Cram of Kansas State Teachers College, U.S.A., guides two teachers in physics at the summer institute at the Mysore University Post-Graduate Centre

extended in the light of the modern view that the major emphasis on mathematics is concerned with abstract patterns of thought.

Apart from these institutes, the University Grants Commission also organises, in collaboration with the British Council, summer institutes for teaching the English language at the undergraduate level. These institutes were organised at Bombay, Jadavpur, Madras and Rajasthan universities in 1966-67. Some 114 teachers from these universities participated in the seminar with which 8 British experts were associated along with Indian experts.

Institutes in agriculture, medicine and political science are also proposed to be held in collaboration with various international associations in the coming years.

The institutes have been found very useful to the participants. The Education Commission which reviewed the work of the institutes has observed: "The programme of summer institutes is a major instrument in the country's effort towards

improvement of science education in schools and colleges." The concerted efforts made at the institutes are going home to improve the level of science education in our schools and colleges. According to one of the American programme directors, Dr. William E Morrell, "Summer institutes have proved to be remarkably effective in assisting teachers to increase their understanding and competence." In the light of the instruction provided in these institutes, some 20 universities have already effected changes in their science courses for schools and colleges. There is a growing demand from Indian universities for new curricular material, modern textbooks, laboratory equipment, films and other apparatus.

The U.G.C. is also planning to introduce a vigorous follow-up system with a view to helping teachers to translate the new concepts, approaches and techniques learnt at the summer institutes. Since the U.G.C. hopes to cover all the science teachers all over the country by 1971, it is essential that the participants at the institutes take active interest in the institutes.

Research and Training in Education

P. C. ROY

In modern conditions, the role of education is not merely to impart knowledge, but to assist in the all-round development of human personality.

To fulfil this role, education has to be backed by research and training.

This is the role assigned to N. C. E. R. T., which is an autonomous organisation functioning under the aegis of the Union Ministry of Education.

N. C. E. R. T. has been described as "the professional arm" of the Ministry.

No Parkinson's law led to the establishment of the National Council of Educational Research and Training (NCERT) in September 1961. It was the need of the hour. As the country stepped into the first year of the Third Five Year Plan, it was poised not merely for quantitative expansion in school education but also for qualitative improvement. The Third Plan was designed to bring about an all-sided educational development for the age-group 6-14 and make an intensive effort by studying the problems involved in a scientific manner so that necessary training and experience acquired from such intensive studies could prove useful in the Fourth and later Plans for the development of school education. There was a growing realisation among the planners, educationists and administrators that any further spread of education without adequate consolidation of the gains in the number of schools, teachers and pupils would be a bad investment in human resources. The question

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of standards could not be overlooked any longer. NCERT became a part and parcel of the national movement for improvement in the standards of school education.

Areas of Action

Immediate action was particularly needed in three distinct areas—research in education, training of teachers, and publication of educational literature.

There might have been some isolated instances in this country to tackle educational problems experimentally but there has been no systematic effort to study education as an integrated science. The lack of any sound educational research in the country did not escape the notice of the University Education Commission (1948) which had occasion to complain that "there is not much systematic research in education going on in India today". The Secondary Education Commission (1952-1953) similarly took care to stress that a training college "should in essence be not merely a college for training teachers but an institution for research work in all aspects of pedagogy".

An impediment in research activity also arose from the fact that the educational administration in the country did not usually pursue an enlightened policy.

The question of educating our educators assumed great urgency as the Constitution of India directed the State to provide free and compulsory education to all children up to the age of fourteen.

Compared to actual needs, the number of institutions for teacher training, both for primary and secondary school teachers, was found "very inadequate" by the Secondary Education Commission. The general education of the primary teachers varied from State to State. Changes had also to be made in the programme of teacher education itself. A bookish knowledge, which confined itself to the three R's and a theoretical and second-hand knowledge of history, geography, hygiene

Role of N.C.E.R.T.

and civics was to be replaced by an education through activity and experience. Such activities or experiences were not to be artificially created to satisfy the psychological maxim of "learning by doing" but were to be part of the pupil's actual life as lived in his or her particular physical and social setting. The danger of a teacher being well-versed in the techniques and method of teaching and thoroughly familiar with the science and philosophy of education and yet inadequately informed about the subject of teaching was also very real. Model institutions were needed which could also provide extension education.

The third major area of action lay in the field of educational publishing which includes public-

ation of text-books and other supplementary material. The standard of production of text-books was in a rut.

Some attempts were made by a few State Education Departments to enter the field of publishing but the end-product fell far short of expectations.

Apart from text-books, educational literature includes working manuals, directories, handbooks, reference books in statistics and pamphlets of educational information which are equally valuable to the teacher, student, writer, editor and publisher of an enterprise. They form a common platform where all these people could meet to co-ordinate their complementary activities.

Composition and Functions

The National Council of Educational Research and Training, soon after its creation, went into the major areas of action noted above. Set up as an autonomous body, it has become the professional arm of the Union Ministry of Education. The Governing Body of the Council is assisted by the Board of Educational Studies, the Central Committee on Educational Literature and Committees on Appointments, Finance and Works. The Board, functioning through standing sub-committees, examines all proposals relating to research, training and extension projects referred to it and initiates, guides and co-ordinates research and training activities of the Council. The Committee on Educational Literature supervises the Council's programme of producing text-books and other educational literature. The research and teacher training programmes of the Council are implemented through the National Institute of Education at New Delhi, four Regional Colleges of Education at Ajmer, Bhubaneswar, Bhopal, and Mysore, and the Central Institute of Education, Delhi.

The major activities of NCERT may be grouped in five categories, namely, (i) research, (ii) training—both pre-service and in-service, (iii) extension work, (iv) science education, and (v) production of educational literature.

Research and Training

Besides working on its own,

NCERT undertakes research in collaboration with other bodies and provides financial assistance to institutions of learning which take up research in education. The current list of the various research projects in preparation in the different departments of the National Institute of Education runs into 32 items of which study on student unrest and historical survey of the language controversy are of topical interest. Study of wastage and stagnation during and after elementary teacher education course, administrative organisation of educational system in the different States and a national survey of teacher training institutions at secondary and primary levels will be of practical help to those engaged in education planning and administration.

An integrated one-year post-graduate course was introduced last year by NCERT in the National Institute of Education. It is designed to train specialists in research planning, development, administration, etc. Several academic courses of the Institute have been merged in the new integrated course, which offers a wide range of choice for the candidates.

The Central Institute of Education has arrangement for B. Ed., M. Ed. and Ph. D. courses while the Regional Colleges of Education offer integrated four-year course of training in science, technology, commerce and agriculture. The total enrolment in the Institute and Regional Colleges in a year is about 1,800. In addition, correspondence-cum - summer-school courses for untrained teachers have been started in all these institutions and the total enrolment comes to about 1,100. A number of workshops and other training programmes are also arranged by the different departments under the National Institute of Education.

NCERT has so far set up 97 extension departments and units in selected training colleges to provide in-service training for secondary teachers, and 45 extension departments for primary teachers. Short-term workshops and special programmes and courses are arranged for teachers to improve their competence both in content and methodology. Class-room problems of

teachers are discussed and tackled. Periodical conferences and workshops of the co-ordinators and directors are also held to enable them to pool their experience and find solutions to their common problems. For better co-ordination of work and closer liaison with the agencies at the State level, a programme of setting up field units has been taken up. Extension work is also done on *ad hoc* basis by different departments.

Science Education

One of the major programmes of NCERT is the improvement and expansion of the teaching of science and mathematics at the school stage. The Department of Science Education and a Central Science Workshop, set up in 1963, have launched a pilot project for teaching science and mathematics as individual disciplines from the middle school stage, taking into account the latest development and teaching techniques. UNESCO and UNICEF are assisting the programme.

New syllabi have been framed and text-books teacher guides and curricular guides have been prepared for the first two years. Work is in progress for the preparation of similar material for the third year of the middle school stage. Central Schools, numbering about 110, have introduced the prepared material in class VI from July 1967. The Delhi Directorate of Education will introduce it this year and other States and Union Territories are expected to follow suit. The Central Science Workshop is now busy developing new equipment co-related to the prepared science material.

NCERT has established 20 study groups of eminent university teachers of science, who are working on identification of basic concepts of various science subjects and preparing a complete curriculum for a course of compulsory science for all children in secondary schools. Before being introduced, the curricular materials will be tried out and revised wherever necessary. For the primary classes (I to V) also NCERT has prepared a detailed "Handbook of Science for Primary teachers" in three volumes, based on a general science syllabus.

Besides text-books in science, NCERT takes keen interest in the students and teachers of science. It

operates a scheme for locating and nurturing science talent in young boys and girls in the country by awarding scholarships and giving special attention to them through programmes of summer schools. The science talent scheme extends from the first year of B. Sc. up to the Ph. D. level. The Regional Colleges of Education provide an integrated 4-year course of content and pedagogy in science and mathematics in order to equip the teachers better for the job.

For a number of years NCERT, in collaboration with the University Grants Commission and USAID, has been organising summer institutes for teachers in biology, chemistry, physics and mathematics under the direction of university and college professors. Participants in these institutes are exposed to the new curricular material and techniques of teaching. This summer 56 institutes have been organised which will orient 2,800 teachers. During next five years over 30,000 science teachers are expected to have this orientation. A quarterly journal 'School Science' is being published by NCERT to

keep the teachers informed of the latest developments in science education. The Central Science Workshop is engaged in a project for the production of physical science study kit with indigenous materials. It will consist of 29 experiments in physics. The Workshop has in the meanwhile prepared a curricular guide for bamboo craft.

Publications

A comprehensive programme for production of model text-books and other instructional materials, including teachers' guides and students' work-books, is being worked out. NCERT brings out the text-books in English and Hindi while the regional language versions are to be produced by the State Governments if they so desire. Model text-books brought out under this programme number 32.

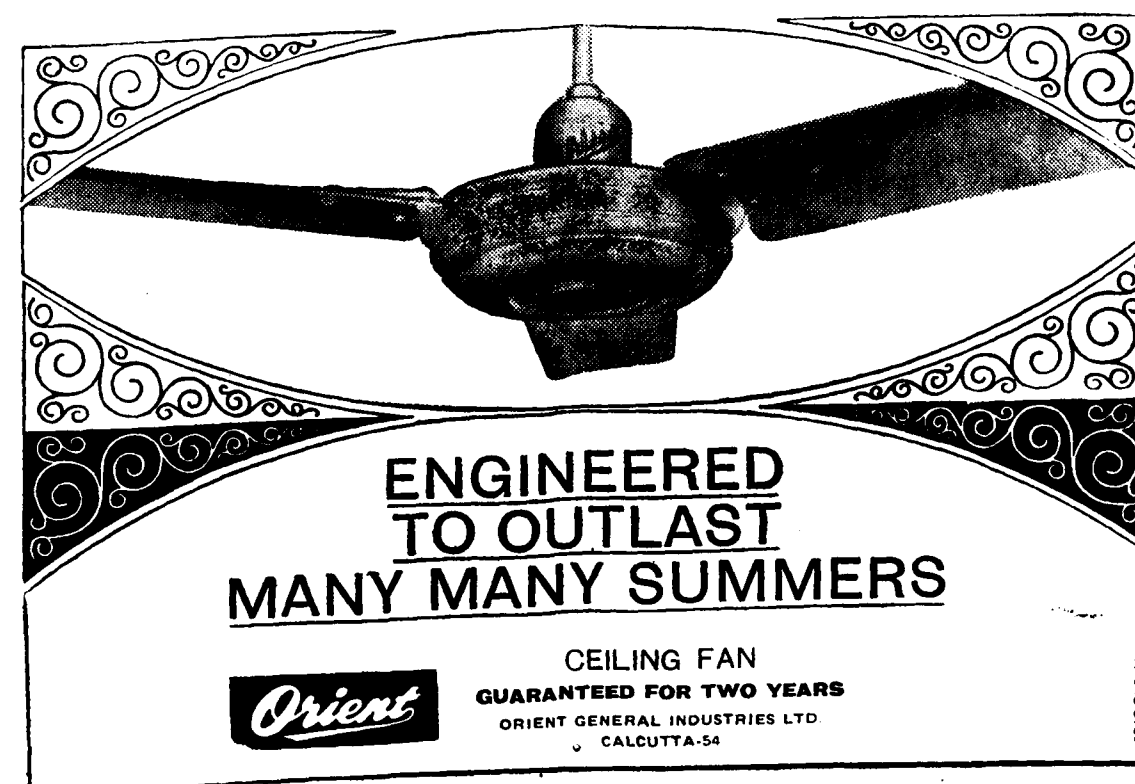
Considering that school education is an exclusively State subject and that NCERT's efforts are largely confined to production of model text-books, it is interesting to observe that the number of States, who have agreed to adopt or adapt these publications, is on the increase. As many as 11 States and

Union Territories have come forward to adopt or adapt the text-book on biology. Hindi text-books have, as a rule, become quite popular. Several State Governments have recommended the Council's publications as reference material. The new social studies syllabus and text-books written on the lines prescribed by the Council have been broadly accepted by some States and Union Territories.

Other reading materials published by NCERT are research monographs and reports, supplementary readers on scientific, cultural and historical subjects, journals, general publications like the year books of education, pamphlets, brochures and reprints of foreign books on science and mathematics.

A project for reprinting selected articles from the journal 'Scientific American' has been finalised. Eight volumes of the reprint articles consisting of about 50 items each are to be brought out in the Fourth Plan period.

The text-books of NCERT are mostly printed on gift paper and the pricing pattern is based on "no profit, no loss" basis.



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AGRICULTURE ON THE PATH OF REVOLUTION

M. R. HAZARAY

WITH the record harvest crop this year of anything between 95 million and 105 million tonnes, India today is virtually on the threshold of an agricultural revolution. It is widely acknowledged that the bumper crop is not due to only the favourable monsoon but also to modern farming methods, better irrigation and higher inputs such as fertilisers, insecticides, pesticides and improved seeds. The unprecedented good harvest after two years of scarcity has already shaken off the much vexatious zonal system and statutory rationing in some parts of the country.

A distinct change in the cropping pattern has come over after Independence despite many an error in the agricultural planning during the last decade. The following table, showing the index numbers of agricultural production, will prove it conclusively.

INDEX OF AGRICULTURAL PRODUCTION			
Agricultural year 1949-50=100			
Year	Food crops	Non-food crops	All crops
1950-51	90.5	105.9	95.6
1955-56	115.3	119.9	116.8
1960-61	137.1	152.6	142.4
1964-65	150.2	174.9	158.4
*1965-66	121.4	152.4	131.7

*A year of scarcity. Source : Agricultural Statistics in India, October 1966.

The sudden transformation from the two years of scarcity to this year of plenty is a positive proof of the breakthrough achieved in the agricultural sector. It has belied the despairing belief that in a tradition-ridden country with a low level of technical knowledge peasants are not willing to make experiments.

On the contrary, a change in the crop pattern of India has been brought about over many years by

many factors, technological, economic, sociological, legislative, administrative and, to say the least, even political. The economic or price factor by far is the most important of them all.

Rural India today exuberates a kind of a dynamism. With effective socialisation of the banking structure and further democratisation of the co-operative movement, the agricultural revolution may get a fresh and renewed momentum, but it must be pointed out that the grow more food campaign, if carried too far, may create its own problems, like the problems of marketing, processing and storage capacity (even today it is reported that the country does not have adequate storage space for foodgrains), the problem of creating a network of workshops with the increased pace of mechanisation and, above all, the problem of evolving a suitable support price system.

Dr N.A. Majumdar, with the help of empirical data, has proved that there is a close relationship between price movements and crop patterns. The acreage under sugarcane increased throughout the country and a shift between rice and jute took place, all on the basis of relative prices of the agricultural commodities. This is perhaps both a patent good and a patent evil. In Maharashtra, for example, grape growers came to grief when they increased production but the prices of grapes came down in the absence of preservation facilities or industrial uses of the crop such as the production of wines. Hence utmost care will have to be taken in the fixation of relative prices of various agricultural products in such a manner as to bring about the desired shift from non-food crop to food-crops.

The agricultural revolution, which has begun, will make us self-sufficient in the years to come and

The revolution which has begun in the Indian agriculture with bumper crop this year has to be carried to its logical conclusion. Self-sufficiency in food should lead to helping industrialisation and earning foreign exchange by shifting to commercial crops.

if buffer stock is built and a suitable support price policy is adopted, it will also make us independent of foreign food aid and thus ease our foreign exchange position a great deal. But all this will be just the beginning of the beginning. The agricultural revolution must be carried on to its logical conclusion. When the problem of providing just 15 ozs. of cereals per head is solved, we must turn our attention to the provision of balanced diet for our population. It is the marketable surplus and the balanced diet that will stimulate rapid industrial and economic development through the creation of effective demand.

The production of foodgrains by itself will never yield a high income per acre, according to Lamarine Yates and Warriner, but the farmer can earn more by shifting the emphasis from foodgrains to livestock products. Therefore, if we can find 15 ozs. of cereals per head for our countrymen today, it is necessary to plan ahead for 34 ozs of non-cereals, 10 ozs of milk per day and 100 eggs per year per head in the years to come as against only half the quantity they receive today.

Once the crucial stage of food shortages is passed with the help of modern scientific methods, which of course promise both more food and less population in years to come, the way would be open for the Indian agriculture to take up commercial crops which can earn foreign exchange, and for the Government to lay down the foundation of agriculture-based industries so that a part of the food crops is converted into durable consumer products thus making agriculture an asset to the industrialisation rather than a drag on it.



THE UNRELENTING BATTLE

In an all out effort to eradicate malaria from the country, various preventive and curative measures have been taken. Spraying parties travel long distances crossing difficult terrain and turbulent streams to reach remote villages.

Above : The elephant provides a comfortable transport for spray parties in marshy lands.

Right : A doctor examining the spleen of a patient to detect infection.



Photographs
—P.N. Sharma/W.H.O.

THE following lines, written about India in 1936 by Lieut. Col. J.A. Sinton, Director of the Malaria Survey of India, were true, at that time, of most of the South-East Asia region:

"The problem of existence in very many parts of India is the problem of malaria. There is no aspect of life in the country which is not affected, either directly or indirectly, by this disease. It constitutes one of the most important causes of economic misfortune, engendering poverty, diminishing the quantity and quality of the food supply, lowering the physical and intellectual standards of the nation and hampering increased prosperity and economic progress in every way".

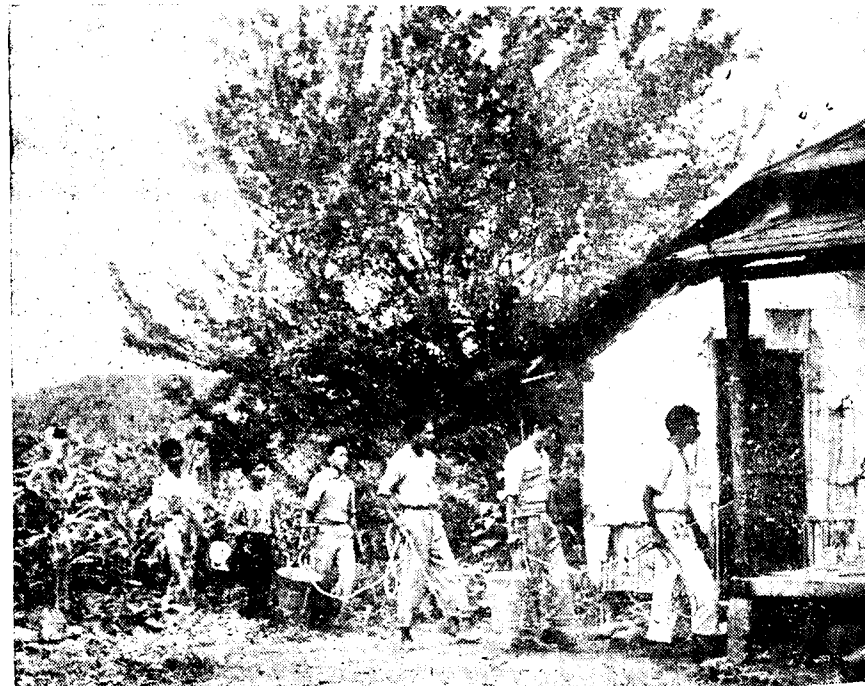
In spite of every effort and the great amount of research undertaken by the national authorities of those days, the picture had changed little by 1948, when the World

AGAINST MALARIA

Health Organization (WHO) established in South-East Asia Regional Office in New Delhi. At that time, in newly independent India, 75 million persons were suffering from the disease every year, and twice that many during an epidemic; the annual mortality was estimated at 800,000 as a direct result of malaria. Afghanistan, Burma, Ceylon, Indonesia, the Maldives Islands, Nepal and Thailand had comparable malaria problems. As was to be expected, therefore, the First World Health Assembly and, from the very beginning, the Regional Committee for South-East Asia gave top priority to malaria in the work of WHO.

Demonstration Projects

Demonstration projects in India were started in 1949 with three WHO teams. A fourth team was provided in 1950. These first WHO teams consisted of a team leader, a malariologist, and a public health nurse. The nurse's duties were primarily to collect blood smears from females and infants, but, in addition, she carried out the training of national nursing personnel, health education, home visiting



and supervision of maternal and child clinics, where these existed.

The staff of the national parallel team was expected to consist of a medical officer, an entomologist, a health visitor, laboratory assistants,

insect collectors, and clerical, transport and spraying staff. WHO or UNICEF furnished equipment, transport and supplies.

In these early years (1949-1950), to enable medical officers to study malaria control problems, three WHO fellowships were awarded to India. At the same time, a WHO consultant was assigned to the Malaria Institute of India (later to become the National Institute of Communicable Diseases), with the object of further strengthening that Institute so that it might become a training centre for other countries in the Region.

National Campaigns

The WHO-assisted projects of those early years were successful in demonstrating the vulnerability of the vector mosquitos to DDT and the practicability of control through indoor spraying. The results were not only in terms of the actual population protected; a keen desire for large-scale malaria control operations was also created. The early success of demonstration projects led the WHO South-East Asia Regional Office to turn towards promotion of national campaigns.

Above DDT spraying of a village in Assam

Left Blood samples are collected for detecting malarial in-



With WHO assistance as a stimulus to national programmes, a promising start had been made in India with a three-year programme starting in Bombay, to establish a State-wide campaign which would cover a population of twenty million. WHO was collaborating by providing technical personnel to organise the campaigns and to train staff, and was also promoting assistance from other agencies, both international and bilateral, particularly for supplies and equipment, and helping to procure insecticides from abroad.

By 1954 it was stated that nearly 90 million people were being protected in India. In the same year WHO sponsored the First Asian Malaria Conference in Bangkok.

The national programme steadily progressed, but not without difficulties. The more the campaign expanded, the greater the strain on national resources; the government, in spite of very considerable international and bilateral aid, found it hard to provide even the staff needed. As early as 1952, there was a proposal from the State Government of Uttar Pradesh, in India, to use voluntary workers from the local communities to undertake spraying operations. It was not then fully appreciated by national administrators that if residual spraying were to be effective, it could not be a haphazard affair; it had to be carried out in the shortest time possible, simultaneously in all the houses of the community, and this cannot be done on the basis of voluntary labour: it needs specially trained operators and technical supervision and direction. In other countries, in future years, similar proposals were to be made—and, in fact, put into practice (in spite of WHO's advice to the contrary), with unsuccessful results.

Under the same stimulus of need to economise, there was also a tendency to withdraw spraying operations too soon and without proper epidemiological assessment. Such false economy was indeed practised in some countries, and the results, with the necessity of subsequent resumption of spraying, proved beyond doubt the need for careful prior assessment of the local situation and for strict logistic



Anti-malaria drugs are administered to children in villages

control of the entire operation.

The trend of WHO's assistance had already moved away from localised demonstration projects towards strengthening technical direction and training on a nationwide scale, and it now became necessary to provide for really scientifically based assessments of the epidemiological status of areas in which work had progressed to the point of apparently successful results.

From Control to Eradication

By 1955, the reported development of resistance to DDT by anopheline vectors in various parts of the world was causing serious concern, and in the same year the resistance encountered in *A. sundai-cus* in two small pockets in Java, Indonesia, raised the danger signal

in the South-East Asia Region. It was the Eighth World Health Assembly in the same year 1955 that "...considering that the ultimate goal of malaria-control programmes should be the eradication of the disease", adopted a resolution urging all countries to intensify plans for malaria eradication and calling for voluntary contributions from governmental and private sources to establish a WHO Malaria Eradication Special Account, which could be used to accelerate action.

By 1958 it was possible for the WHO South-East Asia Regional Director to report: "The change of strategy from malaria control to malaria eradication has been adopted by all the countries of the Region", and implementation of this strategy involved very consider-

able strengthening of WHO staff. The regional budget was to provide not only for technical assistance within countries, to strengthen their malaria services and training and research activities, but also for supplemental grants to help with local costs and to cover arrangements for coordination through periodic regional and inter-regional conferences and seminars.

As eradication activities progressed, it was necessary to provide epidemiological assessment teams to undertake independent appraisal of local and national programmes, to establish an independent laboratory for the cross-checking of blood films from national programmes, and to promote field research and specific problems. Throughout the years, a large fellowship programme for the training of key national personnel was also maintained.

Health Services

As malarial transmission was arrested in various areas there came the need to plan for adequate surveillance services to make sure that areas did not become reinfected. The need for basic health services to take over the responsibility from special communicable-disease control programmes became evident as early as 1954. However, in 1959 it was obvious that large areas freed from malaria in which basic health services either did not yet exist or were too sparsely scattered to provide for the necessary surveillance during the phase of consolidation of eradication.

The very heavy expenditure which the government had to incur, first on the country-wide eradication campaign, and subsequently on specialised malaria surveillance services, dictated the need to concentrate on establishing, as quickly as possible, an adequate network of general health services which would be able to absorb vigilance duties against malaria. Nevertheless, it would have been dangerous to move too quickly, and WHO was repeatedly compelled to warn health authorities against diversion of malaria eradication staff to other duties, such as smallpox vaccination, etc., in circumstances which might mean that malaria surveillance would be weakened.

From 1968 onwards, the South-

East Asia Regional Office of WHO was developing a very large programme of assistance in the building up of general community health services. The effort to develop these services was, of course, necessary for its own sake, but it had now become important to accelerate this development, to permit the gradual integration of specialised communicable-disease control programmes and, particularly, to support the malaria eradication already achieved.

The Struggle

Progress in malaria operations has not been uniform and serious set-backs have been experienced during 1968 in several countries of South-East Asia. In India, for example, spraying operations had to be started again in previously cleared areas inhabited by some 30 million people. Dr. M.G. Candau, WHO Director-General, in reference to this and other reverses of the global malaria eradication programme, summed up the sobering situation as follows:

"While a number of administrative and financial factors have no doubt contributed to the situation, the lack of adequate basic health services to sustain the gains already achieved appears to be the fundamental cause. This emphasises once again the integrated approach needed when tackling health problems. A special mass campaign may reduce the prevalence of a certain disease to a point nearing its eradication, but further progress can rarely be made without an adequate general health coverage of the population through basic health services.

"Recognising the important achievements that have been made, but conscious of the disappointing rate of progress, the Twentieth World Health Assembly asked me to suggest the best possible approach to a re-examination of the global strategy of malaria eradication. To do this, I sought the advice of a group of eminent economic planners, public health administrators and malariologists, who examined the programme from an overall point of view. Following their advice I am proposing a study in depth of selected programmes in various stages of progress covering not only the technical and administrative aspects, but also the implications of malaria

eradication within the framework of the social and economic development of the countries concerned. This study should enable us to readapt our strategy to the resources and needs of our Member States."

Students Build Schools

from page 8

music parties and sang popular *qawalis*, others indulged in dances to the rhythmic beats of drums borrowed from the villagers. Six lady teachers were deputed by Poona Physical Training Centre to these camps to train the young students in the art of reciting songs, highlighting *shramdan*.

The school buildings constructed by the students are earthquake tremor resistant, economical, consistent with safety, and are durable. The design of the school rooms is in accordance with the specification prepared by the Directorate of Technical Education. Each classroom measures 18 by 22 feet with a spacious verandah in the front. The columns and terraces as well as purlins and runners are of structural steel and the walls and roofs of aluminium sheets. Each room has a wide window to receive fresh air and a door of black sheets. The estimated cost of each school room came to Rs. 5,900.

Dinkar Shankar Bamney, a student working at the Dhebewadi camp, was moved to tears when he visited the site of the Koyna tragedy. He pledged to do something for the unfortunate victims, and fulfilled his promise, unhesitatingly and voluntarily.

"We should assist our countrymen, when in trouble and I wish that millions should come forward to render a helping hand to those who suffer due to natural disasters", said Bhagwan Kamble, another student in the same camp.

B.B. Yadhav, a village headman, was all praise for the job done by the young educated workers. Schools have come up again and many children would be benefited by them, said he.

WHEN THE EARTH SHOOK

THE world around Koyna in the Satara district of Maharashtra State was asleep on that fateful day—December 11, 1967—when tragedy, stark and frightening, struck. The darkness preceding the dawn, hid from the eyes of the people the devastation that wrecked the countryside; but the wails of the dying and the many, many more who were the victims of nature's fury, could be heard all around. The earthquake, which wrought havoc in the four western districts of the State—Satara, Ratnagiri, Kolhapur and Sangli—was unprecedented in its severity, which left the geologists and seismologists guessing.

The assumption that the Deccan plateau is one of the most stable regions in the world and immune at least from major earthquakes has been rudely shaken by the Koyna disaster.

There are two main seismic belts where most of the major earthquakes originate. The Circum-Pacific belt, which is the most important, runs around the Pacific Ocean and includes the western coasts of the two Americas, the eastern coast of Asia and the islands of the South-East Pacific and New Zealand. The Alpine belt, which is the other important belt, runs from the South Pacific islands through the Caucasus mountains to Greece, Italy and Spain. So far as India is concerned, the main earthquake belt runs along the Himalayan ranges and in the Rann of Kutch.

The Deccan tableland is thus beyond the fringes of any of these belts. The record of earthquakes in India shows that since the earliest mentioned earthquake, which occurred in the areas of the present Uttar Pradesh on 6th July, 1505, down to the Koyna quake on December 11, 1967, a period of over four and a half centuries, only one earthquake had originated in the Deccan. This was on 1st April, 1843, and its epicentre was Bellari in the present Mysore State.

According to one theory, the Koyna earthquake was caused by the adjustment of the reservoir sides and bed under the pressure of the water column. The river at this particular point could well be flowing through a fault and might have encountered a joint. This theory of 'hydraulic pressure' as the cause of the quake is discounted by other experts.

According to another theory, the shock arose from a deep-seated disturbance and was not the result of any slippage in the reservoir.

Some experts also hold the view that the Koyna earthquake was an isolated occurrence and did not signal the discovery of any new seismic zone.

Teen-Age Professor

TEACHING is generally an adult avocation. Indeed it has always been regarded as the exclusive preserve and privilege of the "old" to teach the "young". Gradually this is changing; but even so, it is rare that a person who has just reached adulthood should take on the task of teaching older people. The most striking example of this trend, is the case of Harvey M. Friedman, a 19-year-old youngster who is the youngest assistant professor in the United States.

His graduate students at Stanford University are from four to 10 years his senior, but Mr Friedman has not found the age gap disadvantageous.

Professor Friedman has taught three courses during the 1967-68 academic year: mathematical logic, mathematical linguistics and recursion theory, the study of mathematical functions that can be programmed into computers.

Mr Friedman finds teaching at Stanford more fun and more interesting than he imagined. Being around people older than himself is not a new experience for the mathematics genius who prefers older people socially. Mr Friedman is an intense, creative person, reluctant to talk about himself. He has an analytical mind and is impatient with ordinary conversation. He



IGNORAMAN
Wants to Know

if the schools
stocked with foodgrains
can cope with
the admission rush
of children and rats

learnt to play chess when he was eight years old. He is also an accomplished musician and at one time considered becoming a concert pianist.

With his father's tutoring, Harvey completed a college level algebra textbook when he was 10. When he was 11, he spent a summer of work in calculus and astronomy at the University of Oklahoma. During the following three summers, he studied mathematics and philosophy in a special programme at Northwestern University near Chicago.

Meanwhile, in regular school, young Friedman was a good, but not an outstanding student. By passing a special examination, he was permitted to enter the Massachusetts Institute of Technology (MIT) at the age of 15 without having completed secondary school. He raced through six years of courses in two years.

Professors were so impressed that they let him begin advanced graduate study even though he had no college degree. Amazingly, in only 12 months, he completed his thesis on sub-systems of set theory and analysis and was awarded the coveted doctorate. He was 10 years old, the youngest Ph.D. ever graduated by MIT.



The Challenge

More food from India's arable land for the country's rapidly growing population. This is the most vital and urgent national task today. A challenge to our ability and aspirations.

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FOREIGN INVESTMENT IN INDIA

RAPID economic development of developing economies is the most immediate and important consideration calling for foreign assistance. Since domestic saving is not adequate to set off an accelerated process of their economic growth, the developing countries require foreign capital to supplement domestic financing. The United Nations World Economic Survey (1960) indicates that in the fifties, foreign savings contributed significantly to the total supply of savings in most of the less developed economies. As a result, these countries were enabled to register annual growth rates of 4 per cent or more, during this period.

One fundamental characteristic of development assistance deserves particular emphasis in this context. As economic development in under-developed countries gets under way and gathers momentum, it becomes crucial that the inflow of development assistance is augmented. If at this juncture the supply of assistance from abroad is cut short, it spells disaster for the developing country. Therefore, it is essential for the rapid economic development of such countries that the flow of resources from the rich to the poor countries must expand consistently with the requirements of the latter. In this context, this article attempts to point out main features of the flow of foreign private capital in India during the last few years.

India imported private foreign capital at an annual rate of Rs. 22.7 crore during the period 1956 to 1962. Roughly 8 per cent of the foreign investments came in the form of capital equipment and technical know-how, and only a small portion of the capital inflow represented inward movement of cash from abroad. Table 1 indicates the inflow and outflow of private investments from 1956 to 1962.

AN ANALYSIS OF TRENDS

T. V. SETHURAMAN

The inflow of funds during this period was at an annual rate of Rs. 4.6 crore whereas repatriation outflow took place at an average rate of Rs. 11.6 crore. Thus there was a net outflow of funds on private capital account at an annual average rate of Rs. 7 crore. In other words, between 1956 and 1962, India was actually facing an adverse balance of payments at an annual average rate of Rs. 7 crore in that period.

Inflow of foreign capital involves a recurring foreign exchange drain in the form of profits and capital repatriations. "It is therefore essential", says J. Batliwala, "that foreign investment by and large takes place in those industries which would result either in a direct saving of foreign exchange through import substitution or by enhancement of export receipts. Indiscriminate permission to foreigners to invest, if it were taken advantage of, on a substantial scale, might well result in demands for foreign exchange for the remittance of profits and capital repatriation beyond the country's servicing capacity."

Incentives to Foreigners

India has adopted the policy of screening foreign investment proposals and this should not be regarded as an obstacle to investment. Effective screening is one of the surest safeguards the foreign investor can have to ensure that the

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country, at a later date, may not be compelled, on account of its balance of payment difficulties, to freeze repatriation of profits and capital.

The foreign investment applications which receive the most favourable reception in our country are those involving advanced technological processes or those which are expected to improve the country's foreign exchange position by increasing exports of those which may replace imports. Since 1957 every effort is being made to attract foreign capital. Measures taken in this direction include the signing of the Indo-U.S. Convertibility Agreement (1957), a series of tax concessions to foreign firms affecting salaries (May 1957), wealth tax (July 1957) and super tax (September 1957). Corporate taxation on income and royalties was reduced in the Finance Act, 1959. Double taxation relief agreements were concluded with a number of creditor nations. The Indian Investment Centre was set up in 1961 to advise on collaboration ventures and to foster the inflow of foreign private capital. In 1964, the processing of foreign investment projects was streamlined to avoid delays.

Countrywise, the U.K. was the principal investor, accounting for two-thirds of the total investments in 1962. The combined foreign investment of other industrialised countries and international institutions like the I.B.R.D. amounted to Rs. 143.8 crore in 1962, the I. B. R.D. alone accounting for about a half (Rs. 71.9 crore). Entrepreneurs from Western Europe, Canada and Japan have begun to show interest in the investment opportunities available at present in India. The Swiss are interested particularly in the chemical industry while the Germans in the transport and chemical industries. On the other hand, Canadian investments are centering around the metal products like aluminium. Table 2

shows the extent of investments by different countries in India.

SELECTIVE APPROACH

Although distributed over a number of industries, foreign private investments have been selective in more than one way. Most of the recent investments have moved into the newer technologically intensive industries and patented products. For instance, much of the recent influx has been directed to the patent protected chemical and pharmaceutical industries or light electrical engineering industries. It may also be noted that foreign private investor has little or no stake in capital intensive projects, such as steel mills, heavy electrical machinery, and heavy transport equipment. Another tendency, observed in the cases of foreign collaborations, is that the total number of agreements increased steadily during 1957 to 1965, as shown in the Table 3 :

The Government generally takes care that collaboration agreements are not sanctioned to enterprises engaged only in trading, commercial or financial activities. Foreign tech-

TABLE 3
FOREIGN COLLABORATIONS
(Cases Approved by Government)

Year	Number
1957	81
1958	103
1959	150
1960	380
1961	403
1962	298
1963	298
1964	403
1965	242
Total	2358

Source: Economic Times, March 28, '66.

nical know-how is not generally encouraged if indigenous technology is available.

The need for promoting the flow of foreign capital into India was never before so pressing as it is today in the context of the increasing defence requirements. However, the fact remains that investment opportunities in India have not been given due publicity. Foreign investors are shy because often their knowledge of the conditions in India is inadequate or incorrect. Their fears should be allayed by providing them with correct information.

TABLE 1
FLOW OF PRIVATE INVESTMENT

Year	Gross inflow excluding retained profits	Cash inflow	Non-cash inflow	Cash outflow
1956	11.6	3.1	8.5	7.0
1957	17.2	5.8	11.4	6.0
1958	19.0	4.8	14.2	25.5
1959	11.1	3.3	7.8	15.5
1960	49.2	6.2	43.0	11.5
1961	19.8	4.0	15.8	7.5
1962	30.8	5.0	25.8	9.0
Total	158.7	32.2	126.5	82.0
Average	22.7	4.6	—	11.6

Source : Reserve Bank of India Bulletin, April 1966.

TABLE 2
FOREIGN INVESTMENTS

Country	1948	1955	1962
United Kingdom	213.2	365.9	482.8
United States of America	11.1	39.6	108.9
West Germany	0.1	2.4	12.0
Switzerland	5.2	5.7	10.8
Italy	...	...	5.2
Japan	0.2	0.2	3.3
Canada	...	2.3	7.3
Other countries	34.8	26.3	105.2
Total	264.6	442.4	735.5

Sources : 1. Survey Report, 1961 (RBI).

2. Reserve Bank of India Bulletin, April 1966.

High-Yielding Cashew

E. Vasu

KERALA produces over 60 per cent of the total output of cashew in the country. Still, it is a neglected crop in the State. Cashew plantations are located on hill slopes where soil conservation measures are rarely adopted. Manuring and cultural practices are not followed in any plantation. The result is the poor growth and low productivity which has led to heavy imports of raw nuts from African countries. In 1966-67, Rs. 23.5 crore were spent on the imports to feed our factories.

The State Government has established a small research station at Anakkayam in the Calicut district. After an extensive survey of cashew plantations in the State, it has selected 46 clonal and 43 seedling types, including some exotic types from Brazil, Northern Nigeria, Tanganyika and Malayasia, for studying their characteristics. Type BLA-256-4 yielded 5.44 kg. of nuts during the third year of the plant, while the average yield of about 73 per cent of bearing trees in Kerala is below 2.6 kg. of nuts.

Hybridisation between selected types is being experimented at the station. In 1963 four selected parental combinations were crossed and 46 hybrid nuts obtained therefrom were planted. They are found to be more vigorous in growth than the seedlings at the station. Hybrid H-4-7 gave a yield of 9.54 kg. of nuts in third year of growth. Other promising hybrids such as H-4-11, H-3-17, H-6-3 are also coming up.

Seed propagation is practically the only method so far adopted for cashew. Being a cross pollinated crop, seed progeny is seldom true to the parent and this accounts for the innumerable types seen in the existing cashew gardens. Vegetative propagation is the surest method of perpetuating high-yielding types. Trials conducted so far have shown that air-layering is a practical method of vegetative propagation. The yield and growth data so far gathered indicate that layers are better than seedlings.



CANADA'S PROBLEMS OF HOUSING

DEB B. DAS GUPTA

EVERY nation, rich or poor, large or small, is faced with the crucial problem of providing better and more housing for its citizens. This is not merely an economic problem. It has a wide variety of sociological connotations. Consequently, most of the developed countries of the world are concentrating more and more on the achievement of this modest goal. Contrary to the basic principles of free enterprise economy, increasing governmental participation in the development of housing is becoming a common feature in all countries. As a result, housing has emerged as one of the most important sectors of the economy.

Canada with a population of 20 million spread over an area twice as large as India has already established herself as one of the most wealthiest nations of the world. Second only to the United States, her biggest neighbour to the south, Canada produced goods and services worth \$ 62 billion last year. An average Canadian earns \$ 2,400 a year. One out of every four Canadians owns a car; nine out of every ten has a television set at home. Since 1961, the average standard of living, as measured by a change in real gross national product per capita, has increased by more than 25 per cent. At present there are about 5½ million dwellings, or about 30 million rooms to house a population of 20 million people. About one half of this total housing stock is relatively new.

Present Situation

Since 1954, on the average 1,40,000 new dwellings have been started in Canada. During this

period, the highest and the lowest points were reached in 1965 and 1960 respectively with 165,658 units registered in 1965 and 108,858 units in 1960. The concern here is not with overall performance but with the potential. One of the longest, during the post world war period, business upswings started in 1961 and continued through 1966 and 1967. During this period most sectors of the economy responded well, in keeping with the cyclical upswing, but housing did not grow appreciably. Between 1963 and 1966, gross national product expanded at an average rate of 10 per cent; while outlays on plant and equipment grew at an average rate of 19 per cent. New residential capital formation, however, increased only at an average rate of 8 per cent. As more and more persons are entering the labour force, there is increasing need for housing.

1966 was a critical year for housing in Canada. Total starts declined from 166,565 in 1965, to 134,474.

Mortgage Market

In spite of active governmental participation in the mortgage market, more than 3/4 of the total funds available for housing originate from private sources. Life insurance companies, loan and trust companies and chartered banks are the main source of funds for housing, which provide more than two-thirds of the total funds in the mortgage market. In addition, loan companies are typical Canadian institutions operating exclusively in the mortgage

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market. Although mortgages constitute a part of long-term investments, unlike other capital market instruments they are less liquid, more rigid, and, therefore, more difficult to administer. As a result, the mortgage market fails to attract the rank and file of investment minded people. In spite of this, mortgages remain one of the most dominant sectors of the capital market. For the last ten years, mortgage debts outstanding grew by 11 per cent per annum, while all other capital market debts increased by slightly over 7 per cent. This indicates the lucrative aspect of the mortgage market. If a secondary mortgage market can be created where mortgages can be bought and sold, part of the inherent rigidity and lack of liquidity can be effectively remedied.

Taken separately, life insurance companies are the single largest lenders in the mortgage market. Although their relative share ranges between 50 to 55 per cent of the total provided by life, loan, trust and banking institutions, consistently they provided a steady source of funds. In addition to loan companies, trusts companies were also involved actively in the mortgage market. Trust companies originate mortgages not only on their own account, but also from the accounts they administer for others (namely Estate, Trust and Agency funds). Banks were permitted to enter the mortgage market in 1954 and were active for a couple of years. They withdrew completely from the mortgage market after 1960, when mortgage interest rates went up further than what they were allowed to charge. They

again in May 1967 when the Bank Act was modified.

Legislative Changes

Although some legislation dealing with housing was passed way back in the 20's, and continued through the 30's and the 40's, one of the most effective legislation was passed in 1954. Between 1954 and 1962 numerous amendments were made to the National Housing Act of 1954. The most important among these were the extension of direct government (through the Central Mortgage & Housing Corporation) credit to Universities for the construction of dormitory accommodation, and to municipalities for the development of sewage plant and trunk lines, etc. Since 1962 a few more legislative changes have been enacted. The most important among these are: (a) an increase in the loan amount, (b) a more flexible interest rate, (c) changes in the Bank Act to enable Banks to participate in the mortgage market, etc.

Interest Rates

There are two different rates of interest prevalent in the mortgage market: a regulatory interest rate and a non-regulatory rate. The regulatory rate refers to the rate fixed by statute, namely rates charged for mortgages under the National Housing Act. The Federal Government fixes the maximum ceiling of such a rate based on the long-term government bond yields. They are set usually above the Federal Government's long-term borrowing rate in the capital market. From time to time rates are revised upward or downward, depending on the long-term government bond yields. On the one hand, this enables mortgages to compete effectively in the capital market for funds, and on the other hand, it introduces a rigidity in the interest rate structure.

In November, 1966, a new formula was devised whereby this interest rate which allows for a fluctuation of $1\frac{1}{2}$ per cent above government bond yields. This rate is scrutinised and quarterly adjustments to the nearest one-quarter of one per cent made if bond yields increase or decrease. This has further been amended in May 1967

whereby the maximum ceiling is fixed at full $2\frac{1}{2}$ per cent long-term bond yields and quarterly adjustment of the nearest one-eighth of one per cent made, depending on movements in the long-term government bond yields.

The non-regulatory interest rates refer to those rates charged for mortgages outside the National Housing Act, which is commonly known here as "NON-NHA" or "Conventional" mortgage interest rates. Conventional mortgage rates are higher than NHA rates mainly because (a) they are usually fixed by the market forces of demand and supply, and (b) conventional mortgages lack insurance feature.

Over the last ten years conventional mortgages account for more than 60 per cent of the total. To originate mortgages under the National Housing Act, a lender has to comply with certain regulations.

Public Participation

Both the Provincial and Federal governments directly and through the different agencies participate actively in the mortgage market. The Central Mortgage & Housing Corporation Act, 1945, established the Corporation as the agency of the Federal Government primarily for housing. The Corporation, in addition to being responsible for different programmes, like student housing, housing for primary industries, low income housing, etc., actively participates in the mortgage market through direct lending. The corporation lends directly to borrowers who would normally be refused by others. In other words, the Corporation's role is more contracyclical in nature. When the market is depressed or because of the tight money situation not enough funds are available, the Corporation lends heavily.

In recent years, different Provinces have formed their respective housing agencies to make house ownership easy. The rising cost of houses over the last few years coupled with shortages in rental accommodation has created a major social problem.

What lies ahead for Canada at least for the next decade? To quote the Economic Council, Canada needs at least 200,000 starts a year up to

1972 to cope with the severe housing shortage. Up to now housing starts numbered imply 170,000 to 180,000 units a year. Both politicians and economists have taken a realistic view of the problem. There is a move to make the NHA rate completely free, so that the NHA rate can be determined by the market forces of demand and supply. This, in turn, will attract potential private funds (like Pension Funds and Estate, Trust and agency funds whose assets have grown tremendously over the last ten years) in the mortgage market.

Any change in the housing situation will largely depend on how well the present rising trends of housing costs can be arrested. The analysis of housing costs reveals that the increase in land prices contributes more to the overall costs. While there is no immediate prospect of this trend being revised it can be safely assumed that in the next few years, if the economy performs well, the increase in real income will outweigh the increase in costs. Even with the shortage the housing conditions in Canada are relatively better than any other country in the world.

REFINERY TAKES TO FARMING

The Gujarat Refinery at Koyali near Baroda has taken to farming. Last year, it produced 10,500 kg. of paddy, Kodra ground-nut, Tur and Til.

After harvesting the Kharif crop, wheat was sown during rabi season in about 70 acres of land which is expected to give an yield of about 45,000 kg. in addition to 100 kg. of mustard.

Arrangements have been made to sow *bajra* and vegetables in about 85 acres of land.

The foodgrains grown in the Refinery farm are sold to the Refinery employees through the Gujarat Refinery Employees Consumers' Cooperative Society at fair prices.

The seed for this crop was imported from some west-European countries. Efforts are now being made to grow indigenous seeds.

My brother's marriage took place recently at Bijapur in Mysore State. The bride's family was well educated and they were extremely hospitable. We also co-operated and avoided waste of food, eatables, etc. In this atmosphere of mutual understanding and cordiality, the marriage rituals progressed smoothly.

As the ceremony was nearing the completion, suddenly a sari was demanded from us by the bride's party. It was customary for the particular ritual, they said.

I had forgotten to bring the sari and realising our mistake, my elder brother had already gone to the market to buy one. But the bride's party fretted and frowned and a quarrel seemed imminent. The bride's father, who was so calm and quiet before, was now furious. His brother had stopped the rituals. The bride and the bride-groom had retired to their rooms. The gay atmosphere turned gloomy.

Meanwhile, my brother returned with a sari and the rituals were resumed. However, we were unhappy about the incident, but the bride's party seemed to have enjoyed the situation.

Later when I enquired about the big row for a trivial sari, the bride's father said with a smile, "Please don't mind it. We wanted a quarrel and the sari was only an excuse. Do you know, it is a popular belief in this area that such quarrels are essential to ensure the nuptial bond of love between the bride and bride-groom?"

Mhulia

S.R. Havaladar

The boat bridge on Jamuna is meant for cyclists and pedestrians. No heavy vehicles are allowed to use it. To insure this, chowkidars are posted on both the approaches to the bridge. But during lean hours they close their eyes and allow even heavy trucks to pass provided they are adequately tipped. Many drivers take advantage of this leniency to avoid the usual bottlenecks on the main bridge.

The other day, I saw a truck with building material crossing the boat bridge after tipping the chowkidar on the Red Fort side. But when he reached the opposite end the chowkidar on duty stopped him. The chowkidar expected some tip, but the driver insisted that the chowkidar should share the tip payed already to his colleague at the other end.

Argument started. The chowkidar maintained that the bridge was not meant for heavy vehicles. A traffic constable agreed with the chowkidar. The truck driver was forced to go back, again over the boat bridge.

Thus a chowkidar's insistence on the rule caused the heavy truck break the rule twice.

New Delhi

V.B. Duggal

During the last general elections, I was a Presiding Officer at a polling station.

A voter, who was an ex-serviceman

THIS INDIA

YOJANA invites contributions to this feature from its readers all over the country. Each anecdote must be true to life, of less than two hundred words, capturing something significant of India's rich and varied life. Each published anecdote will be paid for.

and Rajput by caste, took the ballot paper from the first officer and went to the next who took out the indelible ink to apply to his finger. But the voter refused to get the ink dot and started shouting that Rajputs would never like to have any 'kala dhabba' (black dot) on their person.

I took him aside and tried to persuade him. I said, "You were in military service and you know better than ordinary people how to obey the orders of higher authorities. Military people are well disciplined". Then I showed him the bottle of indelible ink, and said, "This ink is not completely black as you think. It is somewhat brownish".

He reconciled and at once went to the ballot box, got the ink dot on his finger and exercised his vote.

Bhir

R.S. Mokate

A night watchman of a Government establishment one day approached his boss, with a leave application. He had a bandage on the right hand. The application stated that he was injured by falling from a lichi tree in the garden of the establishment while he was trying to pick ripe lichi fruits from the tree at night. So, he prayed for one month's medical leave.

The boss pondered over the application and smiled. He said to the watchman, "You will be discharged from office for neglecting your duty, if I accept this application. Moreover, you may be arrested for stealing office property."

The watchman was caught in his own net and pleaded for forgiveness.

The officer took pity on his predicament and advised him to put up another application.

But on what grounds?

"Say you had a bicycle accident," the officer suggested.

The watchman gratefully took the application back and submitted another as advised.

Jorhat

(Mrs.) Jyoti Bordoloi

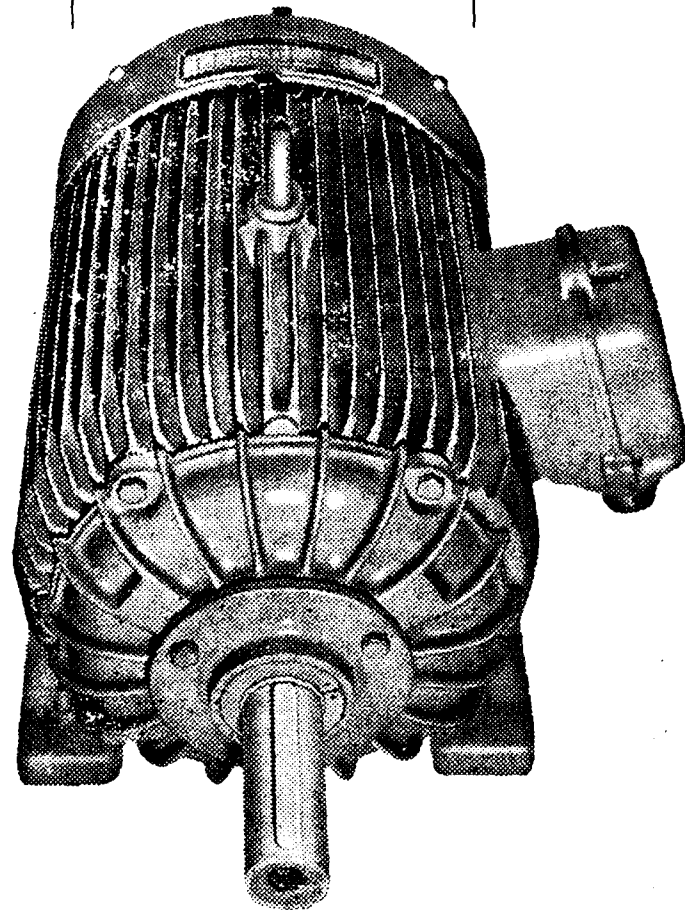
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Books

YEAR BOOK ON EDUCATION

The Third Indian Year Book of Education — Educational Research.
General Editor : S. B. Adaval.
Published by the National Council of Educational Research and Training.
1968. 310 pages. Rs. 14.50.

Bool Chand

THE first two Indian Year Books of Education dealt with two vital aspects of Indian education. The first gave a comprehensive review of education in India from 1947 to 1961. The second dealt with the problems of elementary education in India. This third year book is devoted to the question of educational research and "attempts to demonstrate how vital is the place of educational research in the field of education" in India.

In the foreword Prem Kirpal has stated that each chapter in this year book "attempts to present an objective appraisal of the research done in a specific area of education". This statement is true only of some of the chapters. The most interesting chapters are not the ones where an appraisal of the research done is offered, but rather the ones which offer an objective assessment of the problems which face the different categories of education, namely legal education, medical education, technical and professional education, and teacher education.

A fair qualitative assessment of the different areas of research, each of which has been dealt with by a qualified scholar in separate chapters, has been given in the Introduction by Dr N.P. Pillai, Professor of Education in Kerala University. "Education research in India today", says Professor Pillai, "is still in its infancy". Educational studies dealing directly with social change are conspicuously absent. There is urgent need for research on aspects such as the role of education in introducing social change, resistance to social change, teachers as instruments of social change, measurement of effectiveness of the

school as an agency of social change, etc. Research in curriculum has not received the attention it deserves. In other countries an increasing amount of research has been done in this field, and the result has been a change in the curriculum giving it a properly dynamic character. In India, on the other hand, the curriculum has been static.

Dr Pillai has drawn attention to the gap between educational research and the requirements of educational development in India. This, he thinks, is due to the fact that the universities and research institutions are not organically related to the schools and that research scholars are not usually field-workers in education. They work for degrees or stipends and not un-naturally their primary concern is the successful completion of their own thesis rather than any consideration of the probable impact of their work on the development of education.

The most interesting part of the book are the two chapters dealing with 'research in legal education', one written by S. Rangarajan and the other by Prof. P. K. Tripathi. The legal profession in India is faced with a crisis. "The law schools have become a resort mostly of 'rejects', there is an oppressive sense of frustration on the part of those entering the law schools"... "Since Independence and particularly since the commencement of the Constitution, there has been a tremendous strain on the Bar as well as the Bench in India. The flood of new litigation released by the constitutional guarantees of Fundamental Rights and the discretionary powers granted to the High Courts and the Supreme Court to issue writs and orders to any authorities and persons in the interest of justice has required the creation and build-up of altogether new areas of jurisprudence"... "Only in the past few years has it been realised that the value found in the books (including the statute-book) of law does not

correspond with the values accepted by the community. It is small wonder, therefore, that the lawyer is looked upon, to use Dr A.T. Markose's expressive phrase, as a 'manipulator'... The approach of the lawyer has been too mechanical, he has not been sufficiently exposed to sociological approaches; he has not been trained to make value judgments."

Nobody can read these chapters without concluding that the administration of law in India is in great danger of suffering a rapid deterioration. Respect for the law, which has been a notable feature of the Indian mind, is already showing signs of erosion. In the words of a Harvard scholar (quoted in Dr Tripathi's article) "India today requires superlative legal education much more than does the West, for in India a far less viable balance is struck between the society's requirements and a reasonably effective exploitation of the law's potential for contributing to the meeting of those needs."

The problems of medical education have been discussed with great awareness by Dr B.L. Taneja and those of technical education by L.S. Chandrakant. The General Editor has himself contributed the chapter on Teacher Education, in which he has admitted with frankness that "the attitude of teachers to their profession is not favourable. Those in service as well as those under training are generally dissatisfied with their work for one reason or another".

It is a well produced book, full of information, and the National Council of Educational Research and Training deserves to be complimented on its production.

Our Economic Policy

Indian Economic Policy by Prof. B.R. Shenoy. Published by Popular Prakashan, Bombay. 348 pages. Rs. 25.

Yogendra Sahai

THE recurring theme of the book under review is that the root cause of India's economic ills is centralised planning, which, the author maintains, has widened the field of public sector and will soon

land us in the lap of communism. Prof. Shenoy is of the view that centralised planning should be replaced by a policy of economic freedom, which is the only answer to this.

Prof. Shenoy's views on the subject are well-known, and he has said nothing new in this book. In fact it is a collection of articles written by him from 1960 to 1966, which had some topical interest at the time. However, the author has not taken the trouble to avoid repetition.

The current economic policies pursued over the past decade and a half, warns Prof. Shenoy, would "land us either in full-fledged communism or a military dictatorship as had emerged in several countries when the people have been overwhelmed with frustration". According to him, about 70 per cent of the current accruals of savings and foreign aid were sucked in by the public sector. If the process continues, it would establish a socio-economic order indistinguishable from communism. How soon would that happen, the learned Professor does not hazard to say. He does not take into account the difference between India's political and economic situation as well as the basis of India's struggle for freedom, and the cultural, economic and political ethos of other countries he refers to. He supports his contention with mere statistics.

Much of the foreign aid, he holds, had "gone down the drain", to finance, what he calls the construction of "industrial Taj Mahals, feeding corruption and extravagant living, and providing foreign exchange for smuggled imported goods in short supply". The author suggests that every dollar of aid should be utilised for accelerating production and adding to effective capital formation. That could be done by channelising the bulk of aid through the capital markets of the world. Government to government aid, he feels, should be confined to such activities which do not attract private finance, such as education, public health and basic transport. Prof. Shenoy thinks that aid on a commercial basis might help normal and healthy growth of democracies in under-developed countries.

The author expresses the view

that the progress of industrial production has been "topsy-turvy". According to historical evidence, revolution in agriculture had always preceded industrial revolution. But, planning in India was a "reversal of this natural process." He adds that India was developing heavy industries ahead of light industries and developing both at the cost of agriculture. In developing his thesis, Prof. Shenoy ignores the patent fact that the First Five Year Plan was essentially an agriculture-oriented Plan; and the emphasis on industrialisation, in the Second, was readjusted during the Third. Since then, top priority is being accorded to the attainment of food self-sufficiency by 1970-71.

The author holds the Planning Commission, the Ministry of Finance and the Reserve Bank of India, and not the foodgrain traders and farmers, guilty of causing the food crisis. The reason for rising prices, he asserts, was the physical shortage of foodgrains, which was due to the forced diversion of over 70 per cent of investment resources into the public sector at the expense of agriculture. He ascribes inflation to government investment of non-existent resources through deficit financing; hoarding is not the cause, but the consequence of the price rise.

The solution of the food problem, the author says, calls for a curb on inflation, and import of foodgrains to cover up shortages. The long-term solution lies in increased domestic production, which cannot be achieved by setting up mammoth projects in the rural sector, but by providing a larger and freer flow of credit and capital to the 67 million farm families, to enable them to get better seeds, more fertilisers, better storage, transport and marketing facilities. On this point no one would disagree with the author.

With economic freedom, Prof. Shenoy hopes, national income might have risen at an annual rate of 8 to 10 per cent, instead of 2.9 per cent, and unemployment instead of mounting would have gradually disappeared. The situation demanded a drastic scaling down of public sector investments, a curb on inflation, an adjustment in the exchange value of the rupee (it was written before devaluation), and

removal of all types of controls. The hurdles in the way of these reforms are not economic but political, says Prof. Shenoy.

The book concludes 'with a section on some miscellaneous problems like corruption, war finance, MIG economics and educational subsidy, which make interesting reading. Corruption, he opines, stemmed from "controls", especially on import licences. These should go and simultaneously public sector activity and state intervention must be "drastically cut" to achieve the Gandhian 'minimum state'. What we needed, Prof. Shenoy says, is a shift from 'political socialism' to 'Gandhian ethical-socialism', which implies policies of maximum economic freedom for the citizen. All in all, the book makes interesting reading despite the fact that most of the premises are out of date.

BOOKS RECEIVED

India's New Food Strategy by Rajeshwar Dayal. Published by Metropolitan Book Co. (P) Ltd., Delhi.

The Economics of a Backward Region in a Backward Economy—Vol. II (A case study of Bihar in relation to other States of India). Published by Dr. Kedarnath Prasad, Scientific Book Agency, Calcutta-1.

Challenge of Famine by Bishwa B. Chatterjee and Hanuman Prasad Srivastava (A case study of the working of Free Relief Kitchens in Navgarh, Varanasi). Amitabh Prakashan, Varanasi.

Tungabhadra—A Citadel of Hope. Edited by Narasing Rao Majarkal. Published by the Department of Information and Tourism, Government of Mysore, Bangalore.

Solving the Food Problem by Sadhu Ittyavirah. Published by St. Thomas Press, Palai, Kerala.

Scientific Assessment of Flood Damages, District Planning—Moradabad. Both published by National Council of Applied Economic Research, New Delhi.

Multifarm Use of Agricultural Machinery by H. Lonnemark. Published by Food and Agriculture Organisation of the United Nations, Rome.

Statistical Abstract of Punjab—1967. Published by the Economic and Statistical Adviser to Government of Punjab.

Political References in Kerala by K.G. Krishna Murthy and G. Lakshmana Rao. Published by Radhakrishna Prakashan, Delhi-6.

Seminar on Demographic Aspects of Mysore State. Edited by A. P. Katti. Published by Demographic Research Centre, Institute of Economic Research, Dharwar-4.

Development Diary

● India has signed an agreement with a West German firm, in New Delhi, for setting up the Rs. 22-crore Gujarat Aromatic Project. A part of the petro-chemical complex in Gujarat, the project will go into production by 1971-72. It will produce all the basic chemicals, which are being imported at present, for the manufacture of raw materials for agricultural and industrial use. Under the agreement the major part of the engineering design will be done in India by Indian design engineers with the help of experts from West Germany.

● The Shipping Corporation of India has extended its services to East Asia and the Pacific Coast of the United States and Canada. With this, the Corporation's services will cover almost all the ports of the world except in South America.

● An oil jetty has been opened in the Haldia port project area near Calcutta. Built at a cost of about Rs. 2 crore, the jetty has 90-metre berthing face to facilitate berthing of the largest tankers. The jetty will go into full operation in mid-July when laying of pipelines between Barauni and Haldia will be completed. Till then it will be used for export of naphtha from Barauni and for the import of kerosene.

● Work has started on the new public sector undertaking, the Bharat Heavy Plate and Vessels, at Visakhapatnam. This Rs. 19-crore project is being set up in collaboration with Czechoslovakia.

● The foundation of Organon (India) Ltd., an Indo-Dutch drug unit, has been laid in West Bengal. The only factory in the eastern region to manufacture oral contraceptives, the unit will use the most modern equipment and processing techniques.

● Dutch engineers have started water-drilling operations in the Gaya district of Bihar. This search for water in the drought-stricken area is a part of the 3.5 million guilders Dutch development aid project.

● A Rs. 6-crore tractor manufacturing factory is to be set up near Ludhiana in Punjab, with Bulgarian collaboration.

● The first India-made warship 'INS Bhatkal' has been launched. Built at the Mazgaon Dock, it has specially designed minesweeping equipment as well as the most modern wireless navigational and echo-sounding equipment on board.

● The State-owned Mazgaon Dock in Bombay has earned Rs. 22.5 lakh in foreign exchange by converting an American dumb oil

drilling vessel into a self-propelled ocean-going one.

● The fifth in the chain of nine modern bakeries set up in the public sector under the Colombo Plan has begun production in Delhi. The unit will produce 36,000 loaves of 400 gm each daily, and in course of time will diversify its production to smaller loaves, buns, biscuits and rolls. Four bakeries are already functioning at Bombay, Madras, Cochin and Ahmedabad.

● An Institute of Technology has been opened at Nadiad near Ahmedabad, at a cost of Rs. 30 lakh.

● The Agricultural University at Hebbal, near Bangalore, has evolved a new variety of high-yielding cotton named 'Vijaya'. The fertility of the new strain is 40 to 50 per cent more than the conventional varieties.

● A fish-freezing plant has been inaugurated at Ennore near Madras. It has a capacity to freeze three tonnes of fish per day and is expected to earn one crore rupees annually in foreign exchange.

● The Assam Government has set up an Agro-industrial Corporation to help modernisation of agriculture. The Corporation will import the latest equipment from abroad and sell it to farmers on hire-purchase basis.

● The Aid-India Consortium, comprising eleven countries, and the World Bank has estimated India's requirements for economic assistance, for the year 1968-69, at \$ 1,450 million. The members of the consortium accepting India's need for a non-project aid of \$1,000 million have agreed to provide the same in the form of debt relief.

● The Canadian External Affairs Department has announced a \$4 million interest-free loan to India to help finance a satellite communication station at Poona. A 50-year term loan, having a 10-year grace-period, will help India to procure equipment and technical assistance from RCA Victor Ltd., Montreal.

● The United States Export and Import Bank has announced a loan of \$ 20 million (Rs. 15 crore) to India to finance purchases of American equipment and services. The loan will be used for importing manufacturing machinery, agricultural equipment including aircraft for crop spraying and earth moving and transport equipment.

● India has agreed to set up a Technical Training Institute in Malaysia. According to an official spokesman, India has also agreed to provide expert teams of economists and technologists to carry out a techno-economic survey in Malaysia.

● An Indian firm has obtained a contract for the setting up of a jute mill in Uganda. The project, to cost Rs. 1.35 crore, will meet Uganda's entire needs of 6 million jute bags and 2 million square yards of hessian cloth a year.

● An Indian firm is to help the setting up of an asbestos cement plant in Libya. The firm's contribution would be in the shape of machinery, spare parts and technical know-how.

● India and Ceylon have signed three agreements to set up a joint consortium for marketing blended and packaged tea in foreign markets. The two countries have also agreed to promote industrial collaboration, set up joint ventures and to expand and diversify trade. The proposed consortium will also promote the sale of tea in the European Common Market.

Umsaw Suffers from Poverty and Neglect

A Survey by
Barapani College

THE students of the Union Christian College, Barapani, conducted an economic survey of Umsaw, a village in the Khasi Hills, 13 miles north of Shillong. The life in the village was peaceful but virtually ungoverned by any local authority. Matriarchal system prevailed, with the youngest daughter inheriting the property. The village council was headed by an absentee headman. Cutting of the footpath 500 feet down to the winter water source, the maintenance of a hill track to the National Highway No. 40, and the running of the church services were the only works undertaken unitedly. Socially a cohesive group having common language, customs and religion, the villagers were either Khasis or Christians. They did not observe any caste distinction.

The Umiam lake, which was built in 1965, by the Umiam Hydel Project, destroyed many villages but not Umsaw which is situated at a higher level. However, the lake has brought about a change in the means of livelihood of the people of Umsaw. Since their paddy fields got submerged by the lake water, the owners were handsomely compensated in cash. Most of the cultivators frittered away this money on consumer goods instead of utilising it for improving their means of livelihood.

In all, there were 55 households with a population of 270. The average number of children per family was 3. The cause for few children was not the awareness of family planning but the absence of medical facilities.

Out of the 163 children only 34 had been enrolled in the school. The average attendance was only 20. Only five villagers had taken secondary education.

There were no blacksmiths, cobblers and weavers in the village. All the persons were under employed. There are no cottage industries. Out of the 73 per cent of respondents who reported agriculture as their primary occupation, 37 per cent supplemented their income by working as labourers in the off season. Eleven per cent of the respondents were landless labourers.

The average productivity of paddy per acre of land was 8 maunds and the average land holding 2.7 acres. Sweet potatoes were grown widely, as they form an important item in the diet of the people. Vegetable growing was gradually being taken up on commercial scale.

The per capita income of the village was Rs. 240, that is 66 paise per head per day.

The contra-contour beds laid down for paddy cultivation have destroyed the fertility of the soil. The land is cultivated one year and left fallow for two years. Shifting cultivation was practiced on account of heavy erosion of soil and the rapid growth of weeds. A few years ago, the government authorities made an effort to popularise terrace farming but, as they did not replace the top soil the result was that the productivity of the terraced fields went down.

Poultry farming, piggery, and cattle-rearing are negligible in this village despite the fact that chicken and pork are considered delicacies amongst the Khasis and there is heavy demand for these products in Shillong.

For the past ten years no Gram Sevak had been assigned to the village. No representative of the development block had ever visited the place. About ten years ago some people were given wire netting for poultry keeping. As no follow-up work was done, not a single bird of exotic variety survived. About the same time an extension worker from the Block demonstrated the use of chemical fertilisers. But unfortunately all those who offered their fields for the trial suffered losses.

HIGH YIELD OF GROUNDNUT

The State award for 1967 for the highest yield of groundnut was won by Kuppusamy, a progressive farmer of Villampatty, a village in the Madurai district of Madras State. His yield was 1102.5 kg. in an acre. He earned a net profit of Rs 13,000 from the ten-acre plot under groundnut. The cost of cultivation was Rs 533 and the income Rs 1,875 per acre.

Besides groundnut, Kuppusamy grows paddy, sugarcane and hybrid jowar on his 32-acre farm. Every year he invests a part of his profits in securing new improved implements. He also keeps himself abreast with the latest agricultural practices.

"Electricity is the main reason for my success," says Kuppusamy. A young man of 30 years, Kuppusamy studied only up to the fifth class. He started his career as a clerk, earning Rs 300 a year, in the village co-operative society in 1956. He resigned the job the same year and took to farming. He has got his dry land tested by the Agriculture Department and has installed two pump-sets on the farm. Within ten years his annual income rose to Rs 30,000.

IRRIGATION SCHEME FOR RAJASTHAN

Work has started on the Jakham irrigation scheme near Haldukheda, a village in Udaipur district of Rajasthan.

The main dam is to be constructed on the Jakham river, with a storing capacity of 43,000 lakh cubic feet of water. It will irrigate about 40,000 acres.

Work has also started on the Godawari Ka Naka irrigation scheme in Kherwada tehsil of Udaipur district. The scheme will have a canal, 11 kilometres in length.

The Agricultural Refinance Corporation has sanctioned nine irrigation schemes for Mysore State costing about Rs. 15 crore. These will benefit about 6 lakh acres of land.

COMMENTS ON THE 'APPROACH'

from PAGE 7

tion requiring import control, they must be strictly of temporary duration and administered by an independent quasi-judicial authority.) Basically, it is true to say that increased production, growth and progress, whether in agriculture or in industry, trade and transport, will be achieved, not by the continuance of this vicious apparatus of controls, but by dismantling it as quickly as possible.

There are two other aspects of achieving a growth rate of the magnitude envisaged which need to be emphasised in a direction precisely opposite to that which the Planning Commission has in view. In the first, we have to make a deliberate choice between conflicting objectives. Do we want the maximisation of the Gross National Product or the equalisation of incomes and wealth? An affluent society, of which the benefits may take time fully to percolate down to the masses, or an egalitarian society "on short rations all round"? We cannot have both. But the appropriate answers to many other questions such as those concerning land reforms, taxation of income and wealth, the so-called "concentration of wealth and economic power", etc., will depend upon the way we answer these fundamental questions. And here, as elsewhere, the Planning Commission has plainly shirked the issues.

The second issue relates to the growth of industry in the public sector. Here there are two questions involved: one of priority, and the other of principle. As to priority, it seems obvious to me (even without engaging in any controversy of principle) that the resources likely to be available for expenditure by the Central and State Governments are at a practical level so limited, and the demands upon them for building up the infrastructure (in the shape of numerous and necessary social and economic public utilities and services) so great, that any sane Planning Commission or Government should really plan to devote all the available resources of public sector—

QUOTATION BOX

Poverty is a psychological process which destroys the young before they can live and the aged before they can die.
—Ira Goldenburg quoted in "Time"

Lots of people who are seen with me, who are said to be hippies, are really the national press.
—Senator Eugene McCarthy

Indian democracy is not yet twenty years old, yet it is showing dangerous signs of infantile paralysis.
—"Amrita Bazar Patrika"

Science democratises creativity by bringing creative experience within the reach of many.
—Dr. D.S. Kothari

Women's ages are never facts.
—Philippine Approaches

The greatest personal commitment one can make to himself today is "Learn, Baby, Learn!"
—Sandra Bruzzese in "Time"

Guarantees are like young girls and roses; they last while they last.
—"President De Gaulle"

The biggest question in Hollywood today is "Who's whose?" It is not a matter of romance or film contracts, but of politics.
—"The Statesman"

Defection is a-moral, so bringing in the question of morality and ethics makes the whole issue apolitical.
—Mr P.C. Shastri in "Mankind"

No one is more than thirty minutes from oblivion.
—"Span"

Failure does not lead the weak to reform but to panic and hopelessness.
Lahorimall in "Now"

Shopping attracts women with that same magnetism that alcoholic beverages have for men.
H.G. Wells

Most women are born accountants and have such an uncanny appreciation of the value of money that I often wonder why countries do not choose their Finance Minister from among them.
Mr. Charles Newton in "Social Welfare"

All experience is only a blow-up, an enlargement, of whatever we choose to focus on.
Phil Boroff in "Daily Egyptian"

The law may be an ass, but do policemen have to be?
Harji Malik in "The Hindustan Times"

Just as sure as summer follows spring each year, at each session of Parliament so does the discussion on people's car.
Mr Claude Roding in "The Economic Times"

financial, technical and managerial—to the fulfilment of those demands before diverting any to public sector projects in the field of industry, trade and road transport. On the question of principle, concerning the desirability of the State venturing any more in these fields, the experience of the past twenty years is decisively in the negative. There is no justification whatsoever for the Bokaro plant and the like.

The fact is that the Planning Commission has forgotten everything and learnt nothing from the experience of the past twenty years. It continues to live in a state of semantic hypnosis, where mathematical projections and models supersede past performance, where what is practicable gives way to what is conceived to be theoretically possible and emotionally desirable, and where hopeful words

and clever phrases are accepted as sound arguments to overcome conflicting and irreconcilable objectives.

SUGAR FROM BEET

Experiments to manufacture sugar from sugarbeet, for the first time in the country, have been successful in Rajasthan at the Ganganagar Sugar mills.

As many as 565 quintals of beet sugar were produced in the first experiment. The recovery was 87 per cent on an average from 6490 quintals of beet. The plant began production on April 12 last.

Sugarbeet was grown in 100 bighas near the mills. Climate and soil of this area proved suitable for the crop. The production of beet was 30 tonnes per acre.

**We would like to tell you
all that's good about
Caterpillar equipment...
But let's talk about "Parts".**



This one word means a lot—especially to a harassed earthmoving equipment user, with his machines lying inoperative, idle time mounting, availability shrinking. All because the parts he needs are not there when he wants them. But he wouldn't be in this predicament if his equipment were Caterpillar. Because Caterpillar equipment has built-in quality backed by efficient after-sales service. Caterpillar dealers, with their network of well-stocked depots throughout the country make available genuine parts to users of Caterpillar equipment whenever and wherever they are wanted. In addition, only Caterpillar dealers can offer complete undercarriage components manufactured in India for track-type equipment and made to rigid Caterpillar specifications, quality control and inspection standards.

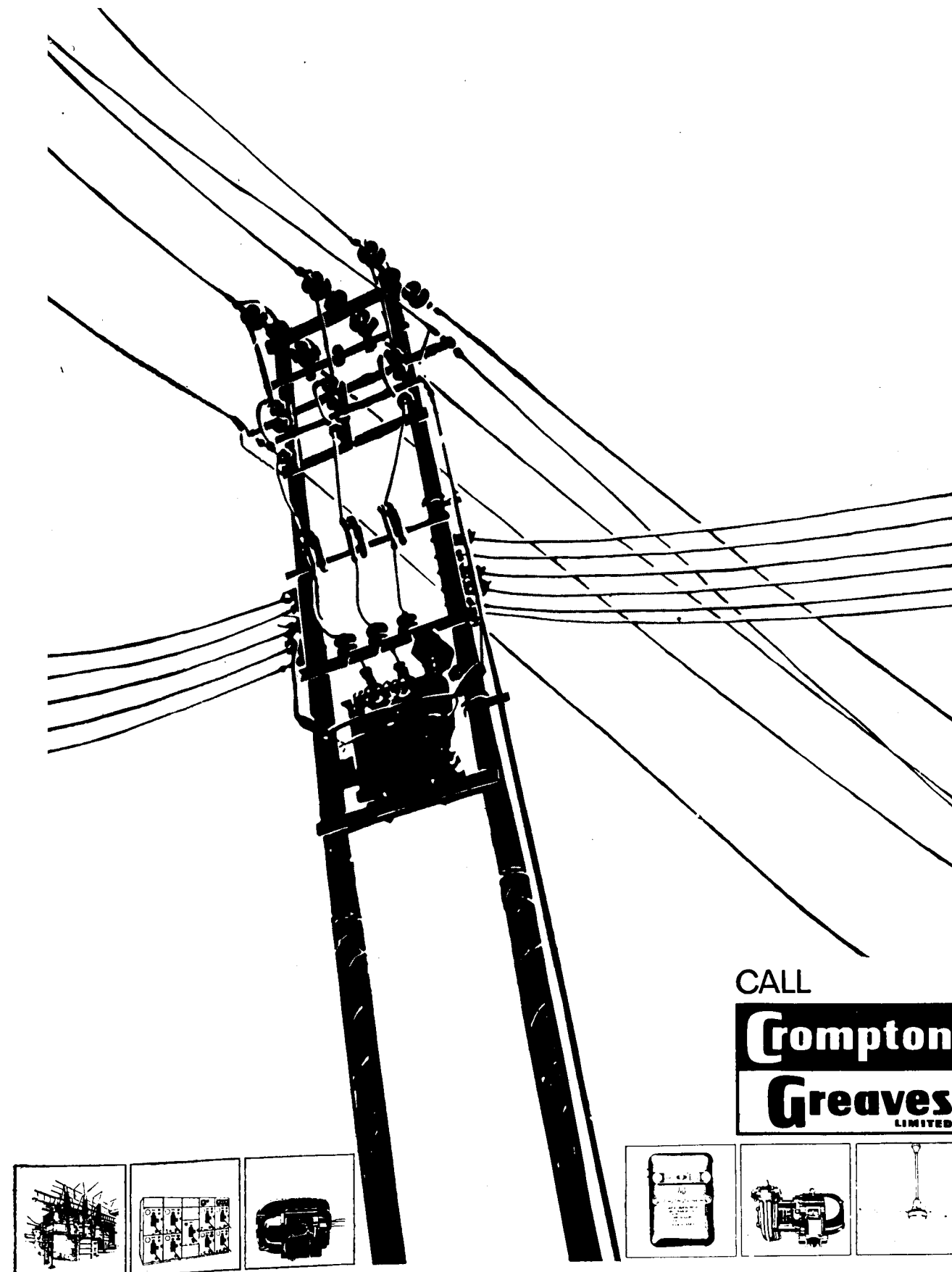
Speedy replacement of worn out parts and efficient after-sales service keep Caterpillar earthmoving equipment working better, longer. Which is why, regardless of a higher initial price, the total operating cost is less than that of machines which are lower priced initially.

Which explains why Caterpillar dealers are heard repeating "Don't consider the Initial Price. Watch the Total Cost."

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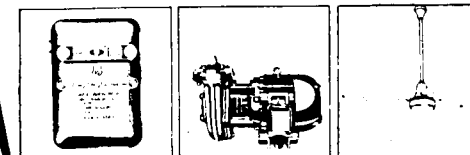
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Strides in fertilisers

With the completion of each new fertiliser plant the country takes a step forward in its march towards agricultural revolution.

While we are on the road to self-sufficiency in fertilisers we are also achieving self-reliance in know-how and engineering.

The use of chemical fertilisers was almost unknown in India in the pre-war years. In 1951 the consumption of fertilisers was just 55,000 tonnes of nitrogen and 8,800 tonnes of phosphate. Since then the demand has outpaced supplies.

Production of chemical fertilisers on significant scale began only in 1952-3, when the first public sector factory at Sindri was commissioned. The production increased twenty times during the three Plans—from 15,834 tonnes in 1951-52 to 307,936 tonnes in 1966-67.

There are now six factories in the public sector and three in the private sector producing nitrogenous fertilisers. Their total annual capacity is 681,000 tonnes.

The Fertiliser Corporation of India, set up in January 1961, now administers four producing units located at Sindri in Bihar, Nangal in Punjab, Trombay in Maharashtra and Gorakhpur in U.P.

FCI's fifth unit at Namrup (Assam) with a capacity of 45,000 tonnes of nitrogen has been completed and is having trial runs.

Another factory is now under construction at Durgapur, while orders for the project at Barauni and an expansion project at Namrup

have recently been placed on foreign suppliers. These factories will have a capacity of 1,50,000 tonnes of nitrogen each. While the Durgapur factory is expected to go into production in 1969, that at Barauni and the Namrup expansion project are likely to be commissioned in 1970-71.

The total capacity of FCI's existing units as well as the new projects under various stages of implementation will be 2.6 million tonnes per year.

By 1971-72 the Fertiliser Corporation of India will be producing about half the country's total output of fertilisers.

The FCI has a full-fledged planning and development division at Sindri now equipped to plan, design and engineer two large fertiliser plants every year. It has designed ammonia synthesis and urea plants for Durgapur and Cochin and has now undertaken the work in connection with Barauni and Namrup expansion project.

However, plans are afoot to meet domestic demand entirely by indigenous production well before 1975-76, when the consumption level is expected to be about four million tonnes.

Simultaneously, some steps have been taken to develop production of phosphatic fertilisers in the country. The existing capacity is 237,000 tonnes and Fourth Plan target may be set at one million tonnes.

The Government took the initiative in December 1965 to promote fertiliser production both in public

and private sectors. It decided to make investment in fertiliser projects more attractive. The measures included freedom of distribution of produce without price control for a period of seven years from the commencement of commercial production.

The Government's promotional measures to encourage the use of fertilisers include off-season rebate on pool supplies of urea, subsidy on transport of fertilisers from factories/ports by road to destinations up to 500 kms., subsidy on transport cost of fertiliser to hilly and inaccessible areas and strengthening of supply arrangements.

The subsidy which was given on the sale of fertilisers consequent on devaluation in June 1966 was withdrawn from April last year, but the Government continued to provide to the State Governments short-term loans to the extent of 50 per cent of the cost of pool fertilisers.

What the country now needs is to step up the capacity of phosphatic and complex fertilisers. The importance of potash also cannot be overemphasised.

Also, the country needs an effective distribution system.

Agricultural credit plays an important role in fertiliser consumption. The credit requirements for this purpose amount to Rs. 4,500 million.

Each tonne of nitrogen produced in the form of fertiliser means additional 10 tonnes in terms of foodgrains.

V. M. SOORMA