VOL. XX/16 15-30 SEPTEMBER '76

yojana

80 PAISE

TWENTY YEARS OF LIC

FUTURE OF FP

An Appeal to the Youth

ALL OF US at all times must be dedicated to the country's work, to see how we can make this country stronger, more united, more stable, more capable of resisting any type of pressure or threat, more capable of absorbing new science and technology and more capable of moving ahead in its own chosen direction. This is what we want from the young people of India. And to do this, you have to have an attitude of mind, an attitude which is full of hope and self-confidence, not afraid of challenge, not afraid of dangers, not afraid of difficulties, but taking them in your stride, taking from them strength.

Each person, they say, gets what he gives to life. So if you meet life with courage, you will find that many more of life's opportunities will open out to you. Opportunities are not brought from somewhere. They exist in our life, in our society. A person who is courageous and who is observant can find hundreds of opportunities around him and must learn to take advantage of them, not for personal selfish reasons but for the greater cause of our party and our country and I hope that the Youth Congress will go ahead with its programme with this kind of courage and the desire to help one another to eliminate the personal rivalries and problems which exist, to reason with those who want to interfere to or create such difficulties, but not to let this interfere with the work that you have undertaken.

You are facing a tremendous challenge. No people of any other country have such vast problems as the young people of India, but I know that just as the challenge is big, so is your ability to meet it, so is the courage which the young people have shown during our Independence struggle and now we hope that they will win an equally great but more difficult struggle for development and for taking the country to a new future.

Wherever you are working, the object must not be that you alone must work well, but the spirit of work, of service and sacrifice should spread amongst as many people as you possibly can whether they are younger or whether they are older, whether they are members of the Youth Congress or not. Apart from being members of the Youth Congress, each one is a citizen of the country. So, as a citizen also you have a specific duty to strengthen the country and I know that you will do this with all your heart. □

Extracts from Prime Minister Indira Gandhi's inaugural address to the two-day meeting of the Block Youth Congress Presidents in New Delhi on August 9.

LETTERS

Octroi

Sir,

A goods-laden truck at present going across various checkposts to enter/deliver goods in any State has to pay octroi duty at all the check-posts, resulting in delay in the movement both of raw material and finished products. It also bottles up the roads, accumulating large traffic on our already mini-sized roads. Government's decision to further increase the number of check-posts needs fresh consideration because the prevailing hindrances outweigh this out-moded source of revenue. It is high time that our planners devised new techniques of imposing this levy.

New Delhi **—Rajiv Mathur**

Andaman Special

Sir,

I must congratulate you on the special issue of *Yojana*, 15 August 1976, with a beautiful coverage of Andaman and Nicobar Islands. It is unlikely that anything similar has appeared in the country over a period of several years. Therefore, there is reason for you to feel proud of this effort. The editorial as well as the various write-ups by the team show the usual sparkle and excite interest. The photographs are, to say the least, excellent. My only regret is that this happens to be a special issue of a magazine and not a book. Indeed, there is the possibility of converting it into a book for all-time reference. All the readers will be very grateful to you for this splendid production.

New Delhi **—B.N. Nair**

Recycling Waste

Sir,

May I suggest you to draw the attention of Agriculture Research Centres to do more research on gobar gas plants, Municipal wastes and also water hyacinth menace. An agricultural graduate tells me that W. Hyacinth can be converted into green manure. If this is done it will be double blessing. In this connection I draw your attention to the Autobiography of Henry Ford I in 3 Vols. In one of them he says about his starting a 'London Garbage Factory' collecting material from waste paper baskets of *London Times* and sending waste paper to Norway and Sweden, for manufacturing paper. We could improve on this by collecting glass bottles (broken), tooth paste tubes and other things thrown in the dust bins. The Municipal Labour Unions can do this job of collecting and make some money from it.

Secunderabad **—C.G. Srinivas**

STUDENTS' FORUM

NEXT TOPIC:

ARE WE A HUMOROUS NATION ?

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S. SRINIVASACHAR

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EDITORIAL

FEWER PEOPLE AND MORE TREES

As on today India is carrying a load of over 615 million human beings with the prospect of 40 more babies being added every minute of the day. In other words, with every morning cup of tea come 60,000 babies or more in our country and still many-indeed millions of us responsible for this state of affairs—are still either ignorant or complacent about it. On all formal occasions we sing the praise of our motherland and pledge to serve her with devotion and love. But the one thing most of us have failed to do is to honour this pledge where it hurts our country and us most—in not being sensible about the size of our individual families.

All this is notwithstanding the many proud records to our credit. For instance, way back in 1951 when no other country had ever given serious thought to it, we made family planning an officially sponsored programme. Our first five year plan recognised that without simultaneous control over the rate of growth of our population our efforts to improve the standard of living of the poor would meet with serious obstacles.

Even so, our number has increased from 361 millions in 1951 to over 615 millions now. That is, in this period we have added a population equivalent to that of U.S.S.R. whose territory is six times ours. Every newspaper reader is now aware that we are adding an Australia to India's population every year!

When will this state of things improve? What should be our immediate and long-term objectives? How best can we save this situation? These are questions which every patriotic and thinking Indian should address to himself. After spending over 382 crores of rupees and campaigning for a quarter of a century our achievements in reducing the birth-rate have made no serious dent in the problem. The very impressive gains we have made in almost every field of economic activity in the last 30 years are overshadowed by a population growth rate which now stands at 2.48 per cent. The population policy announced by Dr Karan Singh recently is closely linked to the Minimum Needs programme of the Fifth Five Year Plan. It is an integrated package programme of health, family planning and nutrition. The 20-Point programme announced by the Prime Minister in July 1975 has given now strength to our earlier objectives and has introduced a sense of urgency into the major economic and social policies which will take up along the path to progress.

What India faces today is a crisis—of a magnitude far greater than any we have experienced. This crisis calls for a radical new approach to everything that we have been doing in a leisurely way. Not many of us have still realised what it would mean to our children 25 years hence when they will be faced with the prospect of having to satisfy the minimum needs of not 500 million people, but 1,000 million!

We talk of motivation and what is it that the Government has not done to provide such a motivation? We talk of cheap contraceptives being available to the poor; what is if that the Government has not done to make them available for the poorest of the poor all over the country?

The message of the small family norm is very clear. It can be heard everywhere—in slums, in posh urban areas and in our fields and factories. Poverty is its ugly face and we see it everyday among those who have been improvident, callous and superstitious. We have reached a new stage in our democratic functioning as we see to incorporate basic duties side by side with fundamental rights. We have no more right to expect from life what we are willing to give unto it. Shri Sanjay Gandhi and the Youth movement which he is leading with the zeal of a missionary is the brightest single example of dedicated effort to eradicate one of the major drawbacks in our economy—the burden of an overgrowing population. If reason and persuasion have not produced the minimum results, an element of compulsion becomes inevitable if we are to avoid a major catastrophe. That compulsion may not come from the Governmental machinery, but it is inherent to the entire process of growth we have embarked upon. That compulsion has to come from ourselves until India attains a zero rate of growth in our population. We have to protect the people who are already there and the land which sustains them. The slogan before the country should be: fewer people and more trees.

In the short period of three months commencing from April this year, as many as 5,32,700 have accepted sterilisation. This is a significant achievement but we would still fall short of our objective with barely over two million sterilisations by next April. The recent Marriage law fixing the minimum age at 18 and 21 for girls and boys is another step forward in the right direction, and people should welcome it. It is the poor, the impoverished and the deprived who have everything to benefit from this mass campaign. Our campaign has to be taken deep into the counryside, smashing the citadels of ignorance, apathy and superstition. It is not a small job, but our young men and women have already shown promise of selfless work.

On 1 September 1976 the Life Insurance Corporation completed 20 years as the sole life insurer in the country. Over the years, the LIC has made substantial progress. But the critics of the LIC occasionally raised doubts as to whether it has lived up to the expectations. They say that the administration is top heavy, policyholders are given a raw deal and there is no proper direction in the investment policy. On the completion of two decades,

YOJANA correspondent, AVINASH GODBOLE,

interviews

R.B. PRADHAN, Chairman of the LIC,

on these and other relevant questions.

Two Decades in the Service of the People

"LIFE INSURANCE business nationalised", proclaimed the banner headlines of the morning newspapers on 20 January 1956. None had an inkling of this decision a day earlier. On 19 January 1956 when the AIR announced that Shri C.D. Deshmukh, the then Union Minister of Finance, would broadcast to the nation, it was generally believed that the speech would be a political one with particular reference to the burning issue of Samyukta Maharashtra. But, to the surprise of the listeners, Shri Deshmukh's speech was to explain the Government's decision taken earlier in the day to nationalise life insurance and the Ordinance promulgated by the President. While concluding his speech, Shri Deshmukh observed "the nationalisation of life insurance will be another milestone on the road the country has chosen in order to reach its goal of a socialistic pattern of society.... It is a measure conceived in a genuine spirit of service to the people. It will be for the people to respond, confound the doubters and make it a resounding success". It was India's second major act of nationalisation, the first being the nationalisation of the Imperial Bank of India.

Though the Ordinance was promulgated on 19 January 1956, it was nearly after nine months, i.e., on 1 September 1956, that the Life Insurance Corporation came into being. In the intervening period the Government organised taking over the management of the companies and appointed custodians to manage their affairs. On the day when life insurance was taken over by the State, there were in all 245 insurance companies and provident societies, big and small, Indian and foreign, underwriting life insurance business in the country. As was pointed out by the Finance Minister in his broadcast to the nation, during the previous decade as many as 25 life insurance companies had gone into liquidation and another 25 had so frittered away their resources that their business had to be transferred to other companies at a loss to the policyholders. There had been several other cases where the funds of the insurance companies were misapplied. There was a frequent tendency to utilise the funds to meet the capital requirements of enterprises in which the managements were interested rather than those which were clearly in the interests of the policyholders. Then there was unhealthy and fierce competition amongst the companies though, of course, there were notable exceptions. In general, the situation was far from satisfactory and a demand for nationalisation had been voiced for quite sometime. During the last stages, however, the wheels of Government machinery moved fast, resulting in the Ordinance of 19 January 1956.

After the teething troubles were over, the new Corporation geared itself not only to function efficiently but also to expand rapidly. Within about two years, the total business touched the then all time high figure of nearly Rs. 3,500 million under about one million policies. The highest figure before nationalisation was Rs. 2,610 million in 1955. The business went galloping by leaps and bounds and, last year (the year ended 31 March, 1976), the total business was to the tune of Rs. 53,733 million, covering nearly two million policies.

The following questions and answers highlight the various facts of the Corporation's working.

YOJANA: There is no doubt that there has been considerable increase in the life insurance business over the years. But is it in proportion to the expansion and improvement in the national economy? For instance, there has been considerable increase in bank deposits. Has the LIC business kept pace with it?

PRADHAN: I am aware that doubts are occasionally raised as to whether the progress shown by the LIC has kept pace with the growth in the national economy generally and specifically whether it is comparable to the growth in bank deposits.

The facts are like this. During 1975-76, LIC wrote new business of Rs. 53,733 million in India under two million policies for individual assurances and to cover additionally 2.3 million new lives under group insurance. This amount of new

business was higher by 424 per cent over 1969-70 and by 1,833 per cent over 1957. The growth in LIC's new business has been indicated in the period from 1969-70 because this is the period over which LIC's performance could be properly judged in relation to the growth in banking. It was in 1969 that major scheduled banks in the country were nationalised and the years thereafter saw a rapid growth in banking activity. It may be observed here that the LIC's new business went up at an average annual rate of 31.7 per cent and its business in force by 17.6 per cent *per annum*. The growth in the first year's premium averaged 15.6 per cent annually and in total premium collection 14.6 per cent. The life fund went up at the rate of 13.4 per cent *per annum* and if the net increase in life fund were considered each year, the growth in this had averaged 13.7 per cent.

Compared to this performance by the LIC, the growth in national income at current prices was at the annual rate of 13.4 per cent and measured in terms of constant prices at 1960-61 level, the growth was only 2.0 per cent *per annum*. In the field of banking, the aggregate deposits with banks went up by 18.9 per cent *per annum* and the savings deposits by 19.7 per cent *per annum*. The net increase in savings deposits went up annually at the rate of 16.4 per cent.

While the growth in bank deposits has been remarkable, leading, indeed, to the present query, whether the LIC has shown comparable rise in its activity, it must be borne in mind that any too close a comparison would not be quite valid considering the long-term commitments that premium payments represent *vis-a-vis* the deposits in banks.

YOJANA: There has been a consistent demand for lowering of the rates of insurance premia. The present rates are based on Oriental 1935 mortality rates. But the life span of Indians has increased from about 27 to 52. Don't you think the demand is justified? If not, why not?

PRADHAN: It is true that the demand for lowering the rates of insurance premium has been made in many quarters from time to time. In fact, this question was the first to be taken up after nationalisation in 1956. And the premium rates for all tables were reduced by one rupee than those of the Oriental right from the start. Though the tables used by the LIC are those of Oriental (1925-35), they were suitably modified by the Oriental in view of their experience during 1953-54. The Oriental as well as other companies had substantially reduced the premium rates in 1954 based on the modified experience. The LIC has also been constantly reviewing the position and, whenever it disclosed a favourable trend the benefit has been passed on to the policy holders. You may be aware that there were reduction in the rates of some of the 'without profit' tables in 1970-71.

However, an important aspect should not be overlooked while on this point. The mortality rate that is relevant for arriving at insurance premium is not the general mortality rate but the rate applicable to the insured lives. In the company days, insurance was restricted to the higher strata of society and, therefore, the mortality experience was quite favourable even then. The Corporation is charged with the duty of extending insurance cover to every breadwinner in the country, particularly to those belonging to the lower strata or economically weaker sections of the society. The Corporation has taken several steps to achieve these objectives including the extension of non-medical schemes, group insurance schemes, removal or reduction of occupational extras and so on. The mortality experience based on new classes of lives covered will be available to the Corporation only in course of time. This apart, the major portion of the Corporation's expenses was due to factors beyond its control and they, naturally, played an important part in its profitability. However, it should be noted that despite increaing costs which could not be offset by both mortality and interest, the premium rates have not gone up. It should therefore, be appreciated that any question of revision of premium rates on a substantial scale has to be deferred for some more time.

YOJANA: Shri Pradhan, there is also a repeated suggestion that the bonus declared by the Corporation has remained static even though there has been increase in the interest rates. According to critics there is a strong case for more bonus to the policy holders. Why are they given a raw deal by the Corporation?

PRADHAN: It is not a fact that there has not been any increase in the rates of bonus to the policy holders. If you take Endowment Policy, the bonus rate has increased from Rs. 12.80 per thousand sum assured per annum to Rs. 17.60. Similarly, for Whole Life assurance, the rate has gone up from Rs. 16 to Rs. 22. It is, however, true that the bonus rates have remained the same from 1969.

Interest yield is no doubt an important factor in our valuation. But, as you would be aware, with the statutory restriction on our investments, the yield is restricted. A major portion of our investments is required to be in Government and other approved securities in terms of the Insurance Act and these do not yield very high interest rates.

Another important consideration in our valuation, is the expenses of management. During the last few years, due to inflationary conditions there has been constant increase in various costs and the little advantage

Steps to Ensure Insurance Cover to Every Breadwinner

that we had obtained through higher interest earning was off set by those increases. Now, as we have turned the corner and there is also considerable improvement in our productivity, in the changed circumstances we can hopefully look forward to better results in the years to come.

YOJANA: Sir, you just now referred to the administrative expenses of the LIC and the level of productivity in the Corporation. Could you kindly clarify these points further?

PRADHAN: I must point out here that LIC is essentially a service industry and it is highly labour intensive. Our staff and agents are the twin pillars on which the edifice of the LIC rests. The staff in office and in the field account for about 60 paise out of every rupee we spend, while the agents account for about 29 paise. This brings us to 89 paise leaving a margin of only 11 paise in the rupee for our remaining expenses such as rentals, furniture, stationery, postage and other establishment charges. You can thus realise the margin of saving I can have in the entire operations. However, with the change in attitude which has come about after the declaration of the Emergency, I have no doubt that the measures we have taken to improve productivity will help us to offer better and more efficient service to the policy holders as also to arrest the cost escalation to a large extent.

YOJANA: What are your views regarding the suggestion for indexing up the life insurance money in proportion with the changing value of the rupee?

PRADHAN: Such a system presupposes the existence of index-linked securities for investments. Such securities are not available in our country and in this context, examination of any such idea would be only of academic interest.

YOJANA: Shri Pradhan, let us now turn to your investment policy. As the biggest, single investor in the country you have a great responsibility. Could you therefore tell us something about your investment policy? Has it got any social direction?

PRADHAN: LIC does happen to be the largest single institutional investor in the country today. The book value of our investments as on 31 March 1976 was Rs. 31,346.4 million. As I had mentioned earlier, our investments are governed by the Insurance Act. By a recent amendment to this section, a new pattern of investments has been prescribed whereby not less than 75 per cent of the accretions to the Controlled Fund every year are required to be invested in Central and State Government Securities as well as the socially oriented sector, including public sector, cooperative sector, house-building by policy holders, own your home schemes, etc. However, the investment in the Central and State Government Securities is required to be 50 per cent of the accretions to the Controlled Fund and not less than 25 per cent in the Central Government Securities. The balance is also required to be invested in the scheduled investments as prescribed by the Act.

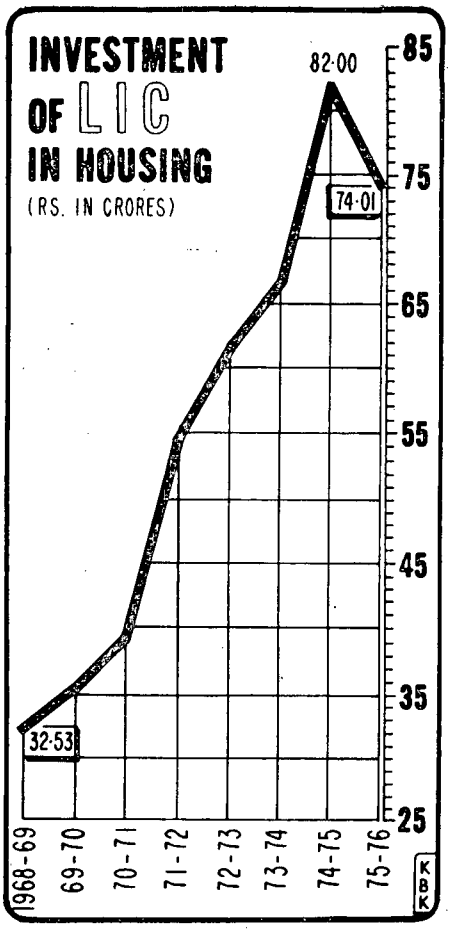
Thus, you will realise that we have got only limited scope for investment in the private sector. And yet, LIC helps the development of new industries as also expansion and modernisation of the existing industries by advancing direct loans or investing in their debentures, preference and equity shares, etc. The total investment in public limited companies in the private sector and joint sector as on 31 March 1976 was about Rs. 3,117 million. However, for the last 15 years it has been the Corporation's endeavour to enlarge its operations in the socially oriented sectors so as to make greater contribution to the requirements of the people.

YOJANA: Could you kindly enumerate the varous nation-building activities in which LIC has made a substantial contribution?

PRADHAN: The LIC has, during the last decade-and-a-half, invested substantially in the areas of housing, and sewerage, electrification, etc. This is in addition to the funds invested by the LIC in the Central and State Government Securities, debentures of the civic bodies, cooperative land mortgage banks etc. Our investments till 31 March 1976 in these sectors amounted to Rs. 16,750 million. The extent of LIC contribution in all these socially oriented and nation-building activities can be judged from the fact that over the years, the total loans advanced by the Corporation to cooperative housing finance societies, to State Governments for their social housing schemes and the Housing and Urban Development Corporation (HUDCO) totalled to Rs. 5,150 million up to 31 March 1976. During the same period, LIC's contribution by way of loans for urban and rural water urban and rural piped water supply supply and sewerage schemes aggregated Rs. 1,670 million. LIC's investments in bonds and loans to the State Electricity Boards have been instrumental in modernising agricultural operations and development of village industries. The total amount invested in this sector comes to Rs. 5,570 million.

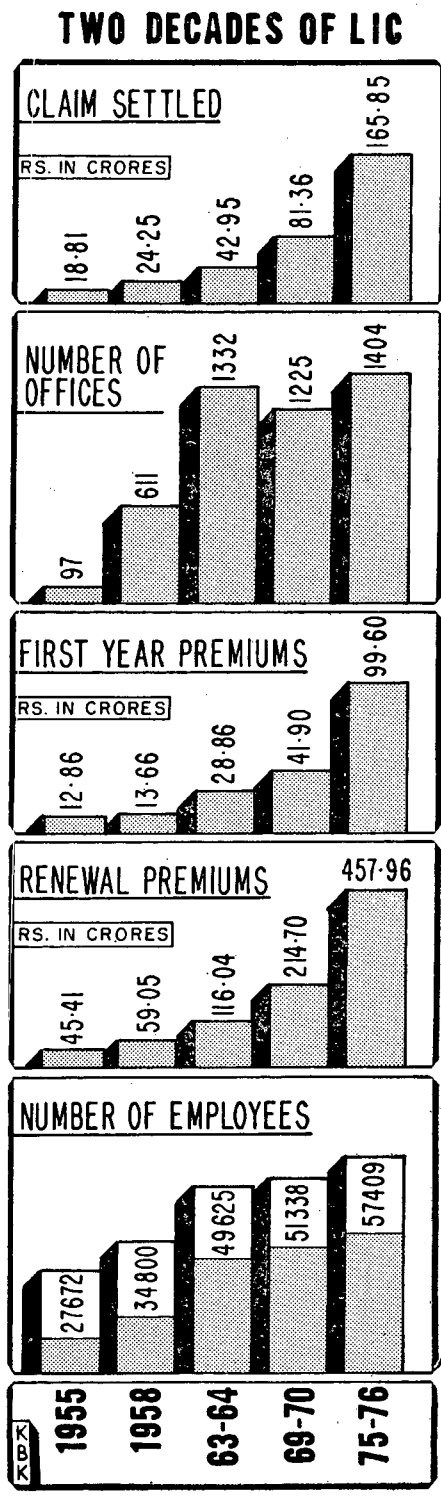
I would like to draw special attention to our direct contribution to agriculture. We have, up to the period ending March 31, 1976 invested a total sum of Rs. 1,410 million in the bonds of Central Cooperative Land Development Banks. Besides, LIC's support to the market borrowing of Central and State Governments indirectly contribute to agriculture. Investments in these two

Rs. 12,680,000,000 Mobilised for National Reconstruction



More Than 30 Per Cent Of New Business Comes From Villages

R.B. Pradhan



spheres benefit agricultural development to a very large extent.

By investing policyholders' savings in the State and Central Government Securities, LIC has been contributing substantially to nation-building activities. The book value of amounts so invested as on 31 March 1976 was Rs. 12,680 million.

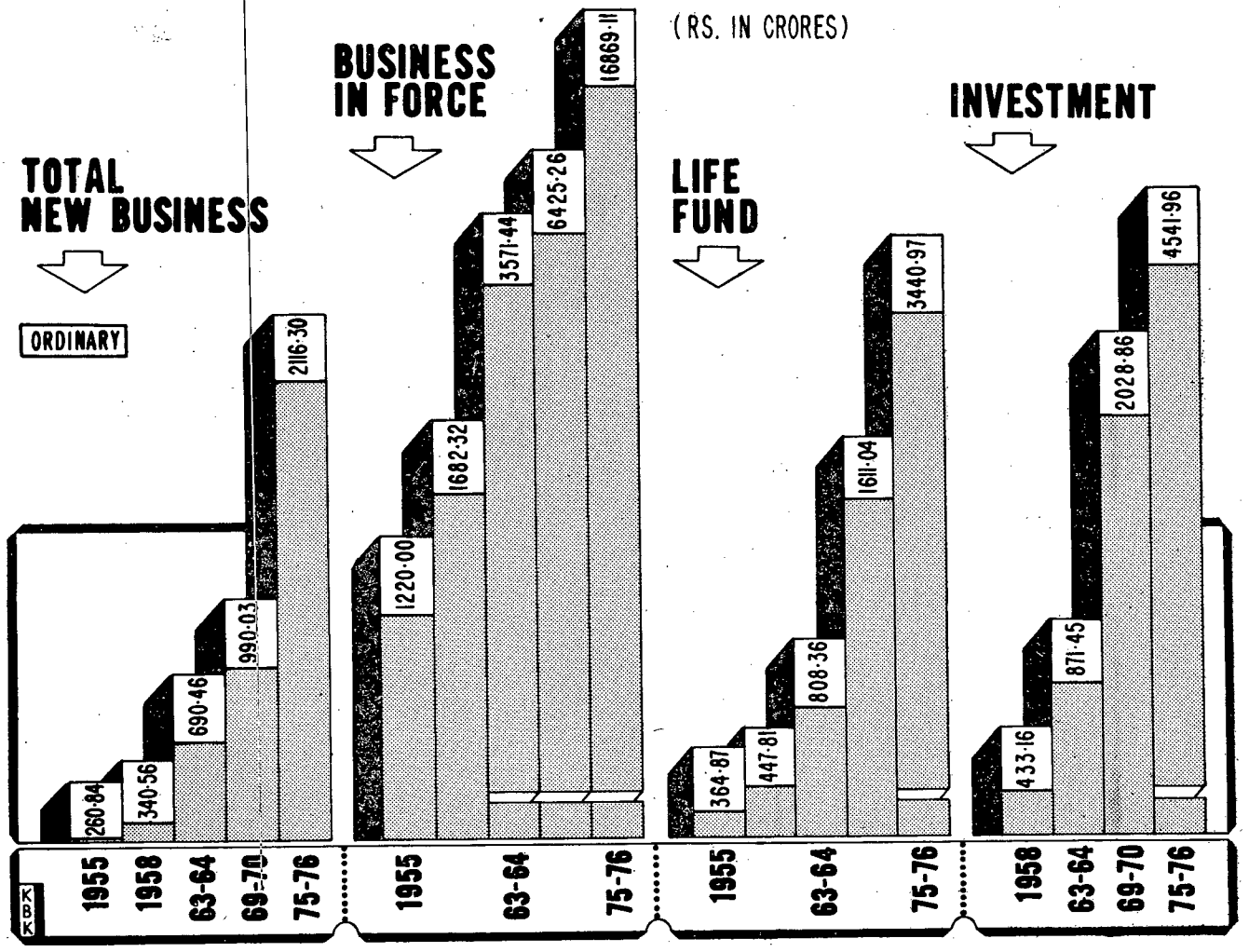
YOJANA: Shri Pradhan, coming to another important aspect of your work, would you tell us what is meant by the lapse ratio? Is it a fact that much of the business hurriedly completed in the last months of the year lapses in the following year?

PRADHAN: In simple words, lapse ratio means the ratio of the sum assured under the policies where the premium payment has been discontinued by the policyholders to the total sum assured under all the policies in force during a particular year. The overall lapse ratio during the year 1975-76 worked out to 5.4 per cent of the business in force during the year. This compares quite favourably with the lapse ratio obtaining in earlier years. Just before nationalisation the ratio was approximatey 9 per cent and even during the first 10 years of LIC, it varied between 8.2 per cent and 6.4 per cent.

The second part of your question refers to the extent of lapses out of our new business, particularly achieved during the last months of a year. It is true that substantial lapsation of the business has been a bane of this industry and before nationalisation over 40 per cent of new business used to lapse within four years of issue. The LIC has succeeded in bringing it down to about 29 per cent but I agree this ratio is quite high and we are attempting to reduce it further.

YOJANA: Looking back, would

ACHIEVEMENTS OF THE L I C DURING TWO DECADES



you say, that the LIC has fulfilled the expectations which were voiced when the business was nationalised in 1956?

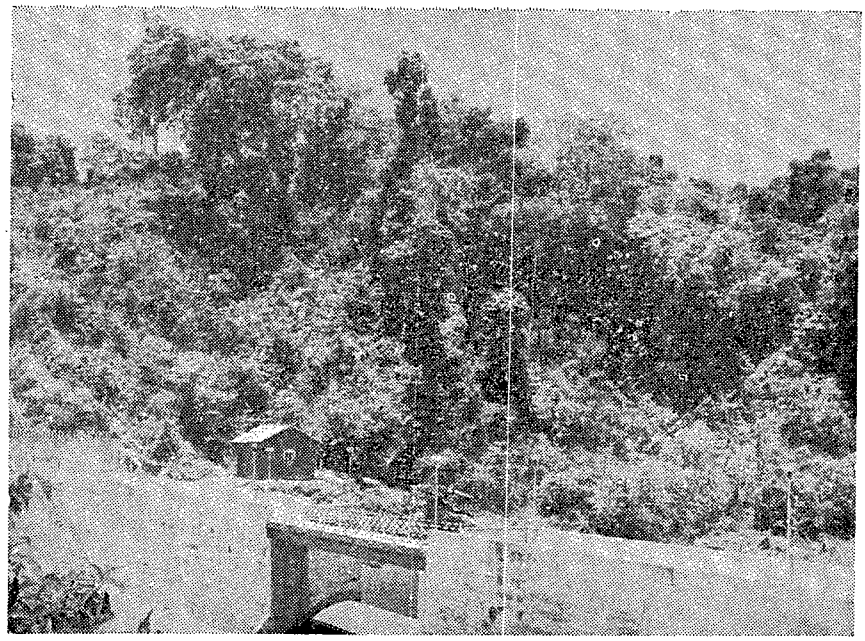
PRADHAN: Life insurance was nationalised mainly with two objectives: (i) to spread the gospel of life insurance to every remote corner of the country, and (ii) to mobilise the savings of the people for nation-building activities. While replying to your earlier questions, I believe, I have already covered the performance of the LIC on these counts. However, I would summarise then.

As regards the first objective, LIC can claim a reasonable degree of success. We have been able to extend protection to a large number of people under our individual assurances and group insurance schemes. As on 31 March1976, the Corporation had nearly 20 million policies in force. Out of the new business secured year after year during the past few years more than 30 per cent came from the rural sector. The group insurance schemes have enabled LIC to do more business so as to carry the benefit of life insurance to the poor and lower middle income groups who could not have otherwise afforded it. While our group schemes have covered on the one hand the personnel of the three defence forces, we have also offered schemes for other groups like government servants, primary school teacers, bidi workers, cashewnut workers and so on.

As a result of such expansion, the LIC has also been able to live upto the other expectation, i.e., of mobilising the savings of the people and investing such resources in nation-building activities. We in the LIC are proud that our performance was referred to as a success story of nationalisation by Jawaharlal Nehru. I am aware that we have yet a long to go even for attaining the basic objectives prescribed for us, but I can say with a degree of satisfaction that we are on the road to achieving these objectives. We have many barriers still to cross and our immediate objective is to gear ourselves up in such a way that not only the bigger objectives are achieved but our policyholders feel assured that they get a fair treatment and service at every centre. In the process of achieving our bigger objectives, we have spread ourselves in the interior areas and delegated more powers and authority to our branch offices. With the rapport that the policyholders are now able to establish with the branch offices which cater to all their needs, I am confident that the day will not be far when policy holders would not have to complain about the services extended by us. Let me assure your readers on behalf of all those associated with the Corporation that we have pledged ourselves to this task on the occasion of this 20th anniversary. □

Our strategy has to be such that we maximise returns from the inputs and have an optimal mixture of trees that have a short gestation period as also of slow-growing trees.

SANKAR GHOSE
MINISTER OF STATE FOR PLANNING



The Planning Of Our Forest Resources

PLANTS SUSTAIN LIFE. The existence and expansion of forests constitute one of the primary determinants of a healthy ecology for man.

Pollution of our environment by the undesirable by-products of technology is seriously threatening the health and happiness of the human species. An ecological policy is as important today as was medical science in the 18th or the 19th century. We can no longer take our environment for granted: to survive technological pollution we must make the preservation of our natural environment the prime concern of our civilization.

Our ancestors intuitively understood the importance of forests in maintaining the optimal ecological balance. That attitude towards trees is the only attitude that can ensure the durability of our species.

Forests are the greatest renewable natural resource that we possess. By virtue of their biological characteristics, they are able to produce while conserving and conserve while producing and thus they can be of use in perpetuity if wisely exploited.

It is not necessary to expatiate on elementary scientific facts to prove the importance of trees. Innumerable products of science—from writing paper to the modern communication system—are derived from the products of forests. I am reminded of a story that the Prime Minister narrated at the Science Congress at Waltair in January, this year: "When Charaka, the ancient physician, was asked by his teacher to bring plants which were useless, he returned empty-handed, remarking that there were no such plants!"

In a developing country like ours in which economic growth depends greatly on agriculture, the proper maintenance of forests is very important. Forests determine the climate, the chemistry of the soil and also the quantum of rain. They are nature's most effective instruments for stopping the erosion of soil. Decomposed leaves of trees increase the permeability of soil and improve its chemical and physical characteristics. A regulated and sustained flow of water through rivers and canals is mainly caused by natural forests.

Ours is a capital-scarce economy and we can achieve a fast rate of economic growth only if we exploit our natural resources efficiently and rationally. Forests constitute one of our most important renewable natural resources. During the First and the Second Plans, our strategy in respect of forests was to plant important species of trees in the areas which had been partially denuded of vegetation. Several wild-life sanctuaries were also established in the course of these two Plans. The expenditure increased from Rs 84.9 million in the First Plan to Rs 212 million in the Second Plan.

In the course of the Third Plan, we adopted a more comprehensive strategy for the long-term development of forests. We tried to ensure that the rational utilization of forest products led to an increase in the national income. In the Third Plan, we set great store by self-sufficiency in industrial timber, fuel-wood and other forest products. The United Nations Special Fund (UNSF) and the Food and Agricultural Organisation (FAO) helped us conduct a survey of our forest resources. We recruited and trained experts for the development of forests. The total expenditure during the Third Plan was about Rs 460 million.

Since 1966, we have laid more emphasis on the plantation of quick-growing species of trees and on modernising the plantation techniques. The strategy during the Fourth Plan had three main components: (a) to increase the productivity of the forests, (b) to establish a linkage between the development of forests and the forest-based industries and (c) to gear the development of forests to the growth of the rural economy. The outlay during the Fourth Plan was about Rs 890 million.

An outlay of Rs 2200 million has been tentatively approved for the Fifth Plan.

The National Forest Policy announced in 1952 envisaged that one-third of the area of the country would be covered by forests—60 per cent in the mountains and 20 per cent in the plains. The land transformation programme of the Central Government has the aim of planting 300 million of trees in 10 years.

The national Vanamahotsava movement is regarded as a means for planting trees on a large scale to fulfil our national goals. Vanamahotsava, the annual festival of trees, was inaugurated for the first time in 1950. It is not a mere ritual but a comprehensive programme of action. An awareness of the importance of trees in the economy of the nation has to be generated among the masses. We must realise that indifference to trees is an act of irresponsibility and it reflects total callousness to the economic welfare of the nation. The programme adopted by the youth today that every young man shall plant and nurture a tree is a clear manifestation of the new world-view that is being developed among the young generation; it is a world-view that makes for the conservation and perpetuation of the resources that sustain the human species. The importance of the tree-planting movement is apparent from the fact that a major threat to mankind today is the threat of a decomposing environment. To be oblivious of this threat is to be indifferent to the fate of our civilization.

The tree planting programme has to be taken up on a national scale. Trees should be planted singly, in groups and in strips, in the hills and also in the dales. This programme can make a headway only if governmental, non-governmental and youth associations are consciously involved in it. It would also be a commendable practice if some of the corporate bodies, institutions and industrial houses were to 'adopt' a group of villages comprising a sizeable area of plantable land so that they remained responsible for the establishment of the nurseries and the plantations and their aftercare until they were fully established.

We have to step up our activities for planned afforestation. Every effort has to be made to check further deforestation which results in the deterioration of the environment. Many of the areas which are bare of vegetation now, supported tree and other vegetative growth in the recent past. A massive policy of afforestation has, therefore, to be pursued.

Youth organisations, women's associations, voluntary societies etc. can help in this national task of tree-planting. Tree clubs and other agencies can contribute substantially in this work. Further, tree 'wardens' will have to be designated who will undertake to monitor the implementation of this programme on a voluntary basis. If we took a vow that we will plant at least one tree every year, I am sure, our life would become richer both materially and aesthetically. In this connection, a custom prevalent among some of the communities in Kerala comes to mind. There, every villager is supposed to plant five trees, two to provide food and shelter for himself, two for his progeny and one to provide timber when he dies.

Particulars of the investment made by the Government in the sphere of planned afforestation will appear from the following table:

Plan period	Investment in Forestry sector (Rs. in crores)	Investment in Afforestation (Rs. in crores)	Afforestation as percentage of forestry sector investment (%)	Total Area under-Afforestation (Hectares)
First Plan (1951-56)	8.5	1.3	15	50,023
Second Plan (1956-61)	21.2	6.9	32	217,397
Third Plan (1961-66)	46.0	20.6	45	324,860
Annual Plans (1966-69)	42.1	22.6	53	319,860
Fourth Plan (1969-74)	89.0	44.5	50	590,040
Draft Fifth Plan (1974-79)	220.5 (Estimated)	79.0	35	1,700,000 (target)

Organised plantation work is capital intensive. It requires special efforts to collect seeds, create nurseries, raise plantations and to protect them from fire and other natural hazards. It is quite natural that in a capital scarce economy like ours, we shall prefer trees which yield the produce in a short time. Several studies have been conducted on the production economics of teak, eucalyptus, bamboos, cryptomeria, mixed miscellaneous species, deodhar and similar trees.

Our strategy has to be such that we maximise our returns from the inputs and have an optimal mixture of trees that have a short gestation period as also of slow growing trees. Such a strategy will ensure that the rate of return on investment in the forest sector is not less than the nationally desirable rate. The decisions regarding the type of trees that should be planted should be based on the climate, soil and the economic requirements of a locality. The people have to be involved in the making of such decisions. That is why the schemes of the Government must be supplemented by the efforts of individuals.

The Central Government and the State Governments are trying to modernise the forests sector. Seeds of genetically improved varieties are being used, genetic mutations are being resorted to, to ensure fast rates of growth, as also better wood properties and resistance to diseases and pests. We are also trying to ensure that eugenics of plants lead to improved forest produces. If we can so modernise the forest sector then the nation will get a higher rate of return on what it invests in forests.

Surveys may be necessary to identify the zones of higher productivity so that the capital-output ratio in the forests sector improves.

Forests are a major means of increasing our national income. What is more, the existence of forests is a sine qua non for a healthy environment of man. Solicitude about trees reflects a concern about the welfare of our nation and also about the durability of our species. □

DEMOCRACY

DEMANDS

DISCIPLINE

THE SATELLITE INSTRUCTIONAL Television Experience (SITE) ended on 31 July 1976 after completing full one year of continuous operation. Here was one experiment conducted exclusively for the benefit of the people in remote rural areas. It enabled hundreds of thousands of villagers in 2,400 villages in six states of India to see TV programmes beamed from ATS-6 Satellite positioned in a geo-stationary orbit over

Indian Experience

ON 1 AUGUST, 1975 exactly at 6.30 P.M. over 2,400 direct receiving Television sets especially manufactured in India and equipped with chicken-mesh antennae came to life in almost as many villages in six states of India. Appropriately enough the first picture that appeared on the screen was of the Prime Minister Indira Gandhi talking to hundreds and thousands of villagers through a geo-stationary satellite beaming TV programmes over a vast network of augmented TV sets in villages.

With this symbolic act the ancient India made a dramatic entry into a new wonderful world of electronic media. But perhaps what was more striking and symbolic was the fact that for the first time in the history of mankind the latest and the most sophisticated invention of the man was being utilised for the benefit of less affluent sections of the society living in typical age-old Indian villages.

India is a country of villages—there are almost half a million of them. Till very recently all the progress and development used to percolate from the cities down to the towns and further down to the villages. Here was the one experiment which was meant exclusively for villages.

The experiment was also unique in other ways. It was primarily instructional though entertainment was not lost sight of. Intensive preparations had been made in making programmes timely, purposeful and educative. Villages after villages were thoroughly researched, special audience-profiles prepared, need-assessment surveys made, and sample programmes previewed by the village audiences were modified or even recast in the light of their reaction. In about 1,300 hours of programmes, there were lessons for primary school children, training for Extension Workers, instructions and information for farmers, advice on family planning and nutrition, teaching of simple occupational skills and the value of national integration—as full a plate as any!

When the SITE started, there were lots of ifs, buts, and question marks. What were the chance of villagers who had little or no acquaintance with the conveniences of modern living, making a mental quantum jump of a kind and passing instantly from the bullock-cart and cowdung-age to the age of TV programmes? Would exposure to TV for four hours a day for the duration of one year change their lives, their outlook, their horizons substantially or marginally? Would it cause them to try and make technological advancements in their immediate surroundings? Or would the presence of a TV set in areas characterised by ill-health, malnutrition, lack of education, and poor hygiene and sanitation be little more than a diversion from the routine tasks that must be gone through in the same old way?

A Look-Back

SITE has now come to a close, and it is worthwhile to take a look back at some of the villages to see if and how these objectives have been met with marginally, partially or fully. Most of these villages are by and large isolated physically and perhaps were left out from the national developmental mainstream. For example, villages in areas like Phulbani in Orissa, where even jeep finds it difficult to wind its way, or a typical village in Rajasthan where the nearest equivalent of road could be many miles away. Before the television came most of the villages used to go to sleep a little after sunset, and there would be hardly any evening life or any community discussions. Now, people sit and chit-chat until late at night, for having come to community TV viewing place they are reluctant to go back to their homes immediately after the TV programmes are over. This change has taken place without any prompting or initiative from any outside agency. There are animated and sometimes even heated discussions about the merits and demerits the feasibility or practicability of various advices on family planning, agricultural development, nutrition, etc.

As for children, they used to take the cattle for a bath in the nearby village pond or a muddy ditch in the mornings, or if nothing better go about playing. Now most of them were eager to reach the school to watch the morning educational programme on TV.

Stories are coming in about the subtle changes in the life-pattern of the villages which had seen almost no change since last so many centuries. Nothing has changed the rural-folk, including the women, so much as has the television. It has upset their old routines and created new community habits. In a general way, it has generated a great deal of awareness and curiosity about men and matters in the countryside.

Neither the frequent power breakdowns nor the fluctuations in electric supply, neither the delays in repairing faulty sets nor even bad programmes have detracted from the effectiveness of an experiment which promised a break-through in using this medium of mass communication for developmental purposes.

Let us have a look at the programming aspects. As morning hours are normally meant for school children most of the TV sets were housed in school buildings where one of the school teacher was asked to act as the custodian for the safety as well as the maintenance and running of the TV set for both the morning and the evening programmes.

Most children seem to have imbibed new ideas of hygiene very quickly. It is not a very uncommon sight in villages today to find one tidy child rebuking a dirty companion for not following the advice given on the television. Again it is the children

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Lake Victoria, Africa. Though primarily instructional the experiment did not lose sight of the entertainment aspect.

Taking a look-back at the experiment the author comes to the conclusion that TV is a great attraction. It can achieve what many programmes or projects could not do so over all these years. If used with care it can do a lot to improve the quality of life in the country-side.

With SITE

LAL KARAMCHANDANI

who press their parents not to leave the food uncovered, to see to it that the water they drink is clean, bathe regularly and to take precautions against epidemics. "Those boys now behave like elders" many a farmer is now heard saying with a little pride also!

Perhaps the most popular programmes for the school children are the ones which deal with science subjects presented in a popular style. It is not uncommon to come across children in the TV villages asking questions about air pressure and lunar and solar eclipses.

Myths Exploded

Perhaps the most surprising discovery of SITE relates to agriculture. Lot of theories were advanced, before SITE came into being, about projecting agricultural programmes. Some wanted the agricultural programmes to be sugar-coated with entertainment and not be overloaded with information. According to them the farmer, after a hard day's work in the field, is interested in entertainment programmes only and so on and so forth. Perhaps the greatest advantage of SITE has been the explosion of the myth that farmers cannot digest simple and steady instructional programmes.

Studies after studies in village after village in almost all cluster states have proved that the best liked programmes have been the ones dealing with viewers' primary interest—farming. In fact most villagers have been so keen to obtain further information on the agriculture programmes, and the availability of various inputs and their prices that it became well nigh impossible to feed them with information they desired to have immediately.

Let us actually look at one of the programmes which was beamed on 2 April 1976 for the Hindi-speaking areas in Bihar and Madhya Pradesh. The programme was about the soil and water testing. It showed why water and soil testing were necessary and what were its advantages. The first evaluation report was done by the Utilisation Cell of Space Application Centre of ISRC, Ahmedabad, with the help of local agricultural officers and Agricultural University experts.

As soon as the programme started the farmers started asking questions—as to whom should they contact for soil testing, how many tests does it take to get the results of soil testing, whether agriculture departments give any financial or other help in getting the soil corrected as per the results of soil testing, and what are the reasons for the decline in fertility.

Obviously in this short ten minute programme all that could be done was to make the farmers aware of the need for soil testing and facilities available for getting these tests carried out.

In the days that followed, the local agricultural officials were bombarded with hundreds of queries, both verbal and written, about the soil and water testing, and many farmers actually came with the soil samples to even Block and District headquarters for availing these facilities.

Earlier agriculture was allotted just about 15 per cent of the total telecasting time whereas most of the evening audiences consisted of farmers who wanted 85 per cent of the time to be devoted to farming and remaining 15 per cent to other programmes.

The first few months of the SITE experiment saw attendance in very large numbers, especially for evening programmes but slowly the attendance starting thinning out in almost all the SITE clusters. One of the reasons could be that due to limited time available and the country being so huge, each cluster could get only 20 minutes of time. May be the novelty wore off, and the idle spectators left leaving only the hard-core audiences actually interested and involved in farming.

A unique multi-media experiment was launched from 24 May to 15 June 1976 to train Extension workers and other field functionaries in Andhra Pradesh and Karnataka clusters.

This exercise involved training hundreds of Extension workers through SITE, Radio and interpersonal discussions with subject-matter specialists. The workers after being exposed to this multi-media information and training package for three days (Mondays, Tuesdays & Wednesdays) went back to about 800 TV villages, where similar TV and Radio programmes were broadcast on Fridays and Saturdays in the presence of farmers supplied with follow-up and carry-away print information materials. The Extension workers came back to original TV viewing points on Sundays to start afresh a new series starting on Mondays.

The first feed-back information flowing in from these two TV cluster states speaks volumes for the effectiveness and utility of this type of training, where time-gap in passing on latest technical know-how from scientist to Extension worker to farmer is reduced to the minimum.

Another SITE benefit has been the role of TV as a social equalizer. It is indeed one of the most startling offshoot of the experiment. It was very common at the initial stages to see different sections of the society watching the programmes while sitting in different and distinct groups. But slowly these groups disappeared and it was no longer possible to distinguish big farmers from the small farmers, or Harijans from non-Harijans, or educated farmers from the non-literates.

Television was able to achieve what many other programmes or projects could not do so over all these years. For one thing, TV is a great attraction and almost all the viewers are keenly anxious to know and find out the tips on agriculture or for that matter hygiene or what is happening in the country-side or the country itself. □

NEW DIMENSIONS IN

THE LANDSCAPE of Indian commercial banking has changed in a considerable measure with several new dimensions added since the nationalisation of fourteen major banks. The progress in banking development has been phenomenal, both qualitatively and quantitatively. Nowhereelse has the pace of expansion of branch network been so rapid as in India.

K.R. PURI

EVERYDAY FIVE NEW BANK offices are opened. During the seven-year period that has passed since nationalisation of banks in July 1969, more than 12,677 new bank offices have been opened, of which 5,900 offices have been opened in centres where there were no banking facilities. The average population served per bank office is now around 26,000, as against 65,000 in June 1969.

Reflecting the dimensions of new responsibilities, commercial banks have spread wider and deeper into the rural areas, with about 7,500 branches at the end of April 1976, as against 1,832 branches in June 1969. The extent to which commercial banking services are penetrating into the lives of people is indicated by the significant increase in the borrowal accounts from barely a million in June 1969 to about 6.5 million at present. Similarly, the number of deposit accounts with commercial banks is now approximately 50 million against 10 million in 1969. That the borrowal accounts have risen six and a half times and deposit accounts five times while total deposits have risen three times illustrates that a dominant part of the borrowal and deposit accounts is for smaller amounts. This clearly shows how the people of small means are now covered by the banking system either as depositors or as borrowers and how the operations of banks touch the lives of millions.

Notable progress has already been made by banks in extending support to sectors and activities identified in the Prime Ministers twenty-point economic programme—finance for procurement and distribution of essential commodities, assistance to landless labourers to whom lands are allotted, help to the released bonded labour, bridging of the credit gap created by the moratorium on rural debts, credit facilities for minor irrigation and better utilisation of groundwater resources, assistance to handloom weavers and holders of national road transport permits and assistance for consessional supply of text books and stationery to students.

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New Deposits

A striking achievement of commercial banks has been in deposit mobilisation. The total deposits of commercial banks as at the end of June 1976 exceeded Rs. 150000 million, as against Rs. 6400 million seven years ago, representing a rise of 225 per cent. The per capita deposits of scheduled commercial banks have increased from Rs. 86 in June 1969 to about Rs. 245 at present. Deposits as a proportion of national income (at current prices) have gone up from 15 per cent to 25 per cent. Bank credit has also increased sizeably from Rs 36000 million in June 1969 to over Rs. 115000 million in June 1976. More importantly, there has been a significant diversification of bank lending as compared with 1969. The banks, have involved themselves in substantial lendings to priority and other neglected sectors like agriculture, small industry and other small borrowers. The share of these sectors in total bank credits in June 1969 in terms of actual amounts, the quantum of credit extended to these priority sectors, has increased more than five-fold, from Rs 5040 million in June 1969 to over Rs 27700 million in April 1976. In addition, approximately 10 per cent of bank credit has been given for exports, the total outstanding credit as in April 1976 amounting to Rs 9800 million, and another Rs 15750 million representing the finance made available by banks for public food procurement operations. In other words, advances made to priority and neglected sectors, including exports and public food procurement, account for as much as 50 per cent of the gross bank credit today reflecting the sizable support extended by commercial banks to small borrowers The total loans guaranteed under the small loans guarantee scheme of the Credit Guarantee Corporation amounted to Rs. 6330 million as at the end of June 1975, of which over 67 per cent represented credit facilities to small farmers and agriculturists. The other beneficiaries are transport operators, traders in fertilisers, mineral oils and other goods, professionals/self-employed persons, small business enterprises and borrowers covered under the differential interest rates schemes.

To supplement their lendings to such priority sectors and areas, the banks have increased three-fold (now amounting to about Rs 1,500 crores) their investments in various trustee securities of local origin, land mortgage banks, State Electricity Boards, Municipalities and Port Trusts, Housing Boards, and Road Transport Corporations and such others which serve the same socio-economic purpose albeit indirectly. While there is a definite shift thus in the deployment of credit in favour of priority and hitherto neglected sectors, a good deal still remains to be done to take the benefits of banking to small borrowers and other weaker sections of the society.

Agriculture has had a notable share in the expansion of commercial bank credit during the last seven years. Actual credit to this sector has gone up from Rs 1880 million, 5.2 per cent of total bank credit, in June 1969 to Rs 9800 million, 9.4 per cent of total bank crdit, in April 1976. The commercial banks have also been financing the primary agricultural credit societies. The total short-term and medium term loans granted to these societies stood at about Rs 270 million, outstanding at the end of March 1976. With a large network of rural branches, with the responsibility to sponsor rural banks and with the programme of financing primary cooperative socie-

ties to some extent, the increasing rural orientation of banking development is clearly evident. While the progress made by banking thus far has been in fulfilment of the policy objectives, banks have to go a long way before they could really become an effective instrument of economic progress. Despite the establishment of a large number of new bank offices in rural centres and the setting up of 72 regional rural bank offices, the size of the rural sector that is yet to be covered is still very big. A more massive expansion of branches in rural areas is therefore imperative. This calls for concerted action from banks as well as the State Governments.

There is substantial scope for augmenting credit facilities in favour of small and marginal farmers and agricultural labourers. This is particularly important in the context of the 20-point programme which lays emphasis *inter ália* on the general upliftment of these poor classes of our rural society by implementation of agricultural land ceilings and speedier distribution of surplus land and compilation of land records, stepping up of the provision of house sites for the landless and weaker sections, declaration of bonded labour as illegal, liquidation of rural indebtedness, special national programme for the use of underground water resources and bringing five million more hectares of area under irrigation, and many others. The physical programmes can be achieved only if there is concurrently a specific and time-bound programme for increasing provision of credit to small and marginal farmers and landless labourers.

While taking upon themselves the new socio-economic responsibilities, the banks should not forget the basic need of keeping the wheels of trade and industry moving. This calls for close attention to raise the provision of credit with increases in production. Our responsibility is to ensure that scarce bank credit is made available to as many productive borrowers as possible, both big and small.

While the rapid expansion of the banking system is a gratifying one, it is not without challenges. If the rapid expansion has to help us realise the objectives for which it has been brought about, what is needed is that it should be simultaneously accompanied by changes and innovations in systems and procedures and in operational methods adopted in the banking system genrally and in individual banks in particular. Adaptations to new situations will have to be brought about without delay. Appropriate strategy will have to be planned in every direction required. Illustratively, we have to seriously ponder over the large responsibilities given to the commercial banking system to make a dent in the rural areas through a massive branch expansion programme. While good progress has been achieved, as already stated in rural branch expansion, the fact remains that much of this expansion has been worked out on the basis of traditional methods in regard to staffing pattern and operational practices. If massive progress has really to be achieved, the existing staffing pattern and operational methods will necessarily have to be adapted suitably. We may have to think more in terms of one man branches. Similarly, if rural branches have to function as an integral part of the villages, banks will have to build up greater expertise for loan disbursements in rural areas.

Training

The new and challenging responsibilities the commercial banks have to shoulder underscore the immense trained manpower requirements. The total bank personnel in commercial banks, which was around 2.30 lakhs in 1970 had increased to 3.74 lakhs by December 1974, and the number of employees is expected to touch 4.90 lakhs by 1980 according to the Banking Commission. Substantial branch expansion is likely to take place in the coming years. The banks would thus be growing bigger and bigger at a very fast pace. When the bank is small it is possible to train the new entrants directly by the senior employees. But when the size of the bank has expanded, it becomes necessary to make special arrangements for training. Special training becomes all the more necessary when the banks have entered into new fields like agricultural financing and lending to the small men. Due emphasis will have to be placed on developing the special skills and attitudes needed in the context of the functional diversification witnessed in our banks in recent years. Today a banker is no longer a mere money lender, looking only at the safety of lending and security offered. They are no doubt important considerations, but the new situation expects a banker to be much more. He should be a development banker. He has to attend to public relations, spread development banking and have liaison with Governments and other institutions. It is only through proper training that he will be able to discharge successfully these diversified and sophisticated responsibilities.

Of great relevance for current policy formulation is the impact of buyers' market on banking. The economic phenomenon of a shift from a sellers' to buyers' market is a painful process in full employment societies as well as in developing countries. It calls for adjustments in price policy, profit considerations, production strategy, particularly diversification, as well as a response to market factors in a realistic way. This requires action on the part of all partners in production, viz. capital, labour and Government. In a situation like this, the banks can actively help the process of adjustment in industry. They should seek to transcend beyond their traditional role and consider it their duty to act as Financial Advisers to the concerns assisted by them and which are facing the impact of the emergence of the buyers' market. They should thus render a package of positive and comprehensive assistance to them. They have to play the important and delicate dual role of interpreting the Reserve Bank's credit policy to their borrowers and explain their implications to them, and work for a situation where the utmost possible constructive action could be taken within the ambit of existing policy to facilitate production in cooperation with them. The banks should also give prompt and correct feedback information on the status of an industry to enable the Reserve Bank to know the problems better from banks through their operations at grass roots level, which in turn would enable the Reserve Bank to initiate prompt remedial action that may be needed. □

Catch them Young

T.K.D. NAIR

THE 'SANCHAYIKA' scheme or the school savings bank system is gradually gaining ground in our country. The National Savings Organization has embarked upon the huge task of bringing lakhs of school boys and girls to the savings fold and thus enabling them to participate in nation-building activities.

The question is whether we as a nation can afford to streamline the administrative machinery to take up this stupendous enterprise.

SCHOOL SAVINGS BANK

IT IS ESTIMATED that there are more than 8.5 million high school students in our country. If the children of upper primary and middle school sections are also taken into account the number exceeds 22.5 million. If it is possible to persuade all these children to accept the principle of thrift and induce them to save at least a quarter of a rupee the accumulated saving at a time will amount to Rs. 5.6 million. If it is possible to repeat the saving, say four times a year, with a view to making saving a habit the total investment in our school savings should be Rs 22.5 million. This is not a small figure. But in a way this is small too in as much as the prospect of mobilising savings from this particular area is still enormous. Experience has shown that with conscientious efforts children can be enthused to save more and more. On an average every school boy or girl can easily deposit at the rate of 25p. a month for all the ten months during which the schools remain open.

The national savings departments left to themselves cannot do much to attain the goal, for the simple reason that the schools are established mainly for educating children. The primary aim of the savings movement is, boosting the investments in savings through the education of the public in elementary economics of monetary management. But in the case of schools, savings collection has necessarily to be secondary and the primary aim should be educating the child.

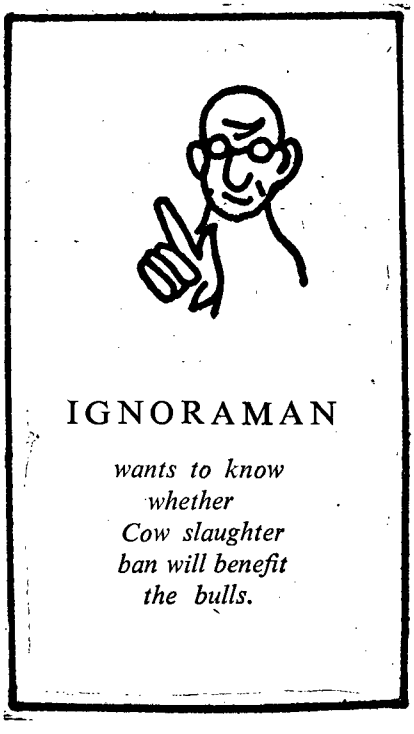
When we think of educating the child we should think of effecting desirable behavioural changes in the learner. Inculcation of habits of thrift, avoidance of unnecessary expenditure, aversion towards luxuries, hate for bad habits like smoking drinking etc. are some of the objectives that can be set for effecting behavioural changes which may culminate in a favourable attitude towards savings. Added to these, knowledge of the processes involved in national development, role of national savings in national development, economic behaviour of community vis-a-vis individual etc. is necessary for one to be an ardent believer in the savings movement. Education aimed at these objectives can be imparted only by teachers in schools. National savings departments which are overenthusiastic in collecting more and more have to divert their attention to the possibility of enlisting the willing co-operation of working teachers in this venture.

Often it will be argued that savings scheme cannot work among the poorer sections of society. Experience, however, belies this notion. I had occasions to work both as a savings worker and as a teacher among weaker sections of the community. If properly educated the poorer sections are more responsive to appeals. The so-called affluent ones have many fair as well as unfair means of managing their money. They can also afford even to lose their savings by investing in unstable securities. As a headmaster I had occasion to organise school savings banks in two upper primary schools in Kerala (government Mopla U.P. School Quilon and Kamaleswaram U. P. School, Trivandrum) both situated in backward coastal areas. Colleagues and friends were not enthusiastic about the success of these projects. To the surprise of everyone the savings banks began to flourish and within a short span of one month recorded a deposit of more than Rs 200/-. It was a pleasant experience to observe boys and girls queuing at the school Bank counter and their own classmates attending to them.

Apart from the desirable habits inculcated in children some significant changes took place in the surroundings also. There used to be some hawkers who sat at the school gates and sold unhygenic foodstuff to the pupils. Soon after the initiation of the school banks these hawkers vanished.

Another unexpected benefit that accrued from the school banking system was the occasion it provided to give training to children in doing banking job and learning to stand in queues etc. It can be safely stated that the school savings bank system is an effective aid for work experience in education.

The more significant gain of school savings banks was not merely the tangible addition to savings collections but the habit formation it led to among the younger generation. Usually savings collections get nullified when withdrawals are made. But this aggregation of right and healthy attitude proves to be of permanent nature and is capable of self acceleration which is the real need of our country. The future of the country is going to be in the hands of those who are at schools now. Awareness of this need makes one believe that school savings banks are effective teaching aids. □



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DEFENCE PREPAREDNESS

BANSI LAL
DEFENCE MINISTER

ALTHOUGH our country has made tremendous progress in the field of defence, yet there is no room for complacency. The big power rivalry having been shifted to the Indian ocean, the Indian territory is now more exposed to air and maritime reconnaissance by foreigners. Therefore, in any future planning for defence, the changing political conditions, strategic developments and technological advances have to be constantly taken cognizance of.

The primary duty of a country is to defend its sovereignty and territorial integrity. Defence depends on armed forces, industrial and technological growth, the economy and the spirit of the people. In planning for defence, the changing political conditions the world over, strategic developments and technological advances have also to be constantly kept in view.

The Big Powers continue to be committed to detente to some extent. But in the region where we are situated, the benefits of detente have not reached. The Western industrialised powers are injecting sophisticated weapons leading to a massive build-up of modern arm, in our neighbourhood. There is Great Power rivalry in the Indian Ocean. We believe that great power presence and rivalries do not help anyone. The development of Diego Garcia as a fullfledged base is bound to heighten Super Power rivalry and bring tension to the Indian Ocean. Increased military presence in this area will inevitably lead to escalation. The oil in Bombay High has added to the responsibility of the Navy. The Andaman and Nicobar Islands as also the Lakshadweep Islands are now exposed to maritime reconnaissance by foreign navies and naval air arm. This has further increased our responsibilities. We want the Indian Ocean to be a zone of peace, but the presence of Big Powers is creating problems.

India is a vast country with varied climate and different topography. On one side, there are the eternally snow-covered Himalayas and on the other the mercury rises as high as 50° centigrade along the Rajasthan desert. Our borders are long—about 9,000 miles in mountains and plains and more than 3,500 miles along the coast.

Ours is essentially a defence force. We have no desire whatsoever to expand our territory. We covet nobody's land. We believe that negotiations and not war can bring lasting benefits to the people of India and to those countries which have, on various occasions in the past, been tempted to use force to settle differences with us. We believe in solving all issues which may arise between us and our neighbours strictly on bilateral basis and through patient dialogue. The recent foreign policy initiatives taken by the Prime Minister have to be seen in this light. It is because of these initiatives that there have lately been some welcome developments in our neighbourhood. Diplomatic relations with Pakistan have been restored and our Ambassador has gone to Peking. I hope the turn in our relations with these countries will lead to a proper climate of understanding and that we will enter an era of fruitful cooperation.

For the people of Pakistan, we have nothing but goodwill. We have no aggressive designs against any country. We adhere to Panchsheel. We want good brotherly relations with Bangladesh as well. We would like to see a strong and prosperous Bangladesh. We want our neighbours to live in peace and to progress and to have the closest ties with us. There will never be aggression from our side.

Planned Reorganisatin

Notwithstanding the healthy trends, the threat to our security has not diminished and the situation warrants a close and continuous watch on our part. The country cannot afford to be complacent at this juncture and will have to maintain a constant vigil to protect and safeguard her security with a greater unity of purpose and discipline. We cannot lower our guard. We have to plan, and have indeed planned to defend our borders against adventurous violation. This involves reorganisation and re-equipment in a planned manner, consistent with our national resource position and the need for our other developmental activities. Our defence plan is not static. It is adaptable to changes in international relationship, strategy, tactical and technological concepts. While preparing our defence strategy, we are keeping all the developments in mind. We ignore nothing. We are not complacent on any side.

Our best defence lies in our strength. And India today is strong economically, politically and socially.

We have one of the finest armies in the world. Its punch has been considerably increased through a selected process of reorganisation. The Air Force, consistent with its responsibilities, has been making continuous efforts to modernise itself. We want to maintain a reasonably well-balanced force which can effectively meet its various commitments of air defence, close air support, transport, heli-borne operations etc. The Navy is being strengthened by the addition of more ships, modernisation of old ships and the construction of new and expansion of existing shipyards to maintain the defence potential at the optimum level.

The main thrust of our defence production effort has been towards the twin objective of modernisation of arms and equipment and achievement of progressive self-reliance and self-sufficiency. In defence production, we have achieved reasonable competence and promptness consistent with the contemporary situation. We have made substantial progress in increasing the indigenous content of major items of equipment and in building-up a large measure of expertise in a variety of specialities.

The ordnance factories have attained self-sufficiency in the field of small arms production and are producing adequate quantities of rifles, light mortars, carbines and light machine guns. In regard to the medium and heavy weapons we have our own production lines. We are trying to modernise arms indigenously, re-examine and re-design various

weapons and armour and bring in research and development to assist production of defence equipment.

This contrasts favourably with the situation immediately after independence. There were then only 17 ordnance factories, manufacturing rudimentary armament with limited capacity to produce rifles, guns, ammunition of old vintage and certain miscellaneous stores required by the Indian Army. They were merely subsidiaries of the Royal Ordanance factories in England and their machinery was anything but modern. Today we have 30 Ordnance factories and 9 Defence Public Sector Undertakings. The Hindustan Aeronautics, the Bharat Electronics and the Mazgon Docks have made sizeable contributions to the defence effort, particularly with regard to the various types of aircraft, helicopters, sophisticated electronic items, communication equipment, radar and naval vessels. The total value of production in the Defence Public Sector Undertakings and Ordnance factories in 1975-76 was Rs. 57.3 million. In today's world no country, howsoever great, can ever be 100 per cent self-sufficient in armaments or sophisticated hardware. Critical decisions have to be taken continuously about how much of the economic resources and how much and what kind of manpower to devote to defence. Excessive investment could invite waste and interfere with the economic growth upon which national security rests.

Biggest Asset

For us, it is a matter of gratification that our economy has taken giant strides forward during the last one year. Our exports have gone up substantially. Labour productivity has increased, public sector enterprises have put in better performance. Our rate of inflation has gone down from 25 per cent to minus 7 per cent. The 20-Point Programme of the Prime Minister has galvanised the nation and has laid firm foundations for a profound social change. The emergency has brought about discipline in all walks of life. There are no longer strikes or agitations to distract the attention of our people from gainful production.

The biggest asset to an organisation is its devoted and dedicated members. Our jawans and men of all the three wings of the defence forces and the workers in defence production establishments are disciplined, patriotic and highly motivated. The security of the country is secure in their hands. □

KAZI NAZRUL ISLAM

His second name was peace and he sang the song of revolution. A rebel poet who belonged to mankind and posterity.

KAZI NAZRUL ISLAM died in Dacca on 29th August, 1976 at the age of 77. For 24 years ending with death he lived with his mind and tongue paralysed. His was no ordinary mind that spun poems which inspired a fallen, exploited and apathetic people into revolution. It was no ordinary tongue that sang the glories of freedom, equality and brotherhood of all religions. To India where he was born and where he lived and Bangladesh where he died, his life and works are a common source of inspiration. His death coincides with the end of the struggle for freedom of a people. Significantly, it also coincides with the birth pangs of a new era in which the struggle for equality and justice has taken the place of struggle for national freedom.

Nazrul was born into poverty in 1899. He was the second son in a poor family of Churulia, a village in the district of Burdwan. Unable to bear the burden of poverty he was forced to do odd jobs. He worked as a composer of a "Leto" (village folk song) party and later on worked as a house-boy. One of his employers was fascinated by his brightness and got him admitted into a school. His schooling was erratic and he left the school when he was only in class X and joined the 49th Bengali Regiment. This he did influenced with revolutionary ideas and patriotism that learning the art of warfare would one day be useful in the fight for the liberation of the motherland from the British Rule.

When he was serving in Mesopotamia as a havildar his first poem 'Mukti' was published in the *Bangiya Mussalman Sahitya* Patrika—a non-communal journal.

Nazrul returned to Bengal in 1920 and his poem 'Bidrohi' (The Rebel) first appeared in a Bengali periodical *Bijali* on the 6th January, 1922. This established him as the rebel and revolutionary poet of Bengal,

When he was only twenty-three he founded a fortnightly called *Dhumketu* (the Comet). Tagore blessed this with a poem of eight lines. Through the columns of *Dhumketu* he wanted to arouse the people of India from their apathy and serfdom. On the 22nd September, 1922, Nazrul published in this fortnightly a poem called *Anandamoyeer Agamaney* which landed him in trouble for sedition and he was arrested and sentenced to one year's rigorous imprisonment. He did not defend himself in court, but his statement called "Rajbandir Jabanbandi" is memorable for its literary quality. He said:

'I am a poet, the instrument through which truth speaks. Some ruthless power might imprison this flute destroy it, but who shall imprison him who plays that flute?"

The British not only proscribed all the copies of all the issues of *Dhumketu*, but also destroyed them.

In April, 1924, Nazrul Islam married Pramila Sen Gupta.

He never tried to convert her to his religion. The marriage remained a living symbol of communal harmony—an integral part of his nature and has been beautifully expressed in his writings.

"Hindus and Muslims are two brothers.
Two apples of Bharat's eyes.
They're two plants in the same garden
One Deodar, and the other Kadamba.

He was deeply immersed in Muslim and Hindus philosophy alike. To him the Ganga and Yamuna were equally important like the Shat-al of Arabia. His knowledge of Persian and Urdu enabled him to weave Persian Ghazal into Bengali songs.

The rebel poet had the highest regard for Gandhiji's non-cooperation movement. He said:

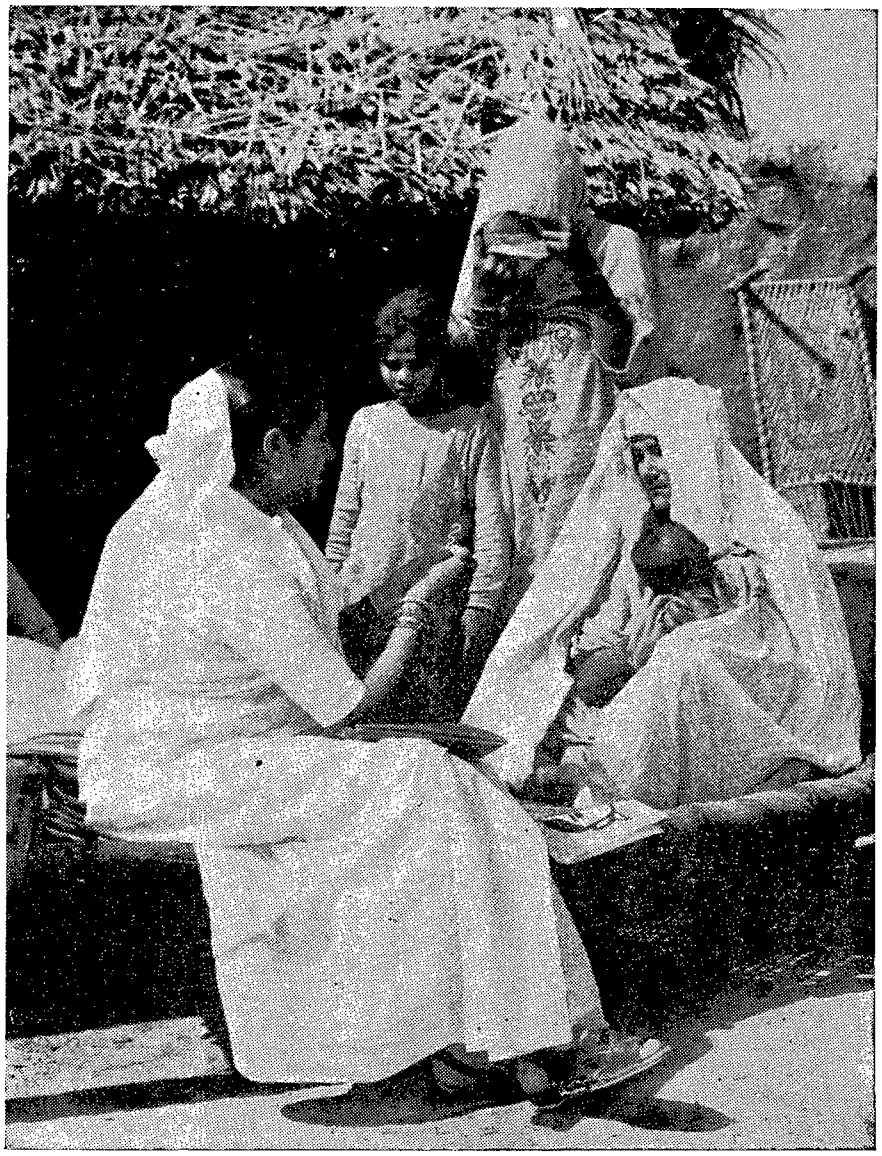
"Who is this naked person going
That has broken the prison wall
Where the mother (India) lies in chain?"

The voice which gave the clarion call "Chal, Chal, Chal" is now silent, but the call remains. The people will not forget him, who is their own, whom they have clasped to their bosoms. □

The National Population Polic

SPEEDIER REMEDIES TO OVERTAKE A GALLOPING PROBLEM

Below: **Population pressure is brought to bear on the nation's slender resources by every human being. The remedy, therefore, has to be applied without considerations of caste or creed. The consent of everyone is needed to make the national programme a success.**



Above: **Health educators discuss th**
Below left: **'Nirodh' continues to be a rule out the more permanent remedy before they are tested.**

In Action

cs of a vasectomy camp with village elders. device used by millions whose circumstances ctomy. Below right: 'Nirodh' being tested

Above and below: **The stress is more directly on birth control now, but there is no slackening of the emphasis on service.**

Family Planning and the New

G.V.K. MURTHY

INDIA IS IN for a 'Future Shock' (to borrow Alvin Taffler's title), if statistical projections are any indication. For, in less than 25 years, the end of the century, the country's population will cross the 1,000 million mark from the present over 600 million.

The second largest populated country in the world is already growing at a bizarre rate of 12 million every year, 60,000 per day, or to be more precise, one every 1.5 seconds. In other words, we are adding to our numbers a figure equivalent to the present population of Australia every year! These additions will mean that some 300 million Indians will die of starvation before the century peters out, not to speak of the structural displacements leading to a chain reaction affecting almost every sphere of human activity.

In the construction of a new economic and social order—the main plank of the Prime Minister's 20-point programme—the principal challenge facing our generation is how to contain this population explosion. The problem was deliberated in World Population Conference, held in Bucharest in August 1974 and since then considerable emphasis has been laid on tackling human proliferation as the key to our major problems of economic development, environmental pollution, and improvement in the overall quality of life.

If not checked vigorously and in time, the accelerated thrust of human spillover will bring to nought all our concentrated efforts to provide better medical facilities, better control of diseases, more job opportunities, an increased per capita income, stepped up agricultural and industrial output, and efficient and streamlined transport network and a leap forward in providing a qualitative educational pattern, not to speak of clothing and shelter to the "have-nots," particularly in the backward areas.

In his address to the United Nations Economic and Social Council in Geneva on July 8,1971, UNESCO's Director-General Rene Maheu, warned that throughout the world simple economic growth "is no longer considered sufficient and that more and more importance is being attached to the human quality of life." It is this accent on "human quality of life" that finds pride of place in the new national population policy, spelt out by the Union Minister of Health and Family Planning, Dr. Karan Singh, on April 16 last.

The strategy is an integrated package covering health, family planning and nutrition. For, neglect of one at the cost of the other would simply mean ignoring the psychological dimensions of tomorrow. The crux of the policy is to strike at the underlying causes of poverty and disease. The first of these measures aims at reducing the birth rate from an estimated 35 per thousand in the beginning of the Fifth Plan to 25 per thousand at the end of the Sixth, i.e. the annual growth rate will have to be brought down to 1.4 by 1984. It stands to reason that the more the number in a family, the less are the chances of providing a square meal and proper medical care to every member of that family. Reduction in birth rate, therefore, is expected to result in a fair balance between the number of people, the means of subsistence and the overall facilities available to improve the quality of life.

Late Marriages

To discourage early marriages, it is now proposed to raise the minimum marriageable age to 18 for girls and 21 for boys. Early marriages had led to higher maternal and infant mortality. "Postponed" marriages, it is expected, will result in improving the health of the mother and the child. From the main "obsession" of getting married early so that they need not be a "burden" on the breadwinner, girls in the age-group of 15-18 can now hope to get themselves educated to join the work force and provide for their own security. The wind of change is already blowing in this direction.

High priority is to be accorded to girls' education up to the middle level. It is now realised that educated girls show greater awareness of the need for limited families. Iran's experience is that girls who have had primary education, learn about anatomy and physiology, how to deal with normal deliveries, about communicable diseases, mother and child care, and the purposes and methods of birth control.

The national policy seeks to make a frontal thrust in the direction of nutrition for the major reason that the pre-school child under five needs good, wholesome food. Scientists have all along traced a link between mental retardation and inadequate protein intake. An average Indian gets some 2,100 calories and 52 grams of protein daily as against his minimum requirement of 2,500 calories and 44.3 grams of protein. Malnutrition leads to a high rate of blindness due to vitamin 'A' deficiency, not to speak of mental deficiency. Recent surveys have shown that at least 15,000 children go blind in the country every year as a result of vitamin 'A' deficiency. It is felt that malnutrition and particularly

Massive

WEST BENGAL is marching forward to achieve the target of reducing birth rate to 30 per thousand by the end of the Fifth Plan. Due to vigorous publicity campaign the small family norm has reached the remotest corners of the State. As a result, family planning methods are being adopted by larger number of people. Since inception of the family planning programme up to March 1976, more than 1.8 million couples had accepted one or the other of family planning methods; 1.22 million had undergone sterilisation operation, 3,60,000 had accepted IUD (loop), 2,20,000 had been using conventional contraceptives and there were 6008 couples using oral pills.

Out of 7.7 million eligible couples in the reproductive age group 15.5 per cent are currently covered by family planning methods in the state. By 1997-98 it is expected that 3 million births will be averted. This 3 million people, if born, would have required an additional Rs. 8100 million, 25.5 million quintals of food, 0.51 million houses, 26,100

Population Policy

diets lacking in protein may affect brain growth of young children to the point where they cannot benefit fully from education. A panel of advisers headed by Mr. C. Subramaniam, at a meeting held in New York in 1971 said: "It is ironical that a society which undertakes the responsibility of training the minds of the young does not also accept the responsibility of ensuring that the nutritional and health status of its children is such as to make this training achieve its ends to the fullest."

Another feature of the policy is the proposal to introduce population values in the educational system. By giving school children at every level, information about the population explosion and its effect on the well-being of the individual family, it is possible to overcome traditional attitudes. Dr. Solan Wayland, Professor of Sociology and Education at Teacher's College, New York, who coined the term "population education", is sure that the "Asians will become the world's foremost experts in population education". This type of education seeks to enable couples to take rational decisions about factors that influence national population growth. The Government has already been providing monetary compensation to those who undergo sterilisation. It is now proposed to step it up to Rs 150 if performed with two living children or less with reduced compensation for three or more living children. This part of the campaign is already a resounding success as more than two million births have been averted by such inducements. It is possible that more and more incentive schemes will come into vogue once the general public are made sufficiently aware of the seriousness of the problem.

The policy outline has also taken note of the need for more incentives in the shape of group incentives covering the medical profession, zila and panchayat samitis and teachers at various levels, cooperative societies and organised labour sector.

The People's Republic of China has a successful family planning programme centred about groups in the community. "The barefoot doctor"—a paramedical worker aged 17 to 21—serves three to five years in the countryside and gives advice, distributes the pill and, in general, educates the groups on family planning methods. The idea is catching up in our country too.

The national policy underlines the fact that governmental efforts alone in the sphere of family planning will not succeed unless voluntary organisations are drawn into its promotion in an increasing measure. Full rebate is to be allowed in income tax assessment for donations for family planning purposes to approved voluntary organisations. The Government can also explore the possibility of allowing premium rebates with regard to life insurance policies covering group insurance schemes. Preferential allotment of houses and loans is already in vogue in some States for those who have accepted family planning. Some of the State Governments are going in for housing schemes for their employees. Priority allotment should be introduced wherever such schemes are taken up.

"Hope for a better life" is the essence of the new national population policy. □

Mobilization In West Bengal

The alarming growth rate of our population may be attributed to the widening gap between the births and deaths. All progress made since 1947 seem to get us nowhere. The country can ill afford to allow this rate of population growth to go uncontrolled for the well-being of the people already born. Therefore the only solution is to bring down the birth rate.

P. B. RAY

schools, 38.7 million meters of cloth and 0.84 million new jobs.

There has been a spectacular increase of expenditure on family planning programme since the First Plan in the State. During the First Plan only Rs 37,000 was spent. A sum of Rs 1.4 million was spent during the Second Plan period. The State's expenditure rose to Rs. 10.15 million during the Third Plan. From 1966 to 1969 Rs 42.66 million were spent for this purpose. From the Fourth Plan onwards Family Planning Programme is being implemented more vigorously. The expenditure during this period was of the order of Rs 133.51 million. The total expenditure during the Fifth Plan upto 1976-77 amounts to Rs 114.14 million. This shows the increasing importance being given to the Family Planning Programme in the State.

In order to make the services available at the doorsteps of the people throughout the State, there has been a network of service centres all over. There are 18 District Family Welfare Planning Bureaux in 16 districts. To cover the rural population as many as 335 Rural Family Welfare Planning Centres are functioning in the State. Under them there are 1005 Family Welfare Planning sub-Centres. Moreover, there are 22 Voluntary Family Welfare Planning Centres in the rural areas. In all, 72 Urban Family Welfare Planning Centres, besides 29 Voluntary Family Welfare Planning Centres are serving the urban population. In Government Hospitals out of 241 sterilisation beds, 100 are reserved under Post Partum Scheme and 141 under Sterilisation Bed Scheme. In non-government Hospitals there are 52 beds reserved for sterilisation operation. In addition, where sterilisation facilities are not available, 13 mobile service units function.

The state is determined to reduce the alarming growth of population. With a view to bringing down the birth rate from 35.5 per thousand population at present to 30 per 1000 population by the end of the Fifth Plan and 25 per 1000 by the end of the Sixth Plan—the target fixed by the Government of India, the State of West Bengal has decided to persuade 5,00,000 couples to undergo sterilisation operation, to cover 44,000 mothers with IUD and protect 2,32,000 couples by oral pill and conventional contraceptives during the current year. The progress of performance during the last five months indicates that the State is well set to achieve the target. □

L.R.D.E., The Pioneer in Medical Electronics

A whole family of complex medical electronics equipments have been designed and developed at LRDE and evaluated at a number of hospitals and the technical knowhow has been passed on to the manufacturers in the private sector through NRDC.

A computer aided diagnosis and treatment system is now under development.

The activity at LRDE has not only saved a considerable amount of Foreign Exchange, it would also make indigenously produced equipment available to the medical profession in general.

ONE OF THE latest developments at the Electronics and Radar Development Establishment (LRDE) of the Ministry of Defence, is called MEDICAL DATA PROCESSING AND AUTOMATIC DIAGNOSIS SYSTEM (MEDPAD). It is a complex computerised AUTOMATIC PATIENT MONITORING SYSTEM using modern computerised techniques for the analysis of heart beat and other living functions.

Forming part of the Defence Research and Development Organisation, Ministry of Defence, the LRDE deals mainly with the development of defence-oriented electronics and other radar equipment and systems. The development of electro-medical equipment was taken up in Establishment for the first time in 1960.

In our country, all complex medical electronics systems have been of imported origin so far, and until recently no private or governmental agency had undertaken the development and manufacture of such systems. This was mainly due to lack of specialised knowhow and modest internal demand for such equipment which made it an uneconomical venture.

In 1967, the Director General Armed Forces Medical Services (DGAFMS) initiated development projects on LRDE. The activity in this field at LRDE was stepped up when a qualified doctor, Surgeon Commander A.K. Deb, VSM who is also an electronics engineer was posted for coordinating the design and development work in Medical Electronics. Surgeon Commander Deb was recently awarded the Lt V.K. Jain Memorial Gold Medal by the Chief of the Naval Staff for outstanding research and development work in this particular field. A number of tasks were allotted to LRDE through the Defence Research and Development Organisation and qualitative requirements were drawn up. Formal projects were allotted in 1968.

Design and fabrication of many systems have been finalised and prototypes handed over to the Defence Medical Services for long term clinical evaluation. Some of these equipments are now under production by private sector for sale to medical profession in India.

Most of the equipments are totally indigenous in content and incorporate the latest features of the State-of-the-art in the world today. It is desirable to increase the indigenous content of the equipment to be manufactured in the country not only because of the need to save Foreign Exchange but also because of the fact that incorporating components of foreign origin can compromise the production of the equipment in India at a later stage if the imported components suddenly become non-available. Thus a conscentious effort is being made at LRDE to maximise indigenous content in these equipment, yet meeting international standards of equipment performance and safety.

The Raksha Mantri was shown a collection of approximately 30 medical electronics Sub Systems and equipments and this was perhaps one of the largest display of equipment of this type in this country. Many of the equipments related to the care of the heart patients because these were urgently needed by the Armd Forces Medical Services and, therefore, were developed at LRDE.

A patient suffering from heart attack needs immediate hospitalisati.n and treatment because that type of investigation, treatment and nursing cannot be given at home. The LRDE version of the Patient Monitoring System simultaneously and continuously monitors upto four patients per console, extendable, if desired. As and when the patient's heart rate is lower or higher than the lower or higher heart-rate limits present on the panel, an audible/visible alarm is generated which draws the attention of the nurse. It has also facilities to monitor the Temperature, Respiration Rate, Blood Pressure automatically and ECG on a long persistance Oscilloscope upto 4 patients at a time. This equipment is entirely indigenous in content and the selling price of the commercial model is considerably less than that of a comparable imported equipment.

Frequently a patient with a heart attack is too ill to be moved to the special ward, called intensive care unit, equipped to look after these cases. It is therefore, necessary to stabilise the condition of such patients before they are moved. Mobile Cardiac Care System helps to diagnose and treat the patient at bed side. The LRDE version of the Cardiac Care System records the patient's ECG on paper, shows his ECG continuously, indicates his heart rate and switches on audible/visible alarms as and when preset limits of the heart rate are crossed, and has facilities for treating the patient either with the Pacemaker or the DC Defibrillator both of which are incorporated in the system. It has been specially designed for electrical safety of the patient and the operator.

Another important system designed at LRDE is the Anaesthesia Monitor System which allows not only to monitor the blood pressure, heart rate and ECG of a patient under general anaesthesia but also allows small samples of his blood to be examined for oxygen and carbon dioxide content. A few of the other equipments demonstrated include:-

(a) *Electrosleep*: This is an electronic system for passing current through the head of the individual for induction of sleep. It is useful in cases of sleeplessness.

(b) *Electronic Anaesthesia*: An electronic system for passing current through the head of the individual, thereby inducing general anaesthesia during surgery.

(c) *Phonocardiograph*: An equipment for recording heart sounds and murmurs along with ECG on paper for the identification of the nature of the various abnormal heart sounds.

Also demonstrated were a few of the sub-units of the major computerised data monitoring and patient monitoring system called the MEDICAL DATA PROCESSING AND AUTOMATIC DIAGNOSIS SYSTEM (MEDPAD). Some of the sub systems under development and displayed were the special purpose TV display unit for the display of various medical information on the condition of the patient either directly or through the associated computer, the Telemetry system for transmitting medical waveforms like ECG automatically over telephone lines/wireless, equipment for recording clinical quality ECG on magnetic tape recorders, miniaturised bed side monitors, Intra Cardiac Blood Pressure measuring instrument, graphical recording system for Blood Pressure, Arrhythmia Monitoring System.

A whole family of complex medical electronics equipments have been designed and developed at LRDE and evaluated at a number of hospitals and the technical knowhow has been passed on to the manufacturers in the private sector through NRDC.

A computer aided diagnosis and treatment system is now under development.

The activity at LRDE has not only saved a considerable amount of Foreign Exchange. it would also make indigenously produced equipment available to the medical profession in general. □

NAGENDRA
P. SINGH

WHITHER TRIBAL ENTREPRENEURSHIP THROUGH RURAL ELECTRIFICATION ?

Do we really need to introduce such schemes where 'ingenuity' of the programme is itself at stake? Do the tribals look for such eventualities to exploit it for their development?

TRIBAL WORLD is in a transitory phase. Since there had not been any comprehensive study on rural electrification and its impact on tribal world there is a need to ramify the directed and planned change in the tribal areas in the light of the following proposition.

The steering committee at centre under the chairmanship of secretary, rural development, is expected to submit its recommendation very soon. However, scope of employing a fast expanding electrification network could very well be visualised in most of the developing tribal areas. An observation by the author in the pilot survey while conducting a study in Chota Nagpur belt of Bihar (under process) reveals that provision of electrification facilities in the remote tribal villages would not only accelerate the rural industries in the areas, rather it would change the outlook of the people, their attitudes and beliefs about the government machinery working for development schemes. Of course, this is subject to their acceptance and reception of the scheme itself. Apparently, they look to be receptives to other developmental plans, like family planning, piggery, crop raising and applied nutrition, in the areas where they have already been enjoying the material infrastructural facilities, like electrification and transport.

As we know that characteristics of tribal areas greatly differ from those of non-tribal areas. The tribal areas are sparsely populated and the villages are generally small. Till the advent of direct change through community development and tribal development blocks (Araku, Paderu, Munchingput, Chintapalli, G. Madugula, Koyyuru, Anantagiri and Pedabayalu) reveals that the introduction of tribal development programme might be initiated on a welfare motive but the working machinery need not fail to have a serious thought over the "locational aspects of different functions." By this they indicate that distribution of infrastructural arrangement, as stated, like transport, marketing centres and other commercial facilities under the existing network of rural electrification has also to be taken care of while implementing the programme. Studies say that the condition of the roads were not good enough for any transport arrangements. It was estimated that movement will be 3 miles an hour on a hilly track, 12 miles an hour on unmetalled and 27 miles an hour on metal road. Tribal people of those areas don't take full advantage of vehicular track. Instead they used to depend mainly on foot tracks even though transport is available.

Anticipatory Phenomenon

On the basis of above observation, development of tribals seem to be an anticipatory phenomenon while suggesting rural (tribal) electrification programme. A recent study conducted by SIET Institute on a project sponsored by Rural Electrification Corporation of India reveals that no. of industrial units rose from 25 to 87 and 8 to 40 in some of the remote villages on account of the rural electriciation scheme. Consequently, fairly large sum of capital was invested in those industrial ventures. The impact of rural electrification on the local resource potential on small industry has resulted into spread effects; these spread effects were fostering flour mills in remote rural areas. Though these were not the tribal villages, the data helps in visualising the anticipated developmental phenomena among tribals.

Tribal communities form approximately 7 per cent of our population. The government through various legislative and economic measures is trying hard to uplift these backward groups into the main stream of Indian social situation. In different states tribes differ and all these tribes have their own social, cultural, economic and political problems which are impediments to implementation of integrated development programmes into the composite society of contemporary world. Neither the state governments nor the Central Government had visualised the relative importance of electrification and having budgetary provision for this. While giving grants to roads and industries, it is assumed that it will automatically help the required rural electrification facilities, in those areas. The agency, though rightly emphasises farming and irrigation for tribal development,

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but scope of raising crops through modern irrigation would largely depend on how much the area is electrified and if so, how the tribals appear to be receptive to such schemes so as to finally utilise the electrification infrastructure for the better crop and animal husbandry, use of modern machinery in farming as well as in rural industries. This is a vital question yet to be examined by the authorities of the state government as well as by the centre. REC has sanctioned 10 schemes to AP state electricity board in remote villages. But very few of them come under predominantly tribal areas of the state.

The Rajasthan State Government has constituted a tribal area development board and tribal area development commission to prepare a tribal sub-plan for the economic development of the tribal areas and the commission have come to the conclusion that agriculture mixed rural industries would facilitate the overall developmental activities among the local tribes.

Keeping in view the impact of rural electrification and urgency of development for the rural communities in general and tribal communities in particular, there is a need to locate the possibilities as how to solve the related sociocultural factors of the tribal people in accepting an innovation like electricity.

Since the implementation of electrification schemes in the tribal arears is going to generate lot of social disruption, the kind of strategy that needs to be devised at the central level is to make a time-bound plan for the follow-up so that electrification is maintained and sustained. The second element in programme approach would be development of tribal entrepreneurship at the lower and intermediate level. There could be preference at tribal entrepreneurs while allotting sheds, plots etc.

The third strategy should be to minimise the distinction between Khadi and Small Industries and integrate the activities in collaborative venture during implementation of REC programme. All the related development departments, agro industries, animal husbandry have to be brought into the picture to see that programme introduced in an area is successful. In order to provide new industries with skilled workers an industrial development schemes have to be mobilised during and after the electrification programme.□

SIDE TRACK

A Pyrrhic Victory For Multinationals...

The Baby Killers

THE TRIAL TOOK PLACE in Berne, Switzerland, and the judgment was given on 24 June 1976. Berne is the capital of Switzerland but no Indian newspaper or news agency had a correspondent there to report the hearings of momenttous importance not only to Indians, but to everyone in every developing country. Presumably, foreign news cartels on which Indian newspapers depend were too busy with other things. Nestle celebrated its victory by offering good wine to some 30 members of the press who had come to witness the *cause celebre*. In any case, Indian newspapers did not carry anything detailed concerning the affair. However, the Action Group for the Third World which was the defendant estimates that some 1,500 newspaper articles did appear in other parts of the world on their battle against multinationals and their nefarious ways.

According to *Development Forum* published by the Centre for Economic and Social Information of the United Nations, the whole thing started with two English language articles published in the *New Internationalist*. In 1974, the London organisation, 'War on Want', published a pamphlet entitled "The Baby Killer" by Mike Muller. In April that year, 17 young students and Third World activists based in Switzerland who call themselves *Arbeitsgruppe Dritte Welt* (Action Group for the Third World), an independent group founded in 1968, translated the pamphlet into German under the title, "Nestle Totet Babies" (Nestle Kills Babies).

The next month, the 27th Assembly of the World Health Organisation called for governmental control to avoid misleading publicity on baby food. In July 1974, Nestle Alimentana S.A. brought defamation charges against the Action Group for the Third World. In November 1975 hearings began. In December, Nestle combined with seven other international milk food manufacturers in adopting a voluntary advertising code on breast milk substitutes. On 24 June 1976, the Berne judge decided the case in favour of Nestle and fined the defendants 300 francs each.

Toting up their total cost which came to 50,000 Swiss francs, the Action Group spokesman expressed satisfaction: "It would be a ridiculously small sum for all the public education and publicity we have achieved." However, not content with what they have achieved so far, the Action Group has already appealed against the verdict, and there is lot more public education and publicity to come from subsequent hearings.

Nestle, on its part, fought back gallantly. But some of their supporters jumped overboard in their efforts to be more loyal than the king himself. Thus, one expert called to testify on their behalf told the court: "If today the 'liberated' nigger governments (*Niggerregierungen* was the word used by the kind doctor), fool with Nestle milk without first even providing clean drinking water, this is not the fault of the multinational corporations..."

On another occasion, fate seemed to interfere in a most bizarre fashion. At one point in their global search for evidence to support that Nestle does not kill babies as alleged by the pamphleteers, a team went to Nairobi. There was at the time in the Kenyatta National Hospital a baby very near to being dead, because the misguided mother was bottlefeeding him with Nestle's 'Lactogen'. The baby collapsed and died when the padiatrician Dr Elizabeth Hillman was actually showing him to the team. When resuscitation procedure failed and the baby was pronounced dead, the mother, perfectly capable of breastfeeding, turned away with the dead baby, and put the can of Nestle milk in her bag before she left the ward.—**Dadri**

MORE MILK FOR MADHYA PRADESH

R.S. TRIPATHI

MADHYA PRADESH is fast moving towards a white revolution thanks to an ambitious Dairy Development Project of the State Dairy Development Corporation with World Bank assistance. The Rs. 250 million project on Amul pattern will cover nine districts of Bhopal, Raisen, Sehore, Hoshangabad, Dewas, Ujjain, Indore, Dhar and Ratlam.

The main aim of the project is to supply quality milk to the urban area at reasonable rates and to help the milk producer in rural areas grow by giving him reasonable payment and in time for his produce. Like Amul in Gujarat the whole project is designed on cooperative lines for increasing milk production and organised marketing. There will be three Milk Producers Unions in the Project area. Under these Unions twelve hundred Milk Producers Cooperative Societies will be established. It is expected that by the tenth year of the project, which started only last year, milk production in the project area will be increased by 2,85,000 tonnes per year. The project will directly benefit through increased income about 160,000 agricultural households or approximately 900,000 people. Of these nearly sixty per cent will be small and marginal farmers and landless labourers. Thus the whole scheme will be run in true spirit of Twenty Point Economic Programme.

At present 31 Milk Producers' Cooperatives are functioning in Bhopal and Sehore districts which collect twentyfive hundred litres of milk daily. Such cooperatives could not be started in other districts due to shortage of trained personnel. The first batch of twentytwo were trained for three months in Amul and are presently in Sehore and Bhopal. Two batches of twenty-seven each are to complete training at Amul during the current month. As soon as they return, work will be started in Indore, Ujjain and Ratlam areas also. The idea is to collect atleast 100,000 litres of milk in each of these three areas. The State Dairy Development Corporation is to establish three Dairy Plants one in each of the three areas with the help of the National Dairy Development Board. Each plant will be of 100,000 litre capacity. Besides processing milk, these plants will produce various milk products like ghee, butter, powder and ice cream etc. Establishment of three Cattle Feed Plants is also proposed in the scheme so that balanced cattle feed at reasonable price would be made available to the members of the societies.

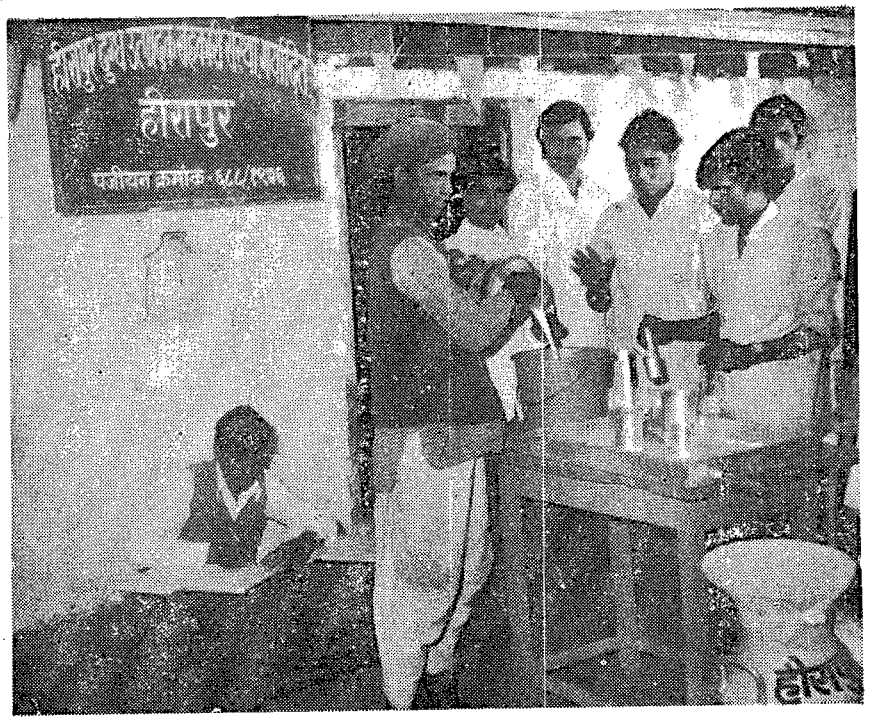
The establishment of Milk Producers Cooperatives with their own Dairy Plants and Feed Mills would provide direct employment to about 6200 people in addition to providing gainful employment through dairying to a number of farmers. It would also support a milk transport service of about seventy vehicles mostly owner operated. Social benefits would be developed after the milk-societies become established at Rs 9,000 annually from the eighth year. These funds could be used to augument or initiate village development programmes such as Education, Health, Family Planning, Minor Public Works etc. as is being done in Amul. Amul in Anand (Gujarat) made a beginning in 1946 and today they have over nine hundred Milk Producers Cooperatives handling about 700,000 litres of milk daily. Farmers get a net profit of Rs 950 per year per animal and their standard of income has increased by 69 per cent compared to what it was ten years ago.

The motive behind the project is not profit making but to make the people in rural areas self-supporting by their own efforts. The societies will not be involved in advancing loans of any kind. Only those farmers keeping cattle and involved in the sale of milk will be enrolled as members of these societies and they will be the owners of the project. Though all aspects of the project will be implemented by the State Dairy Development Corporation, the work at all levels—veterinary, first aid, artificial insemination, milk testing, record keeping etc.—will be undertaken by the farmers themselves and they will be given requisite training for this purpose. Besides sending batches of workers for training, selected men and women of the project area will also be sent to Amul for getting them aquainted with the work being done there. At present on an average about forty men and women are visiting Amul every month under this scheme. Women are keenly associated with this programme because they play the key role in milk production.

Intensive cross breeding programme will also be undertaken in the project area in order to increase the quantity of milk. Madhya Pradesh with its cattle population of 32.2 million, produces only 1.66 million tons of milk annually.

For cross-breeding high yielding exotic jersey breed in cows and murrah breed in buffaloes will be preferred and artificial insemination

Accounts checking and milk collection being done at the Hirapur Milk Producers' Cooperative Society



Shri Tripathi is A.I.R. Correspondent, Bhopal.

will be largely adopted. The health of the animals will also be taken care of. Besides establishing three cattle feed mills, fodder production programme will be launched in a big way through which good varieties of green fodder will be popularised in the whole of the area of the scheme. Veterinary doctors are available and their fees will be paid by the owner of the cattle. Thus care would be taken that the inputs necessary for maintenance, keep up, management, feeding, breeding, disease control and treatment of cattle are made available to the members in their own villages. The main charm of the scheme is that all surplus milk available with all the members will be procured round the year and the payment for milk procured will be made on the spot. This practice will completely eliminate exploitation by middle-men and help the people to keep themselves away from the clutches of money-lenders as they now get hard cash for their day-to day necessities. There will be regular and daily checking of the accounts of these societies and an audit will be held every quarter. □

Cochin Shipyard: The Workers' Share

CAN A PROJECT in the construction stage share the responsibility for management with the workers? The Cochin Shipyard has shown the way.

Workers' participation in management in the Cochin Shipyard has gained momentum with the three Department-Level Shop Committees consisting of representatives of the management and workers meeting regularly to review the day-to-day operation and management of the production units and ensure better output.

Giving top priority to the implementation of the relevant planks in the 20-Point Economic Programme, Cochin Shipyard Ltd. has also formed a joint council at the plant level for dealing with the general problems of the workers. The various suggestions made by the Council aimed at improving productivity are being examined by the company for implementation. Workers are also being given opportunities to educate themselves through short term courses in workers' participation in industry.

Ever since its inception, Cochin Shipyard Ltd. has not lost even a single man-day on account of labour strike. The employees have only one union and its relations with the management are quite cordial. The terms and conditions of service of the employees were settled early in 1974 through discussions between the Management and the Union in the shortest possible time. A member of the Board of Directors, has been the General Secretary of the Union right from the beginning.

The Shipyard, which has a well equipped training school has so far recruited over 400 apprentices for different trades like welding, carpentry and structural fitting. The fourth batch consisting of 225 apprentices is under recruitment. The apprentices are given intensive training in the training school for one year and additional practical training in the various production shops for another year. A very efficient and well tested selection process is in operation for recruiting apprentices from among the thousands of applicants whose applications are received through the employment exchanges. In years to come, the apprentices will form the score of experts familiar with modern shipbuilding technology.

With the Shipyard nearing completion and the first ship taking shape, welfare measures for the employees are being taken side by side. Much has been done in this regard, on the basis of recommendations made by the Safety Committee. The Recreation Club, built in record time, is fully equipped with a library, facilities for indoor games and a stage. An open air theatre is being built. The Kindergarten School run by the Shipyard Ladies' Club has recently been expanded. About 50 children of the employees are attending the school. A well equipped children's park has been built by voluntary labour. Work is going also on a foot-ball ground, and other play grounds. A well equipped gymnasium will soon add to these recreational facilities.

The Shipyard will very soon have its own post office and a branch of a Nationalised Bank within its premises. A well equipped medical centre is already functioning. A Co-operative Housing Scheme is under way. Land for this purpose has been acquired and work on the scheme was recently inaugurated by Vice Admiral N. Krishnan, Chairman and Managing Director of the company.

The Shipyard also provides meals to its employees at subsidised rates. A new canteen block equipped on the most modern lines capable of catering upto 1000 persons at a time will soon come up.

The establishment of the project involved the felling of a large number of trees and consequent dimunition of areas of greenery. To make up for this loss, a planned scheme of horticulture is being implemented. The idea is to plant five trees for every one cut down. About 500 trees have been planted aongside the new roads being built inside the Shipyard estate and new gardens and lawns have been planned wherever practicable. To encourage cleanliness and better house-keeping of plants, a rolling trophy has been instituted by the Chairman.

With these amenities, the Shipyard boys are doing a good job, building a giant shipyard which will turn out giant ships. □

Kerala Land Reforms

KERALA HAS BEEN in the forefront in the implementation of land reforms. The main provisions of the Kerala Land Reforms Act relate to total abolition of landlordism and intermediary rights over tenanted lands, conferment of proprietory rights on cultivating tenants, option to *Kudikidappukar* (hutment dwellers) to purchase the *'Kudikidappur'* imposition and enforcement of ceiling on land holdings and take over and distribution of the surplus land. The pace of implementation of the provisions under the Land Reforms Acts was quickened with the launching of the twenty point programme. The implementation machinery has ben strengthened with a view to quickening the pace of implementation. The number of Land Tribunals has been increased from 133 to 251, and over 5,900 officers and staff are now working exclusively on land reforms. Rapid progress has been achieved subsequently in the disposal of cases under the various provisions of the Kerala Land Reforms Act.

The total number of applications received for assignment of proprietory rights to tenants is 21,75,901 of which the number of cases disposed of till May 1976 is 15,76,536. The rate of disposal has increased remarkably since the announcement of the twenty point programme particularly after August 1975, when Government decided to intensify the effort to implement land reform measures. The average number of cases disposed of per month during the latter half of 1975 was 54,012. The number of hutment dwellers in the State is estimated at about 400,000. Nearly 369,000 *Kudikidappu* cases have been disposed of till the end of May 1976. This provision under the K.L.R. Act helps the landless class of *Kudikidappukar* to acquire ownership of house sites the extent of 10 cents in rural areas at nominal cost. 225,000 families have so far benefitted in this way. About 30,518 acres of surplus lands have been taken over. Of this 13,619 acres have been distributed so far. The ceiling provisions of the K.L.R. Act are being implemented by the Taluk Land Boards constituted for the purpose. The pace of implementation of the provisions has increased substantially. The assignment of *poramboke* lands and the provision of house-sites are bound to have an appreciable impact on the weaker sections of the community. Out of 353,451 beneficiaries who have been assigned *poramboke* lands till May 1976, 69,152 beneficiaries belong to Scheduled Castes and Scheduled Tribes. Substantial progress has been achieved in the distribution of Government *poramboke* land with the launching of the twenty point programme. Under the Arable Forest Land Assignment Rules, the surplus forest lands are being assigned to landless and indigent people for personal cultivation and as house-site. The rules provide for reservation of one-third of the assignable land in each district for assignment to members of Scheduled Castes and Scheduled Tribes. A total area of 4337 hectares has been assigned to 8427 beneficiaries of whom 3632 belong to Scheduled Castes and Scheduled Tribes. □

"Let there be wealth out of waste."

Hindustan Lever Research and Technology have turned a forest waste into an international product with several crores per annum of export potential—and created seasonal jobs for Adivasis.

Until a few years ago, the Sal forest was a subject for poems and pictures and little else besides.

This picture started changing for the better once Hindustan Lever's Research scientists started work on it. And an enterprising forest contractor offered to organise collection of Sal seeds in the wilds of Orissa.

Sal fat is today processed and exported as a cocoa butter extender to give the special melt-in-the-mouth property, so valued by chocolate makers of the world.

Today our enriched Sal fat exports fetch crores of foreign exchange per annum. Potential for exports could be doubled, provided the prices are competitive internationally. And it provides seasonal employment and income in backward areas for thousands of Adivasis. A good example of transfer of wealth through technology from the chocolate consumer in Europe to the Adivasi in Orissa.

Relevant Research turns yesterday's waste into today's wealth.

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CMHL-2-244

Shah Jehan Builds A New Delhi

—From Shah Jahan-Nama of 'Inayat Khan.' Born when Shah Jahan came to the throne and dies in 1666. (Taken from Elliot & Dowson's History of India Vol. VII pp. 85-86).

A Page From History

THE following is an exact account of the founding of the splendid fort in the above-named metropolis, with its edifices resembling Paradise, which was constructed in the environs of the city of Delhi on the banks of the river Jamuna. It first occurred to the omniscient mind that he should select on the banks of the aforesaid river some pleasant site, distinguished by its genial climate, where he might found a splendid fort and delightful edifices, agreeably to the promptings of his generous heart, through which streams of water should be made to flow, and the terraces of which should overlook the river. When, after a long search, a piece of ground outside the city of Delhi, lying between the most distant suburbs and Nurgarh, commonly called Salimgarh, was fixed upon for this purpose, by the royal command, on the night of Friday, the 25th of Zil hijja, in the twelfth year of his auspicious reign, corresponding to 1048 A.H., being the time appointed by the astrologers, the foundations were marked out with the usual ceremonies, according to the plan devised, in the august presence. Active labourers were then employed in digging the foundations, and on the night of Friday, the 9th of Muharram, of the year coinciding with 1049 A.H. (1639 A.D.), the foundation-stone of that noble structure was laid. Throughout the Imperial dominions, wherever artificers could be found, whether plain stone-cutters ornamental sculptors, masons or carpenters, by the mandate worthy of implicit obedience, they were all collected together, and multitudes of common labourers were employed in the work. It was ultimately completed on the 24th of Rabi-ul-awwal, in the twentyfirst year of his reign, corresponding to 1058 A.H., at an outlay of 60 lacs of rupees, after taking nine years three months and some days in building.

The Arithmetic of Population Growth

The Indian population today has crossed the 616 million mark. According to the estimated projections, the total population as on 1st March, 1976 was 606.2 million.

This represents an annual growth rate of 2.48 per cent. In absolute terms, in additional population of 13 millions is added every year.

This figure is arrived at by following a simple formula of total births minus total deaths during the year.

There are 22 million births every year while 9 million people die annually, leaving a trail of 13 million survivors.

The 22 million annual births work up to 1.75 million per month. Calculated for a day, the number is about 60,000. Reduced to an hour, it is about 2,500, per minute about 40, and 1 birth every 1.5 seconds.

Therefore, when demographers try to explain the population phenomenon, it means the same—whether they say that it is=a birth every 1.5 seconds, 40 a minute, 2,500 per hour, 60,000 a day, or 1.75 million a month, or 21 million a year.

Euphemistically speaking, it boils down to adding one Australia every year.

YOJANA *Q★U★I★Z*

1. What is Vegetable ivory?
2. Rongini hydel project is in a) Sikkim, b) Meghalaya, c) Karnataka.
3. Peking man was a) a citizen of Peking, b) a wise-man, c) Ancestor of man.
4. What is Xenon?
5. Robber Crabs are found in India at a) Sundarbans, b) South Sentinel islans in Andaman and Nicobar group of islands, c) Rann of Kutch.
6. Does an Ostrich hide its head in the sand?
7. What makes fire change its colour?
8. Highest peak in India is a) Trisul, b) Nanda Devi, c) Kamet.
9. The largest Mosque in India is a) Jama Masjid, Delhi, b) Jama Masjid, Ahmedabad, c) Nakhoda Masjid, Calcutta.
10. Mettur Dam at Mettur is on the river, a) Godavari, b) Yamuna, c) Cauvery.
11. The size of a Boxing Ring is a) 4.24×6.06 m, hight 1.36 m., b) 3.5×4m, height 2 m, c) 1×1m, height 1 m.
12. The net irrigated area in India is a) 25 million hectare, b) 31 million hectare, c) 34 million hectare.
13. The birth rate in India in 1974-75 was a) 60 per thousand, b) 35 per thousand, c) 83 per thousand.
14. What is the percentage of net investment (domestic) rate in 1960-61, 1970-71, 1974-75?

ANSWERS

(1) The seed of the Tagua palm, Phytelephas macrocarpa, of tropical America. (2) a) Sikkim. This project with a capacity of 2.1 MW was completed in 1961. (3) c) Ancestor of man. One of the best-known extinct human types, known from remains representing about 45 individuals. These were recovered from a breccia-filled cave fissure at Choukoutien, Southeast of Peiping, China. (4) Chemical element number 54. Xenon is used to fill a type of flash bulb employed in photography, called electronic speed light. 5. (b) South Sentinel island in Andaman & Nicobar group of islands. (6) No. An Ostrich might sink to the ground in a heap. When they do so they are scarcely distinguishable. (7) The fire changes colour partly owing to variations in its air supply and partly owing to the escape of different gases. (8) b) Nanda Devi. 775.77 metre (9) a) Jama Masjid, Delhi. (10) c) Cauvery (11) a) 4.24×6.06m Height 1.36 m. (12) c) 34 million hectare (13) c) 35 per thousand (14) 13 per cent.

Protecting Our Heritage

UNSCRUPULOUS and unpatriotic persons have been taking out Indian antiquities to foreign markets, resulting in an impoverishment of India's cultural heritage, in spite of the Antiquities (Export Control) Act, 1947. The theft of art pieces from protected monuments and museums became a common practice. Many Indian antique dealers, it appeared, organised gangs of antique thieves who operated in the countryside, removing loose sculptures and bronze images from monuments, protected or unprotected. Dubious means were employed in exporting them. The loss of the *ashtadhatu* (eight-metal) image of Paunraja from the Sun Temple of Katarmal in District Almora and the Shivpuram Nataraja is still fresh in people's memory.

Faced with this situation the Government of India passed the Antiquities and Art Treasures Act in 1972 which came into force on 5 April 1976. It seeks to regulate the export trade in antiquities and art treasures and to provide for the prevention of smuggling of, and fraudulent dealings in antiquities.

The main features of this Act are that all business in antiquities will be regulated through dealers who will be licensed for the purpose. It will ensure that no antique is allowed to leave the country in an illegal manner. It also enjoins upon private art collectors and other persons in possession of antiquities to declare what they possess so that the Government is aware of the total cultural heritage of the country.

The President promulgated an Ordinance on 4 June 1976 amending the Antiquities and Art Treasures Act, 1972, whereby the dealers in antiquities were given a further period of four months to apply for licences. A revised schedule of antiquities required to be registered was issued on 2 July 1976.

Under the new notification, all antiquities not less than 100 years old are required to be registered, and a further period of three months is now available to the private collectors and dealers for registration of antiquities. The revised classes of antiquities are: (i) sculptures in stone, terracotta, metals, ivory and bone; (ii) paintings, including miniatures and tankas in all media, that is to say, paper, wood, cloth, skin, silk and the like; and (iii) manuscripts, where such manuscripts contain paintings, illustrations or illuminations. A network of Registration Officers has been created throughout the country and people can register their antiquities with them. □

WANTED: MORE TREES

Man's activities could have a radical effect on the earth's climate, ranging from making the world warmer to making it cold enough to set off a new ice age.

COMPUTER EXPERIMENTS at University of California's Lawrence Livermore Laboratory show that current efforts at widespread clearing of tropical jungles could cause temperatures to drop and rainfall to decrease around the planet.

World-wide average temperatures would drop about a third of a degree if widespread tropical vegetation is stripped and more open land uncovered according to the researchers. That may seem insignificant but in Iceland it was less than a degree and a half down from statistically normal temperatures that generated a "little ice age" that froze Europe 300 years ago.

The experiments also show however, that loading the atmosphere with carbon dioxide through continued burning of such fossil fuels as coal and oil tends to make earth warmer.

Now the world's average temperature is only 7 to 10 degrees warmer than it was 5,000 years ago—when the great ice age covered most of the northern hemisphere.

They reasoned that since green equatorial jungles absorb the sun's warming rays and keep the atmosphere moist, clearing jungles would reflect the sun's energy back to space and cause less recycling of moisture warming.

As a result rainfall would decrease by a half-inch a year in the north temperature zone and as much as eight inches a year at the equator.

The scientists stressed that while computer models are fallible the trends up or down are likely to prove correct.

Meteorologist Hugh W. Ellsaesser a member of the group said the changes in global climate from widespread jungle clearing would be counterbalanced by the continued burning of fossil fuels.

Ellsaesser said that if the pace of fossil fuel burning continues to rise in the next century the pileup of carbon dioxide in the atmosphere would double causing temperatures to rise by at least 2½ degrees.

Were it not for that warming influence he said jungle clearing might well be enough to trigger expansion of the polar ice caps and start a new ice age.

The researchers conceded that their conclusions are speculative but they claimed that major changes are actually occurring in earth's climate now and they can be measured precisely.

From 1890 to 1940 average temperatures in the northern hemisphere rose more than a degree as the earth warmed but since 1940 the northern temperatures have dropped nearly three-quarters of a degree and the down-trend continues.

QUOTATION BOX

If life changes, the constitution will also have to change.

★

We have to face more challenges as we go forward towards our goal.

—Indira Gandhi

★

The poor do not need our sympathy and our pity. The poor need our love and our compassion. They give us so much more than we give them.

★

Never be afraid of giving, but don't give from your abundance, give until it hurts.

★

In India we have material poverty. But there are people in New York where there is a different kind of poverty. There is much loneliness and feeling of being unwanted. I have come to the conclusion that being lonely is a very great poverty.

—Mother Teresa

★

We are perfect.

—R.F. Botha
South African Ambassador to the United Nations

★

Anyone who thinks it is possible for an artist not to have an ego is obviously not an artist himself.

—Satyajit Ray

★

About two-thirds of Britain's bilateral (i.e. about half of all official) aid is tied to British goods and services. To give is almost as good as to receive.

—The Economist

★

The interests of a great society extend far beyond the business of governing it. An essential characteristic of a great society is that it is not monolithic and cannot be planned or directed centrally. It is too complex for that. It has too many functions. Its needs are too varied and there are no men who have the minds, even if they are assisted by computers capable of grasping all the data and all the variables which are needed for the central planning and direction of a great society.

Inevitably, therefore, by the very nature of things, a great society is a pluralist society, with local and regional interests and activities and organisations. They are bound to have a certain autonomy and some degree of self-determination and in some significant sense they are bound to have freedom of initiative and enterprise.

—Walter Lippmann

PROTEIN *SHORT OR NOT?*

There are many things we could do to increase the supply of protein more efficiently and to use it more effectively.

E.H. ROBERTS

OF THE TWENTY or so identifiable chemical substances that we need in our diet, only two have to be in bulk: carbohydrate or fat, including oils, and protein. Carbohydrate supplies energy while protein is essential in every living cell and is needed for bone, tissue and blood. It is often held that lack of protein is one of the world's main problems of nutrition. Certainly it is more costly to produce proteinaceous foods than those which are valuable mainly for the energy they contain.

Unfortunately, nobody knows precisely how much protein an individual needs daily. It depends on age, size, physiological condition, health (we excrete more nitrogen when we are unwell), on individual variations in metabolism and, for a woman, whether she is pregnant or lactating. How much is needed depends, too, on the quality of the protein and whether the diet contains enough energy.

Quality depends on digestibility and on the relative abundance in the food of various essential amino acids, which are those the human body cannot manufacture from other amino acids. At one time it was thought that only proteins from animals were of first-class quality, but now we know that some plant proteins also have a high biological value, particularly if different ones are used together so that a shortage of an essential amino acid in one is compensated by plenty in another. For example, eating a mixture of cereals and beans is usually quite good because a slight shortage of lysine in the cereal is balanced by a high concentration of this amino acid in the beans. Conversely, although the beans are low in the sulphur-containing amino acids, cystine and methiomine, this is balanced by the amount in the cereal protein.

In addition to this improvement by complementing one with another, it is also possible to improve the quality of proteins by supplementing them, sometimes called fortification. This is done by adding a synthetic amino acid which would otherwise be meagre. Although this is well-known in animal feeding, it seems to have been little used for human food.

Shri Roberts is professor at the Department of Agriculture and Horticulture, University of Reading.

Individual Need

It has become clear then, that we can over-emphasize how important it is to include animal protein in diets for its quality alone. But what about including it to make up the protein needed for what are considered 'minimal safe requirements'? These are supposed to be an estimate that takes account of differences between individuals, so that a diet could be adjusted for people who need more protein because they do not use it as efficiently as others do.

The techniques of estimating their needs are fraught with difficulties, so there is still some uncertainty about them. But in general, over the years, there seems to have been a tendency to pare the estimated values down; estimates published in 1974 by the Ministry of Overseas Development Advisory Committee on Protein are quite modest, as shown by the table. It assumes that the protein source for babies is milk and that protein for other ages has a biological value of three-quarters of that.

One of the surprising implications is that it seems that diets consisting solely of the staple, starchy foods of plant origin would provide enough protein. For example, potatoes, provided their jackets are included, contain 8 per cent protein of a value claimed to be little different from that of milk and, according to the table, they should meet minimal safe requirements for all healthy people. Most cereals, because they contain between 7 and 14 per cent protein, if used whole, almost fall into the same category except that their quality is not as high. Undoubtedly, cereals are the most important source of protein in the world and it has been estimated that they provide almost half the protein that we eat. Even in Great Bitain, where dietary standards are high, almost as much protein is obtained from cereal products (26 per cent) as is derived from meat (28 per cent).

Because many nutritionists now believe that the minimal safe protein requirement is small, this has led to a belief that world protein shortages may have been exaggerated in the past. It has been agreed that in many cases protein deficiency symptoms occur not because there is too little protein in the diet but because, overall, the diet does not contain enough calories. When this is so, the body uses precious protein as a source of energy and not for its more valuable purpose of providing the raw material for the synthesis of cells and enzymes. In this way, a daily allowance of protein that is adequate when accompanied by plenty of carbohydrate or fat becomes inadequate when the total energy in the diet is not enough. Because of this, some take the view that when planning agricultural development and food supplies we need only to look after the calories and protein will more or less look after itself.

But this view is probably an overreaction to previous, possibly exaggerated estimates of protein needs. Because of uneven distribution among social classes and within families, because mothers, young children, the sick and other individuals are at special risk from protein deficiency, and because the energy content of diets sometimes falls below requirements, it can be argued strongly that we should aim higher than simply to meet minimal safe protein requirements. In Great Britain, for example, between 10 and 15 per cent of the calories in diets are supplied by

Age	Safe level of protein (grams/day)	Energy requirement (kilocalories/day)	Energy content of protein (%age of total)
3 months	8	410	8.0
1 year	19	1180	6.5
5 years	29	1800	6.2
adult	45	3000	6.1

Safe levels of protein and average dietary energy needs.

protein, probably a reasonable level at which to aim. Apart from arguments about nutrition, a diet that contains as little protein as possible is a very dull affair.

Traditionally we have tended to think of meat, dairy produce and eggs as the normal protein supplements to diets. Peas, beans, lentils and other grain legumes are alternative sources. It comes as a surprise to many, therefore, to learn that the protein content of some of these products is not remarkably high. For example, cheese contains about 25 per cent protein, beef and lamb about 14 per cent, and pork, chicken and eggs about 11 per cent compared with the 7 to 14 per cent in cereal grains. Grain legumes contain 20 to 40 per cent, depending on species and variety.

It is possible to produce far more protein and food energy per unit area of land directly from crops rather than animals. This is because animals use protein and energy themselves, producing wastes and byproducts which cannot be used as food. In most animal production systems roughly 90 per cent of the energy and protein content of a crop used as feed is lost to humans in the process of turning it into animal products, so the typical protein yields per hectare per year vary from 20 to 100 kg from various forms of meat production, 100 kg from egg production, 120 kg from milk, 350 kg from small-grained cereals, 700 to 800 kg from soya beans and up to 2000 kg extracted from leaves. Consequently it would seem that the use of animals in agriculture to provide human food is biologically inefficient.

Apart from the fact that most people like eating the food we get from animals there are several reasons for not abandoning animal production. Firstly, animals can graze on marginal land where soil, climate or terrain are unsuitable for arable crops. In such places they are automatic and mobile harvesters of the plant material and have the added advantage of built-in-storage. Secondly, they can consume by-products of the agriculture, food and other industries, often difficult to make use of in other ways. Thirdly, they give useful products other than food, such as leather and wool. Fourthly, they often fit into farming systems in many complex but useful ways that improve crops.

Nevertheless, many of the foods we get from animals are likely to become more and more of a luxury, particularly with development of the new technology of producing meat and milk substitutes directly from plant products. The latest development here is vegetable protein processed to have a similar texture to that of meat and given a flavour much like it, too. It is usually manufactured from soya beans. It has been estimated that such products will take over between 10 and 21 per cent of the meat market in the USA by 1980 and about 10 per cent of the British market by 1981.

From this advance in food technology it seems likely that developed countries will eventually have two distinct kinds of protein food. Meat may well develop into a luxury and everyday proteinaceous 'convenience' foods will come largely from plant products. The new substitutes are obtained mainly from seeds, but ways are being found of growing micro-organisms on plant substrates. Manufacturing food from protein extracted from leaves is one further exciting possibility. It has a high biological value and trials have shown it to be satisfactory for humans and animals. Leaf-extract protein as a feed for animals is just coming into commercial use in some countries and the next stage may well be the development of a technology for incorporating the material into human food.

Promising Work

It will be interesting to see if these forecasts are correct and, if so, how quickly they come true in the developed countries. What is far more important, though, is what happens in developing countries in the humid tropics, for it is there that protein appears to be in short supply, at least for those people who are vulnerable.

In those regions many of the staple foods, such as yams, plantains and cassava, contain less than eight per cent protein and it is not easy to produce traditional high-protein foods. Animal husbandry is difficult because of disease and heat stress, and grain legumes generally have not done well. However, the future looks reasonably promising for supplies of protein from plants. Rice cultivation is spreading and improving and, if used as a staple food, it provides a large proportion of protein of high biological value in the diet.

Breeding grain legumes specifically for the humid tropics is well under way at the International Institute of Tropical Agriculture in Nigeria, and the work looks promising. If it is successful there will be no technical reason for protein shortage in any part of the world, except for that brought about by diets not having enough calories.

Producing foods from animals in the tropics looks less promising. Undoubtedly fish farming can play a useful role here and there but turning good agricultural land into fish farms could seldom be justified. A hectare of water produces about 2500 kg of fish, 200 kg of it edible protein as against some 400 kg from a hectare of beans. And, using improved varieties and techniques, there should be little difficulty in producing a similar amount of protein from rice, with the added bonus of carbohydrate up to about ten times the weight of protein harvested.

Fish from the oceans can also play a role. It is not generally realized that fish contributes almost as much as meat to the world's diet. Whereas meat provides about 5.7 kg per person per year, fish supplies about 5 kg. Tropical waters could be further exploited without reducing the potential supply, but most of the opportunities are in distant waters. However, fishing in those areas is extremely expensive in terms of energy, not only in the fuel needed to get to and from the fishing grounds but also for freezing or deep-freezing. Fish spoilage begins in ice after 6 to 11 days; even at —9°C it begins after a month. So it seems unlikely that deep sea fishing will make a much larger contribution in the immediate future.

If we consider the world as a whole, animal production is likely to have an important role because it provides a means of exploiting difficult land and various by-products and because there will continue to be a demand, at least in the luxury market. Currently, however, the major contribution of protein to man's diet comes directly from plant sources and this proportion is likely to increase, in spite of an opposing tendency for the contribution of animal protein to the diet to grow with increasing affluence. The main reason for this will be the further development and improvement of new, cheap, proteinaceous convenience foods produced from seeds and ultimately, possibly, from leaf protein. Providing the total food supplies can be matched to the demands of growing population (a question which is begged here), there would appear to be no difficulty in providing diets containing adequate protein in the future.

(*Courtesy* **SPECTRUM**)

BOOKS

Comparative Development

Patterns of Development 1950-70 *by Hollis Chenery and Moises Syrquin; Published for the World Bank by Oxford University Press, 1975; Pages 234; Price Rs 20.*

IT may be hypothesized that development process has a uniformity among countries and certain produces a consistent pattern of change in resource allocation, factor use and other structural features as per capita incomes rise. The present study, a product of World Bank research is precisely an attempt in this direction and is aimed at better understanding of the economic and social changes in the development process.

Fortunately a massive investigation as this has become possible because of the very considerable increase in statistical information since 1950, facilitating employment of a combination of cross-sectional and time series analyses for study of inter-country and inter-temporal patterns. The analysis is based on some 20 thousand observations, covering 100 countries and 30 variables over a period of 20 years—a formidable task which only an institution like the World Bank with its resources and expertise could undertake. Development is conceived as a multi-dimensional transition from one relatively constant structure to another, providing the basis for analysing the relations among development process in individual countries. The numerous regression equations used in the study describe the development processes within a generalised equilibrium system. The first three chapters are devoted to a discussion of the uniform features of development process while the sources of variations are considered in the next two chapters. The sixth and the last chapter sums up the main results of the statistical analyses which can serve as the basis for economic theory and policy. There is an important but brief section on future research needs. The technical appendix deals with major methodological issues and limitations to various approaches considered in the study.

Unlike most other developmental processes, significant international time trends in almost all the measures of accumulation have been observed with an upward shift of about 7 per cent in average values of saving, investment, Government revenues etc., 12 per cent of school enrolment and 45 per cent of educational expenditure. Growth rates are higher in larger countries in all respects except school enrolment a finding which requires further research. In conformity with the famous Engel's effect per capita food consumption is seen to increase only half as much as per capita income promoting thereby a doubling of the share of industrial goods in total demand. Low productivity of agriculture in the poorer countries, contend the authors, is not determined by any inherent properties of agricultural production as much as by the time required to acquire the technical know-how and overcome immobility of productive factors. In regard to income distribution, investigations confirm the Kuznets-Myrdal's hypothesis that distribution worsens between the poorest and middle income countries and improves in advanced countries. High level of education, larger share of primary production are factors associated with more equitable distribution of income. Contrary to popular impression, migration to cities has accelerated only recently, the regression shows no significant time trend.

In an attempt to summarise development experience and prepare a typology, a four fold classification of the countries has been adopted with India included in the import substituting category. The countries classified in this group had planned to increase manufactured exports with extensive policy measures. However, they had failed in achieving this objective and to move up to the category with more balanced allocations. The analysis confirms the phenomenon by now well realised by developing countries, that productive investment increased only by 0.31 with every unit increase in external capital while consumption increased by 0.65. External assistance is thus negatively related with domestic saving. Few countries could sustain borrowing much in excess of 4 per cent of GNP over long periods of time. It is scarcely possible to indicate the string of useful findings. It is hoped that the development planners can benefit from the comparative experience presented here. The statistical comparisons of this sort are indeed helpful in diagnosing the structural problems of a given country and in suggesting feasible growth patterns; though in individual situations and in detailed definition of policy options—their value is obviously limited.

—K.S.V. Sanjeeva Rao

Agricultural Taxation

Taxation of Agriculture in India*: by P.K. Bhargava; Vora & Co. Publishers Private Limited; Pages 111; Price Rs 20.*

WHILE resources mobilisation is an important problem in the process of economic development, past experience shows that the performance of the State Governments has been rather unsatisfactory in so far as the agricultural sector is concerned, even though the financial requirements of the State Governments have continuously increased. Doubtless, the agricultural sector can throw up substantial resources through modification of the tax structure. It is common knowledge that the agricultural sector, especially the large landholders, has been grossly undertaxed. The average as well as the marginal rate of taxation has been considerably low for the agricultural sector, throughout the era of planned economic development, as compared to the non-agricultural sector, leading to an imbalance and disharmony within different sectors of the economy.

The present study is a critical analysis of the various taxes that are levied on the agricultural sector and makes concrete suggestions for improving the existing system of agricultural taxation in India, after examining the recommendations of the various Committees/Commissions on this subject. A significant feature of the study is that it suggests alternative solutions to the problems involved in levying various taxes, on the agricultural sector, keeping in view the political implications, and provides pragmatic guidelines for necessary fiscal action to the State Governments. This book consisting of seven chapters is a useful addition to the literature on agricultural taxation.

—Seryashi Dey

Resource-Based Development

Micro-Level Planning—*A Case Study of Karnal Area, Haryana, India*; *L.S. Bhat, B.N. Das, A.N. Sharma et al; K.B. Publications, New Delhi, 1976*; (*Pages 137*) *Rs 40.*

THIS study of the Karnal area by L.S. Bhat and his colleagues, as an ICSSR project, tries, what probably no other similar studies have done so far, to evaluate the physical and the human aspects of a region in their integrated form.

After introducing the concept of regional development and the objectives of the present study, the physical setting of the Yamuna plain, and more importantly its geomorphological variations which differentiate soil characteristics and through them the cropping patterns and productivity are well delineated. Then follows a review of the present level of land utilisation, hierarchical-structure and population distribution.

In identifying 'Centrality of settlements' and 'Hierarchy of settlements', which forms the core of the argument, the authors have painstakingly collected a mass of data through field work, and have used the now familiar quantitative as indicators of status in hierarchy. Being all too aware of the weakness of subjective weightage, they have attempted to evolve a more objective criterion viz. "the weights to different sub functions were assigned according to their distribution among all settlements on the principle that greater the scarcity greater the importance in terms of centrality and therefore higher the weightage" (p. 60). Methodologically, this is an improvement over the earlier attempts, and the weightages arrived at (Table No. 23) largely accord with empirical observations and have the further merit of quantitative refinement, though the low weightages of medical services and agricultural facilities in this case, must serve as a warning that such weighing procedure can be employed for a region *per se* and cannot by its very nature hold true for other regions.

The attempt to identify settlement hierarchy in terms of 5,7 and 13 variables is a stimulating exercise in that it provides an interesting comparison between packages of variables and their significance in measurement of hierarchy. Far more valuable is the transformation of the computed data on to the spatial frame of Karnal area and interpreting their significance, especially in terms of nodality of settlements (p. 77-78); The distribution maps and their analysis make this part of the book a rewarding reading. This discussion provides the authors with a base for identifying the existing imbalances (including those arising out of the Green Revolution) in the hierarchical structure, and for recommending a three tier pattern of Central places for the Karnal area (p. 113-114).

At the end of their study, the authors arrive at some guarded conclusions and well balanced recommendations. The authors convincingly make out a case for developing a central place system as a tool for regional development. This holds true for any other part of India as for Karnal. In indicating the inadequacy of statistical and cartographic data, the authors urge for setting up an area development unit on a permanent basis for continuous studies in spatial changes and devising strategies for development. This recommendation comes not too soon. When political pressures mount and the administrators frantically adopt *ad hoc* solutions with expenditure based—and not physically achieved—targets, a continuing monitoring cell can be the only practical solution for maximising the socio-economic benefits of planned inputs.

Both in its content and methodology, the study makes a significant advance. It provides good guide lines to similar studies in other regions of India. As for the Karnal area, it provides, the specific proposals that are realistic. Even though the Karnal area is close to Delhi and cannot possibly escape its metropolitan influence, the study as a 'closed system' has its merits in highlighting local needs and the strategy for locating planned services and facilities. Theoretically, the study brings to the fore and larger problem whether Christaller's K_3 and other networks and Losch's economic Landscapes developed in 1930's, stand modified—even in their theoretical frame—with the current rapid expansion of the metropolitan cities, their extending transport tentacles, and increased tempo of commuting.

The book can be confidently recommended not only to students of Regional Science and administrators in charge of Regional Development, but also to the keen reader who wishes to understand 'resource based development' which is the current thinking at Governmental level.

—C. D. Deshpande

Challenges And Endeavours

India Since Independence: *Publications Division, Ministry of Information and Broadcasting, Govt. of India, New Delhi, March 1976*; *Pages 142*; *Price Rs 6.*

THE story of India since independence is, indeed, one of challenges and constant endeavour to build India a better place to live for the people who had been impoverished and oppressed by two centuries of foreign rule.

The foremost challenge before the country on the eve of independence was to eliminate poverty, deprivation and want. It was a 'tryst with destiny', and meant the ending up of disease, ignorance and inequality. As the Father of the Nation had justly aspired, it meant 'to wipe every tear from every eye'. And our first Prime Minister, Jawaharlal Nehru, had aptly apprehended that the dream may be beyond us. But in the same breath, he had expressed his firm determination that 'as long as there are tears and suffering, our work will not be over'.

The book under review is in the second edition, and the Publications Division deserves appreciation for thoroughly revising and updating it by enlisting latest events and achievements since 1971 when it was first published. Besides recounting the economic, social, scientific and technological attainments, it also recalls how we were exploited and impoverished during the alien rule. It also narrates political developments since independence, as well as India's constant efforts to establish peace in the sub-continent and other parts of the world, and maintain good neighbourly relations with the countries on its frontier.

The price of the book is, however, on the high side; of course not inconsistent with market trends. A book of this type ought to be priced rather low so as to carry it to the common man in the farthest corners of the country.

—J.S. Sharma

Development Notes

Electronics Export to Switzerland

First consignment of the sophisticated single electronic equipment system valued about Rs 10 million has been despatched to Switzerland by the Bharat Electronics Limited, Bangalore. The delivery was made against the Rs 340 million export order from Switzerland. This is the country's largest export order for a single electronic item, and that too from an advanced West European country.

These electronic systems have been made to meet the highest international standards both in sophistication and quality.

BEL had signed the contract with the Swiss firm in May 1974, followed by supplementary contracts in January 1975 and January 1976. The supplies under these contracts have to be completed by the end of 1978 and commencing in July 1976, consignments valued at about Rs 10 million are expected to be despatched every month.

With this order BEL's exports during 1976-77 are likely to reach almost Rs 100 million representing a ten-fold increase over the levels reached in the last few years. At the Rs 100 million level BEL's exports are expected to form forty per cent of the entire electronics exports from India this year. Next year the company's exports are expected to exceed Rs 150 million, which will be a record 20 per cent of the company's planned total sales.

Hindustan Photo Films Marches Ahead

For the first time the Hindustan Photo Films (HPF) earned a profit of Rs 8.4 million in 1975-76. The target of profit for 1976-77 is Rs 20 million. Sales during 1975-76 touched Rs 220 million as compared to Rs 140 million the previous year. The company achieved 100 per cent of the rated capacity during 1976.

HPF now employs over 2000 people and has developed a wide range of skills in a new and sophisticated technology. One of the objectives of HPF is to establish an era of cooperation between labour and management to make India self-sufficient in a wide range of photographic goods. Towards this end HPF intends to broaden and up-grade skills by a system of training and education.

Not a single man hour has been lost since January 1976. HPF has made gains in union-management relationship. Earlier multi-unionism was the rule. Then the concept of recognised union was introduced and the union which obtained the maximum votes from the employees by secret ballot was recognised. A productivity settlement was soon arrived at and the gains of productivity are now liberally made available to the workers.

Housing Colony for Mine Workers

The foundation stone of a housing colony for limestone and dolamite miners at Yerakattee in Karnataka has been laid. The houses will be constructed by the Mysore Cement Limited at an estimated cost of about Rs. 700,000. The Limestone and Dolamite Miners Labour Welfare Organisation will provide Rs 500,000 as subsidy for the purpose.

To improve the living conditions of the workers, particularly those in mining areas, priority is being given to schemes of housing, medical care and water supply in Karnataka.

Government provides subsidy under the low cost housing scheme up to 75 per cent of the cost of construction, amounting to Rs 5,200 per house. Again, 20 per cent of the total subsidy is payable in advance with the issue of the work order. The Government has authorised the management to utilise the house rent realised from miners for the repairs and proper maintenance of the houses constructed under the scheme.

For iron ore workers in the State, a 25-bed hospital was commissioned at Kariganur recently. The Karnataka Government had also agreed to set up a 10-bed hospital at Sandur. Two mobile medical dispensaries are functioning in the State. Fourteen water supply schemes have been sanctioned in the region out of which nine have already been completed. Two multi-purpose institutes at Kariganur and Ubbagundi are functioning. A mobile cinema for the exhibition of social, educational and recreational films are in operation. About 1,300 houses have either been constructed already or are under various stages of construction for these workers.

Automatic Power Factor Control Panels

Larsen & Toubro Limited (L&T) has indigenously manufactured automatic power factor control panels to meet the growing need for reliable control of power factor in industries in India. The automatic power factor control panel reduces maximum demand and improves the efficiency of power consumption. The use of the panel helps to reduce power bills for the consumer.

L & T's automatic power factor control panel conforms to the relevant Indian standards specifications and combines economy with technical excellence. It is a neat, compact and space-saving panel with the capacitor banks mounted in the front, fully compartmentalised with door interlocking to ensure safety of operating personnel.

The panel incorporates voltage and power factor meters, lamp indication of the steps connected and an auto-manual selector switch. A relay continuously monitors the power factor and initiates the switching of the capacitors in and out of the system. The panel is extensible on both sides. Main busbars, with high fault withstand capacity and having a rating up to 3200A, are provided to facilitate incorporation of the panel in the main low tension power centres of the distribution system.

HMT Bags Order for Centre Lathe

A high power precision centre lathe, introduced by the same team of engineers in the Hindustan Machine Tools, (HMT) Kalamassery, who had won an award for their Front Chucking Automat, FC-25, has bagged substantial export orders against global competition.

The new series of centre lathes, NH22, NH26 and NL25 which will be the main products of HMT, Kalamassery, have higher horsepower, higher swingover bed, improved spindle bearing and stiffer structure compared to the earlier series, H22 and H26. Further, the new models have induction hardened beds, automatic lubrication of all moving parts, self-compensating hydraulic clutches, removable bridge pieces, front wired electrical systems, larger tailstock with single lever clampings and massive cross-slides.

There are few equivalent machines which are built specially with such a keen eye on maintenance. All the vulnerable parts like spindle, clutch and brake of this self-lubricating machine are of the self-compensating types needing absolutely no maintenance whatsoever.

The machine has been put to extensive trials under production conditions in HMT for over two years. Though released only now for sale, its performance as observed by the knowledgeable Indian market has already resulted in orders for 130 machines valued at approximately Rs. 14 million. Further, a bulk export order for 30 machines valued at about Rs. 3.5 million has been received as a result of a global tender against stiff competition.

Several international dealers had been to Kalamassery to ascertain for themselves the performance of the machine. The attention to details at every stage paid in the design from the maintenance angle and the case of operation have evoked their favourable comments.

This machine, which falls in the highest category as per the classification of University of Manchester Institute of Technology, is expected to earn foreign exchange of the order of Rs 20 million every year for some years to come.

Workers' Participation in Heavy Industry

In pursuance of the policy laid down by the Government of India to introduce progressive participation by workers in increasing industrial production, the Department of Heavy Industry had issued instructions to all public sector undertakings under its control. This has resulted in steady implementation of the scheme to form Joint Councils at shop, department and plant levels to consider matters of common interest like increase in production and productivity, development of skills and adequate facilities for training. Such Joint Councils have been constituted in the Bharat Heavy Electricals Limited (Hyderabad and Hardwar units), Bharat Heavy Plate and Vessels, the Heavy Engineering Corporation, the Mining and Allied Machinery Corporation, the Triveni Structurals Limited, Scooters India Limited, Jessop & Co., Gresham & Craven, the Machine

Tool Corporation of India, Arthur & Butler, Burn and Co., the Indian Standard Wagon units at Howrah, Jabalpur, Salem and Asansol and the Britannia Engineering Works. All these units are working under the supervision of the Department of Heavy Industry.

The Joint Councils are expected to start functioning very soon in the remaining units of BHEL, while the Hindustan Machine Tools has also finalised a scheme for workers' participation.

The formation of Joint Councils in the major Heavy Industry undertakings in the public sector has brought about a dramatic change in the outlook of workers and industrial relations have been extremely good. There was practically no loss of man-hours during the period of over six months since the formation of the Joint Councils. There has also been a remarkable increase in productivity and production.

Mail Motor Complex in Delhi

The foundation for P & T Mail Motor Complex has been laid in Naraina in New Delhi. The Rs 4 million project will have a complete workshop, body building facilities and garages for vehicles.

The Delhi Mail Motor Service has a fleet of 103 vehicles for collecting and delivering of mails and cash. Some of the vehicles are used as post office on wheels to serve the newly developed areas. In all, the vehicles cover 9,000 km every day. The new complex will be a step to decentralise the operations of the Mail Motor Service in the capital. It will avoid dead mileage and reduce operative expenses on fuel.

It is proposed that departmental Mail Motor Service will be introduced in 7 stations during the current year and in 20 stations during the Fifth Plan period. At present the number of stations covered by such a motor service is 68. The new complex will help in extending the Quick Mail Service (QMS) facilities to more and more areas in an efficient manner.

Plan Allocation for Singareni Increased

Fifth Five Year Plan allocation for the Singareni Collieries Company has been raised from Rs 600 million to Rs 840 million. The additional amount is to provide for low temperature Carbonisation Plant to be set up in Ramakrishnapuram in Andhra Pradesh during the current Plan and also for advance action on Sixth Plan projects.

The proposed low temperature Carbonization Plant at Ramakrishnapuram will consume 900 tonnes of coal per day and would produce 500 tonnes of low temperature carbonization coke a day and some gas.

The Singareni Collieries Company is an undertaking of the Government of Andhra Pradesh in which the Central Government has made substantial investment. The Coal India Ltd., a public sector undertaking under the Ministry of Energy, holds 45 per cent share capital of the Company, the balance 55 per cent being held by the Andhra Pradesh Government.

Increase in BEL Turnover

The State Owned Bharat Electronics Ltd. achieved a 28 per cent increase in its sales turnover during 1975-76. The sales were Rs 554.5 million as compared to Rs 431.4 million in 1974-75. The increase in sales took place despite a dormant radio and television market due to which the sales of components was stagnant.

The value of production during 1975-76 was Rs 621.8 million, a 15 per cent rise over that of previous year. The Company reduced the prices of many of its components under the 20 Point Economic Programme, in some cases the reductions were as high as 40 per cent. In spite of this, the Company achieved an increase in the profit before tax from Rs 48.2 million in 1974-75 to Rs 50.3 million in 1975-76. A dividend of 12 per cent was maintained.

A major breakthrough was achieved in the year under review in the successful production of the 2 GHz. microwave tropocatter equipment by the Ghaziabad factory. This equipment was designed and developed by BEL engineers. The first terminal was accepted by the customers (Air Force) after rigorous testing as per defence specifications.

Successful development and supply of mobile broadcasting stations for the All India Radio and Solid State Gun Control equipment for Vijayanta tanks were other notable achievements on the development front. Progress was maintained on the Rs 20 million turnkey project for design, installation and commissioning of the Haldia-Barauni-Kanpur UHF communication link for the Indian Oil Corporation and the first link between Kanpur and Allahabad has already been installed.

Building Materials from Agro-Industrial Wastes

The National Committee on Science and Technology panel on Housing, Urbanisation and Construction Technology has identified some major agricultural wastes with high potential of utilisation as building materials along with the requisite research and development inputs. These are rice husk; waste lime sludge available from sugar, paper, tannery, acetylene gas and fertiliser industries; saw dust; rice straw; wheat straw; corn cob; corn stalk, reeds and bagasse. Agro-industrial wastes like coconut husk, coir fibre, paddy straw have also been identified for utilisation in construction technology.

The Central Building Research Institute, Roorkee, has already developed two processes for converting rice husk into use for building materials particularly suitable for low cost housing in rural areas. The first process manufactures a reactive pozzolana based on clay and rice husk. The second process is the manufacture of hydraulic binder based on rice husk and waste lime. The fired product, when grounded to fineness makes a fast setting cementitious material for mortar, plaster, foundation concrete, soil stabilised bricks etc. A 1:3 binders: sand mixture gives comprehensive strength of 50 kg. per cm square. Several tonnes of these two materials have been used in some experimental constructions.

Wastes such as rice straw, wheat straw, corn cob, corn stalk, and reeds can be used to produce building boards in a big way as is being done in Sweden, Thailand, Australia and Austria. Similarly bagasse can be used to produce good quality insulation boards and wall panels.

Laboratory research has proved that building boards and panels can be produced from agro-industrial wastes like coconut husk, coir fibre, paddy straw, rice husk by using cheap inorganic binders like ordinary portland cement. The technology for converting wastes into building boards using inorganic binders is already used in the production of wood wool boards. Pilot plant trials are required to be conducted to provide guidance to entrepreneurs willing to set up small and medium scale industries.

Small Scale Sector Makes Progress

The production in the small scale sector has shown a remarkable increase during the last three years. The gross value of the output at current prices has been estimated to have increased to Rs 57,000 million by 1975, as compared to Rs 26,000 million in 1972. The index of industrial production in the small-scale sector had risen to 188.7 (base 1970) in 1975. The growth rate, in the small scale sector, during the last two years has been estimated at 10 to 11 per cent per year. The value of exports by small scale industries during 1975-76 is also estimated to have risen to Rs 6,000 million, as compared to Rs 3,060 million in 1972-73.

According to the recent census of small scale industries, there were about 2,400 products being manufactured by the small scale sector. It had an investment of Rs 10,550 million in 1972 and provided employment to over 1.65 million persons. The capacity utilisation was estimated at about 53 per cent. The present estimated figure of total employment in the small-scale sector is about 2.2 million and the investment figure is about Rs 14,500 million.

A Tiller Robot

The Central Road Research Institute (CRRI) New Delhi, and the Mechanical Engineering Research and Development Organisation (MERDO), Pune, have jointly developed a tiller robot called *Rotillor*.

Rotillor can be used for ploughing, breaking clods, levelling and preparing the bed, weed and stubble clearance, and intimate mixing of fertilizers, residues and insecticides—all in one operation.

In road making, the machine converts the loose top soil up to the required depth, pulverizing the soil and mixing it thoroughly with stabilisers like sand, cement, lime, fly-ash, etc., after the addition of optimum moisture to ensure proper compaction. Intimate mixing of the stabiliser is highly desirable in road construction which can be achieved effectively and economically with the help of the *Rotillor*. The machine can be attached to a tractor.

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