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yojana

*Exchange Rate Adjustments

*Economic Reforms

Development Diary

Post Office Accounts

The Government has increased the rates of interest on Post Office Recurring Deposit Accounts and Post Office Time Deposit Accounts with effect from 1st October, 1991. The rates of interest on deposits made on or after October 1, 1991 for one-year, two-year, three-year and five-year Post Office Time Deposit Accounts have been raised to 10 per cent, 11 per cent, 13 per cent and 13.5 per cent, respectively. The maturity value of a five-year Post Office Recurring Deposit Account of Rs. 10 denomination has been revised from the existing Rs. 811.10 to Rs. 856.40 in respect of accounts opened on or after October 1, 1991.

New Stock Exchange

The Government has granted recognition to the Coimbatore Stock Exchange Ltd. for a period of three years commencing from September 18, 1991 in respect of contracts in securities.

The Coimbatore Stock Exchange is the twentyfirst recognised Stock Exchange in the country set up under the Securities Contracts (Regulation) Act, 1956. The other recognised Stock Exchanges in the country functioning at present are situated in Bombay, Calcutta, Madras, Delhi, Ahmedabad, Bangalore, Hyderabad, Indore, Cochin, Kanpur, Pune, Ludhiana, Mangalore, Guwahati, Patna, Vadodara, Rajkot, Jaipur and Bhubaneswar.

Tea Exports

About 2100 lakh Kgs. of tea valued at Rs. 1200 crore is proposed to be exported during 1991-92. The export earnings from tea for the financial years from 1988-89 to 1990-91 were :

Year	Export Earnings (Rs. crore)
1988-89	641.87
1989-90	914.82
1990-91	1045.41

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Economic Reforms—No Substitute For Hard Work

Dr. Manmohan Singh

THE last decade of the twentieth century began with a grim note for Indian economy. The earlier manageable snags have snowballed into unmanageable proportions, thereby putting the nation in a very inconvenient position. Foreign exchange reserves became abysmally low. Decline in self-sufficiency in crude oil production, a steady erosion of surpluses in the invisible account to finance trade, bunching of debt service payments on past borrowings and an unfavourable climate for concessional assistance alongwith large fiscal deficits exerted further pressures on the already adverse balance of payments situation. These strains on the economy were further compounded by the political uncertainty at home and the Gulf crisis.

These developments weakened international confidence in the Indian economy during 1990-91. This resulted in a sharp decline of capital inflows through commercial borrowings and deposits of non-resident Indians. This combination of unfavourable internal and external factors also led to a double digit inflation, which affected the poorer sections most. The economic crisis India faced was unparallelled in Independent India.

Resilience

The sole consolation is the inherent strength of the Indian economy built-up over the last forty years, which helped to withstand these shocks rather well. The performance during the Seventh Five Year Plan—exceeding most of the targets—has proved that things are not all bad.

The average anual growth rate of GDP achieved was 5.6 per cent against the target of 5 per cent. In the agriculture sector, the average annual growth rate of 4.1 per cent exceeded the target of 4 per cent despite a run of three poor monsoons in the Seventh Plan period. The overall industrial growth rate was 8.5 per cent which was marginally lower than the Plan target of 8.7 per cent per annum.

However, alongwith it appeared a significant imbalance in the financing pattern of the Plan. Savings in the public sector fell far short of the target which put the planning process under considerable strain. It also contributed considerably to the persistent fiscal imbalances.

Domestic fiscal adjustment plays a vital role to ease the pressure on the balance of payment situation. In recent years, the growing gap between income and expenditure has led to mounting fiscal deficits. These deficits, also spill over into current account deficits, which must then be financed either by running down of foreign exchange reserves or through fresh external borrowings, each with their own attendant problems.

The present problems can mainly be linked to large and persistent macro-economic imbalances. This includes the low productivity of huge investments made in the past. The present set up—budgetary subsidies with doubtful social and economic impact, the tax system with many loopholes and excessive and often indiscriminate protection provided to the industry—suffers from various drawbacks. This has weakened the incentive to develop a vibrant export sector. This situation necessitated remedial measures. Any hesitation in macro-economic adjustments would have made the balance of payments situation unmanageable retarding the development process.

Over the medium term, the objective of the Government is to progressively reduce the fiscal deficit and to reduce the current account deficit in the balance of payments. Some efforts to redress the fiscal imbalance were made during 1990-91, but given the dimension of the problem that was not enough. Therefore, the Government announced a series of austerity measures.

Corrective Steps

There should, however, be no illusion that fiscal imbalances accumulated over several years can

(Contd. on Page 8)

Exchange Rate Adjustments Causes And Consequences

C. Rangarajan

IN early July 1991, the RBI effected exchange rate adjustments in which the value of the rupee declined by about 18-19 per cent against major currencies. These adjustments have to be viewed in the context of developments in the balance of payments and the foreign exchange reserves position.

The Seventh Plan saw a widening of India's current account deficit. The ratio of current account deficit to GDP averaged 2.2 per cent during the period 1985-90 which was far above the figure of 1.6 per cent projected for this period in the Seventh Plan document. In absolute terms, the current account deficit averaged Rs. 7,771 crore (US $ 5.5 billion) as against that of Rs. 2,277 crore (US $2.3 billion) during the Sixth Plan period. During 1990-91, the balance of payments position, which was already under severe pressure, worsened considerably. The current account deficit increased sharply by about US $1.1 billion from that in the preceding year, reaching an estimated US $7.3 billion, equivalent to about 2.5 per cent of GDP.

The current account faced pressure simultaneously on several counts. There was a sharp deceleration in the growth of exports (down from the average annual 10 per cent volume growth of the preceding four years), a steep increase in POL imports (of US $2.2 billion) and a decline in net receipts from invisibles. The adverse shocks arising from the Gulf crisis contributed in no small measure to this deterioration, with the hike in oil prices, partial loss of export markets and reduced remittances.

Exacerbating the deterioration in the current account was a drastic fall in the usual modes of financing, particularly commercial borrowings. Also, the net inflow of non-resident deposits decelerated. The extent of shrinkage of external financing implied that even current account deficits of the order of those prevailing in 1988-89 or 1989-90 could not be financed.

The combination of developments on the current and capital accounts necessitated a massive drawdown of reserves as well as recourse to IMF resources. During 1990-91, foreign currency assets declined by US $1.2 billion despite the drawdown of India's Reserve Tranche position of SDR 487.26 million ($666.50 million) and a drawal of US $1.8 billion from the IMF. The severe pressures on the external position have persisted during the current financial year (1991-92), with a further fall in foreign currency assets of US $1.1. billion during April. Thereafter the fall in reserves has been contained and the reserves stand today at around US $1.3 billion.

Several measures were taken to improve export realisation, to cut imports and thus shore up reserves. These included raising the cost of imports by applying steep cash margins and also raising the cost of credit. Apart from the approach to the IMF, additional support was sought from other international institutions and bilateral sources. Gold transactions also provided bridge finance.

Rationale And Timing

The response to the balance of payments difficulties has to be at two levels. First, in the short-run, there is an immediate need to stem the drain on foreign exchange reserves and to meet the liquidity and financing problem. Second, the fundamental imbalance on the trade and current account has to be corrected. The balance of payments position had been weakening over the past several years. This reflected the growing internal imbalance, in macro-economic terms, of spending more than we were producing. Over and above this, we face increasing cost of financing. An adjustment to more sustainable levels of capital flows has become imperative.

Downward adjustment of the exchange rate of the rupee is one of the instruments among others for resolving these problems. A situation of continuing depletion of foreign exchange reserves generates destabilising maket expectations. In the immediate short-run, the

exchange rate adjustment helps to reverse market expectations and thereby stems the outflow of capital in the first instance and later encourages its inflow. Over the short and medium-term, the downward adjustment becomes an instrument to improve the country's international competitiveness and to correct the imbalance in the trade and current account deficit. It raises the relative price of traded goods (by increasing the domestic price of foreign currency) to non-traded (or home) goods, thereby encouraging production of tradables while encouraging their consumption.

The real exchange rate (RER) of a currency which is the nominal exchange rate adjusted for the relative change in prices in the respective countries is a proxy for a country's degree of competitiveness in world markets. A real exchange rate appreciation reflects a deterioration in the country's international competitiveness, while an RER depreciation reflects the converse.

Between October 1990 and March 1991 the real effective exchange rate (REER) of the rupee appreciated by about 2 per cent, as a result of widening inflation differentials between India and the major industrialised countries. The nominal effective exchange rate (NEER) is a weighted average of the bilateral nominal exchange rate of the rupee against the foreign currencies. The real effective exchange rate (REER) is NEER adjusted for price differentials. And the REER increase was despite continuing albeit slower, nominal depreciation (2.4 per cent against five currencies, over the same period). Further, in the 5-month period between February 1991 and June 1991, the nominal effective exchange rate decreased only by 2.5 per cent while the inflation differentials continued to widen. All this had resulted in an erosion of India's international competitiveness.

In fact, with respect to twenty of our trade competitors the REER of the rupee appreciated for a long time—by over 20 per cent—between 1979 and 1986. It is only from 1987 that the rupee has been depreciating in real terms compared with these countries and by 1989 we were only back to roughly the same real exchange rate as prevailed in 1979.

Magnitude

Indeed, many of our trade competitors have made substantial exchange rate adjustments over the past few years. China and Indonesia, for instance, have depreciated their currency against the US dollar more than India has, despite lower inflation; over the period end-December 1980 to end-December 1989 (the latest available), China depreciated by 68 per cent and Indonesia by 65 per cent, while India depreciated by only 53 per cent against the US dollar, whereas the increase in consumer prices in China and Indonesia were lower (at 100 per cent and 111 per cent respectively) against India's 114 per cent over the same period.

To restore the competitiveness of our exports and in general to bring about a reduction in the trade and current account deficits, it had become imperative to make a downward adjustment of the rupee. In determining the extent of adjustment, it is necessary to bear in mind four relevant factors : (1) differentials in the price levels between India and the major industrialised countries, (2) extent of real depreciation of the currencies of the countries competing with India, (3) the degree of correction required in our balance of payments and (4) market expectations. Taking all these factors into account, the depreciation of the rupee value by 18-19 per cent seems appropriate.

A question that has been raised in this context is : why such a large exchange rate adjustment over a short span of time? Couldn't we continue to make small changes in the exchange rate as we had been doing? The answer lies in the role of expectations. In certain circumstances, it is better to make a significant adjustment and dampen anticipation, so as to attract remittances and capital inflows. Even in these days of fluctuating exchange rates many countries have effected large, discrete devaluations in the recent past. Countries which made discrete changes of over 20 per cent in the eighties include Indonesia, China, Bangladesh and the Philippines. Such changes also help to make certain other adjustments more easily such as the removal of export subsidies.

Yet another question that has been raised is why the adjustment was made in two stages than in one. Basically the first adjustment enabled us to test the reaction, so to say. After the second adjustment, it has been made clear that there will be no further change. In a regime of fluctuating exchange rates, it is impossible to stay fixed in relation to all currencies. The rupee is staying more or less steady in relation to the dollar and consequently the rupee-sterling rate fluctuates according to the relative strength or weakness of the pound-sterling in relation to dollar.

Impact

For the depreciation of a currency to become effective, the relative price change should bring forth the requisite change in production and consumption patterns. Exchange rate depreciation could lead to an improvement of the current account only if export

volumes rise and/or import volumes fall sufficiently to outweigh the price effect. Various formulae have been derived to indicate the conditions under which the trade balance would improve. The basic condition (known as the Marshall-Lerner condition) is that if the sum of the price elasticities of the demand for exports and imports exceeds unity, a real exchange rate depreciation should improve the trade balance (if initially the trade balance is not in deficit and there are no supply bottlenecks). There have been subsequent modifications to this formula, relaxing its assumptions.

It is claimed that the price elasticities of demand for Indian exports and our imports are intrinsically low and, therefore, exchange rate depreciation would not help in improving the trade balance. It has also been argued that production patterns are not sufficiently flexible to respond to exchange rate changes. Some have pointed to the experience of the past few years where despite real exchange rate depreciation the trade deficit has not improved.

To answer these criticisms, we need to know:

(i) Is the RER relevant in determining exports?

(ii) Is the RER a relevant factor in containing imports?

First, the RER has been an important factor in determining our export growth. From 1986-87 to 1989-90, export volume growth was running at a strong 10 per cent average annual rate. This period coincides with a sharp real exchange rate depreciation, the real effective exchange rate depreciated about 25 per cent between 1985 and 1989. Similarly, the period 1975-76 to 1978-79 when the RER depreciated almost 20 per cent also witnessed strong export volume growth (an average annual 6.8 per cent) led by manufactured exports (a volume growth of over 13 per cent per annum on average). Between 1979 and 1985, the REER appreciated and export volume growth was stagnant.

It would be wrong to relate export volume growth to one factor alone such as the real effective exchange rate. There are a host of other factors such as world demand, quality of products, marketing abilities and supply availabilities. Nevertheless many studies have shown that the REER is an important explanatory factor of export growth.

Econometric estimation shows that the elasticity of exports with respect to the REER is —0.66, i.e. for a one percentage point depreciation of the REER, export volume would increase by 0.66 of one per cent. Exports of manufactured goods are even more price-sensitive. In this context we need to note that the composition of India's exports has undergone significant changes, since the mid-sixties. Manufactured exports today constitute over 70 per cent of total exports.

Export Promotion

How does the exchange rate play a role in export promotion? Exchange rate depreciation increases the domestic currency proceeds from exports. The exporter may pass this benefit on, by reducing the foreign currency price of his exports, in which case export demand should respond positively. Or, if the exporter does not pass through the benefit by lowering his export price, then he would realise a higher profitability and should have an incentive to increase his supply and improve quality. Depending on the commodity, therefore, either one of the mechanisms may be predominantly operative.

Despite notions to the contrary, our imports are also sensitive to relative price changes. A study done by us recently shows that the price elasticities are greater than 1 for manufactured goods and machinery and transport equipment, which amounted to an estimated 50 per cent of total imports in 1989-90. This does not mean that consumer demand for other imports is not responsive to prices; in many cases higher import prices are not passed through to consumers because of administered prices. If imports as a whole are not that price sensitive, it is because a proportion of our imports such as defence imports and bulk imports are insulated from price factors. Consequently, the impact of the change in the value of the currency is not fully reflected in imports.

The exchange rate is important not only for the trade balance but also for private transfers. In fact, financial flows respond to price signals more quickly than do the flows of goods, which are typically slower to adjust. And visibles are an important part of our current account transactions. Gross receipts from invisibles are almost as large as the trade deficit. Therefore, exchange rate depreciation should have a positive effect on the current account balance too.

In talking of the impact of the exchange rate changes, one must reckon with lags in the response to exchange rate changes. There is the well known J curve effect of the improvements in balance of payments occurring after an initial deterioration. However, in the present context when imports are subject to various monetary restrictions, one should expect to find the impact on the trade balance sooner.

For the depreciation of the currency to become truly effective, it is necessary to ensure that domestic prices do not rise to wipe out the price advantage provided by such a depreciation. It is quite true that depreciation, through an increase in the price of imported goods, will exert an upward pressure on prices. However, in the Indian situation imports still constitute only about 8 per cent of the GDP. An analysis done using the input-output table of 1983-84 indicates that the maximum upward pressure on prices due to the downward adjustment in the value of rupee may be around 3 per cent. This assumes that there is a complete pass-through of the price effect on all commodities. However, we need to take into account the effect of other policy measures that have been simultaneously undertaken. A tight monetary policy has been in place for several months. By bringing down the budget deficit from 2.1 per cent of the GDP in 1990-91 to 1.3 per cent of the GDP in the current year, the pressure on prices arising from aggregate demand would be reduced. This should counter-balance to some extent the inflationary pressures.

As economists are fond of saying, the depreciation of the rupee is a necessary but not a sufficient condition for export growth and for an improvement in the balance of payments. A complementary set of policies needs to be put in place which will facilitate expansion of output particularly for exports and curb aggregate demand to keep prices under check. This is precisely what has been done. In the immediate short run, exchange rate adjustment should facilitate the realisation of outstanding export receipts and accelerate in general the inflow of remittances by quelling the destabilising market expectations. With some time lag, it should improve the balance of trade by stimulating the growth in exports and curbing the increase in imports. The tight monetary policy, however irksome it may be, has to be continued till such time as the balance of payments show a significant improvement. In conjunction with the fiscal adjustments during the current financial year, the various measures that have been taken should make the difficult balance of payments situation manageable. □

(Courtesy : RBI Bulletin)

(Contd. from Page 4)

be eliminated at one stroke. But it is imperative to introduce correctives. Fiscal adjustment alone cannot suffice. This must be supported by other essential reforms in economic policy and economic management, as an integral part of the adjustment process.

A beginning in this direction was made in July with the discontinuation of Cash Compensatory Support. To give a boost to our exports and contain import growth, adjustments were made in the exchange rate of the rupee and the replenishment system was simplified and rationalised. The new Industrial Policy would expose our industrial sector to competition from abroad in a phased manner. Cost, efficiency and quality are expected to receive the long deserved attention. The policy regime for direct foreign investment has also been liberalised which is expected to provide access to capital, technology and markets. Today our economy has reached such a stage of development where we can welcome, rather than fear foreign investment.

But growth and productivity are not something that can be influenced by Government policies alone. Similarly, fiscal policy alone cannot, even in an ideal environment, usher in miracles. It can never be a substitute for self help and hard work. Our policies can become meaningful and fruitful only if these lead to the generation or more resources for productive investment. The Government on its part is committed to creating a favourable policy environment in which the people can explore and take advantage of the new opportunities to the overwall benefit of the country.

Formulating economic policies in a country like India is quite a complex task. One is often confronted with conflicts and trade-offs. The attempt of the Government is to resolve the conflicts within the framework of our ultimate goal-accelerated growth with social justice. With informed criticism and evaluation of policies alongwith coordinated efforts of all sectors, Indian economy can undoubtedly cope with the problems and emerge victorious and strong. □

Devaluation—A Critical Analysis

Dr. K. D. Yadav and Prof. Durjansal Singh

DEVALUATION of the currency of a country is an ultimate measure to check the imbalances in the external economy. The recent devaluation of Indian rupee was necessary in the present context due to a number of reasons. The 18-20% devaluation may not be sufficient under the present circumstances but it may be enough to take the situation under the grip. During the Seventh Plan period the Current Account deficit of India widened. It came to 2.2% of the GDP against the 1.6% of GDP as projected while preparing Seventh .Plan Draft. In absolute terms the Current Account deficit of India was Rs. 7,771 crore as against Rs. 2,277 crore during the Sixth Plan.

However, many of our trade competitors made regular changes in their exchange rates. During the period, December 1980 to December 1990, China and Indonesia depreciated their exchange rates by 68% and 65% while we depreciated by 53%. The inflation rate was higher in India in comparison to these countries.

Since 1987 India remained under severe economic pressure due to various reasons. Our balance of payment position aggravated and export market snatched by other trade competitors. The imports could not be curtailed. The severe draught of 1987-88 aggravated this position. Therefore, India's trade balance became more unfavorable.

This is the third devaluation. The first time after Independence India devalued its rupee on September 20, 1949 by 30.5%. Consequently, the rupee value in terms of gold decreased from 0.268601 gram to 0.186621 gram and in terms of Dollar it came to 30.225 cent. The second devaluation was effected on June 6, 1966. Under this the value of rupee in terms of gold and gold related currencies decreased by 36.5%. Consequently the rupee value in terms of gold was decreased from 0.186621 gram to 0.118489 grams and Dollar became dearer from Rs. 4.76 to Rs. 7.50.

The present and third devaluation was made on 1st and 3rd July, 1991 by which the rupee value was decreased by 20% in term of select basket of currencies. Consequently the value of hard currencies increased as following :

	Currencies	June 28, 1991	July 1, 1991	July 3, 1991	Percentage change
1.	Dollar (USA)	21.14	23.14	25.95	23.07
2.	Pound (U.K.)	34.36	37.47	41.59	21.04
3.	Mark (Germany)	11.75	12.80	14.15	20.78
4.	Yen (Japan)	15.31	16.86	18.68	23.33
5.	Franc (Swiss)	13.60	14.93	16.14	23.12 (Approx)
6.	Franc (French)	3.47	3.78	4.18	20.55
7.	Lira (Italy)	01577	01724	1889	20.02 (Approx)

In a dynamic economy we cannot expect a stagnant currency rate. Because the balance of payment position and foreign exchange reserves position do not remain static. The recent devaluation was in fact the result of adverse external economic position.

In fact the real effective exchange rate (REER) had been appreciated by 20% between 1979 to 1986. But from 1987 the situation turned in the other direction and in the year 1989 we had gone back to the 1979 level. After that the continuous fall in the foreign exchange reserves could not be stopped.

Why This Step ?

The Current Account position of India faced serious pressure simultaneously on various fronts. There was a sharp decline in the exports and a steep rise in imports. The Indian economy failed to bear the shocks of Gulf war. Then there was low remittances of Indian nationals abroad.

Let us consider the arguments put in favour and against devaluation. Arguments in favour :

(i) Devaluation increases exports and decreases imports; consequently balance of payment position improves.

(ii) The export industries develop and thereby production and employment avenues widen.

(Contd. on Page 30)

Fertiliser Subsidy

Dr. Isher Ahluwalia

FERTILISER is an important input for getting maximum yield from high yielding varieties of foodgrains. For over two decades now, the government has been encouraging farmers to use fertilisers to improve their yield. Fertiliser has been subsidised for several years to encourage its use. Farmers have seen the results. They know now that it pays to use fertiliser in the farm because it improves the yield of the crop.

The fertiliser subsidy is the difference between the cost of producing fertiliser or importing it, and the lower price at which it is made available to the farmer. Over the years the cost of producing fertiliser has naturally increased. But the price charged to the farmers has not changed for ten years. The price paid by the farmer for the fertiliser until July 1991 was the same as what he paid in 1980-81. This is in spite of the fact that the prices received by the farmer for wheat and rice have doubled. The issue price paid by the consumer at the ration shop has also been increasing.

Keeping the price charged to the farmer fixed has meant a larger and larger subsidy from the government budget. The drain on budgetary resources naturally became unsustainable. The subsidy on fertiliser this year could have been as high as 6000 to 7000 crore rupees if the Finance Minister had not raised prices in the budget.

And what exactly did the Finance Minister propose in the Budget? He said that there will be an increase of forty per cent on an average, in the price of fertilisers other than low analysis fertilisers. He also assured that farmers will be compensated by suitable increases in procurement prices.

Most economists are agreed that the budgetary burden of the fertiliser subsidy is far too excessive and is no longer serving any social purpose. Many of us also believe that there must be a substantial adjustment at one go as originally proposed by the Finance Minister rather than small piecemeal adjustments. The irony is that there is also wide consensus among politicians that fertiliser subsidy must go. But political compulsions have led to the uproar.

Indeed, responding to the clamour all around, the government has cut the fertiliser price hike by ten per cent. It has also exempted small and marginal farmers from the fertiliser price increase. The new system amounts to a dual price framework in which the small and marginal farmers still get fertiliser at the old subsidised price, while the large farmer has to pay a price which is thirty per cent higher but is still subsidised.

Dual price systems seldom work efficiently. There will be leakages and administrative problems.

In the Finance Minister's original proposal the saving on fertiliser subsidy was 1,800 crore rupees. After the announcement of the relief, the saving on this account is reduced to 950 crore rupees. This means that if all other things remain unchanged, the budgetary deficit will be higher by 850 crore rupees. This will generate further inflationary pressures on the economy.

It is high time government realised that the only effective way to deliver any commodity at low prices to its citizens is to try to produce it at low prices. For this, costs must be brought down. The inefficiencies of the fertiliser industry must be plugged. If domestic costs of production are going up and foreign exchange is scarce, could the government have gone on importing fertilisers and making them available to farmers at one third their international price? The answer is clearly 'No'. The Finance Minister has taken a bold step in the direction of reducing the fertiliser subsidy. The government must be commended for this much overdue step. □

(Courtesy : AIR)

THE WORLD TOMORROW

As Bapu saw it

"The world of tomorrow will be, must be a society based on non-violence. This is the first law, out of it all other blessings will follow.

Individuals, groups and nations must adopt the way of non-violence; the way of love.

I see then no poverty in the world of tomorrow, no wars, no revolutions, no bloodshed."

davp 91/387

Progress through Peaceful Change

Ganga Action Plan Needs Reviewing

Samit Kar

THE impact of the river Ganga on the overall socio-economic life of Indians is enormous. Ganga is a part of history, heritage, culture, civilisation, religion and life-style of the people of this country. Its impact on the material life of Indians is immense, as a large chunk of the Indian populace is solely dependent on the river, as far as their life and livelihood is concerned. Apart from the river's emotional impact, it is generally considered a lifeline of our country. It flows over an area of 861,404 square km. accounting for over 40 per cent of the irrigated areas and sustains 37 per cent of the population of the country. Appreciating this relevance of the river for the life of the people of India, the Union Government set about to relieve the tremendous pressure to which the Ganga has been subjected to over the years. Most of its water in the upper reaches is diverted into canals. Untreated sewage and industrial effluents are dumped into the river at numerous places and the residues of pesticides and insecticides used in the farms are washed into it. The Government realized that the situation, already one of alarming proportions, has been further aggravated by deforestation resulting in silting, floods and reduced navigational possibilities. Recognising the magnitude of this problem, and realising the importance of water quality as a cardinal element of river management, the Government of India, in Feb. 1985, set up the Central Ganga Authority for the planning and execution of a time-bound programme to prevent the pollution and erosion of the banks of the river. This holistic programme eventually came to be known as Ganga Action Plan (GAP) and was formally launched at Varanasi on 14 June 1986.

After over five years of formal launching of the Ganga Action Plan, it is now necessary to assess the fruitfulness of this endeavour, considering the huge expenditure already incurred. Suffice it to say, the plan is not paying the desired dividend as some very important avenues are not being given proper attention. The need of the moment is to review the whole issue if proper return of the expenditure incurred is desired by the authorities concerned.

Before analysing the demerits of Ganga Action Plan, one should retrace why the river assumed so much importance to our people.

Relevance

Firstly, the Ganga basin is the home to more than 37 per cent of the population of the country. Secondly, the Ganga basin waters and drains 8 States. Thirdly, the Ganga basin is extensively cultivated. About 47 per cent of the total irrigated area in the country is in the Ganga basin. Fourthly, a variety of crops are raised in the basin : rice, wheat, sugarcane, cotton and jute. Fifthly, more than three fourths of the annual rainfall in the Ganga basin occurs in the four months from June to September. Sixthly, the Ganga has been a major source of communications since ancient times.

Considering the magnitude of the river's importance, Government of India felt that the level of pollution of the Ganga should be checked. But pollution is not the only problem faced by the river. Silting and erosion of the banks are equally serious problems and deserve urgent remedial action. The Government realised that in any river-quality management programme, the first step is to identify the sources of pollution. The Central Board for the Prevention and Control of Water pollution identified such sources through its

exhaustive study of the river basin published under the 'River Basin Series' in 1981. This was the first scientific document which formed the basis for the Ganga Action Plan. The Centre for Study of Man and Environment (C.S.M.E.), located in Presidency College, Calcutta, prepared the document based on data collected by the West Bengal Pollution Control Board. Statistical analyses of water quality data were carried out by the Indian Statistical Institute (I.S.I.), Calcutta.

The Ganga Action Plan comprises 262 schemes estimated to cost about Rs. 260 crore. These include : construction of electric crematoria, sewage treatment plants, lowcost sanitation, building embankments, river quality monitoring, etc. But in the whole scheme of endeavour, the social aspects of the plan are utterly neglected. The work that is undertaken is generally civil and structural engineering in nature. The goal of Ganga Action Plan, among others, is to enhance the living standard of the people residing on the two sides of the river. But in the total endeavour, the task of involving the people to make the plan a long-lasting, viable and penetrative one, is totally ignored.

Why Review ?

Experts believe that in order to realise the cherished aims of the Plan, motivational awareness should be imparted to the people residing on the two sides of the river, so that they can transform their lifestyle, behavioural pattern, taboos, values, perceptions, and the like, which may not be conducive to furthering the aims of the plan. Unless this can be ensured, the Plan cannot achieve its target.

For this, audio-visual training camps should be set up to impart training to the inhabitants dwelling on the two sides of the river. Local clubs, representatives of mass organisations and elected bodies like, panchayats and municipalities, should be involved so that they can ensure that what they learned at the training camps are practised by the people. As most of the people are illiterate or semi literate, visual exposure is the most effective medium to make people conscious about the evil effects of siltation, erosion and pollution of the river Ganga. In many cases, it has been found that the behavioural pattern of the people is such that it serves to pollute the river water further through washing clothes, dumping garbage, defecation on the banks of the river, throwing animal carcasses and half-burnt and unburnt corpses into the river, etc. People have developed a habit which needs to be cured and for this, social aspects of the Ganga Action Plan should be properly strengthened. It may be mentioned that the various Five Year Plans, which were undertaken one after another, have paid little dividends. This was mainly due to the lack of involvement of the common people, and as a result, these plans remained mere governmental endeavours minus peoples' participation. This lacuna has also been noticed in the case of Ganga Action Plan. It is now high time to involve the common people in the endeavour pertaining to Ganga Action Plan and thereby attach proper importance to the social aspects of the Plan so that it becomes more meaningful and effective.

Considering the economic scenario of our country, it is imperative that the huge expenditure being incurred in the name of Ganga Action Plan pays richest possible dividend. And for this matter, rethinking on the implementational pattern of Ganga Action Plan is urgently needed. □

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To Our Contributors

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Prime Minister On Reforms For Women

THERE is an articulated and unarticulated distress for centuries, may be for millenia, wherein one-half of humanity has been subordinated to the other half, the better half to the worse half, and I really do not know why this should have happened. But I would like to say that this is the eternal question, the question of why there should be so much disparity between one part of God's creation and another part, both parts being completely interdependent, both parts being supplementary and complementary to each other, and both parts being such that neither part can become the whole in the absence of the other. It is just one of those inexplicable atrocities that mankind has inflicted on itself over the centuries. When in the old texts, it is said : *Yatra Nariyastu Pujante, ramante tatra Devata.* What happened to those texts ? Were the words in those texts a piece of hypocracy to start with ? Was it that those who wrote them or conceived them not just one Shloka or one line but long texts you find of people who could articulate these things from the bottom of their hearts; there was no diplomacy about it; no ostentation, nothing to show about. They wrote what they felt. These writings pertain to an age of wonderment, an age where man just expressed himself the way he felt. But in course of time, it disappeared and finally we come to a stage where it is said that one half of humanity is definitely inferior to the other.

To treat the other half as inferior is one thing. But to assert that it is inferior, therefore, we treat it, is something which is incorrigible and one may commit a mistake by mistake but when the mistake is asserted as the right thing to do, then it is something very hard to break. Why is this so and why should it be so and how long is it going to be so ? These are the questions everybody is addressing.

Equal Opportunity

I have a feeling, after considering all the problems more or less the women are faced with, that if you start with equal education to the child, girl or boy, probably most of these problems could be solved. I don't say all will be solved. There may be some inherent problems, but to the extent human beings can solve the problems, these will be solved. So, we are laying special emphasis on the education of the girl child, literacy to start with, then educational opportunities. If your child today doesn't suffer from discrimination in respect of sex, then your daughters-in-law tomorrow need not bother because they start with a near-equal situation. So, in the interest of the women themselves and also in the interest of the whole country and the society, I am definitely of the view that whatever the expense, whatever the trouble, whatever the persuasion needed, we will have to see that educational opportunity is equalised in the case of children, all children irrespective of sex.

I am sure that if education is taken care of, law will be taken care of, the legal rights of women can be taken care of. In fact, they will not have to fight for their rights. Who fights for rights if rights are given ? Why should we fight ? I don't think women are so prone to fight all the time unless there is a reason and there is a provocation and there is a

deprivation. So, if they fight, it is good that they fight for something which they must have. But if they don't have it and still don't fight for it, that is not a good situation. And I am sure this fight will not be very long. In fact, I am not quite sure that vis-a-vis women, men are very brave. I don't think so. They will give in at some point, may be sooner than later, sooner than you realise.

Now, we have a lot of old, ingrained faiths, let us say wrong beliefs, beliefs which do not belong to this century in any case, like Sati and like so many other very injurious practices, uncivilised practices in the society, where the women become victims, unwilling, unwitting, unintended victims but still the society is so harsh and it is ingrained in the beliefs of the people. Now it is not as if all cases of Sati are forced, many are, but it is also a fact as far as I have collected some information from the areas concerned that the society itself has come to look upon this very heinous, abominable practice as something respectable. Now, if that respectability goes, then no one will fall a prey to this.

A bad practice combined with a bad superstition is the real problem. If there is no superstition, the bad practice will end very soon because no one wants to give her life for nothing unless there is some compelling reason. So, again it is psychological and it depends on how much the women knows. In these cases, she doesn't know much except the superstition. She believes the superstition a hundred per cent and that is why she does it.

In the same way, we have the practice of child marriage. Now, 44 years after Independence, one has to admit with a sense of shame that in this country we do have what they call cradle marriages even now. I know of such cases. Now, what barbarity is this? How can you have a cradle marriage? How can you have a marriage at the tender age of 2, 3, 4, 5, 6, and ruin the lives of thousands of such victims.

Then, there is the other equally atrocious practice of Devdasis. A lot of literature you find being written, having been written, but the fact remains that it is prostitution in the name of God. Now, if God could articulate what he feels about what we have done to him, he would be the greatest protestor today. We have done such things in the name of God, this society has exploited God to such an extent that no other section of society has been exploited so much as God and man has been the worst exploiter of God. I don't know why God doesn't protest. He should be the first to raise his voice but still he is silent and we go on with exploitation.

What has happened in this country is the distortion of faith itself. Faith is not superstition. The perversion of faith that has taken place in this country is horrendous. And something has to be done to remove this perversion. This can come again with knowledge, education, and enlightenment. In a civilised society, we don't fight with guns. We fight with law. That is why legislation is extremely important. And this being the only weapon in a civilised society, if the legislation is bad, the concept of the legislation and the implementation of the legislation is rendered inadequate. Now, that weapon should be effective and it should be implementable and the rest should be supplied by social force. The social force can take several forms. It can be education. It can be public exhortation. It can be organisation of the concerned people for demanding a thing. It can also be the education of the people. In fact, it should be the education of the people before they are organised for an agitation. So, all these stages will have to be passed through. But education is most important. We will come up with legislation and we will see that whatever problems we are faced with, to the extent it is humanly possibly through legislation, through the Governmental agencies, we will try to solve them. But I must warn you that this is only part of the story. The rest will have to come from the concerned sections of the people, namely the women themselves. □

(Excerpts from the Prime Minister, Shri Narasimha Rao's address at a seminar.)

Women's Rights : Legislative Measures

Dr. T.N. Kitchlu

While we have the forward-looking Constitution and a host of legislative measures which have a bearing on women's rights, the social situation is backward looking, says the author. Due to high illiteracy among women coupled with ignorance, orthodoxy and beliefs, there is a lack of awareness among women of basic provisions of Constitutional safeguards and legislative enactments. Even a majority of educated women have remained ignorant of the changes that have been brought about in their status through legislations and hence have not been able to exercise their rights. The author discusses the Constitutional provisions and legislative measures enacted for protection of women's rights and promotion of their welfare.

INSPITE of Constitutional provisions and progressive legislative measures for protection of women's rights and promotion of their welfare, women continue to suffer under the yoke of a traditional and conservative society.

The developments during the past more than four decades indicate government's resolve to ensure equality of two sexes by accelerating the process of women development. Unfortunately due to slow pace of social change, women have not benefited much from a host of welfare measures provided by the government. Due to high rate of illiteracy among women coupled with ignorance, orthodoxy and superstitions, beliefs, there is lack of awareness among women of basic provisions of constitutional safeguards and legislative enactments. Even a majority of educated women have remained ignorant of the changes that have been brought about in their status through legislation. Because of these reasons a large majority of our women have not been able to exercise their rights.

The purpose of present article is to informing and educating women about legal provisions.

A cardinal principal has been set forth in Article 14 of the Constitution which ensures that the state shall not deny to any person equality before law or equal protection of laws. Article 15 prohibits discrimination against any citizen on grounds only of religion, caste, sex, etc. However, Art 15(3) empowers the state to make any "Special Provision For Women and Children" even in violation of the fundamental obligation of non-discrimination among citizens particularly on sex. This provision has enabled the state to make special provisions for women particularly in the field of labour legislation. Article 16 guarantees that no citizen shall be discriminated against in matters of public employment on grounds of sex alone.

Articles 39(a), 39(d), 39(e) and 42 of the Directive Principles have far reaching implications for provision of better working conditions and conditions of work for women workers.

The Fundamental Rights and the Directive Principles are the instruments for attaining our national objectives of justice, liberty and equality.

The Constitution of India has given special attention to the needs of Women to enable them to exercise their rights on an equal footing with men and participate in national development. The constitution of India aims at creation of an entirely new social order where all citizens are given equal opportunities for growth and development and that no discrimination takes place on the basis of race, religion, sex, etc.

If there is a violation of Fundamental Rights, a women can move a writ petition in the High Court of the State of which she is a resident or the Supreme Court of India.

Legislations

The Hindu Marriage Act 1955 applies to all Hindus by religion. It also applies to Sikhs, Jains and Budhists. Under Hindu Marriage Act the conditions for marriage are :

— either spouse should not have an earlier living spouse.

— should not be afflicted with any mental illness.

— minimum age for men is 21 years and for girls it is 18 years.

— the parties should not be within the degree of prohibited relationship.

— the parties should not be sapinda to each other unless the custom or usage governing them permits such marriage.

A Hindu cannot contract a second marriage with another till the first marriage is dissolved by divorce or decree. If there is violation and it is proved then the person can be imprisoned and also fined. If the spouses find it difficult to pull on with each other, either of the spouse can apply for divorce under the law. The grounds on which dissolution of the marriage can be granted by the court are cruelty, adultery, unsoundness of mind, desertion, not being alive, suffering from disease and mutual consent.

Special Marriage Act, 1954 : The Act permits marriage of people from different religious faiths without changing their religion.

The Hindu Marriage Act, 1955 and the Special Marriage Act, 1954 were amended in 1976 to provide for the right of a girl to repudiate marriage before attaining maturity as child whether the marriage has been consummated or not. Cruelty and desertion were added as grounds for divorce and mutual consent were recognised.

Hindu Succession Act, 1956 : The Act confers the right of absolute ownership over property and the woman can make 'will' leaving her share of property to the heirs. Under Section 10 of the Act, property of an intestate is divided among the heirs in accordance with certain prescribed rules. Child Marriage Restraint (Amendment) Act, 1976 raised age of marriage for girls from 15 to 18 years and for boys 18 to 21 years. The offences under this Act have been made cognisable.

These legislations prohibit the employment of women between 7 p.m. to 6 a.m. in factories, mines and plantations, regulate working hours and contain provisions for their safety and welfare. The government is authorised to fix the maximum load that may be lifted by women and open creches, etc. In 1976, through an amendment all managements were required to provide creches where 30 women are employed including casual labourers or contract labourers as against one for every 50 hitherto. Employees State Insurance Act, 1948: The benefits provided under this Act include sickness benefit, maternity benefit, disablement benefit, dependent benefit, medical and funeral benefit.

Maternity Benefits Act, 1961 : This Act is applicable to all the establishments, plantations, mines or factories and provides for payment of maternity benefits at the rate of average daily wage for the period of women's actual absence. It was amended in April 1976 to cover women who do not fall within the purview of the Employees State Insurance Act, 1948.

The Equal Remuneration Act, 1976 : The Act provides for the payment of equal remuneration to both men and women workers and prevention of discrimination on the ground of sex against women in matter of employment.

The Contract Labour (Regulation And Abolition) Act, 1978 : The Act regulates the working conditions of contract labour which includes women, payment of wages and provides for Welfare facilities and creches for the children of working women engaged in construction work.

Dowry Prohibition Act, 1971 : The Dowry Prohibition Act was passed in 1961. The Act was amended in 1984 to make the offence cognisable. Besides, its scope was widened to make it more effective and penalty, both fine and imprisonment, have been enhanced. The minimum imprisonment for taking or abetment in taking of dowry has been raised to 5 years and a fine of Rs. 15,000/-. The advertisements in newspapers, periodicals, etc. offering a share of property as consideration for marriage is punishable. Offences under the Act have been made non-bailable. A new offence of 'Dowry death' has been included in the Indian Penal Code consequential to the amendment in the Act.

The Immoral Traffic (Prevention) Act, 1956 Amended 1978 and 1986 : The Immoral Traffic Act 1956 prohibits trafficking in women and girls for purposes of prostitution as an organised means of living. The Act was amended twice in 1978 and 1986 with the objective of making the penal provisions in the Act more stringent and effective.

(1) The amended Act is titled as "The Immoral Traffic (Prevention) Act, 1986." The Act has incorporated several provisions for the protection of minors and women who are sexually exploited for commercial purposes. It prescribes punishment as laid down for rape under the Indian Penal Code or the seduction of victims of trafficking while in custody.

Family Courts

The Family Courts Act, 1984 was passed for setting up family courts in the country with the purpose of promoting reconciliation in and securing speedy settlement of disputes relating to marriage and family affairs. These courts have been set up in some States. However, these are yet to be established in Delhi. Indecent Representation of Women (Prohibition) Act, 1986 : This Act was passed in December, 1986 with the objective of having separate legislation to effectively prohibit the indecent representation of women through advertisements, books, pamphlets, etc. The Commission of Sati (Prevention) Act, 1987 : This Act provides for more effective prevention of the commission of Sati and its glorification. The Act defines Sati comprehensively to include not only the burning or burial alive of a wife widow with deceased husband but also of a widow or women with the body of any other relative. The Act has made provision for deterrant punishment for anyone who abets in the crime. The act of glorification of Sati has also been discussed in detail and severe punishment prescribed.

Dowry Deaths

The newspaper reports about dowry deaths of women is almost an every day affair. The parents of the married woman almost invariably hold the parents-in-law responsible for either murdering her or compelling their daughter to commit suicide.

The scope of Section 174(3) of the Criminal Procedure Code has been considerably widened by an amendment called Criminal Law (second amendment) Act, 1983 and includes cases of death of woman under suspicious circumstances during the initial 7 years of their marriage. Holding of inquests in cases where a woman dies under suspicious circumstances within 7 years of her marriage has been made mandatory.

Cruelty Against Women

'Cruelty' against a married woman has been made a substantive offence by addition of a new section 498A in the Indian Penal Code by Criminal Law (Second Amendment) Act, 1983.

If a woman commits suicide within 7 years of her marriage and when it is shown that her husband or his relatives had subjected her to cruelty, then the suicide will be presumed to have been abetted by the husband. Also when a woman dies within 7 years of her marriage "raising a reasonable suspicion that other person has committed an offence", there will be a post-mortem. It further provides that no court shall take cognizance of the offence except upon a police report or a complaint made by the victim's family.

Apart from dowry deaths and cruelty, another form of violence against women which has increased is rape. The incidence of rape has increased manifold in recent years both in urban and rural areas. Many such crimes are committed by men in uniform, persons in authority or by groups of people. The Criminal Law (Amendment) Act, 1983 provides for the crime of rape punished with minimum of 7 years imprisonment. The law also provides "protection of victim of rape from the glare of embarassing publicity during the investigation as well as trial." "Custodial rape" mean rape by a person in authority in an institution where the women is lodged. This includes a police station, a hospital, protective home, etc. The onus of proof has been put on the alleged rapist to prove that there was consent. In cases of gang rape, the woman is still in a more vulnerable position and the law prescribes a more severe punishment.

Personal Law

The provision of mutual consent as a ground for divorce in the Special Marriage Act, 1954 has been incorporated into the Hindu Law by an amendment in 1976.

The right to exercise the 'option of Puberty' to obtain a divorce (available earlier only to Muslim Women who were married while still minors) has been extended to Hindu Women with this difference that while this right in Muslim law is limited to unconsummated marriages, in Hindu law it can be exercised whether the marriage has been consummated or not. The amendment had been welcomed by women's activist groups.

Cruelty as a ground for divorce has been added to Hindu Law. The period of waiting after a decree of judicial separation or restitution of conjugal rights has been reduced from 2 years to one year.

While adding cruelty to the grounds for divorce, the legislature did not enumerate situations that would constitute cruelty. Here the judiciary has stepped in and interpreted it to include mental cruelty. Since the amendment, the courts have also consistently held that a false allegation of adultery by the husband or wife should be construed as mental cruelty.

Adoption

The Hindu Adoptions and Maintenance Act, 1956 has made far reaching changes in matter of adoption by a Hindu woman.

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Nehru On Rural Development

Pradeep Chaturvedi

INDIA'S growing population has caused immense pressure on the natural resources and the infrastructural facilities. The latest census figure of 864 million exceeds all earlier expectations. It is expected to reach 1042 million by the year 2000 AD.

The growing population has another significant dimension that needs immediate attention. Over 30 per cent of India's population in 2000 AD will be below 18 years of age and over 50 per cent will be below 21 years. Nearly 70 per cent of the population derives its livelihood from agriculture and other rural occupations. This situation is not going to change soon.

If that is so, a new strategy for creation of employment opportunities in the rural areas assumes importance. Creation of a large number of job opportunities will require focussing attention on agro-processing industries and agro-industries. Small and cottage industries can also contribute to creation of jobs in the rural areas.

At a time when the country is faced with the issue of employment generation in rural areas, it is relevant to recall the well thought out plan of Pt. Jawaharlal Nehru. Things have obviously not gone according to original thinking, and the original plan may not be now applicable in totality.

In "Discovery of India" Pt. Nehru says, "Broadly speaking, there were two approaches; the socialists were aiming at the elimination of the profit motive and emphasizing the importance of equitable distribution, and the big business are striving to retain free enterprise and the profit motive as far as possible, and laying greater stress on production. There was also a difference in outlook between those who favoured a rapid growth of heavy industry and others who wanted greater attention to be paid to the development of village and cottage industries, thus absorbing the vast number of the unemployed and partially employed.

Obviously we could not consider any problem, much less plan, without some definite aim and social objective. That aim was declared to be to ensure an adequate standard of living for the masses, in other words, to get rid of the appalling poverty of the people. The irreducible minimum, in terms of money, had been estimated by economists at figures varying from Rs. 15 to Rs. 25 per capita per month. Compared to Western standard this was very low, and yet it meant an enormous increase in existing standards in India. These figures bring home the terrible poverty of the people and the destitute condition of the people. To remove this lag and ensure an irreducible minimum standard for everybody the national income had to be greatly increased, and in addition to this increased production there had to be a more equitable distribution of wealth."

Pt. Nehru's opinion of raising the income levels and equitable dis tribution of wealth are still the sought after objectives. The decision for building core infrastructure in public sector was also a part of the same line of thinking.

Pt. Nehru had also mentioned of his experience in China. He says, "In China I was greatly attracted to the Industrial Cooperatives—the Indusco Movement—and it seems to me that some such movement is peculiarly suited to India. It would fit in with the Indian background, give a democratic basic to small industry, and develop the cooperative habit."

Pt. Nehru's model also had an important component of the availability of electricity availability and its direct relationship with development. He says, "The increasing use of electric power facilitates the growth of small industry." Electricity is being carried to every village but the emphasis is on electricity for agricultural pumpsets and household lighting. If this electricity is supplied for rural industry, the economic impact could be immediately felt.

As far as creation of jobs in rural areas is concerned every effort should be made to create job opportunities in an integrated fashion. A large number of agro-industrial complexes need to be introduced. Agricultural production and agriculture related and agro-based industries need to be developed in a holistic manner to create more job opportunities. A strategy of integrated job creation in agriculture, rural industry and service sectors shall have to be evolved. □

The author is Editor, Temper.

Quail Culture—A New Venture

K. James Christopher

THE Common Quail (Coturnix coturnix japanica) which is also known as Japanese Quail or Eastern Quail, is popular in many countries like Japan, Hong Kong and Taiwan. Domesticated Quails can also be seen in European countries and in America. A related species, namely coturnix coramandilica or the Indian Rainy Quail, is available in hilly tracts and jungle areas of India. These are hunted by the hill tribes for their meal. At times, they sell these to others also. Quail culture at home is a new venture in India.

Quail is a small and hardy bird comparatively disease resistant. Its up keeping is easy. Quail meat and eggs make delicious dishes. They are as tasty as chicken meat and eggs. Their meat and eggs contain less fat and more calcium. At times, they can fetch a higher price than chicken. They mature very early and hence, give quick returns. Their space and feed requirements are comparatively few. They do not soil the floor much and hence, they can be kept in front of the house or in backyards.

Quail eggs are of a mottled brown colour and are often covered with light blue and chalky material. Some strains lay white eggs only. Quail egg weighs about 10 gms, about 10% of their body weight. In their natural environment they lay eggs in bushes and they are hatched by brooding. They can also be incubated artificially. The incubation period is about one and a half weeks. The ideal temperature upto 14 days is 37.5°C ± 0.5°C and the relative humidity 60% for incubation. Afterwards, 37.2°C with a relative humidity of 70% is needed. Eggs are to be turned every 2 to 4 hour interval up to first fourteen days. On the fourteenth day, they are to be transported to hatching trays. Then turning of eggs is not needed, until they are hatched. Hatching trays should not have slippery floors, lest young ones should slip over them and get lame. They are to be kept for about a day in these trays. The percentage of hatching of quail eggs is about 70% and in summer it is usually fewer.

Brooding and management of young chicks is not very difficult. Young quail chicks weigh about 6 to 7 gms. and are brownish with yellow strips. The tiny ones are more fragile, but they are comparatively resistant to diseases. They are to be kept in the brooder house for about 2 to 3 weeks, depending upon the season. In summer, about 2 weeks of brooding is quite sufficient. The brooding temperature is about 35°C during the first week and can be reduced about 3°C in a week. The best guide for adjusting the temperature is the behavior of chicks. When chicks huddle in corners the temperature is more and when they huddle near the source of heat it is low or insufficient.

Quails begin to lay when they are about 6 weeks of age. Unlike chicken, they lay their eggs in the afternoon, or between 3 and 6 p.m. These eggs are hatched in a regular way to have chicks. Housing of adult stock should ensure comfort to all birds. It needs good ventilation and adequate lighting. Food and water should be readily available to them at all times. Added to the above, houses should permit easy and effective sanitation. In deep litter system they need a thick layer of about 10cm. An adult bird needs about 130 sq. cm. floor space. About 8 quails can be kept in 2 sq. feet space, the space that is needed by one hen. Quails can also be kept in cages. Usually one male and two females can be kept in one cage. They need about 400 sq. cm. floor space, or about one sq.foot. Cheap wire-mesh or wooden cages of about 4 to 5 tiers can be made for them. Even in wooden cages it is better to have wire floors. Sheds are to be kept neat and clean. They should also prevent hot air currents or cold winds getting into them. Overcrowding should be avoided.

Feeding of quails is similar to that of chicken. They need all the food ingredients and the protein percentage is usually a little bit high. They need about 26% of protein during the first 3 weeks, 24% upto about 5 weeks and thereafter 22% is enough. Feed troughs and waterer are to be filled up to the brim and kept at a lower level so that birds can take them easily. An adult quail takes about 15 gm. of food per day.

Quail diseases are a few. They are said to be refractory to Ranikhet disease virus. They usually do not suffer from fowl pox, or any pox. They are said to be resistant to Ascaridia worm, which is seen very commonly in chicken and to the chicken pathogenic coccidia.

However, they are susceptible to a different strain, the Emeria of quails. It is due to these reasons, they do not need any sort of vaccination and deworming programmes. Moreover, no preventive medications are needed.

When diseases occur, dead birds are to be removed immediately. The nearby veterinary doctor should be consulted for disease diagnosis and prevention. Suitable medication need to be given to sick birds and preventive medication to others. Sicks birds are to be isolated in separate pens. In a farm good sanitary methods can go a long way in preventing diseases.

A female quail begins to lay eggs when it attains the age of about 6 weeks and reaches its peak production by about 16 to 18 weeks. Quails live for about 2 years and a half. They lay about 260 eggs each in the first year and the next year the number is almost the same. Their egg shell is more thick and hence eggs can stay well for a longer period of time. Eggs over one week are not fit for hatching and the ones over ten or twelve days not good for consumption. An adult male weighs about 140 gms and female about 160 gms. When dressed, their meat is 100 gms and 120 gms respectively. It can be frozen and kept for sales. Quail meat and eggs can be pickled to preserve them for a longer period. They can be transported to other places after canning. Quail rearing can offer an opportunity and scope for the interested farmers to enter this new and profitable enterprises. □

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A male Hindu cannot take a child in adoption unless the wife, if living, has consented to adoption.

An unmarried woman or a widow can now adopt a child for herself which was impossible in the traditional Hindu law. Another basic change made in the law is that a daughter can also be taken in adoption. In the traditional Hindu law the adoption of a daughter was unknown.

The primary right to give a child in adoption vests with the father. However, he can exercise this right only if the mother has consented to give away the child.

The Medical Termination of Pregnancy Act of 1972 : The Medical Termination of Pregnancy Act, 1972 provides that a married woman can get foetus aborted when she does not desire to have an unwanted child. Abortion under medical advice to married women, victims of rape or misguided unmarried girls is also available.

All this has been provided so that women and girls do not fall a prey to unscrupulous and untrained medical practitioners. Before the passage of this useful legislation helpless women and girls were fleeced by greedy medical practitioners.

In case the patient is a minor or of unsound mind written consent of the guardian is necessary.

Free Legal Aid

Free Legal Aid Bureaux have been opened in many cities and towns. Some women's organisations have also opened legal aid 'clinics'. At these clinics women can consult lawyers without paying fees. The Central Government is expected to introduce model scheme on legal aid. Under such schemes to be adopted by the States, a woman would be entitled to legal aid irrespective of her economic position. Steps are taken for legal literacy of women through Adult Education Programmes, Worker's Education Programme and National Service Scheme programmes. Legal aid camps which is a recent development serve a double purpose—to identify people requiring legal aid, and inform them of their rights under the law.

Conclusion

From the foregoing, we see that we have made progressive constitutional provisions and enacted a host of legislative measures aimed at equality of the two sexes. But unfortunately while we have the forward-looking Constitution and the laws having a bearing on women's rights, the social situation is backward-looking. A majority of our people continue to follow age-old traditions, taboos and social customs, Law by itself cannot change the social ethos of a society. Unless there is a change in the attitudes, there cannot be any fundamental changes in the society. The only way to the realisation of women's equality is through women's education. Legal literacy campaigns should be launched for this purpose. □

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Soyabean : The Wonder Crop

Neelam Kataria

SOYABEAN occupies the first place in the world oil production. In India, it has the third place in the oil seed and edible oil production. Soyabean is the lowest priced source of high quality protein. It contains 20 to 22 per cent good quality and 40 to 45 per cent protein and has a tremendous potential to meet protein calorie malnutrition. The quality of soya protein is next only to animal protein and is much better than that of cereals and pulses. Soya based foods contain low carbohydrates and are considered suitable to diabetic patients. Soya milk has lower plasma cholestrol levels. Besides edible oil, soyabean produces deoiled flour with high percentage (55 to 60) of protein. Its use in fast foods and nutritious soft drinks is fast catching up. Several by-products like lecithin and soyabean protein concentrates have immense industrial uses.

Soyabean is a highly remunerative crop with less input demand. As it gives 2 to 3 times more protein yield per hectare than other pulses it become an economical source of protein. Although its economic viability was successfully demonstrated way back in the sixties at Pantnagar and Jabalpur, the commercial exploitation of soyabean started only recently in India. It has now emerged as an important crop with a potential to narrow down the oil and protein gap.

Government Support

The Technology Mission on Oilseeds (TMO) set up in May 1986, evolved an integrated policy of oilseed production, import, distribution and pricing. The Mission gave a boost to soyabean cultivation as well. During the seventh plan, two Centrally Sponsored Schemes—National Oilseeds Development Project (NODP) and Oilseed Production Thrust Project (OPTP)—were initiated in important oilseed growing States during 1987-88. These schemes were taken up in selected districts to supplement the efforts of the State Governments to increase oilseeds production including that of soyabean. Both these schemes have now been merged into one—Oilseeds Production Programme (OPP)—with the assistance of Centre and State on 75 : 25 basis. Under the scheme, soyabean has been accorded fourth priority after groundnut, rapeseed and mustard.

The concerted efforts made by the Centre and State Governments by supplying certified seeds, fertilisers and pesticides and ensuring fair support prices to the farmers and establishing processing facilities (soya oil mills) has increased the production. It has almost doubled in the last five years—from 10.2 lakh tonne in 1985-86 to 24.4 lakh tonne in 1990-91. Madhya Pradesh is the biggest contributor with 82.1 per cent of the total soyabean crop followed by Maharashtra and Rajasthan. In 1990-91 Madhya Pradesh set an all time record production of 20.03 lakh tonnes.

The growth rate of soyabean in Madhya Pradesh during the VII Plan period was 12.83 per cent against the national average 12.42 per cent. The rate of growth in 1980-81 to 1988-89 has been a phenomenal 38.50 per cent against an all India growth rate of 16.95 per cent.

There was a phenomenal increase in the area under soyabean cultivation during the last decade. From about 0.6 million hectares in 1980—90. India has been among the top three countries with Argentina and Brazil in respect of growth rate in the area under soyabean cultivation. In Madhya Pradesh, the area has increased from 10.97 lakh hectare in 1985-86 to 17.55 lakh hectare in 1989-90. There is still a great potential to extend the areas especially in States of Rajasthan, Maharashtra, Karnataka and the

(Contd. on Page 25)

Successful Scientific Innovations In The North East

Dr. J.N. Baruah

TECHNOLOGIES, developed to meet the regional requirements and prove commercially viable, are the key to the progress of any area. North Eastern Region of India, with a distinction in industrial and agro activities related to crude oil, tea, paper and medicinal and aromatic plants, has such an institution—Regional Research Laboratory (RRL)—situated in the heart of the region—Jorhat, in Assam. This national laboratory of Council of Scientific and Industrial Research is known for its contribution towards development and transfer of technologies for a wide range of industries, extension work, consultancy and analytical services rendered to a large number of clientele of the region and other parts of the country.

Market Leader

RRL—during its working in the last three decades has developed scores of commercially proven projects. The foremost being 'Flow Improver' for crude transportation.

Other innovative achievement of RRL—Jorhat came in the area of building material. RRL had tremendous success in mini and tiny cement plants using the Vertical Shaft Kiln (VSK) technology. RRL Jorhat had gone into commercial production in 1982 when a firm at Bhuj (Gujarat) started production. It was the first mini cement plant of its kind in the country to successfully commercialise the VSK technology. Today, there are 20 such cement plants in commercial production all over the country. Also, some countries like USSR and Iran have shown keen interest in obtaining VSK technology.

Research work done for special quality paper making resulted in three different special papers—direct-copy paper, thermographic paper and carbonless copy paper. The direct-copy paper is a pressure sensitive paper which eliminates the use of conventional carbon paper form making multiple copy business forms, continuous stationery, air tickets, slipping documents etc. Direct-copy paper rolls can also be used in telex machines, computers and other electronic data processing machines. Thermographic paper, sensitive to heat and pressure, is successfully used in data recording instruments like electrocardiograph, seismograph etc.

A simple technology was also developed for manufacture of paper slate used by primary and preprimary students keeping their specific requirements in mind. These are unbreakable, lighter in weight, cheaper in price and retain abrasiveness longer than the conventional writing slates.

The R & D efforts to solve the problem of alumina removal from iron ore rich in alumina has resulted in the development of a number of chemical dispersants which are specific in action on hydrous materials like clay, laterite etc. The investigations carried out in collaboration with Steel Authority of India (SAIL) & Rourkela Steel Plant with the chemicals developed by RRL—Jorhat on various iron ores in India yielded encouraging results. Another major development has been the pelletization of iron ore fines which are utilised in blast furnaces. This was achieved in collaboration with SAIL.

Commercial production of silica gel was also made possible by RRL—Jorhat. The silica gel finds use mainly as a desiccant in industrial appliances ranging from instruments to medicine. Silica gel is also used for separation of gases in petroleum refining, as a catalyst carrier in butadiene polymerisation, in synthetic rubber industries.

In the activities related to agriculture, pesticide has been one

of the major area of thrust. RRL—Jorhat developed the know-how for three main pesticides, phosphamidon, quinalphos and chlorfenvinphos. The technology developed for the manufacture of phosphamidon has a distinct advantage over the conventional process. Quinalphos is an effective and potent pesticide against pests on cotton, paddy, groundnut, tobacco, fruits, vegetables and other crops. Chlorfenvinphos marketed internationally is one of the important broad spectrum pesticides belonging to the organo-phosphorus group. RRL has developed a process and also prepared a detailed design of the semi commercial plant regarding it.

Rural Technologies

Certain agro-technologies popular in rural areas were modified through active participation of RRL. As a result, rural technologies on citronella, lemon grass and other medicinal plants, filter candles, roofing sheets from waste paper were developed. Apart from these, the cultivation of Mentha arvensis, Disocorea floribunda, Eucalyptus, Citriodora and mushrooms have received tremendous response from rural sector in north eastern region. These are also rapidly being adopted by the people in other parts of the country.

Agro Advances

The Laboratory has developed agro-techniques for the cultivation of edible mushroom such as European white button mushroom, oyster mushroom, paddy straw mushroom. The villagers have shown considerable interest in the cultivation of these varieties. The villagers were given intensive training, initially at the laboratory and later at the sites. Mushroom is a very nutritious food rich in amino-acids, minerals and vitamins with abundant potential of growth in the region. Prior to the seventies most of the citronella oil used to be imported. But because of RRL Jorhat's activities, the north east is not only self sufficient but is in a position to export this item.

In the early seventies, RRL—Jorhat opened a substation at Yaongyimsen village after procuring 3 acres of land. An experimental-cum-demonstration plant of citronella was started to motivate the villagers to take up the training for citronella cultivation. In 1971, out of 350 families of the village, 5 families took up this and brought one acre of land under citronella cultivation. That was a unique experience with the Nagas as for the last hundreds of years they were resorting only to shifting cultivation (Jhumming) and were living completely at the mercy of nature. Gradually, a number of families of the village started participating in the RRL—Jorhat programme bringing more and more land under cultivation.

Pengeri village in Upper Assam is another village to derive its prosperity by adopting citronella cultivation on grand scale. Pengeri is a cluster of nearly fifteen tiny villages with an area of more than 3,000 ha. Here people, mainly belonging to the weaker sections of the society, are now thriving solely on citronella cultivation. The citronella cultivation initiated at Pengeri in the year 1973 in a few patches of waste land based on agro-technologies generated by the laboratory has now engulfed the entire area covering more than 200 hectares.

A Science Motivation Centre established under the sponsorship of Department of Science and Technology has been established at Jorhat by RRL. The objective of the Centre is to expose the people and trainees of the area to the history and development of science, the status of Indian science and technology and thus inculcating a scientific temper in them. □

(Contd. from Page 22)

Chota Nagpur Plateau of Bihar, Bundelkhand region of U.P., Andhra Pradesh, Tamil Nadu and Orissa.

Low Productivity

Despite the increase in area and production of soyabean the productivity has not increased to that extent. It has been hovering around 9 quintals per hectare against the world average of 18 quintals per hectare. Research studies have indicated that the present yield exists because the recommended doses of inputs and crop management practices are not followed. A study conducted by AICRPS (ICAR) revealed that the production technology developed and standardized is not adopted even by 30 per cent of the Indian farmers particularly so in use of fertiliser and plant protection measures. The gap in adoption of recommended technology is maximum in marginal and small farmers.

It has been established that with variety, appropriate production technology and assured irrigation, soyabean can be cultivated throughout the year. Besides harvesting additional production of soyabean in rabi, it would augment kharif production of soyabean since the seed produced in this season is likely to ensure optimum plant population, which is the key factor for harnessing the potentials of soyabean. □

Ethanol : A Substitute For Petrol

A. D. Verma

IT has been established that alcohol either neat or mixed with petrol could be used as fuel in the internal combustion engines. The chief drawbacks against its use are that alcohol has lower vapour pressure, lower calorific value and higher specific gravity as compared with petrol. It is also hygroscopic in character and, therefore, absorbs moisture from the air.

For the use of alcohol, unmixed with petrol, drastic alterations to the carburettor system are necessary and alcohol cannot be used as an alternative fuel to petrol for the same engine without extensive adjustments. Owing to lower air to fuel ratio necessary for satisfactory engine operation when using neat alcohols as compared with operation on petrol and also the lower calorific value of alcohol, satisfactory acceleration, power output, general running and fuel economy can only be attained by increasing the sizes of the carburettor jets to sizes up to approximately 1.5 times larger than those used in the case of petrol. At the same time owing to difference in specific gravities the carburettor float requires to be proportionately weighed to maintain the fuel level at the jets. The lower vapour pressure of alcohol leads to difficulties regarding starting of engine from cold. Improvement in this respect would require the fitting of heating devices to the carburettor and induction manifold.

In order to be efficient, engines running on alcohol must employ higher compression. Such engines have to be specially designed. If the carburettor system of a commercial motor engine of the usual type is altered to make it suitable for use with alcohol, it would not be able to run on petrol without inconvenient readjustment of its carburettor. Thus, it is only possible to run on alcohol fuel when the user is getting continuous supply of the material. The above is true whether power alcohol is used or rectified spirit.

A characteristic of rectified spirit is that while it is capable of remaining as a mixture when mixed with 50 per cent petrol or less, it is liable to separate out when the amount of petrol exceeds 50 per cent. In any mixture consisting of 50% rectified spirit or more with petrol, conditions mentioned above for unmixed alcohol apply but only to a limited extent. It may be possible to run the engine without special heating device and jet enlargement of the carburettor need not be as large as in the case of unmixed alcohol. The alteration in the flow level need not also be great. Thus, it would be possible to run the same engine on straight petrol without adjustments, although petrol consumption would be higher than when the carburettor was properly adjusted for petrol. It is possible, therefore, to employ 50/50 mixture of alcohol and petrol without appreciable inconvenience so long as there is a reasonable continuity of obtaining the fuel.

The great advantage of power alcohol is that it is suitably mixable with petrol up to a mixture of 25 per cent alcohol and 75 per cent petrol. For such mixtures containing up to 20 per cent alcohol there is no difference in behaviour with that of neat petrol. No carburettor adjustments are required and a motor vehicle can therefore run indiscriminately on neat petrol on this mixture. In a mixture of 20% absolute alcohol and 80% petrol, the higher latent heat of alcohol becomes an important factor. Although alcohol has lower calorific value, the effectiveness of a mixture of 20% alcohol and 80% petrol is the same as that of ordinary petrol and the consumption of the mixed fuel per litre is also practically the same.

A 20% power alcohol and 80% petrol mixture does not allow any tendency for separation of alcohol and petrol at temperatures in India. Also, there is no longer, whatsoever of such a mixture separating out on account of absorption of water by alcohol owing to hygroscopic property of the latter.

Superior

The 20% alcohol and 80% petrol mixture is superior in performance to neat petrol. It has octane value higher than that of petrol and consequently anti-knock properties It is more volatile and the engine can be started in cold more easily; it has a higher latent heat and can bear higher compression; the power output of the mixture is for all practical purposes the same as that of petrol.

It deposits less carbon in the combustion chamber of the engine; and it does not have any more corrosive effect than straight petrol.

The High Powered Committee on Agricultural Policies and Programmes appointed by the Ministry of Agriculture. Government of India in February, 1990, had in its Report (July 1990) recommended :

> "The Green Revolution was short-lived in India because it depended on conventional sources of energy to intensify agriculture, fuel to run tractors, fertilizers, diesel oil and electricity to run irrigation pumps, which are all expensive. While these cannot be discarded forthwith, new and renewable sources of energy, and other means of sustaining productivity in agriculture will have to be found. If Brazil can run its transport on ethanol, why cannot India run its small tractors and irrigation pumps with energy prouced in farm sector itself?"

The Committee said that production potential of ethanol in the country is immense in view of the fact that 1000 kg sugarcane stalk gives a total yield of 120 kg of ethanol. Taking into account the cane production in India as 56 tonnes per hectare, an average of 6.72 tonnes (8,400 litres) of ethanol could be derived per hectare of cane cultivation.

Raw Material

Besides sugarcane, other crops such as sugar beet and sweet sorghum yield sugar juice and the residual biomass, both of which could be further treated to produce ethanol. The Committee says that any material which is capable of being fermented by enzymes can serve as a source for production of ethanol and adds that besides sugar containing materials, starch containing and cellulose substances could also be used in its production. Starch containing materials are milo, corn, algae, cassava, etc. and cellulosic materials include bagasse, biomass, wood and wood waste, agricultural and forest residues, industrial waste products like sulphite liquor from paper and pulp industries and saw dust and saw waste from saw mills, etc. According to the Committee, there are several farm crops capable of being used as raw materials in the fermentation process leading to ethanol production. Stating that a veriety of raw materials drawn from the vegetable would and widely grown crops are capable of fermentation into ethanol, it says starch based feedstock include a variety of cereals and grains.

On an average, one tonne of potato yields around 100 litres of ethanol, over 45 kgs of dried ice and some 90 kgs of dried cattle feed, while 10 bushels of corn yield around 117 litres of ethanol, over 72 kgs of dry ice and 83 kgs of dried cattle feed. As regards cellulosic material, the Committee says that bagasse appears to be the most suitable choice for use as feedstock. Six thousand kgs of bagasse is required to produce 1000 litres of ethanol of 95% strength. Rice and wheat straw which are available in large quantities are also potential feedstocks for ethanol production.

Obviously, we cannot think of using food materials for production of ethanol. Molasses is the most commonly used feedstock for ethanol production. In India, sugarcane is the principal crop used for sugar production. The yield of cane molasses is related to sugar production. It is the main source of ehtanol in the country.

Brazilian Experience

It may be worthwhile at this juncture to cite the experience of Brazil in the use of ethanol as motor fuel. The oil crisis of 1973 strongly affected the Brazilian economy as the country was importing about 80% of its total demand of oil. Secondly, the price of sugar dropped to a very low level. The combination of these factors served as a big incentive to look for an instrument that could help solving the problem of using idle capacity of the agro-industry and help evolve a substitute for petroleum. The increasing price of imported oil from 4 US $ per barrel in 1973 to about 30 US $ per barrel in 1984, began to tell on the country's economic development. In November 1975, Brazil's National Alcohol Programme—the first large-scale renewable fuel initiative in the world—was launched. The programme's first objective was to blend 20% ehtanol into gasoline, using the idle milling capacity of the existing sugar plants. The programme include construction of autonomous distilleries, designed exclusively to produce ethanol directly from sugarcane juice. Simultaneously, the Brazilian Government through its Aeronautics Technological Centre, sponsored research for the development of an auto cycle engine powered by neat hydrous ethanol (185° proof). Sale of alcohol fuelled vehicles started in 1979 and by December 1984, 1,800,000 automobiles (17% of the total fleet) were running on neat hydrous ethanol, a number that was rapidly increasing. Further, 22% of ethanol was blend with the gasoline used by the remaining fleet. Ethanol powered trucks are being used to transport sugarcane and in urban delivery systems. Ethanol tractors are ploughing fields around the distilleries and sugar mills and its use is being spread to soyabeans and other crops. In Brazil, ethanol serves as an additive to and as a substitute for gasoline. As an additive 22% of ehtanol is blended with gasoline (1984). As a

substitute, ehtanol is the fuel used by neat ethanol vehicles all over the country. Brazil's automabile industry greatly improved efficiency of the ethanol vehicles. The increase in world price of oil had its impact on price of gasoline and thus reducing automobile sales. It is widely recognised today that the restriction of sales would have even much bigger if it were not for the development of neat ethanol cars. In 1979, the ethanol technology was available only for passenger cars, today, the technology change has reached even heavy tractors and trucks.

The social impacts of the increased production of ethanol has been significant. Until 1984, about 423,000 direct jobs were created by the Alcohol Programme and more than 180,000 indirect jobs emerged in related industries. And more importantly, the programme has reduced rural imgration to the already over-crowded urban centres. Brazil pioneered the substitution of lead in gasoline by a natural alternative additive. Using ethanol as a substitute, noticeable environmental improvement has been achieved in Brazilian cities. A research study reveals that between 1978 and 1984, the concentration of lead in the atmosphere was reduced significantly.

Lessons For India

In India, ethanol is mostly produced from molasses. At present, around 4.3 million tonnes of molasses is produced in the country (1989-90). Including the stocks from the previous year, the total availability of molasses during 1989-90 was 5.03 million tonnes. Of this, 4.5 million tonnes was distilled to produce alcohol (both potable and industrial), and the rest for cattle feed and other pruposes. Production of alcohol increased from 449.23 million litres in 1976-77 to 926.6 million litres in 1989-90. The efficiency of conversion of molasses into alcohol is not at a sufficiently satisfactory level. There is scope of improving the present yield of about 200/220 litres of alcohol from one tonne of molasses to a yield of at least 240/260 litres per tonne. With this efficiency, the availability of alcohol can easily increase by at least 75 million litres. Further, at present, khandsari molasses, production of which is around 6-7 lakh tonnes, is not being converted into alcohol. If even 75% of khandsari molasses is utilised for production of alcohol, another 100 million litres of alcohol could be made available. Thus, the total availability of alcohol in the country could easily be of the order of 1100 million litres per annum. The existing 135 odd distilleries are presently operating at 44–45% of their installed capacity can be geared to produce around 1500 million litres of alcohol by raising their capacity utilisation. India's 35 million tonnes of agricultural waste can be tapped to give another 1600 million litres of alcohol.

As pointed out earlier, the technology for using a component of about 20% of ethanol with petrol or diesel in the automobile engines is already well established in Brazil and elsewhere. In India, under the Department of Non-Conventional Energy Sources Programme, a fleet of buses is running on about 15–20% ethanol and 80–85% diesel. The question is of the total availability of ethanol in the country to meet the expanding needs of the chemical Industry as well as transport. Efforts are under way to increase production of ehtanol not only from molasses but also other raw materials, including cassava, forest residues, etc. At the same time, research needs to be encouraged to produce ethanol from cellulosic raw materials such as baggasse as also rice and wheat straw. By these measures, the additional quality of ethanol can be ensured at a reasonable cost over and above the quantities required for the chemical industry. This would make it possible to reduce at least up to about 20% the consumption of petrol and diesel in the transport sector and for stationery engines for pumps as well as tractors in the agriculture sector.

It is generally considered that the cost of production of ethanol is higher than the landed cost of imported oil. This question would have to be referred to the Bureau of Industrial Costs and Prices. At the same time, the selling price of petrol/diesel and ethanol as available to the consumer depends upon the tax structure for these items. Even if we assume that the cost of production of ethanol is higher than the landed cost of oil, at least the former would be available from indigenous sources without a drain on the precious and scarce foreign exchange reserves. The supply of ethanol at reasonable prices could be ensured to the users by necessary administrative and fiscal measures. □

The author is an Industrial Consultant, New Delhi.

Yojana invites articles of topical interest. Anecdotes from true life concerned with any aspect of progress are welcome.

Development Diary

Computer Hardware

The export of computer hardware increased from Rs. 243 crore in 1989 to Rs. 297.5 crore in 1990. Some of the specific steps being taken to boost computer hardware exports are :

(i) Electronic industry, including computers will be entitled to additional EXIM Scrips of 10 percentage points, thereby taking the total EXIM Scrips rate to 40 per cent of FOB value.

(ii) EXIM Scrips entitlement in case of Export Oriented Units (EOUs) and Export Processing Zones (EPZs) as well as computer soft-ware has been made 30% of the net foreign exchange.

(iii) The procedure for considering advance licence applications has been simplified to ensure that advance licences are issued within 15 days.

(iv) The advance licence without any monitory limit but against the legal undertaking will be issued to export/trading/star trading houses and public sector undertakings. All manufacturing units having an annual turnover of at least Rs. 5 crore during the previous three years would also be able to avail of a value limit of 50% of the annual production.

(v) Established exporters will be allowed to open foreign currency accounts in approved banks and allow the exporters to raise external credits to pay for export related items.

In addition, the following steps have also been taken :

(i) The minimum percentage of value addition for export of computer hardware has been reduced to 15 per cent. This has been done to boost export of hard currency area.

(ii) The units are allowed to expand their capacities and broad band their products so as to achieve economies of scale at the international level and optimal use of capital equipment installed.

New Catalyst

The National Chemical Laboratory (NCL) Scientists at Pune have developed a catalyst to convert natural gas to kerosene and diesel and demonstrated its feasibility on a laboratory scale. The project of putting up a one tonne per day pilot plant for the process has been funded by the Centre for High Technology, Government of India. The plant is being set up by Bharat Petroleum Corporation Limited (BPCL), Bombay, based on the design of NCL and a private company.

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Nehru : Many Things To Many People

Amongst the thousands of men, women and children who turned up to greet Jawaharlal Nehru on his 69th birthday was a blind man. He was born blind and all he knew of changes that had taken place in the country was what his friends and relations had told him. "I may not be able to see but I am not all that blind," he said simply, "I know what Nehruji has done for the country. If there are any who do not, surely they see even less than I."

Nehru is many things to many people : freedom-fighter, scholar, statesman and leader of men. More than any of these he is the builder of modern India. He is the 'chacha' of millions of India's children and the father of India's Five Year Plans.

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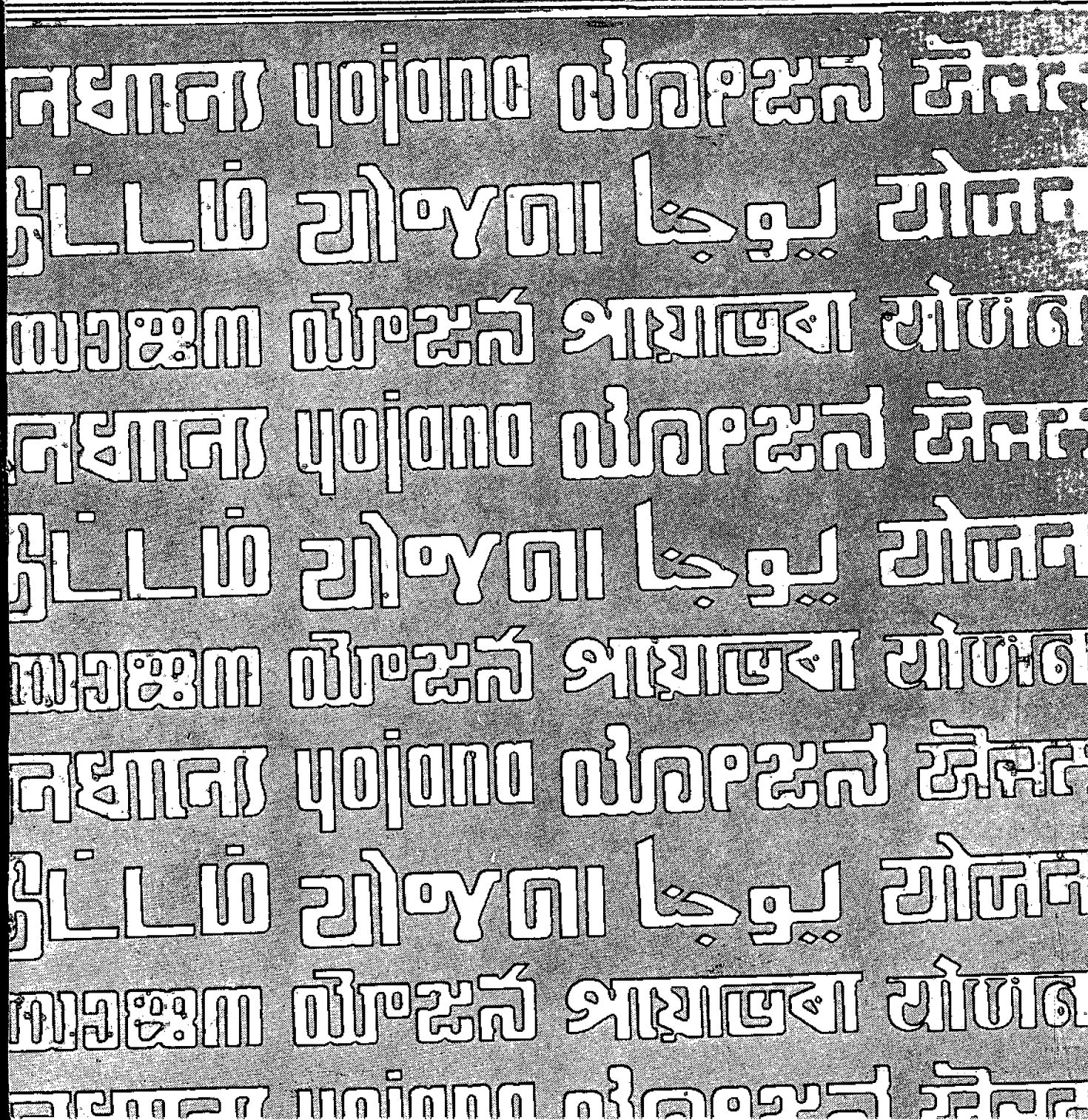

Development Diary

Experts Committee

The Government has constituted a high level Committee of experts headed by Dr. Raja J. Chelliah, Chairman, National Institute of Public Finance and Policy, to examine the structure of direct and indirect taxes. Among others, it will make recommendations for making the tax system more elastic, broad-based and suggest measures for simplifying the existing laws and regulations to facilitate better enforcement and compliance. The Committee will submit an interim report to the Finance Minister by 30th November, 1991 and its final report by 29th February, 1992. The terms of reference of the Committee are :

(i) Ways of improving the elasticity of tax revenues, both direct and indirect, and increasing the share of direct taxes as a proportion of total tax revenues and of GDP;

(ii) making the tax system fairer and broad-based, with necessary rate adjustments, particularly with regard to commodity taxation and personal taxation;

(iii) rationalisation of the system of direct taxes with a view to removing anomalies, improving equity and sustaining economic incentives;

(iv) identifying new areas of taxation;

(v) ways of improving compliance of direct taxes and strengthening enforcement;

(vi) simplification and rationalisation of customs tariffs with a view to reducing the multiplicity and dispersion of rates and to eliminate exemptions which have become unnecessary;

(vii) reducing the level of tariff rates, keeping in view the need for mobilising resources to facilitate fiscal adjustments and the objective of promoting international competitiveness;

(viii) simplification and rationalisation of the structure of excise duties for better tax compliance and administration; and

(ix) the scope of extending the MODVAT scheme.

IRCON Steams Ahead

The Indian Railway Construction Company Limited (IRCON), a Public Sector Undertaking under the Ministry of Railways, has registered an all time high turn over of over Rs. 246 crore during 1990-91, outstepping its last year's performance. With this the company has crossed Rs. 1600 crore mark in its cumulative turn over. The company has been earning profits continuously for 14 years and registered a sizeable gross margin (profit before tax, depreciation and interest) of Rs. 28.63 crore during 1990-91. In a very eventful achievement during the year 1990-91, the company secured five foreign contracts—three in Malaysia and one each in Indonesia and Bangladesh, totalling over Rs. 130 crore.

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Intellectual Property Rights And Developing Countries

Dr. Bimla Nayyar

THE property created by exercise of the intellectual faculty is known as the intellectual property. The intellectual property is broadly divided into four categories : Patent, which relates to monopoly; (b) Design, which relates to monopoly right on industrial designs; (c) Trade Mark, which relates to monopoly right in marks to be used in relation to goods to distinguish it from other goods in the course of trade and (d) copyright, which relates to exercise of monopoly right on original literary, artistic, dramatic and musical work, cinematographic film and records.

All these species of intellectual properties have many common characteristics. As against movable and immovable properties, the intellectual properties in general are intangible by nature. The basic drawback of these properties is that once the details thereof are communicated to another person it is easily copied by others and the property does no longer remain confined to the creator. All these properties are generally created by the State by enactment of necessary statutes. In India, the grant of patent on invention is at present regulated by the Patents Act, 1970 and the Patents Rules, 1972; the registration of industrial designs is regulated by the Designs Act, 1911 and the Designs Rules, 1933; the registration of Trade Mark is governed by the Trade and Merchandise Marks Act, 1958 and Trade and Merchandise Marks Rules, 1959 and registration of copyrights is now administered by the copyrights Act, 1957 and the Copyrights rules 1958.

The nature of rights conferred by these statutes are negative in character because these laws prevent others from exercising the property rights without proper authorisation. Again each of these species of intellectual properties except trademark is of limited duration. In other words, the author is entitled to be rewarded for the time, labour and money spent in creating the property but ultimately property is required to pass to public domain for due exploitation and marking further development thereon to ensure economic progress of the country as a whole. Generally each country has its own patent and each of such property rights can not be exercised in any foreign country unless necessary protection for such properties has been obtained in those countries. The last but not least characteristic of the intellectual property is that each of these properties can simultaneously be exercised by a plurality of persons. When combined with other characteristics as to territorial in jurisdiction, intellectual property rights provide the industrially advanced countries with a vital weapon for commercially dominating and economically exploiting poor and developing countries.

The Paris Convention

The need of a patent system in an industrial country has been quite different than that of a developing country. Traditionally the developed countries have been advocates of strong patent protection system for establishing their monopolistic regime while the developing countries have been advocating that the system should be so designed as to help in the development of manufacturing facilities indigenously. The Paris Convention is an International Treaty

signed in 1883 basically to protect the interests of the industrially advanced countries. The original text of the Convention has been revised in over 100 years only six times, starting with the Brussels Conference in 1900 and ending up with the revised Act of Paris Convention at Stockholm in 1967.

Highlights

The salient features of the existing Paris convention are ;

(i) The convention provides for patenting of products and processes and its scope extends to industry and commerce, agriculture, extractive industries and natural products.

(ii) Patent Rights on importation, improvement and addition.

(iii) A Compulsory Licence can be applied on the ground of failure to work for insufficient working after three years of grant. It shall, however, be refused if the patentee can justify inaction by advancing reasons;

(iv) Revocation proceedings can be instituted two years after the grant of Compulsory Licence. These proceedings can be delayed for any length of time;

(v) Right of priority is extendable for 12 months in all member countries from the date of registration of a Patent in any one country (this will exclude all related/relevant Research achievements even if they have been accomplished within even a marginal delay).

(vi) Member countries have to assure effective protection against unfair competition which includes reasons contrary to honest practices, and

(vii) Denunciation of membership is not possible for atleast 6 years after joining the Convention.

India has resisted pressure for becoming a member of the Paris Convention mainly because the philosophy of Indian Patent System does not match with the provisions of the Paris Convention. If India has to join the Paris Convention it would be forced to amend its patent Act of 1970. In this connection, it may be pointed out that the Science Advisory Council to the Prime Minister constituted a Study Group on Patents in 1986 to examine the issue. The Study Group in its recommendation said that nothing should be done to undermine the supremacy of the Indian Patent Act of 1970. Similar views have been expressed by various chambers of Commerce and Industry. Eminent jurists, economists, technocrats, scientists, experts who participated in a seminar organised on November 22, 1988 to study the Indian Patent Act and the feasibility of India signing the Paris Convention said in one voice that in joining the Paris Convention India would be at disadvantage on every aspect of our economic growth and development.

Indian Patent Act

The salient features of Indian Patent Act Are : Patent confers upon a patentee, specified monopoly rights for a limited period in respect of an invention. The monopoly right is limited by the statement of claims accompanying the specification. It consists of rights to make, use, exercise, sell and distribute such articles or substance in India in relation to patent process. The Act disallows product claims in respect of food, medicine or drug and substances prepared by chemical processes including alloys, optical glass, semi-conductors and intermetallic compounds. The Act allows import of articles made by using patented process under following circumstances :

(a) Any article made by using a process patent can be imported by Government for its own use.

(b) The medicine or drug made by patented process can be imported by Government of its own use and for distribution among notified dispensaries.

(c) While granting compulsory licence, a licensee may be authorized by the controller on directions from the Central Government to import the article or substance made by a patented process from abroad.

Under the Indian Patent Act a patent can be used with impunity by any person for research and teaching purpose; by Government merely for its own use and in the case of patent relating to medicine, drug, the medicine or drug can be imported by Government for distribution through notified dispensaries. All the aforesaid uses relate essentially to non-commercial use.

Patent rights in respect of inventions other than for food, drug or medicine extend upto 14 years from the date of patents. In respect of inventions relating to food, drug

and medicine the duration is seven years from the date of patent or five years from the date of sealing whichever is shorter.

The aforesaid patent rights become operative with retrospective effect from the date of filing of complete specification. Though the possibility of the patent application being post dated to a subsequent date can not be completely ruled out.

A non-patentee can use the patent with the approval of patentee. A compulsory licensee is also entitled to exercise the patent rights in terms of compulsory licence granted by the Controller. But after the expiry of three years from patent grant, the Central Government can take away any patent on the grounds of reasonable requirements of public interest and that the invention is not available to the public at a reasonable price.

The patent ceases before the expiry of the full term if the patent is surrendered for non payment of renewal fee; revocation by Court or by Controller in atomic energy cases. Revocation can also be done in public interest and due to the non working of the patent.

Burning Issue

The US and some developed countries have long been maintaining that the patents regime in developing countries should be changed to cover product patents, as distinct from the guarantees that the latter today provide on processes. If patent laws cover products, the poorer countries will be at the mercy of the large corporations in the matter of introduction of new products and their pricing.

Under the present Indian laws, a foreign holder of any Indian patent must provide guarantee that the product which the patent relates to will be produced in the country so as to ensure that the country derives the benefit of a production unit being set up. The US view that the requirement on working should be substituted by a guarantee on availability, does not clearly satisfy the same safeguard that Indian patent laws seek to provide. It will also deny to the poorer countries modern practices in areas like agriculture and health or the modern technology would be made that expensive as will go beyond the reach of the poorer nation. The US demand that the burden of a poor be reversed so that it would be upto to a producer to prove that he has not violated patent rights will also impose fresh burdens that the third world would find difficult to bear.

Since the end of the Second World War, the question of intellectual property rights has been defying all attempts to tackle because the two major parties involved in the search for an appropriate answer have sharply differing perspectives and approaches. This is because their interests and needs are not the same. In fact, the world correlation of forces and objective conditions have so changed that the old approach to the question and erstwhile solutions have become irrelevant.

The new nations who have won political independence want to transform their societies and economies in such a way that makes their political freedom secure and meaningful to their citizens. They have been trying hard to overcome their inherited backwardness and accelerate the pace of economic development in order to build independent economies of their own. But developing countries are, today, dependent on advanced countries for all kind of modern technology. This technological dependence is not due to the fact that the people of developing countries have been congenitally incapable of bringing about technological innovations, and make inventions and discoveries, but it has been caused by the lack of political independence for a long time. The vast masses of humanity under the colonial domination became dependent on developed countries for technology because they were not in a position to develop their own educational system, especially scientific and technical education and there was no possibility of their setting up laboratories and research stations. Their economies were backward and operated on traditional technology, which was by and large out-dated, and as a result they could not spur technological innovations and were in no position to pay adequate attention to Research and Development. Therefore, most of the productive enterprises of developing countries remained dependent on imported technology even if it was not latest or appropriate. Another major defect of scientific and technological research efforts in developing countries is the inability to upgrade traditional technologies through modifications or innovations to adapt them to meet the current requirements. In a number of countries, the initiative and innovative zeal of researchers throttled and the lack of job satisfaction or lure of better prospects drive them to migrate to developed countries. Unless the developing countries secure advanced technologies, suitably adapt them to meet their requirements, all their attempts at their economic modernisation will come to nought.

The developed countries regard the technological innovations as part of their property system and try to restrict their transmission and use by others without extorting high

prices. They have a number of mechanisms to protect their intellectual property rights, but historical evidence is otherwise. Only during the 18th century after the Industrial Revolution, the need for a patent system began to be felt. The intensity of this need became greater when a number of countries of Europe and North America began industrialising. The government started granting a right to inventors for a fixed period, during which they could prevent others from using the patented technologies, processes, etc. and manufacturing and selling the patented products. Obviously, the mechanism of patent affected a variety of interests which were never identical.

A patent was defined as a statutory privilege granted by the government to inventors and to other persons deriving their rights from the inventor, for a fixed period of years, to exclude other persons from manufacturing, using or selling a patented product or from utilising a patented method or process. At the expiration of the time for which the privilege is granted, the patented invention is available to the general public or, as it is sometimes put, falls into the public domain. Hence a patent and other intellectual or industrial property rights are statutory rights or privileges created, by law through a statute. The term patent right is a misnomer or at any rate is misleading insofar as it suggests that there is an inherent right to protection of intellectual property rather than one conferred as a statutory right. Having stated what patents are, it is pertinent to analyse what the Paris Convention does. The convention is over hundred-year old. It has neither a preamble nor a statement of objectives. Article 1 of the Convention, however, makes clear that it is intended for the protection of industrial property. This statement makes it abundantly clear that the convention identifies its interest with the patent-holders rights. Beyond this, there is no recognition of public interest that is expected to be served by the system of patents and negligible remedial measures to counter possible abuses.

What are the main features of Paris Convention? First there is the much vaunted equality of nations treatment clause, which affirms equality between different nations on patent rights. This principle would be unexceptional if the contracting parties were at the same state of development, and there is at least a semblance of exchange of patent protection. However, most developing countries are economically poor and technologically inferior. When contracting parties are unequal, a rule of equality treatment only serves to strengthen the stronger party at the expense of the weaker party. This imbalance can be illustrated by the fact that nationals of developing countries collectively hold one per cent of patents granted worldwide, whilst foreigners—mainly multinational corporations—hold 84 per cent of the patents granted in developing countries. This rule of equality conflicts sharply with the rule of public policy developed after the Second World War where preferential treatment has been recommended for developing countries.

Another disturbing feature of the Paris Convention is that it sustains the monopoly principles. This principle is against the primary concern of developing countries, that is, need to produce goods indigenously for their consumption without external dependence. Article ten of the Convention provides protection to the patent holder against what the developed countries called unfair competition and its inflexibility. If any one wants to revise any patent a full consensus is required of all signatory nations. Any attempt to modify the Convention to meet the needs of the developing countries can easily be sabotaged by the developed world. Developing countries like India require modern technology which is possessed in full measure by the Group of Seven countries and these countries do not find the present policy that limits life of the their patents to barely five to seven years, very "inviting" when they can find markets elsewhere with much longer patent life. They want to link their intellectual property with the direct investment which many developing countries may not find economical.

Many Third World countries have in fact signed the Paris Convention but the patent holders are unable to enforce their rights as they have legal systems which do not permit the enforcement of private rights. In this respect India is peculiarly vulnerable inasmuch as private rights of foreign patent holders can be enforced in our courts unlike in countries like China and many East European countries. The patent holders are more concerned with capturing markets of the developing nations for their own benefit rather than transferring technology for the benefit of the developing countries. The imposing of restrictions on imported technology create two kinds of difficulties for the importing countries. First they inhibit domestic production within developing countries. Secondly monopoly over imports reduces competition even on the external side and often leads to higher payment for imports. The record of pharmaceutical multinationals

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Commercial Papers : Opening New Vistas

T. Mallikarjunappa

The monetary instrument, commercial paper, is cheaper compared to bank credit. It is to the advantage of established companies and holds prospect for small investors, says the author. He says, it would be in the larger interest to ensure sound development of commercial papers.

FINANCIAL disintermediation has been gaining momentum in the Indian Economy. The Reserve Bank has been giving a definite direction to this trend through its policy initiatives. The introduction of commercial paper (CP) from January 1, 1990, has been one of the important policy initiatives of the RBI towards disintermediation process. The RBI intends to bring the high credit worthy corporate borrowers and the investors into direct contact through the scheme of Commercial Papers (CPs).

Commercial Papers are not entirely new. This scheme is in vogue in most of the industrialised countries. What is CP? CP is a usance promisory note issued by a company, whether in private sector or public sector, at such discount/interest as may be determined by the issuing company and negotiable by endorsement and delivery.

Reserve Bank of India has laid down strict guidelines for issue CPs. Some of the norms have also been relaxed by the RBI from time to time. As per the latest guidelines, companies have to satisfy the following criteria to be eligible to issue CPs :

a. Minimum tangible net worth of Rs. 5 crore and a current ratio of 1.33 : 1 as per the latest audited balance sheet.

b. Eligibility for a fund-based working capital limit (maximum possible bank borrowings) of Rs. 10 crore.

c. Listing of company's shares in a recognised stock exchange. This condition is applicable to private sector companies only.

d. A credit rating of P1 by the Credit Rating and Information Services of India Ltd. (CRISIL). The rating should not be more than two months old as on the date of issue of CP.

e. Classification under health code 1 by the company's financing bank.

f. The maximum permissible borrowing through CP is limited to 30 per cent of fund-based working capital limit.

The RBI has stipulated the above strict guidelines because of the fact that CP is an unsecured promisory note and the investor depends entirely on the credit worthiness of the issuing company. In the light of this background an attempt is made in this paper to discuss the implications of CPs in India. Implications for two distinct groups——borrowers (companies which issue CPs) and investors——are discussed below.

Implications

Any company which satisfies the criteria laid down by the RBI is eligible to issue CPs in India. The RBI guidelines imply that only the large companies with very high credit rating would be able to borrow money through CPs. It is very interesting to note that the RBI has tied the issue of CPs to working capital finance by commercial banks. Consequently, the company which issues CPs has to forego the working capital loan from commercial banks to the extent of money raised through CPs.

The RBI has directed that the maximum amount that can be raised through CPs is limited to 30 per cent of maximum permissible bank borrowing (working capital limit). This means that the companies can either borrow the remaining 70 per cent from commercial banks or from other sources. Moreover, commercial banks are required to revive the working capital limit after the CPs mature for payment. So CPs can only supplement but not supplant the working capital finance of companies.

The cost of working capital funds of the companies which borrow through CPs is likely to be lower than the interest on bank finance. The average interest rate on funds raised through CPs (upto August 24, 1990) ranged between 11.87% and 13.32%. This is much lower than the interest rate of 17% (announced by the RBI in April 1991) charged by commercial banks. Although the borrowers have to incur additional costs like rating agency fees, dealer's fees to merchant bankers, fees for stand-by facility, and cost of printing and stationery, these may not exceed 1.25% of the face value of CPs. This would mean that the aggregate cost of short term funds raised through CPs would be in the range of 13.12% and 14.57%. So we can assume that the cost of funds raised through CPs would be about 2.5% less than the cost of funds obtained through commercial banks. This analysis shows that a company which issued CPs could effect a saving of about 2.5% of the face value of CPs.

Currently, companies have to face one important problem in issuing CPs. The RBI has stipulated that the minimum and the maximum duration of CPs shall be three months and six months respectively and a company has to go through all the procedures each time it issues CPs. There is no revolving facility at present. However, a welcome development in the direction of liberalisation is that the RBI, in its directive, April 1991——Lean Season Credit Policy, has dispensed with the requirement of taking its prior approval for issuing CPs. This means that the companies can avoid a part of the administrative delay in issuing CPs.

The rigid guidelines of the RBI have restricted the number of eligible companies to issue CPs. As on August 24, 1990, the number of companies which borrowed through CPs stood at 18. The aggregate amount of CPs outstanding as on this date was Rs. 188 crore. The relaxation of norms by the RBI is likely to increase the quantum of CPs.

However, commercial banks would continue to finance working capital to a very large extent. Even the companies which issue CPs would continue to depend on commercial banks for the remaining 70 per cent of working capital limit. It is also possible that those companies which are unable to raise funds through CPs during a slack season would come back to commercial banks. So commercial banks may charge higher rate of interest for those borrowers who went around for cheaper funds when banks were flush with money and came back to the latter during slack season. Commercial banks may also charge higher rate of interest for reinstated portion of working capital limit after the maturity of CPs. If this happens, the companies are likely to lose a part of their savings in interest, effected through the issue of CPs. This would increase the cost of working capital funds of the companies. But this increase would be much less than the savings in the cost of capital effected through CPs.

For Investors

Any individual, company, bank and other registered body, both incorporated and unincorporated, is eligible to invest in CPs. Non-Resident Indians (NRIs) are also eligible to invest but only on non-repatriable and non-transferable basis.

Considering the fact that the minimum amount to be invested by a single investor is Rs. 50 lakh (previously Rs. 1 crore) and the minimum denomination of a CP is Rs. 10 lakh (previously Rs. 25 lakh), it is very unlikely that individuals would come forward to subscribe to CPs. So this is likely to be a domain of institutional investors like LIC, GIC, UTI, commercial banks and other companies. However, the Lean Season Credit Policy of the

RBI contains an optimistic note about the development of secondary market for CPs. RBI has proposed to permit commercial banks and their subsidiaries to set up money market mutual funds (MMMFs) to popularise short term money market instruments like CPs. Individuals and other small bodies can invest in MMMFs in the form of negotiable or transferable instruments with a minimum lock-in period of three months. It is hoped that CPs would become accessible to individual investors through MMMFs.

CPs would be a good avenue for institutions like LIC, UTI, GIC etc., which may have excess short term funds to earn a higher rate of interest.

Impact on commercial banks would be of two dimensions. One is that commercial banks themselves can invest in CPs and show this as short term advances on the asset side of the balance sheet. The other dimension is that the banks are likely to lose interest on working capital loan which was hitherto being lent to the companies, which have, now started borrowing through CPs. However considering the quantum of CP issue, the loss may not be substantial. If commercial banks can bank on this opportunity, they can earn more service charges for providing stand-by facilities, and issuing and paying agency commission for CPs.

The asset portfolio of commercial banks is likely to be affected by CP scheme. The large borrowers who have high credit rating may opt out, at least partly (to the extent of CPs issued by them), from the balance sheet of commercial banks. So the quality of the loan portfolio of banks, which is already in a very bad shape, is likely to deteriorate with a lowering share of high credit worthy borrowers. But this should not be a cause for panic as long as the quantum of CP issue is very limited. As the banks themselves can invest in CPs, it will have another effect on the asset portfolio of banks. Banks can be very sure of recovering the money invested in CPs, whereas there is some uncertainty associated with the loan lent in the ordinary course of business. So this aspect is likely to have the effect of showing better quality of assets on banks' balance sheets.

As CPs are negotiable instruments, a part of the loan portfolio of banks would be securitised. But this would happen only when efficient secondary market develops for CPs. Despite the limited amount of CPs issued during 1990, some secondary market transactions have taken place (RBI Bulletin, March 1991, p. 38). The secondary market transactions for CPs are likely to gain momentum once the MMMFs, as envisaged by the RBI, come into being.

Even though commercial banks would continue to play a significant role as a financial intermediary, their market would be different. Moreover, banks are likely to look for more and more merchant banking activities to stay in business. The growth of CPs is likely to open new merchant banking avenues to commercial banks.

Significant Changes

Financial liberalisation policy of the RBI has brought about many significant changes. The introduction of commercial paper is a trend towards securitisation process. The basic feature of securitisation is that money is raised from investors in the form of negotiable securities. CPs would open new vistas for highly rated companies to raise money directly from the investors at a cost of capital which is less than the cost of bank credit. Although the RBI has been criticised for its strict guidelines, it should go slow in relaxing the norms. The main aim of the RBI, commercial banks, other financial institutions, and the investors should be to ensure that commercial paper develops as a sound money market instrument. Therefore, in the initial stages the emphasis should be on quality rather than on quantity. Chambers of Commerce, trade and industry associations should lend a helping hand to the RBI in ensuring the sound development of CPs. The proposed MMMFs have a significant role to play in this direction. Smaller investor would now be able to invest in CPs through MMMFs. □

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Banking : Challenges Of Nineties

N. Ramachandran

The study lists the reasons for the declining trend in profitability of banks. There is an urgent need for stemming the rot, argues the author, by putting a check on mounting expenses and a conscious effort to improve efficiency by profit planning at micro and macro levels. With the burgeoning capital market and proliferation of monetary instruments, it is to be seen how the banks gear up to the challenges of adequate deposit mobilisation, credit deployment and profitability in nineties.

WITH the administered rate of interest for deposits and advances the manoeuvreability for augmenting profits is rather limited. It is observed with concern that profitability of banks is on the decline. This calls for a radical as well as rational approach. This paper traces briefly the causes for declining profitability and suggests possible measures for arresting this trend.

Banking is a multi-service industry. Banks render services at different centres incurring different costs for the same service. The problem of pricing of bank services assumes great significance. However, it is not an easy job to arrive at the price of each service rendered by the banks. Efforts have been made in the past to arrive at the cost of various services rendered by them. Banking Commission of 1969, followed by the working group of RBI in 1976 (PEP) etc. have made some attempts in this direction. Similarly, SBI as well as some of the nationalised banks undertook the study of costing of bank services. SBI undertook a study in 1972 for analysing the cost of individual services like : Issue of Drafts, Issue of TCs, Safe custody lockers, etc. Unless banks are sure about prices of various services rendered, they cannot determine exactly at what rates they can charge to the customers. And without the knowledge about the cost of services rendered, they cannot also precisely plan for profits.

Banks are commercial organisations and they have to undoubtedly look for profits besides fulfilling social obligations. In fact, profit is an index of their operational efficiency. It, therefore, becomes necessary for banks to prepare profit budgets both at micro as well as macro levels. Profit budget should become part and parcel of overall planning process at corporate level.

It is pertinent to analyse the reasons for declining profitability in recent times :

— Increasing emphasis on social goals as a result of which banks have to lend funds at lower rates of interest. Around 20% of loanable funds are lent to priority sectors (at concessional rates of interest). Priority sector advances today constitute 45% of total bank credit, whose average yield is 11%.

— Increase in establishment cost due to various settlements. Hike in wages without commensurate increase in labour productivity is an important factor to be reckoned with.

— Increase in the incidence of irregular/overdue/

stagnant accounts. Similarly, increasing trend in overdues and bad and doubtful debts is observed. Invariably, in a majority of instances, funds are blocked at practically zero rate of return. Funds are also blocked in loans in court and decreed debts. It is a time consuming process to fight legal battles in courts.

— Substantial funds are locked up in sick units. Nearly Rs. 6,000 crore are blocked in sick units. Banks do not get any return practically for the funds so blocked. Here again nursing of such units under an approved rehabilitation programme calls for lot of patience, tolerance and undue sacrifice.

— Unfavourable deposit mix. Over the years the share of term deposits has been showing an upward trend. On the contrary the demand deposits have been showing a declining trend. This would mean raising resources by banks at higher cost. (Term Deposits to the total deposits increased from 49.3% in 1969 to 55.6% in 1986. Share of demand deposits (current) decreased from 23.8% in 1969 to 14.9% in 1986).

— Compliance to statutory requirements. Hike in SLR/CRR, both accounting for 53.5% of deposit resources. The average rate of return is hardly 7% on these reserves. This leads to liquidity crunch or tight liquidity situation whereby banks are constrained to limit their lendings under profitable avenues. Added to these, banks have to extend Food credit at concessional rates.

— Accent on rural branch expansion since nationalisation of banks. Rural and semi urban branches account for nearly 76% of total branch net-work in the country. Most of these branches are located in under banked and unbanked areas. Rural branches take a longer time to break even. Many of them incur losses on account of low yielding advances, unfavourable deposit mix, lack of scope for non-fund business or for augmenting non-interest income, high establishment costs and inability to improve business levels substantially. RBI's direction to get rid of loss making branches deserves attention.

— Growing incidence of financial disintermediation. There is an increasing awareness among middle-class to prefer capital market instruments. Also due to expanding financial market characterised by new institutions there is a spurt in such services. Preference of household sector towards real estates, gold, physical assets, LIC, UTI, PPF, NSC, NSS (On account of tax concessions) corporate deposits, debentures, public sector bonds, mutual funds, etc. Similarly, mega issues in the recent past have had a deleterious effect on the banks' savings mobilisation effort. Some of the blue chip companies directly enter the capital market and raise resources. Their dependence on the banking system is on the wane.

— Leakage in income.

— Increasing trend in investment in State/Central Govt. (approved) securities which are of low yield. Bank investments are of the order of Rs. 50,000 crore. Even a half per cent improvement in yield will mean an additional income of Rs. 250 crore.

— Cash Management/Funds Management. Heavy accumulation of cash yields no income. It is a security hazard besides resulting in penalty under SLR/CRR.

— Obsolete work technology. Archaic systems, procedures need a review to improve operational efficiency, especially in the wake of increasing bank clientele on account of rapid branch expansion. There is need for evolution of proper accounting systems, simplified systems and procedures for credit appraisal, documentation and follow-up of irregular loans. There is also need for redesigning of forms and cutting on innumerable returns/ statements. Diversification of business and phenomenal expansion in banking services call for a fresh look at systems,

procedures, etc.

— Narrowing down of scope and coverage of DIGGC in the recent past has made it difficult to cover the credit risk substantially. Premium rates have also gone up.

— Low Productivity is an efficiency index. Sagging employee morale and motivation lead to reluctance of staff involvement/ commitment. The Year 1982 was declared as 'Productivity Year'. However, productivity was at the lowest in that year. Working Funds per rupee of man-power expenses has shown a declining trend from Rs. 72/- in 1950 to Rs. 49/- by 1986. The second indicator is business volume per employee. Steps will have to be taken to evaluate performance on the following fronts:

- per employee deposits/ advances level
- per employee number of accounts—deposits/ advances
- no. of vouchers per employee
- per employee earnings/ expenses/contributions to profit
- revenue generated per man day and cost incurred for the same
- deposits, advances, business per branch
- no. of accounts under deposits, advances per branch.

Added to these, infrastructural supports like premises, furniture, equipment, stationery, vehicles, etc. deserve attention. Also administration cost of divisional offices/ regional offices/zonal offices/central office/head office.

— promotional expenses like public relations, publicity, advertising

— besides, care should also be taken of other costs like training, inspection etc.

— recovery management of non-performing assets.

Banks have to be prudent in asset management. It is observed that certain proportion of advances do not earn any return. The growing number of non-performing assets in the following categories deserve special attention : bad and doubtful debts, irregular overdues/sticky and stagnant accounts, suit filed/ decreed debts accounts sick accounts. As a result, recyclying/ recovery poses problems. The amount involved in sick industries is nearly 10% of bank credit. Similarly, percentage of overdues has been showing a rising trend. It is now around 20% of bank credit. The estimated loss of interest on account of non-performing assets is in the range of Rs. 200 crore. Overdues in the priority sector constitutes 25% (of which for SSI it is 22% and for agriculture 30%). Similarly, in respect of suit filed/decreed debt accounts, upto December, 86, cases pending in courts for 20 banks were 5.85 lakh. As for amount involved, nearly Rs. 3000 crore are locked up as on 30th June 1988, both in respect of suit filed/decreed debts of public sector banks.

Service charges also call for a review. No doubt, in the recent past service charges have been hiked to reasonable levels for the first time. There is still a need for review.

Stemming The Rot

An analysis of the above factors for declining profitability would reveal that banks have to have a conscious, continuous and innovative approach/search for profitable avenues of business. All out efforts have to be made to arrest declining trend in profitability. The watchwords for the banker in the nineties shall be : cut upsurge in cost; control expenditure; augment income; improve operational efficiency.

Suggestions

Factors of production have to be efficiently utilised. Productivity is measured by the rate of output per unit of input. However, diversity in the services rendered by banks make it difficult for measurement in terms of output. The volume of business is taken as output in the banking industry which is arrived at by working funds. Hence, it is the concern of the industry to improve the manpower productivity or increase the business volume per employee. Once we arrive at these relationships it would help us to determine the cost standards based on industry average. It would also lead to effective utilisation of manpower/personnel. There is need for improving productivity by also having a fresh look at systems, procedures, practices, etc. These would lead to work simplification and pave way for cost control. Training of bank personnel should receive attention. Steps should be taken to improve the morale/ motivation of staff.

A number of measures have been taken in the recent past by RBI/ Government which consist of :

(1) Stepping up rate of interest on Food Credit,

(2) Raising coupon rates on Central Government securities,

(3) Stepping up of interest paid on eligible CRR/SLR balances in excess of 3% of DTL, in stages upto 10.5%,

(4) Contribution towards share capital by Government etc.

(5) Optimum utilisation of scarce resources.

The areas for maximising returns are :

— Asset management-optimising its performance

— Better management of loans portfolio

— Conscious attempts to increase yield on investments (investment management)

— Maximisation of yield through proper selection of securities, switch operations and buy back

— Also to avoid capital depreciation

— Better cash/funds management

— Management of non-performing assets (recovery management to concentrate on top 20 borrowal accounts in each bank—also through follow up of health code—follow up of 100 major suits filed accounts, etc.)

— Also taking care of sick units by proper/timely monitoring. What is needed in these are : better co-ordination between Governmental agencies and banks.

— Profits out of interest should be spread out.

Interest spread is very thin. While the cost of funds has been going up, there is not much scope to augment interest income. Discretionary way of lending drastically reduced due to compulsions (social objectives, etc.).

— Bank management should be professionalised. Employees have to be imbued with a high sense of commitment.

— Banks should have to think in terms of restructuring/reorganisation.

— Cost effectiveness should be the sole aim in such an exercise so that banks can improve operational efficiency.

— Banks can think of improving income through ancillary business/non-fund business. There is a lot of scope for banks to tap this source.

— Identification of lose centres—basic weaknesses need to be identified. There is need for bestowing attention for improving income so as to improve profitability.

Adoption of realistic transfer pricing policy can be thought of.

— There is maximum lendings under IDBI/NABARD/RBI refinance schemes.

— Entering into new/innovative spheres like : Leasing, Credit Cards, Factoring, Venture Capital, Housing Finance, Portfolio Management, Mutual Fund, Certificates of Deposit, Investment Banking, etc.

There is also need for adoption of innovative marketing strategies.

— There is need for Governmental intervention/assistance to promote intermediation role by banks.

— There is the suggestion for tax exemption for revenue earned through export credit. (exporters are exempted from tax on their earnings. Why not similar concession for banks?).

— Upgradation of lending skills at appraisal/follow up stage.

— Pricing of bank credit in tune with the extent of risks involved. No doubt risk is inherent in banking. Presently high risk loan earns only a lower interest rate. Better to study/analyse risk factors and arrive at pricing policy.

— Computerisation/mechanisation to speed up operations in banks. There is urgent need for upgradation of work technology so that transactions could be carried on expeditiously. Electronic banking has revolutionised the banking operations in foreign countries. Speed, accuracy, timeliness etc. are the other advantages. Banks should gear up their administrative set up and work towards streamlining their operations.

— review of service charges. No doubt, there has been a hike in the service charges after a long interval. Still it is felt that costing of various services be undertaken with advantage and if need be, there is case for increasing the service charges.

It is imperative that banks control costs. In so far as interest on deposits is concerned there is hardly any scope with administered interest rate structure. However, with a slight change in deposit mix, control can be effected.

In case of administrative expenses which include establishment expenses, the scope is very limited. About other expenses what is needed is an awareness of the nature of costs and how to go about exercising control over them.

Coming to the revenue side, we have interest income and non-interest income. Even in the matter of interest income, there is very limited scope, as banks have to adopt rate of interst as specified by RBI. With increasing SLR, CRR and social obligations, banks are left with limited resources to lend at their descretion by charging commercial rates. A lot of skills are required to manage the asset portfolio to augment income. Prudent asset management, recovery management and through meticulous planning, the scope for augmenting revenue can be enlarged. No doubt, banks have to operate under a lot of constraints in their efforts to maximise revenue. Conscious attempts to be made to improve yield on investments. The critical part of asset management lies in bankers ability to optimise its performance. Competition has increased within the industry with the development of new institutions in the capital market. There are several innovative services. Foreign banks, for example, offer computerised services and have an edge over other banks.

With the rise in non-performing assets, profitability of banks has been very much affected. Recovery of substantial portion of their sources already lent poses problems.

All these call for profit planning at micro/macro levels. Banks did not feel the necessity in the past to focus attention towards profit planning/cost control.

Various stages are involved in preparation of a profit plan. In fact profit plan is an important segment in the performance budgeting exercise of banks. These include ;

- determination of profit objective for banking.
- preparation of forecasts based on key objectives.
- preparation of budget documentation based on directives, environmental assumptions.
- branch to prepare budget in the first instance. Similarly, departments to prepare budgets.
- branch budgets to be discussed at division level.
- after consolidation of all branch budgets by division, divisional budgets be discussed with respective executives.
- finalisation of bank budget by top management.
- as usual review of budgets—mid-term etc., and to take corrective action for shortfalls, if any.

As is common in any budget exercise, variation of ± 5% to 10% is tolerable. Any variations beyond this need closer look/examination for taking immediate corrective action. All these boil down to creating an awareness at every level on the cost effective functioning of banks.

It is customary to prepare income/expenditure budgets for final incorporation into the profit budget.

The exercise can be undertaken either at monthly intervals or at quarterly intervals, as decided by the top management. There is need for closer/meticulous scrutiny of the actuals with budgets at required intervals (depending upon the system in vogue in each bank—say monthly or quarterly intervals). The objective behind all these exercises is to maximise income, minimise expenditure and augment profits.

This is to be followed by ascertainment of actual costs—exercising control over expenditure—leading thereby to cost control. There is need for acceptance of profit goals, which is to be backed up by action oriented strategies. It is not enough if we come out with strategies but what is required is faithful application of the strategies to achieve the profit goals. Above all, there is need for monitoring/assessment of what has been achieved at required intervals (for taking corrective action) which would alone help to proceed in the desired direction. In short, costing/cost control is an important prerequisite for profit planning.

To recapitulate, banking industry is passing through a crucial phase. The subject of profitability has come into limelight on account of declining trends in profitability. All along banks have acquitted very well in meeting their targets/sub-targets under social objectives. They have been able to play a developmental role, keeping in mind the competing needs of the different sectors of the economy. Both in terms of qualitative/

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Service Area Approach—Key To Rural Lending : A Case Study

Dr. K. S. Ramola & Dr. K. S. Negi

AT the instance of the RBI, a field visit was made by the Chief Executives of the Public Sector Banks in the month of November 1987, in the rural areas of 88 districts in 21 states all over the country, to assess the impact which credit from banks has had on the overall economic development of the rural sector in general and agricultural production and productivity in particular. The findings of these field visits were discussed in a seminar organised by the RBI in January 1988. An important recommendation of the seminar was that, with the large network of rural and semi-urban branches, the time was opportune to adopt a system of assigning specific areas to each bank branch. This would enable the branch to have developmental orientation and concentrate on productive lending, thus contributing to development lending, thus contributing to development of specific areas assigned to it. Subsequently on the basis of recommendations of the committee, headed by Dr. P. D. Ojha, Dy. Governor, RBI 'Service Area Approach' (SAA) came into operation.

The SAA combines certain good aspects of both Lead Bank Scheme (1969) and Village Adoption Scheme (1970). While the Lead Bank Scheme focussed on district level planning of credit, SAA goes further down to micro level planning with village as the basis. Similarly while Village Adoption Scheme emphasised the adoption of some potential villages, SAA required the allocation of all villages to different bank branches for their systematic development.

The following are the objectives of SAA : (i) to improve the quality of lending (ii) increase in production and productivity; and (iii) increasing the income levels of rural masses. This approach envisages a planned and orderly development of identified villages earmarked as command area/ service area (about 15 to 25 villages) for each bank branch. This system also envisages concentrated attention by each bank branch on a specified area right from the assessment of credit needs to the development and effective monitoring of the credit taken, till its recovery. Under this new approach, the planning exercise will start at the grass root level.

The SAA involves five major aspects which are : (i) identification and allocation of service area for each branch (the villages assigned to branches will be termed as its service area); (ii) survey of villages in the service area for assessing the potential for lending activities and identification of beneficiaries for assistance; (iii) preparation of credit plan on an annual basis for the service area by each branch (iv) co-ordination between credit institution on the one hand and field level development agencies on the other on an ongoing basis for the effective implementation of the credit plans; and (v) system of continuous monitoring of progress in the implementation of the plans.

For the operational facility, area planning for the Service Area of a branch can be visualized in terms of the following broad sectors :

— Agriculture

— Allied Activities

— Rural Artisans, Cottage Industries, Small, Scale Industries

— Trade and Services.

Study Area

The present study of Service Area Approach (SAA) was conducted in Tehri-Garhwal district of Uttar Pradesh. Nearly 96 per cent (Census 1981) of the total population of the study area live in its 1938 inhabited villages. To provide banking facilities five commercial banks and one RRB are located in this study area. The total number of branches of commercial banks and Regional Rural Bank are 72 in its

rural and semi-urban areas. As per the objectives of SAA about 15 to 25 villages are allotted to each rural or semi-urban branches for intensive loaning. Each branch has conducted a door to door survey and assessed their credit and banking needs.

Against this background, an attempt has been made in this research paper to analyse the role of various agencies involved in this approach and to examine the performance of SAA in rural development process with particular reference to the rural areas of Tehri-Garhwal district.

Primary and secondary data have been collected to reach the conclusion of the present study. The data relate to two years from 1989-90 and 1990-91. In the figures of S.S.I. Trade and Services include the figures of semi-urban areas which is not in the area of Service Area Approach. Information was collected through the personal investigations partly, and questionnaire schedule techniques have been followed in support of it.

Performance

The overall achievements of all the commercial banks and RRB during the year 1989-90 under SAA was 54.55 per cent (commercial banks 64.71 per cent and RRB 32.16 per cent). This has increased in the year 1990-91 to 101-05 per cent (commercial banks 100.24 per cent and RRB 104.05 per cent) by the disbursement of s. 352.13 lakhs (commercial banks Rs. 283.23 lakh and RRB Rs. 68.90 lakh) to 5071 beneficiaries, against the commitment of Rs. 348.46 lakh (commercial banks Rs. 282.56 and RRB Rs. 65.90 lakh) to 6813 beneficiaries.

Sectorwise achievements of all commercial banks and RRB are 114.00, 160.38 and 81.12 per cent under Agriculture and Allied, SSI and Trade and Service sector respectively. The commitments were fulfilled by more than 100 per cent by commercial banks and RRB.

The RBI has prepared a plan to streamline activities relating to the preparation of credit plans 1991-92. It has also been decided to modify the present information/monitoring system. It will include planning and monitoring of assets created in terms of physical units.

The Lead Bank Officer (LBO) will continue to be the nodal officer for collection and scrutinisation of the data received. In order to expedite data processing it has been decided to process the data at district level only with the help of computers. NABARD is entrusted with the responsibility of monitoring the implementation of Service Area Plans. An officer of NABARD at district level (District Development Manager) will be the focal point for planning, co-ordinating and monitoring the activities of various credit and other agencies for the effective dispensation of rural credit. The revised monitoring system introduced for the quarter ending December 1990 as a trial basis and regularly from April 1, 1991.

The present paper is much too brief in relation to the importance of the issues dealt with. Hence no summary is needed. But a few brief observations are as under;

It is no exaggeration to say that SAA is the key step for rural lending after nationalisation of major commercial banks. To achieve the objectives of SAA the Indian Banking System needs the basic infrastructural facilities which it has almost achieved. Even then, this changed approach possesses a challenging task to the rural branch managers and its success and failure depends on the ability, skill and the capability of the manager as the leader of the team.

So, in every branch in the rural areas to achieve this goal one additional manager should be appointed. Because the manager will have to stay in the field for a longer time. Therefore, the manager should be relieved from the managing works and the additional manager will look after this charge. Otherwise neither SAA will be implemented nor the branch will run properly.

To make SAA more effective it is essential to pay more attention towards the achievement alongwith the allotment of the money under SAA. Past experience regarding the various rural upliftment schemes shows that more attention is paid to the allotment of money to different economic programme for the rural poor instead of achievement of the schemes in which money is invested. Therefore, the schemes failed to achieve its objectives. So, after the discussion among the concerning agencies, the new techniques should be evolved so that the SAA may not be ineffective like other economic rural development programmes.

Success of the schemes, also depends upon involvement of the rural masses in the planning process. Village welfare organisations like, 'Bal Youwak Mangal Dal' and 'Mahila Mandali' may be helpful. Political interferences at the different levels in implementation of SAA is a major hindrance. This should be avoided. In the framing of policies regarding SAA in the rural areas of the hill districts, the geographical, climatic an infrastructural conditions should be kept in mind and modified accordingly. □

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Literacy Drive : Midnapore Shows The Way

Manas Ray

MIDNAPORE district in West Bengal is known for its significant contribution to India's freedom movement. There are other fields also in which this district has played the role of a pioneer. Maintaining this tradition, the Midnapore district planning committee's resolution adopted last year to take up a very challenging programme of imparting basic functional literacy to nearly twenty lakh illiterates above six years within one year. Now, it has seen its fruitful implementation.

The basic feature of the programme was concerted effort by the entire eighty four lakh population of the district in imparting basic literacy to all who were not familiar with the three 'R's. All political parties, mass organisations, voluntary agencies, government employees, teachers and students above class nine have come together to create a unique environment of learning and the drive for literacy took the shape of a mass movement.

The aim was to eradicate illiteracy and make the people in the district more aware, responsible and better citizens with a scientific outlook in life. According to the District Magistrate and President, Midnapore Zilla Parishad, "detailed planning was made for the survey of illiterates, selection of master trainers and volunteers, training of these master trainers and volunteers, building up of organisation with the help of panchayats in rural areas and local self governments in urban areas throughout the district." The National Literacy Mission authority extended all possible help and sanctioned necessary funds. About one lakh eighty thousand volunteers worked relentlessly despite excessive rainfall and heavy odds to make the programme a success.

Momentum

There are 20 lakh illiterate people in the district of whom 16 lakh are residing in rural areas. The implementation of the five-crore rupee project in the district gained so much momentum that over sixty nine per cent of the illiterates, including those speaking Hindi, Oriya, Tamil, Telugu, Nepali, Urdu and Santali have completed the first phase. The inspiration, according to the President of the Midnapore Zilla Parishad, came from Ernakulam in Kerala.

The first phase programme concluded earlier this year. A massive campaign was launched through posters, hoardings, dramas and songs. Group meetings of all political parties in rural areas were also conducted by Panchayats. These programmes have already covered about 12 lakh eighty thousand illiterates. All the participants were given text-books, pencils and black boards free of cost. The authorities have directed all the branch managers of nationalised banks to extend all possible help to the 50 best new-literates in each of the 54 blocks of the district, by sanctioning loans to them for self-employment at a lower rate of interest.

The Governor of West Bengal, Prof. Nurul Hasan, personally visited the tribal villages of Jamboni block under Jhargram subdivision lauded the basic development of the locals, the China. Delegates also visited the district and evinced keen interest in the programme. Mr. Unis Kassem, a representative of the UNICEF has called it a wonderful experiment which he hoped will be followed the world over.

In fact, the district authorities by monitoring the programme and holding lively discussions at village levels have decided to continue this programme and to achieve literacy for neo-literates till class IV level. This in itself will be a massive exercise in human resources development. The people of Midnapore are happy that this programme has added a new dimension to the life of lakhs of people living in this district and have enhanced their interest in playing a more useful role in the social and economic development of the district. □

. . . And Burdwan Follows Suit

CLOSE on the heels of Kerala, the declaration of Burdwan District in West Bengal as fully literate will be a shot in the arm of those engaged in the campaign for total literacy in various parts of the country.

Achievements in Burdwan are significant in more ways than one. A district which had 42.43% literacy according to 1981 census, has today reached a level of over 90% literacy. Numerically, the total number of illiterates identified in district by a survey in August 1990 was 13,52,979 in 6 to 50 years age group compared to 18,94,217 in Kerala as per a survey in April, 1990, in the age group of 5 to 60 years. About 50% of the target group consisted of the scheduled caste who are about 25% of the total population of the district and 14% belonged to the scheduled tribe who constitute 5% of the district's population. The target groups consisted of four language groups—Bengali, Hindi, Urdu and Oriya. Also significant in Burdwan has been the launching of post literacy campaign following the attainment of total literacy.

The programme for total eradication of illiteracy was launched in Burdwan in October 1990. The Burdwan Zilla Saksharata Samity was formed as the apex body for implementing the programme with the Chairman, District Council as President, the District Magistrate as executive Vice-President and Additional District Magistrate as Secretary of the Samiti.

Two Fold Plan

The plan was two-fold; 1,52,836 illiterates, including drop-outs in the age group of 6 to 9 years, were to be sent to primary schools, and secondly, the remaining 12,00,143 illiterates in the age group of 9 to 50 years were to be imparted literacy through literacy centres. Each literacy centre would be in the locality of the learners, cater to a maximum of 30 learners and would be run by two volunteer trainers.

About one lakh volunteers were selected and trained. Primers were printed by the Zilla Saksharata Samity after clearance from the State Resource Centres. Kerosene, black-boards and teaching-learning materials were provided to literacy centres. Similarly, learners were given pencils, exercise books and primers. The Samity also developed literacy calendar in Bengali and Hindi based on the primers.

More important was the creation of proper environment. Steps taken in this direction included rallies, exhibitions, posters and wall writings, screening of special films, group discussions, workshops, seminars, cultural activities like street plays and music competition on literacy and publicity through mass media.

The estimated cost of the total literacy campaign in Burdwan district was Rs. 4.75 crore, including Rs. 3 crore from Government of India, Rs. 75 lakh from State Government and Rs. one crore from Zilla Parishad, Burdwan.

Evaluation was conducted in two stages. Besides the final evaluation, there was a mid-term one. Association with external experts was a significant feature of the evaluation. As regards the age-group of 6 to 9 years, out of 1,52,836 children, 1,30,790 were enrolled in primary and junior basic schools of the district as a part of the total literacy campaign between October, 1990 to April, 1991. For the age group of 9 to 50 years, according to the final external evaluation conducted in April 1991, 90.31% of the learners attained the National Literacy Mission norm having secured more than 50% marks in reading, writing and arithmetic.

Tasks Ahead

Now that the district has attained full literacy, the task is far from over. Already, post literacy

campaign has been launched to continue the campaign among neo-literates and also the illiterates who could not be covered through the earlier campaign.

After Kerala, the success of Burdwan will raise hopes of similar achievements elsewhere. At present, campaigns for total literacy are underway in 100 talukas in Gujarat, whole of Pondicherry and Goa and 45 districts in Andhra Pradesh, Bihar, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The total literacy campaigns which started in the beginning of 1990-91 can now said to be picking up momentum. □

UNESCO Award

West Bengal has bagged UNESCO's International Literacy Prize, entitled Noma Prize for 1991. The $ 10,000 award is one of the five prizes instituted by UNESCO is given annually in recognition of the services of institutions, organisations or individuals displaying outstanding merit and achieving special success against illiteracy. The nomination of the state government of West Bengal was recommended by the Indian National Commission for cooperation with UNESCO in view of the significant initiative taken in a number of districts in the state to launch mass campaigns for total literacy and particularly the achievements made in Burdwan and Midnapore districts. Last year the UNESCO had awarded KING SEJONG literacy prize worth $ 30,000 to the Kerala Sastra Sahitya Parishad, Thiruvananthapuram on the recommendations of the Indian National Commission for cooperation with UNESCO.

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proves this point beyond doubt. It is out of the place to mention that the main impetus for laying down international norms for protection of intellectual property has come from the US pharmaceutical industry and the European fashion and designer clothes industry. It is this impetus which is bringing the issue into GATT in the Uruguay Round.

It is often suggested that whilst US is urging the developing countries for reduction or elimination of subsidies to farmers, through protection of intellectual property rights they want consumers around the world to subsidise their multinational corporations. For not acceding to this demand India has been put on the Section 301 of the US Trade and Tariff Act. The US also wants to include biological processes and products under the intellectual property which have till now been outside its purview. It is difficult to narrow down the difference between the Indian Patent Act of 1970 and the Paris Convention unless America takes step further to accommodate the interest of India. The most crucial aspect of the Indian Patent Act is that it grants patents to processes and not products apart from cutting the term of patent protection from 16 years previously to 14 years with the exception of food, drugs, medicine and agro-products, where protection is limited to between five and seven years. It also makes it difficult for patent-holders to assert monopoly rights on manufacturers for an indefinite period. True, India is against protectionism but it cannot afford to close down its industry in the name of liberalisation. India is a growing economy with an enormous potential market and a stable political system and seeks a wide range of technology transfer. The international companies who were engaged in collaboration with Indian industry find it in their own interest to do so. We have to take caution that these multinationals are not allowed to import restrictive and monopolistic practices along-with the technology.

Patents have tremendous scope for artificially increasing prices and for encouraging under hand trade practices unless they are circumscribed by well-defined sense of public interest which is missing in the Paris Convention. The UN bodies like UNCTAD also support the case of the developing countries against one-sided exploitation of intellectual property rights such as patents and copyrights. The UNCTAD report has already pointed out that the real benefits of developing countries are likely to be limited by the present American Trade Act. It is estimated that the developing world is losing at least four to five billion dollars a year on export deals with industrial countries because of non-tariff trade barriers. Similarly an estimated 25.6 billion dollar worth of exports from the developing countries are affected by non-tariff measures such as import quotas and voluntary export restraints. These barriers must be dismantled and not further strengthened in the name of intellectual property protection. □

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Lakshadweep Looks Ahead

K. Gopinath

LAKSHADWEEP is unique. It is the smallest Union Territory in the country. Its total land area is only 32 sq. km. It has 36 islands, but only 10 are inhabited.

These isolated islands were neglected for centuries. Even after independence the situation did not change much. The islands were almost cut off from the mainland even at that time with no dependable link for almost six months in a year. The only means of transport available were the sailing country craft, 'Odam'. The people depended on the meagre supplies carried by the limited and erratic means of transport. It was difficult to be in touch with the mainland and vice versa. Not even a post office existed. The people were backward in all respects. There was no administration worth the name. The entire inhabitants are muslims, classified as scheduled tribes. The constitution of these long neglected islands into a Union Territory in 1956 lent the glittering ray of hope for progress. Due to implementation of massive development programmes, Lakshadweep has recorded remarkable progress in all the spheres of economy during the last three decades as a result of which great changes are taking place in the life and culture of the islanders. In short, they are now leading a more comfortable life than their counterparts in the mainland in view of the special consideration of the government. Despite progress there are some serious problems also.

Now three all weather ships with modern facilities and a fair weather ship are plying between the mainland and Lakshadweep, besides a tri-weekly Vayudoot service between Kochi and Agatti island and helicopter service from Agatti to other islands. To facilitate smooth ship service harbour facilities in the islands have to be improved further.

Educated unemployment is another serious problem. This territory which was very backward in education has recorded 79.23 per cent literacy as against 52.11 per cent in the country as per the last census. It has the third rank, second in male and fourth in female literacy in the country. Educated unemployment will never arise here if technical education to tap the vast marine resources is imparted to the youth. Due to improved methods of fishing, fish catch went up to 7000 tonnes in 1990 as against only 575 tonnes in 1960. Planning to tap the rich marine resources which would otherwise go waste is essential. Lakshadweep Development Corporation which was set up in May, 1990 for speedy implementation of various schemes including deep sea fishing can play an important role in this respect.

This territory, which was the most backward in health services in the country has now secured more or less the top rank in that field. Medical attendance and medicines are free to the islanders. Incidents of infant mortality is are now rare. The most difficult problem in this territory at present is over population. The growth rate of population works out to 28.41% as against 23.5% in the country over a decade from 1981 to 1991. The density of population is 1615 per sq. km. when it is only 267 in the country. It has the highest density with the exception of Delhi and Chandigarh. Lakshadweep is heading for a demographic disaster with the violent social, economic and ecological implications, if the population is not contained. When the national growth of population has shown a decrease

of 1.16 per cent during 1981—91 compared to 1971—81, it has gone up by 2.07% in Lakshadweep during the corresponding period. Under these circumstances vigorous family welfare programme is the need of the hour.

Eventhough family planning activities were taken up in the country long before, it was introduced in the islands only in 1966. But the illiterate and superstitious islanders as well as many elders and religious leaders were dead against family planning on religious grounds. The custom-ridden tribal people here have been maintaining a very hostile attitude towards this programme. In the absence of positive signs from the religious leaders and elders even a few people who accepted family planning insisted on keeping their identity anonymous because of the fear of social stigma that may fall upon them. The small family norm is yet to receive the total acceptance of the people here. Urgent steps are therefore necessary to generate interest in this programme. The attitude of the inhabitants is to be changed to a great extent so that they may accept the programme as their own, intended for their welfare. In short, the people are to be educated well about the programme, with the involvement of the elders and religious leaders and the elected numbers of Island Councils and Pradesh Council.

Another serious issue here is water pollution. The people get drinking water from wells and tanks. It is proved beyond doubt that many of the diseases here are caused by polluted water. The main reason for water pollution is due to ignorance and superstition of the people. The islanders are intensely religious. There are over 270 mosques in Lakshdweep. Burial grounds are attached to every mosque. There are nine mosques in a sq. km. on an average. Wells and ponds are also near burial grounds. This causes water pollution. It is, therefore, necessary to restrict to one or two mosques to have burial grounds in each of the islands in order to avoid contamination of water. Desalination plants to get fresh water from sea water and protected water supply utilising ground water are being established in the islands. In addition, rain water is stored in concrete tanks for distribution to the local people in some of the islands.

Speedy communication facilities are being provided. Post and Telegraph offices have already been established in all the islands. The southern five inhabited islands are provided with STD facilities. Work is in progress to have this facility in the other inhabited islands also. All the houses in the inhabited islands and the uninhabited islands of Bangaram and Suhelipar have been electrified in the territory. The Administration is implementing schemes to have non-conventional sources of energy in the place of diesel generated electricity in all the fields by harnessing the sun, wind and waves. Due to availability of electricity a few small scale industries have already come up. Steps have to be taken up to start more industries based on fish, coconut and coir that are easily available in the islands.

Nature has taken necessary precautions for the safety of these tiny atolls at all times. The islands are protected from the mighty Arabian sea by the lovely lagoons fortified by the coral reefs. Indiscriminate removal of coral flowers from the lagoons and coral rocks has to be checked to maintain ecological balance. Otherwise, see erosion will take place. It is also attributed to indiscriminate dredging of the lagoons. Effective steps should be taken to check sea erosion.

Tiny but picturesque, these islands are the beauty spots of the Arabian Sea. Each island, inhabited or uninhabited, is like a paradise to the tourists. The Administration declared tourism a full-fledged industry so as to give a fillip to the economy of the territory and create jobs for the local youth. At the same time the inflow of tourists to these islands has to be restricted so that the ecosystem is not upset and no damage is done to the corals or to the rare flora and fauna. Home tourists are permitted to visit the inhabited islands. An uninhabited island, Bangaram was opened to foreign tourists in December, 1974. Among the other uninhabited islands, Tinnakara, Suheli Valiyakara and Cheriyam are also being developed as international tourists resorts. To reduce the activities on the shore, floating house-boats and restaurants and fun fair facilities can be developed on the lagoons which will not only be an attraction to the tourists but also prevent congestion and strain on the limited land. Development of tourism will bring in its wake better employment opportunities to the local people. Educated youth should also be encouraged to take up jobs in the mainland.

In spite of progress in transport and communications, the people have to wait for a few days to undertake a journey by ship from one island to another island or at times to mainland. Though there is a little sense of isolation even now, there is no feeling of frustration. In short, the sense of oneness among the islanders is growing day by day. Serious efforts are necessary to make the islanders feel that they are a part and parcel of this great country thereby promoting national unity and emotional integration. □

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Greening The Roof Of India

J.L. Koul Jalali

THE largest district in the country, Leh-Ladakh in Jammu and Kashmir is criss-crossed with lofty mountains of varying heights between 4000 to 7000 metres. This 33,000 sq km area at the Northern tip of the country has a rigorous climate with a very short summer. During winter, the temperature varies from minus 10 degree celsius to 40 degree celsius which freezes even the flowing rivers. Due to the geographical factors, the land is devoid of moisture and generally wears a deserted look and has zero vegetation at the higher elevations.

The task of greening this land is entrusted to the Desert Development Agency, Leh-Ladakh, which it has been doing with considerable zeal and enthusiasm and with concrete results. The Agency has exceeded its own targets in relation to land development and moisture conservation, afforestation and fodder and pasture development.

Greening this land assumes more importance, when one considers the peculiar demographic features of the district. The density of population per sq km in Leh-Ladakh works out to only 1.55 persons. Sixty per cent of the total population of about 70,000 depends on farming for their livelihood. The rural population accounts for 87 per cent. The total cropped area of the district comes to only 0.23 per cent of the total geographical area.

Objectives

The Desert Development Programme was introduced in the district in 1979 with the objective of arresting the desertification to maintain the ecological balance and to create conditions conducive for raising the level of production, employment and incomes. Initially it was financed on a 50:50 basis by the Central and State Governments. However, from the beginning of the Seventh Five Year Plan, it has become a fully centrally sponsored scheme. Now Rs. one and a half crore is allocated annually by the Central Government for this programme.

The Changthang area of the district accounts for the greatest percentage of livestock population in the district, especially of Pashmina goat. The pasture development activities of the Programme are mainly confined to this area alone. An indepth study regarding the scope of pasture development and the behaviours of summer and winter pastures in the area as also about the species of grass that could be grown in this area is being undertaken during the current year.

In the sphere of development of water resources, which includes construction of canals and water diverting tunnels and similar other activities, irrigation potential had been targeted to be created for 865 hectares during 1990-91. Of these, 757 hectares have already been covered.

Food Crops

The other activities of the Desert Development Programme include improvement in food crops, vegetables and horticulture. Ladakh has witnessed tremendous development in vegetable cultivation and is famous for producing sweet vegetables as the area has certain advantages because of increased photosynthesis process. Vegetables like cauliflower, cabbage, peas, onions, potatoes, turnips, carrots, raddish and a large number of green leafy vegetables of different varieties are now locally produced on a large scale. A peculiar thing about these vegetable is their size. A 3 kg cauliflower or a 5 kg turnip is a common sight. Excess of ultraviolet rays and other climatic conditions in the area reduce the dangers of parasites and pests.

Under the programme, 50 mini solar green houses were established in the district during 1990-91. These low cost mini solar green houses have been introduced in collaboration with the Indian petrochemicals

Corporation Ltd. (IPCL), Baroda as an alternative to the expensive large-sized solar green houses. The programme has shown encouraging results. Even during the peak of winter, vegetables are raised and vegetable seedlings are grown in these green houses.

During 1990-91, 0.14 lakh plants including the plants of exotic species of high growth were distributed and two nurseries were established in private sector. The development programme of the agency in this sphere included top working, budding, regeneration, establishment of private and developmental nurseries and establishment of new orchards of various fruit plants and local fruits.

In order to arrest the process of desertification, areas have identified in the district at Nubra and Changthang where sand dunes occur. These coupled by high velocity wind can lead to further desertification. These dunes are treated or stabilised by planting shrub plants like Hyphoia and Meicaria. These plants can survive even on a limited moisture. An amount of Rs. 90,000 was earmarked during 1990-91 to plant 1,30,000 such plants covering an area of seven hectares.

There are many old plantation areas in general in Ladakh where almost all the trees have reached the full maturity stage. These old, diseased and rejected trees are disposed off. Agency has taken up the work of rejuvenation and rehabilitation of these denuded forests and all such areas are being covered in a phased manner. The idea is to save the forest areas from further depletion.

Gone are the endless sunny days in Leh-Ladakh. With far more increased number of trees and green pastures, precipitation has increased and a larger number of cloudy days are now noticed in the area. This trend is bound to result in better economic conditions, a good environment for maintenance of ecological balance and finally for arresting the desertification process. □

Indian Tyre Industry : Today and Tomorrow

Dr. J. S. Mathur

TYRE is recognised as an item under the Essential Commodities Act. The tyre industry is characterised by its massive potentiality for employment, growth and exports. Apart from providing direct employment to nearly 50,000 people, indirect employment generated by the industry is as much as 4 lakhs. Indian tyre industry has an installed capacity of 24.14 million tyres and an annual turn over of about Rs. 3,000 crore on an investment of the order of Rs. 900 crore. Tyre industry is an important source of revenue for the Central exchequer, State Governments and other government agencies. The total amount of various taxes paid by the tyre sector in 1988-89 was Rs. 1,439 crore.

The output of all tyres which was 1.23 crore in 1985 swelled to 1.78 crore in 1988, registering increase of 45 per cent or an annual rise of 15 per cent. There was a further improvement in tyre production at 187 lakhs in 1989. Tyre output by 10 leading Companies account for a little over 95 per cent of the overall production.

These days the demand of tyres has become less pressing because the new Motor Vehicles Act has helped in checking over-loading, and the retreading facility has increased the average life-span of tyres from 35 thousand to 50 thousand Kilometres. According to an estimate, tyres of buses and trucks; cars and scooters in India are overstretched by 40 per cent and 1520 per cent repectively. In this situation, to increase export of tyres is an alternative to the tyre industry to cope with the problem of over production.

Exports

Over the last one and a half decade tyre exports have increased significantly (Table 1). They are further expected to reach the record figure of Rs. 200 crore during 1990-91. However, export performance has been characterised by large fluctuations. Till 1983-84, the value to tyre exports remained pegged below Rs. 20 crores. During the following five years, exports fluctuated between Rs. 45 crores and Rs. 77 crores. In 1989-90, value of export earnings crossed the level of Rs. 152 crores. The uptrend in the value of tyre exports has been sustained in the recent past. The government extends incentives for tyre exports in the form of cash compensatory support (CCS) to the extent of 10 per cent.

Table—1

Tyre Exports

(Rs. in Crores)

Year	Value	percentage rise/fall
1975-76	8.51	—
1976-77	18.48	117.2
1977-78	16.85	−8.8
1978-79	12.61	−25.2
1979-80	11.20	−11.2
1980-81	12.70	13.4
1981-82	10.00	21.3
1982-83	10.70	7.0
1983-84	15.80	47.7
1984-85	48.00	203.8
1985-86	44.56	−7.2
1986-87	59.47	33.5
1987-88	58.80	−1.1
1988-89	76.67	30.4
1989-90	152.30	98.5
1990-91*	200.00	32.6

* Estimated

Source—Automotive Tyre Manufacturers' association (ATMA)

The countrywise break up of tyre exports shows that the US, Afghanistan and Bangladesh have been our prominent buyers of tyres. The other countries include: USSR, Egypt, singapore, UAE, Nepal, Canada, UK, Germany, Italy, poland, Nigeria, Yugoslavia and Mauritius. Among all the importing nations, the US accounts for on an average 30 per cent of the total value of tyre exports. The US tyre imports include heavy load carriers and farm vehicles. About 45 per cent of our tyre exports is shared by Afghanistan and Bangladesh.

Categorywise, truck and bus tyres dominate the export scene. For instance, in 1988-89 out of 6.8 lakh tyres exported, truck tyres alone stood at 5.3 lakh (nearly 80 per cent). The reason has been that in most of the importing countries, for lighter vehicles like car, jeep, etc. radial tyres are being used, while for heavy load carriers like trucks, conventional tyres are being used. Moreover, many developing countries which import tyres from India

are also importers of Indian tucks, cars and other light vehicles. It is noteworthy that Indian truck tyres are widely acclaimed for their sturdiness and longevity. In some countries like Bangladesh, Srilanka, and Afghanistan, the road conditions are akin to those of India. Also, India produces a wide range of tyres to suit different types of trucks.

Problems

In view of rising importance of road transport in the overall economic growth of the country and the projected higher demand for tyres in the current decade, it is imperative that the industry is allowed to grow unhindered. High cost of production, high taxation, lack of credit facilities, low allocation of foreign exchange, low capacity utilisation resulting in uneconomic production are some of the important problems afflicting the industry :

(1) Raw materials in tyre industry account for 70 per cent of the cost of production and most of the raw materials required are produced indigenously. However, there has been a perennial shortage of natural rubber. Its domestic production is quite short of demand and the country is forced to import around 40 to 50 thousand tonnes of natural rubber annually. In this respect it is important to mention that use of alternative raw materials has not been given due attention. Natural rubber, because of its perennial shortage, can be replaced to a large extent by synthetic rubber. For this, however, road conditions have to be changed. By using synthetic rubber, the industry will save precious foreign exchange spent on importing natural rubber on the one hand, and help in bringing down prices of tyres, on the other.

(2) There is a heavy incidence of taxes on the tyre industry as can be seen from table 2.

Table 2

Tax Collection from Tyres & Tubes (1989-90)

(Rs. in crores)

Total turnover of tyre industry	2800
Total tax	1430
Total tax collection as % of total turnover	51.4

There are a number of taxes levied by the Central, State and local governments. Taxes by Central Government include excise and import duties on tyres and tubes and raw materials; those by the State Governments include sales tax. Other agencies are municipal councils and Rubber Board.

A scaling down of the tax incidence of tyres would bring down the tyre prices and to that extent the tyre consumers will be benefited, particularly the transport sector. Besides, unless the whole tax structure is properly rationalised and simplified, the tyre industry would not develop at an accelerated pace.

(3) The industry could not develop adequate indigenous technology for the manufacture of tyres. While a huge amount of almost Rs. 300 crore are spent annually on research and development in case of most multinational tyre companies, their counterparts in the Indian Continent spend only Rs. 10 crore. Again, nearly 90 per cent of this amount is utilised for suitable modification in the imported technology for domestic requirements.

New Era

It is heartening to note that with the setting up of the National Research and Development Centre for tyres near Bangalore, a new era has dawned in the Indian tyre industry. The Centre will start functioning from this year. It will be one of the largest in Asia. The Centre will supplement the existing small research institutes in the private sector.

The success of Indian tyre industry has been largely due to its technical Collaboration agreements with transnational companies. They have helped the Indian industry not only to upgrade products, but also to ensure that it does not lag behind in the world market in the matter, of product performance and reliability. The collaborations keep the companies abreast of technological developments. The purpose of technical collaboration is to facilitate easy access to basic research which is expensive and time consuming. Goodyear of the US spent over $ 500 million on research which far exceeds the combined turnover of a few Indian tyre companies. Technical collaborations help the Indian tyre companies in material substitution and cost reduction, process upgradation and performance and reliability enhancement.

The cumulative effect has been that Indian tyres unlike other automobile ancillaries and products are of 'state-of-art' and their proven performance has made them well accepted in the world market. In Afghanistan for example, Indian tyres are preferred to the Japanese and Korean ones.

Future prospects

It is hoped that the Nineties would herald radical changes in the

(Contd. on page 28)

IFFCO's Role In Building Rural Economy

S.C. Dhall

INDIAN Farmers Fertilisers Cooperative Ltd. (IFFCO) is playing a vital role for improving quality of rural life. From its very inception IFFCO has been conscious of increasing agricultural productivity by exposing the farmers to modern farming techniques and undertaking integrated rural development programmes.

In bringing about an all-round socio-economic development and to ameliorate the conditions of the rural people, IFFCO has covered 1,150 villages under its Villages Adoption Programme in the country. In these villages, activities like family welfare, adult education, child care, social forestry medical and veterinary check up are undertaken. Villages around IFFCO's four fertilisers plants are also covered for integrated rural development.

IFFCO has also been adopting a wide range of promotional and extension programmes which include field demonstrations, farmers meetings, field days, crop seminars, exhibitions, radio and television programmes, special campaigns like soil testing, seed multiplication etc. Two mobile soil testing vans are also operating in the field to provide on the spot soil testing facilities to the farmers.

During the last one decade, over 8,600 plot demonstrations and block-demonstrations covering 41,000 hectares were organised. Over 25 lakh farmers were imparted knowledge about latest farming techniques. More than 3 lakh mini-kits containing improved seeds, fertilisers, pesticides etc. were distributed free to small and marginal farmers. A chain of 175 farmers service centres make available all essential agro-inputs, i.e. fertilisers, improved seeds, agro-chemicals, farm implements and provide technical guidance to the farmers under one roof. Encouraged by the success of these centres, IFFCO in collaboration with NCDC has developed 2500 village cooperative societies on the same pattern.

Farm Projects

IFFCO as one of the major catalysts of rural development has pioneered a Farm Project based on the concept of integrated farming system. The project has already been initiated in Madhya Pradesh, Uttar Pradesh and Rajasthan, where around 4,040 hectares of wasteland has been afforested as part of converting 50,000 hectares of wasteland in 10 States into profitable forestry through cooperatives.

In tune with national priorities, IFFCO launched several special projects to encourage rain-fed farming, reclamation of problem soil, production of oil seeds and pulses, increasing rice productivity in potential areas and developing tribal and backward areas. As a result of reclamation projects it has been possible to grow rice and wheat in the sodio lands of Sultanpur (UP), rice in Sunderbans (WB) and Kojeland (Kerala).

IFFCO has also set up 10 farmers community centres in tribal and backward regions of Maharashtra, Madhya Pradesh, Rajasthan, Orissa, Punjab, Uttar Pradesh, Andhra Pradesh and Tamil Nadu. These centres serve as nodal points for supplying farm inputs, providing technical guidance on improved farming, health and veterinary care and extending recreational and educational facilities to the farmers of a cluster of villages.

IFFCO launched another important scheme under which visits of farmers in small groups are conducted from one part of the country to another with the objective of acquanting them with the modern techniques of farming, cultural heritage and social customs prevalent in different States. Since 1985-86, over 6000 farmers have been covered under this plan which also aims at fostering in them a spirit of national integration.

IFFCO which was set up in 1967 as a multi-unit cooperative with an authorised capital of Rs. 200 crore, has made rapid strides in the fertiliser industry in India. A federation of about 30,000 societies spread over 18 States and three Union Territories, IFFCO has grown in strength and stature backed by outstanding performance in production, capacity utilisation, strengthening the cooperative movement and improving socio-economic conditions of the farming community.

During 1989-90, its plants contributed 13 per cent of nitrogenous and 12.4 per cent of phosphatic fertilisers manufactured in the country. The total production during 1989-90 was around 24.2 lakh tonnes compared to 23.7 lakh tonnes last year. During 1989-90, the overall capacity utilisation for nitrogenous fertiliser was 102 per cent with Kalol achieving an average capacity utilisation of 85 per cent, Phulpur 110 per cent, Anola 113 per cent and Kandla 72 per cent.

IFFCO markets its products through cooperative channel having 33,000 retail outlets. To ensure timely availability of fertilisers to the farmers at their doorsteps, it has arranged adequate warehousing facilities all over the country even in the remote areas. During 1989-90, IFFCO marketed 26.4 lakh tonnes of fertiliser material.

It has also intitiated a large number of trials for effective application of Urea Super Granules (USG) and achieved 15.20 per cent increase in 'N' use efficiency over prilled urea. IFFCO has also participated in FAO's sulphur network research programme to study the crop responses to sulphur application in UP, MP, and Punjab.

IFFCO has an ambitious plan for doubling the installed capacity of its Anola unit with an investment of Rs. 7 crore and carrying out extensive rehabilitation schemes at Kandla, Kalol and Phulpur with an investment of Rs. 275 crore. Thus, IFFCO is poised to play a more vigorous role in building the rural economy. □

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(Contd. from page 26)

industry through consolidation and strengthening the constituent companies, introduction of new technologies that would enable manufacturers cut costs without compromising on quality and bring about an international flavour to its marketing strategy and, in the long run, continue to offer consumers a cost-effective product.

On international front, radial tyre technology which increases mileage by 25 to 40 per cent, is fast replacing the conventional crossply tyres. It is a matter of satisfaction that Indian producers have started investing in radial technology. Though currently, radials constitute only 20 per cent of the market, A.T.M.A. forecasts that by 1994-95, radialisation would be to the extent of 40 per cent in car tyres, 25 per cent in L.C Vs and 10 per-cent in trucks.

Above all, sustained marketing efforts made by Indian tyre companies to cultivate markets abroad have promoted good level of awareness about Indian tyres. Quality upgradation and adherence to delivery schedule have also helped in creating confidence in the international markets of Indian tyre exports. All these developments bear out bright export prospects of our tyre industry in future. □

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quantitative parameters, they have done well. Credit has been channelled through productive/preferred sectors. They have come out with several new/novel/innovative schemes both under deposits as well as advances. Through their poverty alleviation schemes/self-employment schemes, they have been rendering their best to tackle the twin problems (poverty/unemployment) affecting the country to the extent possible. They have been able to adjust themselves to the changing times. They have developed the capacity to anticipate, adopt and innovate. However, public expectations have been running very high. In recent times they are saddled with ever increasing costs-dwindling revenues. This is really a challenge for their ingenuity, intelligence, imagination and innovativeness. The issues for the nineties are : how best banks will be able to adjust themselves to the challenges in certain key functional areas like : deposit mobilisation—in the wake of disintermediation; credit deployment—in the wake of high percentage of non-performing assets; profitability—in the wake of rising costs and dwindling revenues. □

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Book Review

CONFLICTS AND CO-EXISTENCE INDIA by J.N. Nanda. New Delhi : Concept Pub. Co., 1991. Pages 160 Price Rs. 160

This is an interesting book dealing with our common problems like communal conflicts, regional and language problems, and interstate and centre-state relations. The author is concerned with national awakening and technological modernisation in India. He makes a case for an official composite culture of India whereby common worship and common recreation are encouraged to foster the feeling of mutual acceptance, co-existence and love, and prescribes consideration for others as a step toward conflict management. His analysis of the present Punjab mess seems to be most convincing.

The whole book represents the author's personal reflections, based apparently on newspaper reports of events. In fact, each topic of the book can be used as an editorial page article of a newspaper or, even as "a letter from a father to a child." It is full of prescriptions for the amelioration of India along 'must' and 'should' lines which may not be acceptable to our policy makers. It is doubtful, in any case, if our policy makers are ever influenced by a citizen's prescriptions.

Some drawbacks, perhaps inadvertently, have crept into the book. A few of these are: the USA has been clubbed as a "recent" nation together with Vietnam, China, Yugoslavia, India, and Indonesia; the book is datemarked 1991 but has not updated the conclusion to the struggle in South Africa; ". . . tribes among Hindus" (p. 93) is an incorrect statement—there simply are no Hindu tribes.

It is hard to classify the discipline of this book. Perhaps it could be put in the category "contemporary studies" and the typical "general" reader who desires to "improve" his knowledge will find it useful.

Dr. Biswanath Debnath

BASIC RESEARCH FOR CROP DISEASE MANAGEMENT, Edited by P. Vidhyasekaran, Published by Daya Publishing House, Delhi, 1990; Pages 410; Price Rs. 450.

Plant Pathology deals with the control and management of the diseases of the crops, vegetables, flowers and fruits. However, the basic understanding of the diseases is required for the formulation of the strategies for their effective control and management. The recent development in our knowledge of molecular biology of plants, pathogens and their interactions have made it possible to transfer gene(s) from any organism into another. Genetic engineering involves the manipulation of DNA in vitro using a series of techniques, which have enormous possibilities in disease management. The biological control of plant pathogens more amenable to genetic engineering include cross-protection, reducing frost injury, avoiding failure in crown gall management through use of deletion mutants and introducing new genes of Hyperparasites into plants, etc.

The present book is a compilation of 33 research papers each constituting an independent chapter, which have been contributed by eminent scientists from U.S.A., Israel, the Philippines and India. The book discusses the various aspects of plant pathology and genetic engineering and tissue culture, Physiological and Molecular Plant Pathology, Virus Disease Management, Bacterial Disease Management, Epidemiology. Resistance Breeding, Biological Control, etc., in which basic research is required for effectively evolving strategies needed for control and management of crop diseases. The book contains 6 research papers on genetic engineering and tissue culture, 6 research papers on physiological and molecular plant pathology, 6 research papers on virus disease management, 4 research papers on epidemiology and forecasting, a paper each on bacterial disease management and resistance breeding, 2 papers on biological control, and 7 papers on management of diseases.

The book provides rich references at the end of each Chapter. There are a number of thought-provoking articles giving in-depth analysis of the various aspects of genetic engineering and tissue culture, virus and bacterial diseases management, and physiological and molecular plant pathology, etc., and the basic research needed in these fields with a view to

developing an effective strategy for crop disease management. It provides a critical analysis of the various physiological and biochemical processes involved in the defence mechanisms of various crops such as rice, wheat, maize, and sorghum, finger-millet, sugarcane, tobacco, cotton, vegetables such as potato, tomato, beans, cucumber, and fruits like apple, orange, grape mango and banana, etc. against fungal, bacterial and viral diseases. The authors have also critically reviewed all of the published works in their papers and have suggested future course of research in these areas. There are 4 articles in which technology to forecast the diseases has been discussed. Besides, the book also provides at the end the basic research required to be carried out for the management of diseases of the various crops of national importance. The book will be useful to students, researchers and teachers in Plant Pathology and the libraries of the educational and research institutions.

Dr. Mahendra K. Pandey

YOUTH IN INDIA by S. Saraswathi, Indian Council of Social Science Research, Delhi; Pages 507, Price Rs. 150 hard bound.

S. Saraswathi's book on Youth in India is a timely addition to the body of knowledge about the present generation of young population (15-34) in India. We need hard statistics on various aspects of the youth, such as percentage and regional distribution of the youth population, educational and work status, various youth oriented policies and organisations, crime and revolts and its relationship with the youth etc. to formulate meaningful youth policies at the national level. The above book has incorporated most of such up-to-date statistics.

The author has also looked into the problems of SC and ST youth and those of the young women separately. In addition, activities of various youth organisations (both public and private) have been added. In most cases, the author has used the standard sources such as Census, NSS and other departmental information.

In terms of spatial distribution, Uttar Pradesh claims the first rank by having 15 per cent of the total youth population. As expected, the proportion of rural youth is higher than that of the urban. Interestingly, the proportion of youth in the age group of 25-35 is the highest. The medium range projection of the youth population confirms that the youth population will decline by the end of 2001. The author notes that there has been an upward trend in the marriageable age of both males and females. These are all encouraging features.

With regards to educational status, the picture is bleak. According to him, more than half the population in each age group within youth have not crossed the primary level. Between males and females, females are in a more inequitious position.

The work participation rates of young males and females have also been discussed. The rural rates are much higher than that of urban areas. Agriculture is the main employer of the youth even as late as 1981. Another interesting feature of the work participation rate which comes out clearly is that most of the young workers work as marginal workers.

The author has also discussed the problems of unemployment as well as that of the measurement of unemployment. In 1981, 14 per cent of total population in the age group of 25-34 were non-workers out of which females constituted 13.6 per cent.

The author has discussed various schemes sponsered by the government and voluntary organisations to integrate youth with the national mainstream economically, socially and culturally. Problems of drug addiction have also been highlighted. The author has discussed the problems of SC and ST and other backward classes and also of the young women. He has referred to different schemes of the Government which have been initiated to improve their lot in different parts of India. The debate regarding the reservation of jobs to OBC has also been focussed. With regard to young women, the author has shown an awareness of their special problems. He has cited the statistics on dowry deaths.

Last but not least, the author has hinted towards a comprehensive youth policy which will try to maximise the interests of all to some extent. But to what extent it will be feasible is not known. On the whole, however, it is a useful addition to the relevant literature on youth.

Dr. (Mrs.) Bidyut Mohanty

"The idea of a peaceful, active, mutually educative co-existence has been with us for ages. When it is said that India is a secular state, it does not mean that India worships material comforts and luxuries or does not recognise that there are higher laws of the universe than those which govern the physical world of space and time. It only means it does not stand for any particular religion but deals impartially with all religions, that it adopts the philosophy of active co-existence among the religions of the world. That is the meaning of a secular state.....The Aryan and the Dravidian, the Hindu and the Buddhist, all the races which poured into the country have been, relatively speaking, welded into a corporate unity.

We have come to realize that we have to live together or die together, and if we are to live together we must have tolerance. If we adopt the philosophy of either this or that, it means conflict, chaos and anarchy. If we adopt the philosophy of this and that then each one can go his way, adopt his views and make his contribution to the upbuilding of the country. We will then have a great future when the different communities will make their own contributions to the wealth of this land."

—Dr. S. Radhakrishnan

(Address at the Commissioner's reception
at the Indian Sports Club, Limbe,
Nyasalad, 7th July, 1956)

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Yojana : 33 Years Ago

(Nov. 16, 1958)

Harijan Housing

The Prime Minister, Shri Nehru, recently switched on electric lights in the Jai Jawahar Nagar Colony, 12 miles from Hyderabad. This colony was constructed by Harijans on a co-operative basis with a Government grant of Rs. 2 lakhs. These Harijans were previously employed by the British troops at Secunderabad cantonment. After the British troops left, these Harijan employees formed a co-operative society to resettle themselves. Both the Central and the State Governments helped them to build up this colony which has accommodation for about 500 families.

Oil Struck at Baroda

Oil has been found at Vadser, four miles from Baroda, by an Indian drilling team. It is only six months since experimental drilling was started in this area. It is reported that when the drill had reached the depth of 600 ft., a fountain of oil rose to the height of 60 feet in the air. The flow decreased later. The oil found at this place is yellowish in colour and resembles crude oil. The drilling is continuing.

The Oil and Natural Gas Commission had selected this area for exploration as natural gas seepages had been noticed in the vicinity.

The most notable feature of this strike is that it has been the result of the efforts of a purely Indian team.

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