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Global Trends and Indian Industry

Report on the Seminar:
The Union Budget and Economy

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EDITORIAL - SOME HIGHLIGHTS

I. General Economic Scene

State

Climate and Prices

The first half of August which this editorial covers was wet and cool all over the state. An upper air cyclone circulation over north Tamil Nadu and associated westerlies led to continuing rain from the south west monsoon during this period. Chengalpattu—MGR district received widespread rain, with Kancheepuram and Trivellore recording 5 cm each for several days. Madras received a rainfall of 6.7 cm during this period. The effect of this good south west monsoon on the water situation in the state is referred to later. On prices, CSO's statistical abstract for February 1991 reports that the index number of consumer prices for industrial workers rose by 2 percentage points to 187 in October 1990 but increased by 6 points to 193 in November, due to 8 point rise in food prices to 1999 in November, the rise in October being 3 points. Why food prices rose when there was an adequate harvest in the state and country and when the states' stock of foodgrains was adequate needs probing. The index number of consumer prices for agricultural workers rose by a sharp 22 percentage points to 779 in November, after falling by 5 points in October to 757 and by 2 points in December to 781. The November steep rise is due to the steeper rise of food prices by 30 percentage points to 833 and by 4 points in December to 781. The same question is posed as above as to the rise in food prices in the rural areas. The consumer price index numbers for urban non manual workers for these months also records mild price rises: in Madras by 1 point in October 1991, by 4 points in November and 2 points in December at 173; in Coimbatore by 1 point in October, 4 points in November, and 2 points in December at 167; in Madurai by 3 points in October, 5 points in November and 1 point in December at 173; in Salem by 3 points in November and 2 points in December at 164; and in Tiruchirapalli by 2 points in October, 5 points in November and 1

point in December at 169. November was the month which broke the small price rise for all 5 cities. The retail prices of essential commodities have been rising since July, pulses selling from Rs. 15-17 a kg (+Rs. 2-5 a kg) free market sugar rose by Rs. 50 a quintal and by 85 p a kg. The reasons given by the market is that this is the effect of the devaluation and the budget. The real reason is profiteering and black marketing.

Power

Power in the state in August was normal, with the remaining 25 per cent power cut for HT industries being lifted and reduced the demand cut by 10 per cent from 30 per cent to 20 per cent for those industries. The coal position in August continued to be tight. The government reiterates its decision to allow the private companies to generate power for a group of industries. The State Electricity Board announces that one more 500 MW unit will be added to the north Madras plant to meet the state's growing power demand.

For the country, the power situation continued to be normal with plentiful rains in Kerala, Karnataka, AP, continuing into the North East area. The power perspectives are such that in a radical departure from the 1956 industrial policy resolutions, the union government has allowed 100 per cent foreign equity participation for setting up power plants in the country and has proposed substantial modifications in the Electricity Act 1948 to hasten the private sector's participation in the power sector. The bill embodying these two important changes is being introduced in Parliament. To attract the private sector, the Act relaxes the debt equity norm from 3: 1 to 4:1, increases the guaranteed rate of interest on equity from 12 per cent to 16 per cent, allowing capitalisation of interest during construction on actual cost and increases the licensing period from 20 to 30 years. With the transmission and distribution system in a mess, with most state electricity boards being in the red as a result of unremunerative tariffs, poor recoveries and leakages, there is need for a revision of the power tariff, without which the private sector and foreign investment will not come in. The State Electricity Boards of 5 states—UP, Bihar, WB, Orissa and MP—owe an incredible Rs. 536 crores to the Rural Electrification Corporation is one example of this financial mess. Further the guarantee by the government of the return on capital, as has happened elsewhere, leads to over capitalisation and the passing on unjustified costs to the consumers and so requires government machinery to verify the producers' claim as to the correct value of capital. And to obtain foreign exchange resources, a balance between the foreign component in equity and debt should be maintained, so that the equity portion comes in foreign exchange, while the debt part is raised domestically so that there is a net outflow of foreign exchange to finance the import of plant and machinery. West Bengal government states that it has plans to set up 2 power plants of 210 MW each in Durgapur under the state owned Durgapur Project Ltd., (DPL) at a cost of Rs. 800 crores. Whether DPL will be able to raise these funds from the capital market, is, however, doubtful and other options should be explored. The Department of Non Conventional Energy reports that though the potential for decentralised power generation through mini micro hydel projects is around 5000 MW, the actual utilisation is not even 5 per cent. 11 mini-macro hydel projects with a total capacity of 10.3 MW are to be commissioned during 1991-92 as part of the plan to add about 200 MW through this system during the VIII Plan. This too should be opened to the private sector which could have access in the finance package that has been worked out in the Indian Renewable Development Agency along with some soft loans already sanctioned. The Annual Report for 1990-91 of the ministry of power states that in 1990-91 power generation increased by 7.8 per cent at 97.4 per cent, with hydel activity 113.5 per cent of its target and thermal 92.6 per cent.

Water

As a result of the copious rains in the catchment areas of the cauvery in Karnataka as forecast in the last month's bulletin, Mettur touched its full level of 120 feet, and a storage of 93.4 tmcft on August 13. Inflows into Mettur trebled during the first week, so that water was diverted to Coleroon from the surplusing Mettur water and water was also released into the Bay of Bengal. Following heavy rains in the Cauvery delta, tanks in many villages — Adanoor, Konamadikkulam, Erudhikkonpattikulam, Othapattikulam, Pannapattikulam, Mayanoor — were breached, flooding the villages. The Periyar dam also was full to capacity (136 ft), and work on strengthening the dam structure so that it can hold 152 ft is under way. The Vaigai dam is also full, with an outflow of 1000 cusecs.

Town Planning and MRTS

Three integrated bus terminals are being planned in the outskirts of Madras and at Koyambedu, Madhavaram and Alandur to relieve traffic congestion in the city and to shift the terminals of all long distance buses out of the city to these 3 terminals. The target data for the Madras Beach-Chepauk section of the Mass Rapid Transit System (MRTS) has been postponed to December 1992, as the National Projects Construction Corporation needs this time to complete the work. With Rs. 13 crores sanctioned for this year, work on three stations, Parktown, Chintadripet and Chepauk should be taken up and completed by the indicated date next year.

State Budget and Cooperatives

The state budget to be presented in the first week of September will be making some difficult decisions. The first one will be the meeting of the deficit of Rs. 320 crores caused by the cheap liquor shops. To date the appeal to the union government to help has not resulted in a positive answer. The major state subsidies are in the fields of power, civil supplies and transport. Will the state government have the political support to touch these areas. When the previous government tried to reduce the food subsidy by raising the price of rice, there was such strong opposition that it was dropped. In power, the annual subsidy is Rs. 500 crores. Can the totally free power supply to the farm sector be modified? Transport also presents a difficult choice, with a strong public opinion against raising fares. There are few avenues of reducing additional tax revenues—which almost can amount to a few hundred crores of rupees. Under these conditions, will the Annual Plan at Rs. 1600 crores be presented? These are some of the imponderables facing the government. With increase in the tempo of farm activities, the cooperative sector is readying itself to extend Rs. 275 crores short term credit to farmers. A target of Rs. 60 crores has

been fixed for long term credit — for sinking wells and purchase of farm equipments. The Cooperative Department reports that it has identified credit working and viable primary societies and farmers who have no dues and have been issued green cards for credit purposes.

National

Plan

Apart from the announcement that the Eighth Plan will start on April 1, 1992 and run from 1992-93 to 1997-98, there is not much to report on the Plan. As of mid August, the Planning Commission members have not been appointed and so the pre preparatory work for the VIII Plan is being undertaken by the secretariat. The Deputy Chairman of the Planning Commission has asked the Union ministries and state governments to prepare their proposals for the VIII Plan and send them to the Commission. Given the steep rise in project costs following devaluation, chief ministers want higher union plan assistance.

Prices

As this editorial is being written in mid August it is not possible to predict the definitive inflation rate for July. The provisional inflation rate for July is over 2.5 per cent, the whole sale price index standing at 201.9 on July 27. The annual rate of inflation which is 10.8 per cent on June 27 (16.75 per cent on July 20) jumped to 12.75 per cent on July 27 which is clearly due to the impact of the budget. Most of the price rises in recent weeks have been in primary commodities which points to niflation being expressed in the sharp rise of the prices of essential commodities. The prices of manufactures which have been subdued so far are likely to increase: aluminium prices have jumped 10 per cent, steel will soon follow, following the sharp rise in sponge iron price, sugar and cement prices are high and rising. It is important that the government's intention of keeping inflation under control is a realised fact that is dependent on success of the governments' economic reform. If prices rise, the external value of the rupee will come under pressure, and defeat the purpose of devaluation which is to enhance the competitiveness of Indian products in the world markets. The government has set up a cabinet committee on prices to strengthen the monitering mechanisms and has requested the ministers and ministries to meet manufacturers. The committees seems to concentrating on rolling back the price of some essential commodities of mass consumption - rice, wheat, sugar, edible oils, cement, paper for schools, note books, dhoties and saries. This is necessary but there is need for the three grounds on which the government believes it can keep prices under control be realised, namely, the reduction in the budget deficit, a sharp contraction in the growth of money supply and the seasonal down swing which occurs after August. These should be realised.

Budget and Stock Exchange

In his reply to the general debate on the Budget, the Finance Minister, as a result of intense pressure from members of parliament modified two budget proposals. First, the proposal to contribute Rs. 100 crores for a period of 5 years, at the rate of Rs. 20 crores a year has been dropped as the precedent of the government continutity to a private

trust is not wise. Second, the fertiliser price rise of 40 per cent following the withdrawal of the fertiliser subsidy has been modified in two ways: a) the small and marginal farmers who consume 30 per cent of the fertilisers, operate 76.3 per cent of operational holdings covering 2.9 per cent of the cultivated area, are to be completely exempted from the price rise : b) the fertiliser prices to be reduced from 40 per cent to 30 per cent, reducing the budgets estimated saving from Rs. 1800 crores to Rs. 1380 crores. In addition on the first decision of exempting small and marginal farmers from even this reduced price rice, the fertilisers subsidy will have to be increased by Rs. 405 crores, which means on the two proposals, the budget estimated savings will have to be reduced by Rs. 800 to Rs. 900 crores. This is a thoroughly bad decision. Politics may be the art of the possible, but this whole agitation was master minded by the large farmers who are the lobby represented in Parliament. They pay no agricultural income tax and now they have succeeded in reducing their indirect contribution to the exchequer, despite the fact that they are the ones who will profit from the rise in the pregovernment prices of foodgrains which has been promised to compensate for the subsidy reduction. Other salient features of the minister's reply to the general debate on the budget included, admission that the budget would involve some cost push factors but with strict fiscal and monetary discipline, the inflation rate would be lower than last year's 13 per cent : on LPG as there had been no increase in its price since February 1986, while the prices of other petroleum products had gone by 45.8 per cent (diesel) motor spirit (98.2 per cent) and even kerosene (12.5 per cent), LPG prices had to be raised. Even so the subsidy on LPG will decrease from Rs. 906 crores to Rs. 780 crores: the proposed fiscal and industrial policies are essential to increase employment opportunities in the economy, the entry of multinationals into Indian economy was justified and in this connection, it was pointed out that despite the increase in annual expenditure on Science and Technology from Rs. 20 crores in the I Plan to Rs. 8500 crores during the VII Plan, the output in terms of technology development was not commensurate with the increase in expenditure: further the brain drain from our IITs was 40 to 60 per cent and it is the technology developed by these graduates working abroad-that we are importing : and the IMF loan being negotiated is necessary and needed, it was pointed out. The Securities and Exchange Board of India (SEBI) is to widen the reach of its regulations (in code) to cover any section of the capital market and financial sector, bringing under its fold sales and purchases by investors, NRIs, financial institutions and all corporate units. The high power committee headed by M. J. Dharwana in its report has recommended an integrated stock market system rather than setting up additional stock exchanges as the only means of achieving a systematic improvement in the stock market system. SEBI's draft code for regulations of takeover of listed companies is wide ranging covering the companies, their subsidiaries, directors, shareholders and relatives, mutual funds, financial institutions, merchant bankers, trusts, each of whom could be acting in concern. The important points in the code are a) diesel power to the public, b) open offer to small share holders at a defined price, and c) the shifting of the power to refuse share transfers from the Board of Directors to share holders. There will be transparency in the requirement that the acquirer should disclose his

Fourth, the government has decided to delete the stipulation that potential *granite entrepreneurs* should have some manufacturing facilities to obtain a lease from quarrying. This is a long standing demand of the industry and will promote its accelerated growth which the private sector will ensure. *Fifth, Aruna Sugars* announced that it is diversifying into the hotel industry. It aims at serving non five star hotels and will set up a chain of 8 four star hotels in the four southern states. Aruna Sugars has also undertaken an extensive Rs. 20 crores modernisation cum expansion programme, funded from internal resources. This has increased its sugar production capacity from 4000 tonnes to 5000 tonnes a day. *Sixth, the NTC* subsidiaries in the state made a net profit of more than Rs. 15 crores during 1990—91. NTC states as a result it will be placing more emphasis on individual mills which are the profit centres, rather than dealing with subsidiaries as a whole. *Seventh, Madras Refineries (MRL)* has decided to set up new facilities for LPG separation from associated gas at a cost of Rs. 40 crores. This project is being set up along with MRL distilleries unit in Thanjavur to refine Narimanam crude with a capacity of 0.5 million tonnes at a cost of Rs. 120 crores. To meet the problems caused by importing increased amount of crude, MRL is also expanding its capacity by another 3 million tonnes per annum at a cost of Rs. 1100 crores to be funded by internal resources plus equity. The company's preparation for the aromatics project is proceeding apace, though the decision on the project has still not been made by the union government, while its cost has now escalated to Rs. 1725 crores against the original Rs. 1356 crores (see vol XX p 507). The project to expand the lube capacity from 1.4 lakh tonnes to 2.7 lakh tonnes at a cost of Rs. 165 crores has been approved by the union government and is underway. The project to process half a million tonne annually of cauvery crude, just referred to, will be commissioned in July 1992. The company's joint venture for manufacturing lube additives in the name of Indian Additives is progressing well, its phase comprising blending and succinimide plants being completed by May 1992. A boiler and turbine of 20 MW capacity at cost of Rs. 44 crores in being installed. The effluent treatment plant costing Rs 18.75 crores is being completed in December of this year. The sewage treatement plant with a reverse osmosis unit having a capacity of 2 5 mgd at a cost of Rs. 19.50 has been completed and is working to provide the plant with water. The scheme to manufacture food grade hexans with a capacity of 25,000 tonnes pa at a cost of Rs. 8.80 crores is also being completed in December. It plans another large Rs. 1100 crores project expanding its hydro cracking unit which will be presented to the government for clearance and targets to start it by 1993. Its funding will be from the public in deposits and debentures. MRL has also two small projects plus a Rs 110 crores plant to produce benzene at 54000 tonnes per annum from Rs.38.3 crores propylene plant with a capacity of 17,000-34000 TPA. This MRLs diversified production and actirities and high turnover of Rs. 1640 crores in 1990-91 are impressive not being held back by the delay in the aromatic project approval. *Eighth, Spic Fine Chemicals* producing the country's first reolite based phosphate from detergent reports that it plans to expand its manufacturing and widen its consumer products. It is moving into manufacturing import substitution materials like textile and leather chemicals and adhesives in addition to its current down

such accounts as well as credit their export proceeds to such accounts, h) the Chief Controller of Imports and Exports is being redesignated as the Director General of International Trade and his functions will be reoriented, i) the Board of Trade is to be restructured, and j) many items are being shifted from OGL to the limited permissable list. This is an impressive list of reforms but the government controls still run through every item and the scope for arbitrary decisions and corruption is not diminished. There is a little more freedom for exporters which is needed with the proposed new export incentives and delicensing and rationalisation measures, but the implementation of the many concessions need to be watched. Now with this package, exporters could do their share. Then there was the decision of RBI to dispense with the requirement of the exchange control department approval for import applications for imports above Rs. 2 crores in place of the limit in the case of importer-exporters of Rs. 5 crores. Further, RBI will consider waiver of cash margin where importer-exporter is able to obtain advance payment against his future exports or suppliers credit. There is also to be a relaxation of the 200 per cent margin requirement for OGL exports in specific thrust areas and an increase of credit flow to the exporters. Thus the various restrictions on importers-exporters are now being gradually relaxed. In regard to other developments, the National Water Board has decided to set up a standing committee for continuous monitoring of the implementation of the National Water Policy adopted in 1987 and for this the states have been asked to provide periodic feedback on the progress of implementation of the policy. The government on August 6 decided to remove all restrictions on interest rates on debentures and public sector bonds. The interest rates on such debt instruments will hereafter be governed by market forces. Finally as a postscript to the Finance minister's renewed plea in the budget to cut waste in government expenditures. There was presented in August a series of reports by the Comptroller and Auditor General of the result of the audit of 101 government companies which reveal losses of Rs. 1727 crores. In addition the reports call attention to the idle capacity, infructious expenditures, costly delays and expensive misjudgements in the ministries of information and broadcasting, steel and mines, transport, textiles, urban development, water resources, welfare, agriculture, commerce, energy, defence, finance and external affairs. The defence ministry, shielded from public or parliamentry scrutiny and criticism is held to be guilty, of huge wasteful expenditure running into hundreds of crores of rupees on imported equipment, cost over runs and the bungled modernisation of the Vijayanta T72 tanks. The reformulated Jawahar Rozgar Yojana provided only a few days employment to a quarter of its targeted beneficiaries even in the first year. The diversion of funds in the second and subsequent years is bound to be large. There are the specific cases of waste and misuse of resources of each ministry that CAG points out. This source of waste of budgeted funds should be ended before additional funds are raised and allocated to these ministries.

Industrial Policy (continued)

The final instalment of the New Industrial Policy reviewed in the last issue of the Bulletin was issued on August 7 in relation to the small and

tiny sector. The new policy proposes : a) legislation to ensure payment of SSI bills : b) all to limit new/non active partners liability to the capital invested : c) credit demand of SSIs to be fully met and a cell to be set up to ensure this : d) Permission to other industrial undertakings to invest upto to 24 per cent in the SSI : e) launch of factorising service by SIDBI : f) Tiny sector investment limit raised upto Rs. 5 lakhs : g) relaxation from certain labour laws to the tiny sector : h) national equity fund scheme scope widened : i) composite loans under the single window scheme also to be given by banks : j) tiny sector accorded priority in government purchase programme : k) services sector to be recognised as tiny sector : l) priority to SSIs and tiny sector in allocation of indigenous raw materials : m) promise to deregulate and debureaucratise the small and tiny secter : n) PSL and NSI to help market products through consortio approach both domestically and internationally : o) package for handloom and handicraft sector : p) janata cloth scheme to be replaced by new scheme which will provide funds for loom modernisation : q) compulsory quality control for products that pose threat to health and life : r) identification of cluster of units by SIDBI for modernisation s) a separate modernisation and technology upgradation programme soon : t) greater role for NHDC, SIDO, KVICs : u) thrust to be shifted to producing consumer preference goods from merely depending on rebates and subsidies : and v) a comprehensive programme for training and R&D. With this completion of new industrial policy, this part relating to SSIs and the tiny sector is timely because this sector produces one third of manufactures, 40 per cent of exports and is the main means of generating employment and cutting back unemployment. But it has its pluses and minuses. Its most important strength is that it recognises that this small and tiny sector needs timely credit and not only cheap credit and the legislation and ther actions like the single window which has been enlarged to cover project costs upto Rs. 20 lakhs and working capital upto Rs. 10 lakhs should be welcomed. Further the assurance that the sector will receive continuing attention and priority in the governments purchasing programme are also needed. The problem with the policy is that till good and needed concepts like the single window, debureaucratisation (at present 52 inspectors call on SSIs), the new marketing, the technology upgradation scheme and the specific provisions for handloom and handicrafts are spelt out, and it is difficult to judge the new policy. The major query is with regard to the permission for other industrial enterprises to invest upto 24 per cent in the equity of an SSI, including allowing foreign equity participation in SSI. Both exist at present but now there is formal decision in favour of India and foreign equity participation upto 24 per cent of the equity of SSIs. This will provide the capital resources needed by the sector and the infusion of the latest technology to upgrade technology and cost reduction. The query relates to this provision encouraging indirect ownership of small units by large enterprises. This exist today with large firms forcing out production both to cut costs and get round the reservation policy. Now this is legitimate. Even with regard to ancillary development which has pluses in the greater use of labour intensive techniques and the broadening of the entrepreneurship base, here the ancillary units which operate as part of the larger industrial mother unit enjoy all the benefits meant for SSI. Hence the question on this part of the policy is that jit looks like a help to large units and not SSIs.

Industry

CSO reports a slump in industrial growth in April 1991 at 0.9 per cent while manufacturing recorded a negative growth of -1.2 per cent for the month. Electricity showed a growth of 7.1 per cent and mining 6.7 per cent. The quick index for the month was 199 against 197.2 in April 1990. The annual report for 1990-91 of the Ministry of Industrial Development states that in 1990-91 (upto December 1990) the industrial growth was 8.9 per cent, with manufactures at 10.4 per cent, electricity 7.1 per cent and mining 1.7 per cent. The good munufacturing performance is attributed to favourable investment climate, continued improvement in the small scale sector and employment of 50.3 lakh persons in khadi and village industries. The good performers were electrical machinery, chemicals and chemical products, leather and fur products, paper and paper products and basic metals, while the poor performers were beverages, tobacco products, jute, wood and wood products. The number of SSI units increased by 6.7 per cent to 418,26 lakhs and employment from 113 lakhs to 119.60 lakh persons. Production of SSI was worth Rs. 1,32,320 crores compared to Rs. 1,06,400 crores in 1988-89. Exports form SSIs increased from Rs. 5489 crores in 1988-89 to Rs. 7625 crores in 1989-90. The government launched Exim scrips on August 7 all over the country, but was not able to accept the request of exporters to lower the interest rates for preshipment credit. Polyester manufacturers state that they will not benefit from the extension of MODVAT announced in the budget, manufacturers of monofilament yarn report a crisis following the rise in the excise duty coupled with the devaluation of the rupee and the hike in international prices of hidensity polythene. These need looking into.

Public Sector enterprises

The report of the Department of Public Sector Enterprises reports that the public sector units performed badly in 1990-91 with the sharp decline in their profits by 37.28 per cent from Rs. 3748 crores in 1989-90 to Rs. 2780 27 crores in 1990-91. This was because of the lower profits in the petroleum, coal and lignite, fertilisers and heavy engineering sector. Among 189 units, 105 earned a net profit cut at a lower level by Rs. 671,38 crores, 84 recorded a net loss of Rs. 2188.33 crores. The net profit as a percentage of capital declined from 4.62 per cent in 1989-90 to 2.66 per cent in 1990-91. The remedy for this is to close or sell off the perpetually loss making units and for the budget to take over and finance the non commercial activities that units are obliged to undertake.

National Production Front

Steel

The Annual report for 1990-91 of steel structures a positive note of a 4 per cent increase in its production of saleable steel (7.36 million tonnes) by its 5 integrated steel plants, completion of the suspension programmes of Bhilai

and Bokaro steel plants, and achievment of the iron ore export target of 32 million tonnes valued at Rs. 1057 crores. Crude steel production was 8.76 million tonnes, energy consumption per unit of production was reduced by 3 per cent compared to 1989-90. The modernisation work at Durgapur steel plant is reported to be in full swing and at Rourkela on schedule. Vishakapatnam steel plant had its larger blast furnace commissioned, followed by the other sections. The increased capacity of sponge iron to 14 lakhs per annum and the delicensing of pig iron, promoted in the secondary sector are reported. The problem with these official annual reports is that they do not refer to setbacks suffered and the reasons for the low level of production compared to other countries.

Crude

The crude front presents a gloomy look in the first half of August. The report of the Ministry of Petroleum for 1990-91 reports that crude production for the year at 33.03 million tonnes was 3.1 per cent lower than the previous year (34.1 million tonnes) and even lower against the target of 35.9 million tonnes. It attributes this to the Assam agitation, the problems of Kayali refinery of Gujarat, and the large number of sick wells in the western region, referred to in the previous issues of the Bulletin. Production of petroleum products at 48.56 million tonnes was 0.3 per cent less against the previous year's increase by 6.5 per cent. Production of natural gas was higher by 5.8 per cent compared to the previous year's increase by 28.5 per cent but most of it is wastefully flared. The result of all this is that country's crude import bill will go up by Rs. 18,000 to Rs. 22,000 crores during the VIII Plan 1992-1997. The original import bill of 38,000 crores has been increased to Rs. 56,000 crores based on import of 150 million tonnes, domestic production of an annual 30 million tonnes and international crude price of $25 a barrel. As this kind of money is not available, the moral is very clear. There will have to be drastic measures to cut crude consumption and imports and increase domestic production. The only positive point in this gloomy scenario is that ONGC has struck oil in Ratnagiri, gas discovered at 2 structures in Krishna Godavari basin, and OIL struck near Bikaner when it estimates a crude oil reserve of 180 million tonnes. The government also announced in Parliament a time bound plan for using the country's 686 billion cubic metres of gas reserves in the transport, industrial and domestic sectors. Natural gas can substitute for one fourth of the total demand for oil in the country, and replace diesel and petrol in the transport sector, Kerosene and LPG in the domestic sector, diesel oil and fuel oil in power sector and naptha in the fertiliser industry. These are excellent plans which should be put into effect quickly, along with economy measures, as the only way of meeting the crude oil import bill.

Agricultural production

In the first fortnight of August, the main issue on the agricultural front was the behaviour of the monsoon in the northern belt of Punjab, Haryana, West UP and Rajasthan, MP, Gujarat and J & K. The monsoon this year is technically within the range of normalcy as the data from the meteorological division states as on July 31 out of 35 meterological subdivisions, 21 have received normal or excess rainfall, which means

54 per cent of the districts have adequate rains, the anxiety has been with the regard to the states listed above, when the monsoon was yet to be firm to establish itself upto August 10. In Gujarat the patchy monsoon in Saurashtra will affect oil seeds, particularly groundnut. This outlook was worrying, because any shortfall in the kharif crops and harvest will feed the inflationary potential of the country. The budget and the economic reform policy is based on keeping inflation under control. Hence it is a matter of relief that on August 10 most parts of Punjab, Haryana, HP report heavy rains, inundating the low lying areas, increasing the water level of Pong and Bakner dams. Now it is to be hoped that the monsoon will continue in this region to ensure the kharif cultivation. Having achieved stability in foodgrains production (around 176 million tonnes) the government is concentrating on increasing the land under HYV. This concentration location specific area under HYV which will close the small gap between the target of 68.11 million hectares for the actual of 67 million hectares in 1990-91, the area in 1991-92 is to be increased with use of location specific HYV from the 29.2 million hectares for rice, 22.09 million hectares for wheat last year. In addition there is a thrust on horticulture. On the irrigation front where Rs. 17,932 crores were expended in its VIII Plan, the most shocking situation is the chronic delay in completion of irrigation projects, 23 projects started in the IV Plan are still to be completed, for multi purpose and major irrigation projects including 1 in Haryana, 1 in WB and 2 in Karnataka started in the I Plan are yet to be completed. At present there are 168 major and 288 medium irrigation projects spilling over from the VII Plan. The reason for this shocking waste of resources is bad planning of the projects where there is a competition among states to get into the race at any cost - when the project report is far from ready. In the VIII Plan, no new irrigation projects should be funded for the first 3 or 4 years and all attention should be on completing these 436 projects spilling over from the past.

Foreign Trade

The export front presents a discouraging picture in the first half of August. The Annual report of the Ministry of Commerce for 1990-91, reports a slow down in export given for that year, and that exports had lost their buoyancy shown since 1986 to 1989-90. Export growth which had risen from 14.3 per cent in 1986-87 to 25.9 per cent in 1987-88, to 29.1 per cent in 1988-89, and to 36.5 per cent in 1989-90 dropped to 17.5 per cent in 1990-91 at Rs. 32,527,28 crores. India's imports during 1990-91 rose by 21.9 per cent at Rs. 437.82 crores and so the trade deficit rose from Rs. 7730.44 crores in 1989-90 to Rs. 10,643.54 crores in 1990-91, as noted earlier. Equally depressing is the government's report to Parliament that the provisional export figures for the first 3 months, April to June 1991-92, show a negative growth of -6.5 per cent in dollar terms against the expected 9 per cent. The only item which have done well on exports are agricultural commodities, textiles, marine products, ores, minerals and basic chemicals. The commerce minister attributes this decline in export growth during the first quarter to the "savage curbs" on imports of export related items. But as long the BOP position is bad, on July 26 our total foreign currency assets were only $1237 million - the government cannot be too liberal on imports and in the liberalisation to the maximum to boost exports. The trade deficit for April and May 1991, the first 2 months of 1991-92 has fallen by 78 per cent from Rs. 1114.28 crores in

April and May 1990 to Rs. 204.16 crores in dollar terms from $643.28 million to $118.96 million. This decline is a reflection of the sharp fall in imports brought on by the compression measures of the government and RBI. The Ministry reports that export during the 2 months rose from last year's Rs. 5107.62 crores to Rs. 5606.04 crores, which was a 9.8 per cent increase mainly due to the devaluation, as the dollar equivalent shows a decline of 5.8 per cent at $277.7 million. The ministry announced in August that applications for REP licenses will be processed and licenses issued without waiting for the settlement of CCS claims. This will help clear the enormous backlog since CCS claim have not been settled. At the foreign country level, the rouble-rupee trade is in some confusion because of the changes in the soviet economy. The Soviet authorities are asking for Rs. 91,000 crores equipment ordered by the Indian power and steel sector to be settled in dollars or in direct rupee payments by the importers which they can exchange for dollars in the international markets where the dollar is being exchanged for Rs. 30/-. In turn the Indian authorities are finding it difficult to arrange for import of capital goods and spares for different power and steel projects as agreed by Soviet Union. The Indian government has been preparing for some time to face this kind of structural change in Indo-Soviet trade and the time for it has now arrived. The other issue is the decision of the Swedish government not to renew the multifibre agreement as from 1 August 1991. This is important because other industrial countries want a roll over period of 17 months without observing the 3 Bali declaration conditions - of no fresh curbs, abolishing group limits on garments and no regional quotas during this period. The effect of these decision will be a surge in Indian garment exports to Sweden (as the Norwegian experience shows) though the Sweden market is not a big one. On individual items, the RBI announced on August 10 relaxation of the cash margin against leather input imports under OGL, provided the concerned exporter has had export bills outstanding. Export of experts in software is increasing to the US, UK, Germany and Australia, where the demand for computer experts is heavy. Whether this brain-drain is good for India needs to be examined but the paucity of funds for promotion of this export as well as the bureaucratic hurdles are acting as a break. The sharp increase in SSI export from Rs. 390 crores in 1973-74 to Rs. 7626 crores in 1989-90 was earlier referred to. This, the government informed Parliament is 20 per cent of all exports compared to 22 per cent in 1983-84 and 1984-85. The textile export target for 1991-92 is Rs. 12,100 crores against Rs. 50,000 crores in 2000 AD. The government reports that its foreign exchange reserves have increased from Rs. 2926.23 crores on July 26 to Rs. 3120.40 crores on August 2 as a result of the loans against gold, short term credit from IMF and a net inflow of foreign exchange reserves.

Aid and loans

In the first fornight of August, the World Bank made 2 loans to India-one was $150 million to meet the cost of additional imports due to production shortfall in the Bombay High following from closing down sick wells—with an exceedingly high oil gas ratio, as it recommended: the other was a loan of $158.6 million ($31.6 million from IDA and $124 million from the World Bank for controlling/monitoring and abatement of industrial pollution through installation of effluent treatment plants. World Bank has offered a soft loan of $150 million for the AIDS control programme.

International

World Economy

UN's World Economic Survey—1991 warns that world economic growth is likely to fall to zero this year (1991), as a result of numerous uncertainties, including political instability with Middle East and elsewhere, the speed and direction of the transition in Eastern Europe and the Soviet Union, the course of interest rates and the outcome of the Uruguay round of trade negotiations, which is referred to later and whose failure will lead to a dangerous surge of protectionism and a loss of confidence in the multilateral system. While stating that world output may stagnate around 2 per cent in 1991 and the volume of world trade will grow at less than 4 per cent—the lowest rate since 1985. As growth in world demand accelerates in 1992, world trade is likely to grow by 6 per cent. In 1990, world economic growth slowed for the second year and even fell behind world population growth. In the developing countries, the growth rate slowed for the third year in a row to around 3 per cent. In Latin America and the Caribbean output actually fell. The Gulf war affected a dozen developing countries and Iraq and Kuwait. The world output is expected to rebound to a modest 2 per cent next year, which will only halt the decline in world output per capita in 1990 and 1991. In all major countries growth in output in 1990 increased more slowly or declined absolutely. The slowdown was most pronounced in Canada, UK, US. But Germany and Japan grew faster than 1989. The Growth of industrialised market economy slowed in 1990 by 1 percentage point to 2.4 per cent. By the end of 1990 all major economies were in for near recession. But their paths differed, giving a degree of stability to the world economy. While US slowed sharply in the second half of 1990, Germany and Japan grew vigorously. Eastern Europe and USSR saw the worst drop in economic activity since the second world war. The Soviet Union faced a 4 per cent fall in output and Eastern Europe a 11 per cent contraction. In the developing world growth slowed down for the third year in a row to 3 per cent, compared to 3.4 per cent in 1989 and 5 per cent in 1988. Oil importing countries faced a major terms of trade decline of 6 per cent. In Latin America led by Argentina and Brazil, GDP per capita slowed to 0.7 per cent for the third year. In Africa, the growth rate barely improved, at an estimated 3.4 per cent, which is its population growth rate. In West Asia, except for Iran, Kuwait and Jordan which experienced a catastrophic impact of the Gulf crisis, the other countries increased their oil output and so achieved a high GDP growth. In South and East Asia, the pace of growth remained high in 1990 above 6 per cent, mainly due to the performance of Korea and Malaysia. The region was negatively affected by the Gulf crisis but even so was world's fastest growing region. The world's merchandise trade grew by 4 per cent, a significant slow down from 1989's 6.8 per cent and 1998's 8.4 per cent. The report calls on industrialised countries to adopt policies to stimulate economic growth. They now seek to reduce fiscal pressure and the public sector and rely on monetary restraint to contain inflationary domestic demand: but interest rates and unemployment have been high, weakening investment and growth. In various industrialised countries, spending has been cut, detracting from demand

rather than stimulating, expressing their political priority according to whom unemployment is an acceptable price for containing inflation and high real interest rates are welcomed even at the cost of growth. Hence the view is that output growth beyond 2 or 3 per cent a year will be inflationary. As long as this view prevailed, the industrialised countries cannot serve their historic role as an engine of world economic growth. A more dynamic international economic environment is needed for a shorter adjustment in the developing countries for a less costly transition in Eastern Europe and the Soviet Union, as the survey concludes.

GATT

The impasse over the issue of farm subsidies is still holding up the Uruguay Round of trade liberalisation talks. The group of seven, referred to in the last issue, stated that "no issue has more far reaching implications for future propects of the world economy than the successful conclusion of the Uruguay Round". The farm subsidy deadlock has also affected progress on 14 other trade issues. India wants these negotiations to be concluded speedily by the end of the year or March 1992 and wants the rules regarding safeguards, customs, countervailing duties and anti-dumping laws to be developed and amplified so as to strengthen multilateral trade talks. The EC's decision to impose anti-dumping duties on exports of cotton yarn and polyester yarn is unjustified and contravenes the bilateral agreement between EC and India since 1988. The linking agreement on TRIPS and trade in services to GATT through the concept of a single undertaking or mechanism of common dispute settlement machinery goes against the economic policies of the developing countries which are intended to respond to the challenges of their stage of development. In the area of market access there is an urgent need for equity particularly in respect of textiles, labour, services and agriculture in which the industrialised countries have maintained a highly restrictive and discriminating regime. As for the multifibre arrangement, as noted earlier, the exporting and importing countries have agreed to extend it for 17 months until the end of 1992, because of MFA terms expired on July 31, 1991, and the Uruguay round is yet to be completed. Though it has been agreed to phase out MFA and make it a part of GATT, the modalities of the phasing out are still to be worked out.

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II. Agricultural Development in Tamil Nadu

Paddy and other crops

With plentiful rains in all districts of the state and the filling up of Mettur and its surplusing (for the first time since 1980), the farmers, all over the state and particularly in the Thanjavur district and its delta which is now receiving copious water from Mettur, are hard at work ploughing, planting and broadcasting seeds for the short term kuruval crop. The farmers are aiming at bringing 4 lakh hectares under kuruvai (as of mid August they have brought 1.25 lakh

acres under kuruvai) and have asked for the short variety seeds and the needed fertilisers to back up their efforts. The government stated that it has rushed 150 tonnes of samba seeds to Thanjavur. All the reservoirs in the state are full and so the farmers agree with the target for the year of 70 lakhs tonnes of rice for the current year. This is part of the long term plan of the agricultural authorities to increase the rice production target from 90 lakh to 100 lakh tonnes. Farmers who are growing rainfed crops—coarse grains, pulses etc—are at work taking advantage of the good rains. All the crops this year are likely to yield bumper crops - paddy, cumbu, cholam, varagu, ragi, sugarcane, groundnut, and pulses.

Research results

Of the 27 research reports recorded till mid August, 4 groups of reports are of particular interest as they are of immediate use and application by the farmer. The first group relates to paddy: the Vijianagaram reports a simple and cost effective technique of making up for the deficiency of calcium, proteins, vitamins and minerals in paddy straw through cement rings and airtight storage: similarly UAS, Dharwad states that the ripe pods of the raisin, also used for growing fodder yeast is rich in sugar and protein and can be used as fodder for cattle, the soil and water management research centre, Thanjavur advises farmers that the best variety of paddy to withstand inundation is Ponmani, inundating the plant upto 75 per cent of its height in the flowering stage : and the Krishi Vigyan Kendra, Pondicherry sets forth as a guide to paddy farmers, who are facing a serious pest the white back plant hopper, 5 steps starting with early sowing of sornavari to avoiding sublethal doses of insecticides to control the pest. A second group of reports on beans and pulses also yield results which can be applied to the field immediately : the J farm, Madras has developed a high yielding bush type *avarai* for both cultivation by the farmer in the field and by the housewife for the kitchen garden : the national pulses research centre, Pudukottai reports that the TNAU developed seeds drill drawn by a tractor results in high yield with the facility to change the distance between seeds and adjusting the row to row spacing: the soil salinity research centre of TNAU at Tiruchi advise the pulses farmer that application of NPV at 250 and 125 larvel equivalents per hectare can ward off gram pod borers and avoid all toxic hazards: the oil seeds research station, Tindivanam advises the mustard cum pulses cum oil seeds growing farmer that short duration variety of mustard PJ 303, B-85 can be grown followed by groundnut and gingelly can fetch Rs. 3775/hectare - about Rs. 500 more : ITC reports that its hybrid sunflower seeds AH3425 yields 26 per cent more oil and urges farmers to use it. A third group of reports relates to the fruit farmer : the agricultural college and research station, Killikulam, advises the mushroom growing farmers on the control measures using formal dehyde spraying to eliminate pests and diseases in mushrooms : the Vridhachalam regional research centre advises gingelly farmers the 7 steps needed to be taken from ploughing the field twice before sowing of pre sowing soil treatment with Pharats IOG at 10 kg/ha to keep the white grub and worm grub pests at bay : JDA, Kerala advises coconut growing farmers that apart from use of nitrogen, phosphorous and potash, the application of calcium is essential to increase the

productivity of coconut palms : TNAU's soil salinity research centre also advises that the rhinoceros beetles attacking coconut can be checked by the green muscardine fungus which kills the grub ; the sugarcane research centre, Cuddalore advises sugarcane farmers that cane yield can be multiplied by paddling the field as in rice cultivation and using phosphorous in the form of super phosphate or DAP before the last ploughing : TNAU's horticultural research station in Udhagamandalam feels the Nilgiris farmers using glass houses for growing fruits and vegetables are seriously threatened by the whitefly for which it advises 8 control measures starting with using resistant variations and ending with using an entomogenous fungus and the lady beetle as regulators. A fourth group of reports of interest to cattle growing farmers include : the Lam farm, Guntur refers to the sarcoptic mange in pigs which it says can be countered by applying acaricide preparations and keeping sheds clean : VCRI, Namakkal advises cattle farmers that diarrhoea in calves can be treated by withholding milk for 12-24 hours and giving the calf oral electrolytes thrice a day.

Tea

Tea production in January-July 1991-92 is estimated at 263.3 million kg, with the North India at 171.45 million kg and the South India estates producing 92.86 million kg. The major class of tea produced is CTC at 192.08 million kg followed by orthodox tea at 69.64 million kg. The problem facing the industry and the country is that tea production records an annual average of 4 million kg, while tea consumption has been growing by 18 to 20 million kg. The problem therefore is to choose between increased domestic consumption or increased exports of this valuable foreign exchange earner. In this connection reaching the target of 1000 million kg of tea production by 2000 AD is urgent and special efforts to replanting in old gardens and opening up non traditional areas must be intensified to cover the gap of 250 to 300 million kg in the next 5 years.

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III. Industrial Development in Tamil Nadu

The review of industrialisation in Tamil Nadu in the first 10 days of August covers a rather small number of items. On the positive side, *first* the state government is setting up an *Industrial Guidance Bureau* to serve as a focal point for dessimination of information and escort service to entrepreneurs as part of its plan of all out assistance to entrepreneurs. New entrepreneurs will benefit from this Business service which will closely resemble the concept of the single window scheme for which there have been long standing demands by enterprises. Information will be given to entrepreneurs on the scope of industries in the state, guidance will be available on the procedural aspects of starting industries for the incentives and facilities available. The Bureau will search, encourage and identify prospective entrepreneurs and investors and

motivate them to set up industries. *Second*, a new *100 per cent export oriented spinning unit* with an outlay of Rs. 7.5 crores is being established in Udumalpet, like the electronic city at Perungalathur (See Vol XXI p132). The unit is being put up by the Madras Spinners Ltd, will have 6000 spindles producing hosiery yarn which commands a good global market. *Third*, Spartek Granites Limited (SGL) which is a 100 per cent export oriented unit is being merged with Spartek Ceramics India Ltd (SCIL) as a corporate strategy to exploit the synergies offered by the two companies in the manufacture and marketing of a complex range of products. The merger will enable quick capacity expansion, higher debt equity ratio, higher depreciation facilities, enhanced borrowing limit and entry of the export market in a big way with one brand name, spartek. *Fourth*, the states *sugar-mills* will be gaining from the union government's decision to increase the levy quota by 5 per cent and the levy price by 10 per cent. This helps in dispensing off the surplus sugar with the mills of some 3000 tonnes. But there is still a surplus of 23000 tonnes of free sugar which has to be sold in Kerala and WB. *Fifth*, *EID Parry* seems poised for speeding growth with improving productivity in the sugar, fertiliser and ceramic divisions.

On the *negative side*, *first*, the state is faced with *growing losses from its public sector undertaking*, the two leading sources being bus transport and the State Electricity Board. On the electricity side, the legislative action being undertaken by the union government to introduce the private sector including foreign equity should be awaited. On the *bus transport*, it is clear that the government should first impose a moratorium on further nationalisation of bus transport and second should begin the process of denationalisation of the bus services. Of the 20,000 buses in the state, the 15 state transport corporation operate 14,000—at a huge growing loss. It is to be hoped that the budget to be presented in September will indicate the beginning of the process of bringing the most serious loss making transport corporation back to the private sector to start with. *Second*, *Tuticorin Alkali Chemicals and Fertilisers Ltd (TAC)* which was brought under the fold of SPIC as reported in Vol XXI (p238) has become potentially sick and will have to report to BIFR, as 50 per cent of its net worth of Rs. 12.94 crores is eroded by accumulated losses. Its turnover, gross profits for the year ending March 31, 1991 are poor, with only slight marginal improvement. Now BIFR must decide whether it can be rehabilitated and if so the details of the rehabilitated package. Both BIFR and the stock exchange have decided, was as provided, under clause 40B of the listing agreement. SPIC must make an open offer to the minority share holders at Rs. 20.35 per share which was the price paid by SPIC when it took over from SIDCO.

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IV. Education, Science and Health

Educational reforms

As stated in Vol (XXI p243), the decision of the Central Advisory Board of Education (CABE) requesting the chairman to set up a committee to review the recommendation of the Ramamurthy committee has been expanded by the new government in setting up a 16 member committee of CABE chaired by the chief minister of Andhra Pradesh to review the implementation of the various parameters of the New Education Policy (NEP) taking into consideration the report of the committee for review of NPE and other relevant developments since the policy was formulated. The committee is to give its report within two months with recommendations on modifications to be made in NEP.

Professional education

The serious lack of basic infrastructure in the ITIs particularly 15 in and around Vellore came out this month, when 2 students belonging to these private ITIs were caught following a threat to the staff in case of strict invigilation. The 300 private ITIs lack equipment, teaching staff and concentrate on trades like fitters, motor mechanics and electricians as the infrastructure for these are not costly or sophisticated. The 18000 students turned out by these private ITIs are not only poorly trained, their examination is perfunctory as the states' ITIs are not equipped to handle such a large number of examiners. Hence malpractices creep in as in the case in Vellore. The state government should recommend disapplication from the union government's Employment and Training Department of all these ITI which are not really technical institutes but are money spinners.

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Science

The first random wave generator has been acquired at IIT, Guindy. This is to be attached to the wave basin which has been functioning there since March 1991. On the research side, in cooperation with ICICI, developmental projects under the Programme for Acceleration of Commercial Energy Research in collaboration with BHEL, Trichy and the city's private sector are under way. Also in cooperation with CEI a centre for excellence in manufacturing technology is being set up.

Health

In collaboration with WHO, the AIDS cell at Madras Medical College, which has received a grant from WHO of $286,000 has taken up a programme of "sentinal surveillance of patients, in various out patient departments as part of the Rs. 7.25 crore help for health education and training, laboratory control and programme management during 1991-92. The education and health training programme will cover 4 groups-policy makers, general public, high risk groups and medical personnel. The programme is run by a high level medical scientist group. All microbiology laboratories of all government hospitals are being upgraded under the programme. So far in one year 14 full blown AIDS cases have been identified in General hospital, with over 200 serious positive cases. Testing facilities are available only at Madras, CMC Vellore and Madurai. Workshops on training medical personnal for detection of AIDS are underway and should cover all the metropolitan areas of the state.

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V. Employment and Labour Relations

The government informed Parliament that its employment goal is to create 1 crore new jobs every year. The details of the employment strategy and the programme to achieve this goal are to be incorporated in the VII Plan. The report of the National Commission on Rural Labour was presented to the Prime Minister by its chairman Dr C.H. Hanumantha Rao. It recommends 2 major goals for rural labour. First to improve the levels of living and for this to establish a minimum basic wage of Rs. 20 at December 1990 prices, and recommends an automatic increase in wages every 6 months on the basis of the rise in the consumer price index. The second goal is to prepare them for effective participation in development. To achieve these goals, the strategy recommended includes improving the land base for rural labour, equity in agricultural growth and employment gurantee programme. The other components of the strategy are infrastructure for rural industries, human resource development, social security, empowerment of rural labour and effective governmental presence. Among economic measures to improve the lot of rural labour are self employment schemes like IRDP should be continued by linking them to area development plans to be formulated by elected institutions. Highly labour displacing mechanisation in agriculture like the use of combine harvesters should be banned. There is need for a positive policy to assist and provide relief to migrant labour, and the availability of areas for consumption at lower rates of interest to rural labour families. Institutional credit through cooperative banks must be made more easily accessible to rural labour households. A national authority for bonded labour should be set up and legislation should be enacted for the protection of home based women workers and their welfare. Land tribunals should be set up at local levels for speedy despatch of land reform cases. Comprehensive union legislation should be enacted for agricultural labourers for their protection and welfare. A Shram Shakti Commission should be set up for a national fund for exclusive credit to poor women without any security upto a certain limit. Free and compulsory education for all children upto the age of 14 should be ensured immediately through the formal school system.

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VI. Other Items

NLM Councils

The Council of the National Literacy Mission chaired by the minister of Human Resources Development met in early August. Attended by Ministers of Education, MPs and educational experts, the council reviewed the work of NLM in promoting the literacy programme of voluntary agencies, BGVS and the 100 per cent literacy programme for about 50 districts and expressed satisfaction with this accelerating programme. It expressed regret at the decision of the Kerala government to discontinue the follow up of the 100 per cent literacy

Programme and requested the government to allow the programme which was a model and an inspiration to all other states and districts to continue. However Minister Arjun Singh informed Parliament on August 12 (6 days after CABE met and protested it) that the Kerala government was of the view that there was no need to continue the present literacy programme, as the state had reached 100 per cent literacy. The Kerala sakshratha had submitted a proposal for a post literacy and continuing education programme, which the government has not approved. These and phase of the literacy programme for neo literate, the literacy programme for the tribals and fishermen will be continued.

Seminar on Societal Panorama

There was a seminar on the societal crisis and the way out. Addressed by the stimulating thinker, M.M. Thomas, there was agreement that the crisis covers all aspects of society-political, economic, social and cultural and calls for simultaneous action on all fronts. The seminar devoted half a day to the future of this programme.

Seminar on the Union Budget 1991-92

There was a seminar jointly organised by MIDS and Madras University School of Economics on the Union Budget 1991-92. The seminar began with an overview of the budget examining its supposedly novel features, with the general conclusion that it was little innovative and that it was on the whole regressive ; the second session was devoted to the tax proposals with a detailed analysis to its impact, the possibility of its being evaded in relation to the various concessions given in the personal and corporation income tax, wealth tax and the facilities given to attract black money : the third session was given to the effect of the budget on the balance of payment problem and it was shown that it would not improve the deficit but might make it worse : the fourth session was devoted to the fiscal deficit and its macro economic implications, with a detailed analysis of the 4 types of deficit in the budget and reforms in monetary policy. The last session was given to the problem faced by the economy and how far the budget meets them. A summary of the discussion appears as the second article.

Centre for Development Studies

The Annual meeting of the governing council of the Centre for Development Studies met in mid August. It reviewed the ongoing research programme and commended the staff for its concentration and dealing with Kerala problems. It reviewed the finance of the centre and noted that the population studies centre is making a sizable contribution to its finances. It elected a new council for the next 3 years. It recommended that the ICSSR give greater attention to the linking of the research work of the various Institutions.

September Development Seminar

The paper for the September seminar on "Global trends and Indian Industry" by P. Srinivasan along with a summary of the discussion of the paper at the seminar appears as the first article.

Second Article

As noted earlier, the synthesis of the seminar on the union budget appears as the second article.

Book Review

A review by Padmini Swaminathan of the book, "Regional Cooperation in Industry and Energy" appears in the book review Section.

M I D S News

Mr. S. Guhan chaired a seminar on World Development Report 1991 held at Institute For Financial Management Research, Madras on 11th September, 1991.

He also attended a meeting convened by Governor, Reserve Bank of India with economists on Government's new economic policies at Bombay on 28th September.

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Dr. S. Neelakantan addressed the Post Graduate students of the Anthropology and Sociology Department on "Property Rights and Social Change in India — A Historical Perspective" at Department of Anthropology, University of Madras on 19th September.

He also delivered a lecture on "The Future of Socialism" at the International Women's Association, Madras on 10th October.

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Dr. S. Janakarajan attended a workshop on Aspects of ground water irrigation in the Eastern U.P." organised by IIM and Ford Foundation at Ahmedabad on 30th September.

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Dr. Nasir Tyabji attended the Seminar on Business Opportunities in the Domestic and Export Markets under the New Industrial policies of the Central and State (Tamil Nadu) Government" in Madras on 28th September. He spoke on "Future Thrust Areas in Industrial Development of Small Scale Industries in Tamilnadu during the coming Decade" at the Seminar, organised by the Tamil nadu Department of Industries and Commerce, the Small Industries Service Institute and the Madras District Small Scale Industries Association.

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Dr. Padmini Swaminathan addressed Reserve Bank Officers at the Officer's Training College, Madras on "Industrial Growth in India" with special reference to the New Policy Statement on Industry, on 3rd October.

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Ms. Jennifer E. Duyne (Ethnologisches Seminar, University of Zurich, Switzerland), Affiliate of our Institute presented a seminar on Rural Industrialisation in Bangladesh— The Role of Infrastructure" on 26th September.

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Mr. Lal Jayawardena, Director, World Institute of Development Economics Research of the United Nations University visited the Institute on 3rd October.

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Global Trends and Indian Industry

P. Srinivasan
General Manager, Corporate Management Services

This Paper seeks to broadly and briefly discuss some of the trends in the global scene which have a bearing on industry and its performance and progress. These trends are taking place both at macro and micro levels and their impact is felt by both developed and developing countries. Their implications to a country like India which is in a transitional stage cannot be over emphasised.

The Paper is divided into three sections. The first section focuses on macro level trends. The second section deals with changes in manufacturing, marketing, technology and other management practices which directly influence the performance of industrial enterprises. The final section raises certain issues relating to Indian industry and its future in the context of the present state and the performance over the last four decades.

Section I

Government's role

The major trend which has emerged in recent times is in regard to the role of the State in managing economic activities. The consequences of this trend are reflected in the redefinition of the role of the Government and the re-thinking and review of the ownership of the means of production, greater faith in market forces and pluralist democracy. This review, then, leads to a reconsideration of the need for centralised planning process, which, in turn, has implications to social priorities and resource allocation. At the same time, it is recognised, the State has a definite role in certain spheres. As the World Development Report 1991[1] puts it: "it is not a question of State or market: each has a large and irreplacable role."

Power shifts

Apart from the swift disintegration of the once monolithic Soviet Block,[2] there is the break-up of what Alvin Toffler[3] calls the so-called South because of the inability to form a timely united front vis-a-vis the industralised world. One group comprising the desperately poor countries is still mostly dependant on peasant labour. Another group includes important countries like Brazil, India and China which are emerging as industrial powers, but which are saddled with vast populations and scrabbling for subsistence from pre-industrial agriculture. The third group consists of nations like Singapore, Taiwan and South Korea which have virtually completed industrialisation and are quickly moving into high technology. "If power is splintering in East Block, so, too has power in the so-called South."[4]

The third immense power shift,[5] to use Toffler's expression, has been the emergence of Japan and Europe as rivals to United States "lending to hyper competition as each fights to dominate the 21st century. The so-called West, too, is, now splitting apart."

Paul Kennedy[6] highlights the rise of the Pacific region which not only includes the economic powerhouse of Japan but the swiftly changing giant, the Peoples Republic of China, NICs, Australia and New Zealand, ASEAN countries, USA and Canada. The importance of this region (excluding North America) is seen in its economic transformation in terms of achievements in GDP, industry and trade and rapid shifting of world economic gravity towards Asia-Pacific as the Pacific begins to emerge as a key centre of world economic power.

Toffler points out that the power shifts taking place in the world today are of epochal nature and are closely linked to the decline of industrialism and the rise of the new knowledge-driven economy. There is a definite change in the role of knowledge in that it signals the rise of the new system of wealth creation. Knowledge is not only the source of the highest quality power but also the most important ingredient of force and wealth. Knowledge has also become the ultimate substitute as less capital is needed to do the same thing that required more capital in the past. The information revolution seems to be reducing the need for capital per unit of output.

Dynamics of World Economy

Peter Drucker[7] in a seminal article asserts that the world economy has undergone a change in its foundation and structure and, in all probability, the change is irreversible. Three fundamental changes have occured in the very fabric of the world economy. First, the primary product economy has been "uncoupled" from the industrial economy. Second, in the industrial economy itself, production has been de-linked from employment. Third, capital movements, rather than trade (in both goods and services) have become the driving force of the world economy.

Despite the drop in commodity prices during the Seventies and the Eighties, agricultural output rise almost one-third between 1972 and 1985 to reach an all time high. Food supply had grown faster and had matched demand and had steadily outrun the population growth.

For all non-farm commodities, (various products, minerals or metals) world demand is shrinking. The amount of raw material needed for a given unit of economy output has been dropping for the entire century except during the war time.

In this context, the Japanese experience is noteworthy. "In 1984, for every unit of industrial production, Japan consumed only 60% of the raw materials required for the same volume of industrial production in 1973, eleven years earlier.[8]" The reason is that industry is steadily switching away from heavily material-intensive products and proces-

ses as it moves into high technology. The raw material in a semi-conductor micro-chip accounts for 1% - 3% of total production cost, but, in automobiles and pots and pans, their shares are 40% and 60% respectively. This scaling down of raw material consumption goes on in regard to both old and new products. Fifty to hundred pounds of fibre glass cable transmits as many telephone messages as one ton of copper wire does. This decline in raw material intensity in manufacturing process is extending to energy consumption.

This phenomenon of making more with less and less has implications in terms of trade for primary products in both developed and developing countries. These have further implications to the process of development itself in developing countries.

The second major change in the world economy highlighted by Drucker is higher manufacturing production both in developed and developing countries. This means decline in blue-collar emyloyment. Data and experiences confirm this phenomenon. Most of the growth in employment in advanced countries like US and Japan is in non-manufacturing sectors. It is possible, that, in future, labour force in manufacturing may further shrink, and, consequently, the proportion of labour force may not be more than the proportion of employment in farming. Even in developing countries, knowledge or skill embodied workers are growing and they may outnumber the blue-collared workers in the coming years.

The third major change, according to Drucker, that has occured in the world economy is the emergence of the symbol economy - capital movements, exchange rates and credit flows - as the flywheel of the world economy in the place of real economy - the flow of goods and services. The two economies seem to be operating increasingly independently. This is both the most visible and the least understood of the changes."

World trade in goods today is much larger than it has ever been before. This is also the case in Invisibles i.e. the trade in services. This accounts for more than three trillions a year. But this amount is over-shadowed when we look at the transactions of the London-Euro Dollar Market where the turnover of each day is over $300 billions and, in a year, more than 75 trillions - more than twenty-five times that of world trade. Further, the foreign exchange transactions in the world's money centres account for over $ 150 billions a day or over $ 35 trillions a year - over twelve times world trade in goods and services.

Whatever the causes for this expansion of trans-national money flows, they have wrought a fundamental change in that the real economy of goods and services and the symbol economy, money, credit, capital are no longer bound tightly to each other and that they are moving further and further apart.

This change has serious implications to developing countries in terms of decline in prices for their products while the developed countries because of the preponderance in exports of industrial goods may derive an advantage in terms of favourable trade Another implication of this change is, that, instead of competitive advantage factors of the real economy - competitive labour cost and labour productivity, raw material cost, etc - increasingly, it will be exchange rate which will decide labour cost in a country. Any enterprise operating in the global economy has to recognise that it

is in two businesses at the same time : it is both a maker of goods (or a supplier of services) and a "financial" business. It cannot disregard either.

Trade Blocks

There is another trend that is emerging on the world scene. Peter Drucker[9] mentions that economic relations have to be between trading blocs rather than between countries. The establishment of a European market by 1992 and the free trade agreements in North America (between US and Canada and between US and Mexico) are two manifestations of this trend. There is a possibility of a third trading bloc in the Asia-Pacific region centred on Japan.[10] If Japan and East Asian economies, find more of their goods shut out of Europe and America, Asia-Pacific trade bloc may emerge by default.

Triad - Inter-linked economy

There is yet another phenomenon i.e. the inter-linked economy[11] (ILE) of the triad of US, Europe and Japan. These are joined by aggressive economies such as Taiwan, Hongkong and Singapore. The emergence of triad challenges economic policies based on conventional macro-economic data comparing one nation against another. If the Government tightens money supply, loans will flow in from abroad and render the monetary policy meaningless. If the Central Bank tries to increase the interest rate, cheaper funds come in from other countries i.e. ILE. Thus, ILE has created problems for Central Banks-interest rate and money supply.

ILE has a resident body of 1 billion people enjoying and average of more than $10,000 per capita GNP. It is with ILE that most of the wealth is created, consumed and re-distributed. The ILE factor in gathering strength as seen from the co-ordination of the macro-economic policies and co-operation among G-7 countries on all matters (including political). This development has far-reaching implications to both advanced and developing countries. It is, therefore, important for a country like India aspiring to become an industrial power to develop a healthy two way relationship with ILE.

Section II

The trends at the Industry level are indeed revolutionary in scale and scope. Some of them are highlighted here they are considered relevant and important to Indian Industry.

Globalisation of Markets

Technology is driving the world towards a certain homogenisation of markets. This is mainly because of easy access to communication, transport and travel. The result is very quick diffusion of market[12] information around the world. Thus we have, today, a commercial phenomenon known as globalisation of markets for globally standardised products This, then, compels companies who aspire to partake in these markets to gear themselves in terms of enormous economies of scale in production, distribution, marketing and management. As they achieve levels of performance which enable them to penetrate into world markets, they edge out competitors who still operate within their narrow local/national markets.

With instant communication and ready information, consumers in all parts of the world want products which have the same functionality, quality, reliability, service levels and price competitiveness. It is no longer possible to sell to developing countries products which are lesser versions or which are no longer in developed countries. And, similarly, it is not possible to make more money abroad than at home. This does not mean that regional or local preferences can be ignored in the case of products which require adjustments.

As Kenichi Ohmae[13] argues, "the trend towards the single global market is unstoppable-and companies that fail to grasp the opportunities in time will inevitably loose out."

With the reality of globalisation of markets, MNCs are becoming TNCs. The word "overseas" is no longer meaningful.

Management experts like Kenichi Ohmae point out, that, companies, who wish to globalise, have to move more deeply into the countries when they seek to neutralise the impact of currencies as well as the possibilities of protectionism. Besides, in order to serve their customers well, they have to be closer to them in key markets. Only truly global companies can achieve "global localisation" i.e. be as much of an insider as a local company but still accomplish the benefits of world-scale operations.

Strategic Alliances

As life becomes increasingly complex day by day, companies have begun to learn that it is no longer advantageous to go it alone. The consequence is the growing national and cross-border alliances among big companies. It is argued, "globalisation mandates alliances' makes them absolutely necessary to' strategy".[14]

There are agreements between firms that go beyond normal market transactions but fall short of mergers. More and more alliances are taking place to serve whole regions or the whole world. Alliances extend beyond markets to cover multiple activities. All the US auto companies, for example, have alliances with Japanese companies to produce cars for sale in US.

Some of the benefits are : economies of scale and learning by joining forces in marketing ; component production or assembling of particular models ; access to local markets or required technologies or government formalities for local ownership. There are certain costs as well to these companies who seek such alliances in strategic and organisational terms.[15]

That alliance is perceived as advantageous is clear from the fact that even Big Blue, IBM, which was once considered a world giant with unsurpassed technological and marketing muscle, has been establishing alliances with companies in USA, Europe and in Japan.

The major consequence of this development is the restructuring of certain industries at a global level-for example, automobiles and computers. This is the trend which has implications to developing countries like India as there may be more such alliances and restructuring of industries in triad countries.

Manufacturing - New Concepts

Another trend of tremendous significance is the emerging importance of manufacturing in corporate strategy.

With the success of Japanese companies because of the manufacturing excellence, considerable attention is devoted to the production process. The MIT commission on Industrial productivity[16] points out that "US industrial performance has suffered not only from a failure to coordinate the design effectively but also from a lack of attention to the manufacturing process itself. Process design and production operations have been neglected by management and held in low esteem by the technical community. This is in sharp contrast to industrial practice in Japan and other countries, where production has far higher stature and attracts some of the most qualified and competent technical and managerial professionals."

There is a distinction in this development between US and Japan. In US and Europe, chemical industry is science-based, whereas, in Japan, discrete parts manufacturing has been developed as a science. Unlike in chemical industry, in engineering and electronics industries, high flexibility, high volume and high variety are required and they have been mastered by Japan.

The MIT commission further points out that the weakness in the process and production expertise which is apparent in many of the American industries is one of the factors which has led to the replacement of American manufacturers by Japanese in the market place for a number of products including consumer electronic items. One specific instance quoted by the MIT Study is the machine tools sector which is characterised by widespread neglect of production technology. People have been comfortable with proven technologies and have not demanded the best from machine tool builders, whereas in other advanced countries including Germany, machine tool users have exhibited a much greater degree of technical sophistication.

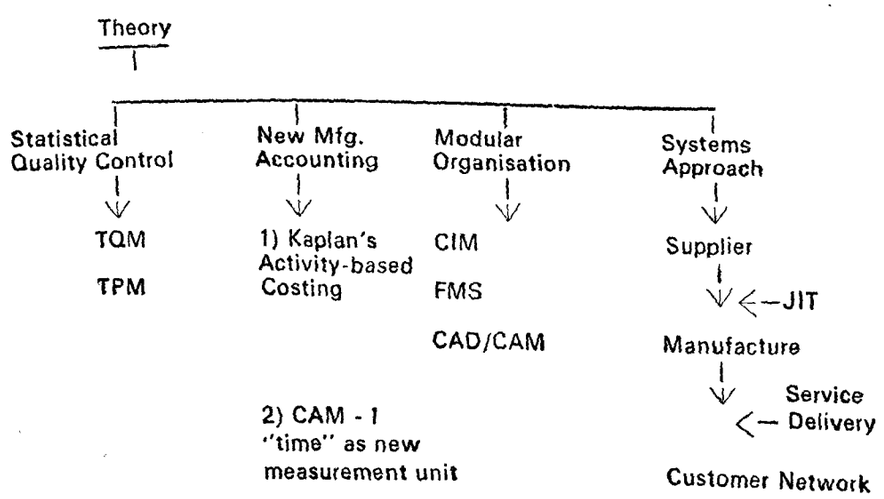
This neglect is also seen in exploiting the potential for continuous improvement in quality and reliability of products and processes. The cumulative effect of successive incremental improvements and modifications to established products and processes can be very large and may outpace efforts to achieve technological breakthroughs.

There is today a worldwide upheaval[17] in the way the management processes are conducted. Earlier, repetitive automation worked side by side with human craftmanship; the new wave of manufacturing process technology combines the ideas of flexibility, adaptability and modularity to produce better products in new ways. It looks as if eventually it will envelop all sectors of manufacturing : to start with in durable goods. electronics, transportation, and aerospace industries where its presence is already strong: subsequently, in building, clothing, mining, and other industries as limited only by our imagination and courage to take risks.

The far-reaching developments in manufacturing technology pushes us to the threshhold of the Factory of the Future which differs from the factory of the past essentially by the capabilities broughtforth by modern digital computers The early stages of this metamorphosis dates back to the early 1960s were characterised by NC machining, CNC machining, Robotics, Group Technology and Flexible Manufacturing System (FMS). These tools provide us islands of automation usually separated by gulfs of inefficiencies. All these

modern tools, however, were a prologue to the Factory of the Future whose essence is the integration of different machines so that they work harmoniously in the overall process of manufacturing. With the power of VLSI micro-computers literally at our finger tips, real-time process control and reprogramability of the tools of manufacturing enable us to explore new possibilities of product variety, life cycle and customerisation that were earlier found to be impossible.

The emerging theory of manufacturing has been succintly analysed by Peter Drucker.[18] The following exhibit captures the essential elements of the new manufacturing theory.



Note :
- TQM ... Total Quality Management
- TPM ... Total Productivity Management
- CIM ... Computer Integrated Manufacturing
- FMS ... Flexible Management Systems
- CAD ... Computer Aided Design
- CAM ... Computer Aided Manufacturing
- JIT ... Just in Time

CIM is mainly concerned with information processes at all levels of the factory and its management.

FMS provides the essential computer controlled manufacturing tools and systems for CIM to execute the computer generated plans and schedules that takes account of a total system rather than just one cell or shop.

CIM integrates "FMS islands" within the computer network, the business system.

The transformation in the attitude of managements towards manufacturing is seen in the desire to attain what is popularly called World Class Manufacturing (WCM) [19] The term clearly captures the breadth and the essence of the fundamental changes taking place in large modern enterprises. All the elements of production process are affected: management of quality, job classifications, labour relations, training, staff, support, sourcing, supplier and customer relations, product design, plant organisation, scheduling, inventory management, transport, handing, equipment selection, equipment maintenance, product line, accounting system, role of the computer automation and others. WCM seeks continual improvement in quality, cost, lead time and customer service and it is considered possible, realistic and necessary. "WCM demands simplification and direct action : do it, judge it, measure it, diagnose it, fix it, manage it on the factory floor. Do not wait to find out about it, by reading a report later."

New manufacturing organisation

While noting these fundamental changes in manufacturing, it is important to distinguish between having the technology and using it. This distinction sums up the competitive edge of Japanese over US manufacturers as the US companies compared to their Japanese counterparts use the new equipment (FMS) in remarkably inflexible and ineffective ways[20]. Ramachandran Jaikumar through his pain-staking research, over a period of years, points out, that, the difference between US and Japanese performance is due not to the equipment but to how things are managed. Developments in software in automated manufacturing has made management of all companys' intellectual assets—knowledge and skills of its workers—an essential ingredient for success. "The arena of competition is shifting from manufacturing to engineering, from process-maintenance to process improvement " This new technology cannot be practised with an obsolete organisation.[21] There is, therefore, need for a new manufacturing organisation which helps to manage not only physical assets but also intellectual assets. Only a new organisation can capture the knowledge and develop the skills that will enable a company to compete with process technology.

Information Technology

Another momentous development is the Information Technology (IT). Today, it is no longer considered a business resource; it is considered as the business environment. The term Information Technology describes the products and services created by rapid changes in computing and communication technologies and the two fusing together. Information Technology is more than just computers. It broadly encompasses the information that businesses create and can use and a wide spectrum of increasingly convergent and linked technologies that processes the information.[22]

The strategic significance of this new Information Techology is recognised all over the world as it is transforming the nature of all products, processes, companies, industries and even competition itself. The benefit of this technology has been highlighted earlier while dealing with manufacturing. Nevertheless it may be useful to note the three major uses which this flexible tool provides to modern corporations : pro-

ductivity, competitive advantage and responsiveness. This most powerful system is as effective as its users as emphasised by the experts.[23]

Rapid Dispersion of Technology

In today's world, products are based on so many different critical technologies that it is not possible for companies to maintain a lead in all of them. The software for IBM's personal computer, such an instant hit, was not an IBM product. It was developed by the Lotus Corporation. Most of the components in the IBM PC are outsourced as well. IBM could not have developed the machine in time and cost it if it had tried to keep it 100% proprietory. IBM's accomplishment with the PC lay in its decision and ability to approach this development effort as a process of managing multiple external vendors. The moral of the story is clear : rapid dispersion of technology.[24] Nothing stays proprietory for long and no one player can master everything. In the contemporary world, operating globally mean, operating with partners, which, in turn means a further spread of technology.

Fixed Costs Management

To successfully compete in global markets, companies have to incur immense fixed costs. It looks as if it is not possible to play the variable cost game any more. Apart from needing partners who can help them amortise fixed costs, they need definite strategies in order to maximise contribution, to fixed costs. With increasing automation, the variable cost of labour is gradually going out of production and manufacturing is becoming a fixed cost activity. The cost of technological breakthroughs and commercialising them on the innovation chain in order to turn them into marketable products has skyrocketed so much that research and development. (R&D) has become a fixed cost too. For eg. in the pharmaceutical industry it takes about $50 milions or even more to come up with an effective new drug; consequently, R&D is not a variable cost game. Even people and brandnames are included in fixes costs. Information technology is mostly a fixed cost.

The fundamental change that has occured in the last 10-15 years is the shifting in the manager's focus of boosting opportunities by reducing cost of material, wages, etc , (variable cost environment) to maximising marginal contributions to fixed costs i.e. boosting sales (fixed cost environment). This new logic naturally compels managers to amortise their company's assets over a much larger market base and this naturally drives them towards globalisastion.

The shift from management of controllable costs to fixed costs management poses tough challenges to managements as they operate on a world-wide basis.

Importance of Design

There is a transformation taking place in global manufacturing capacity. Design is becoming the front end of technolgy; this is already seen in a number of industries like watches, TVs, cars, etc. To maintain the quality of a car, one needs a better design. Design is an engineering support service.

In the design end of the technology, a lot of developments are taking place. For example, it is possible to get the engineering support service from any part of the world for there are no considerations of economies of scale, end so on. Given the outsourcing of discrete parts in automobile industry, industry structure itself is getting networked. There are any number of global networks operating for industries. This, in turn, requires high level of P&D and design competence in order to demonstrate efficiency at the global level. It has to be the world's best and such criterion as big and small becomes a non-issue.

Such support services are becoming increasingly possible because of telecommunication and design tool. Specialists are working on third generation design tool which is system based - for example in the design of the entire gear box (vibration, noise, shiftability, etc). The corresponding development is simultaneous engineering. One person may not be able to do it and so a number of engineers may have to work on different aspects and these can happen in various parts of the world. One way to move fast is to do simultaneously what used to be done sequentially earlier.

In the past, designing was done first and manufacturing methods were worked out later. Today, one is defining and designing the manufacturing process concurrently with designing the end-product.

Discontinuities in Technology

In modern business, two factors need to be carefully and quickly addressed from time to time.

The first is the Law of Limits that determine the technologies, machines and processes which are likely to become obsolete. Management's ability to recognise these limits and gear themselves to developing new technologies becomes crucial for competitive advantage. The second factor is the rapidity with which the technological discontinuities are occuring.

"The scientific knowledge that underpins our products and processes is multiplying by leaps and bounds in fields as diverse as quantum physics, surface chemistry, cell biology, mathematics and structure of knowledge itself. Furthermore, every day we learn more about the process of innovation - how it works and how it can be made to work better."[25]

"These two developments are not new, but never before have they interacted to produce such an explosion of knowledge and change. Before the year 2000, major technological changes may have transformed as much as eighty percent of all manufacturing industry and a large portion of all services industries. We are living in an age when the risk to industry leaders is greater than ever before. Not only will technological discontinuities come with increasing frequency as we move towards 2000, but during these discontinuities, the attackers will have the advantage."[26]

Non inter-changeability of Employees

Creativity and Innovation are possible only if an organisation has the best human resource. Superior performance depends essentially, apart from other factors, on superior human resource management practices. "The right management principles, systems, and procedures play an essential role, but the capabilities that create a competitive advantage come from people - their skill, discipline, motivation, ability to solve problems, and capacity for learn-

ing. Developing their potential is at the heart of high-performance manufacturing. Moreover, it allows a manufacturing organisation to differentiate itself in ways that are extraordinerily difficult for its competitors to copy."[26]

While these aspects are fundamental in modern industrial organisations, there is a perceptible change taking place in the attitude of employees themselves. The emphasis on unity and solidarity of employees through collective efforts (Unions) is losing its relevence in technologically advanced countries and workers are no longer inter-changeable as they once were. As workers get more differentiated, the bargaining position of individuals with crucial skills is enhanced. Individuals, not only organised groups, can expect pressure. The strength of an employee in future is to be found in his cranium - where society has the single most important source of future wealth and power - and not in tool box or in machinery.[27]

Section III

The focus of this Section is not on date or progress of the economy but on the capability of the Indian Industry to successfully integrate itself into the world economy. An attempt is therefore made to raise certain issues in regard to Indian Industry which demands careful consideration in the light of the aforementioned objective.

From the discussion in the foregoing Sections, it is clear, technology[28] is the driving force which dictates the pace and direction of industrial growth. Technology not only changes the structure and organisation but it also changes the dynamics of Industry itself. Efficient technology management then becomes the central task of industrial enterprises.

Technological Dynamism

How is Indian Industry geared to upgrade its technological competence, adapt modern processes and produce products of best quality acceptable globally? The answer to this question can be positive and negative. While Indian Industry has acquired certain technological strength mainly through imports of technologies, they do not have the capability to adapt, improve and make forays into new areas. There are a number of reasons for this state of affairs; but, the Industry itself has to take the blame to a large extent. Because of the comfortable situation under Government's protective policy and also because of temptation to make quick profits in the domestic market, there has been no compulsion for the Industry to take care of this aspect even as the industries in triad countries and NICs have fortified themselves with new technologies.

Government's policies ,themselves have contributed to this market environment[29] where a few ployers flourish without much internal competition and with little or no external competition.

These Government policies have led to certain negative results particularly in terms of shielding of inefficiency in Industry. But the burden for the undistinguished technological performance in terms of output growth, efficiency and exports has perforced to be borne by managements themselves. There has always existed for Indian Industry the soft option of importing technology and foreign tie-ups without any effort to assimilate and develop further the know-how acquired by them.

There has been virtually very little of R&D in Indian Industry. Innovation and creativity have always been sporadic in Indian Industry as their products, despite low quality and high prices, have ready domestic market (due to import restrictions etc.).

What has Government done in this regard especially when we have so much of documentation and policy formulation on science and technology? There are objectives and goals in the policy statements; but, they have neither made any impact on Government organisations, nor have they imparted any creative urge in (public and private) Industry.

Over the years, enormous investments have been made in building scientific and technological infrastructure. There are high level educational institutions devoted to science and technology and it is quite often asserted they compare with the best institutions in the world. To cut the long story short, their benefits to Industry much less to society have been far from commensurate with the costs incurred on them. Neither have they developed a nexus between Industry and the Laboratories/Institutes, nor has there been any mobility between Industry and Scientific/Technological Institutions. Nowhere has this isolation paradox been witnessed with such equanimity.

Scientific and Technological Skills

The assertion that India has the third largest scientific and technological manpower has been rejected by the data published by UNESCO quite some time ago.[30] At the same time, there is no gainsaying the fact that India has a large technical manpower. It is, however, a moot point how much the skills they embody are relevant at a time when technologies are undergoing rapid changes and when there is a need to acquire the state of the art knowledge and skills to sustain technological capability of the Industry.

Entrepreneurial/Managerial Skills

It is quite often taken for granted that the country has developed a large reservoir of entrepreneurial and managerial skills, and, therefore, it is not difficult to build on the existing strength and expend if only resources and technologies are available. To some extent, this optimism may be justified given the initiatives and achievements of both public and private sector industries in certain areas. Unfortunately, their entrepreneurial skills are not reflected when one looks at the capabilities to measure up to world standards of performance. In other words, most of their initiatives have been in traditional lines of production or in areas where they can obtain attractive returns on their investments without much effort and within a short time. It is argued that risk preference of Indian entrepreneurs / professional managers is indeed low and that they lack the confidence, dynamism and the vision of their counterparts in newly industrialising countries, let alone advanced countries like Japan.[31]

Whatever be the reasons, we are laggards in many industries. For example, we have been in the business of steel for more than three decades with a private sector unit operating from the early part of the century. We are still producing around 10 millions from the integrated steel plants, whereas one plant in South Korea produces more than 10 million tonnes. China's crude steel output is more than four times that of India's, and that of South Korea's is

one and a half times more. Japan started with 5 million tonnes of capacity in 1950 and this has grown to 150 million tonnes by 1980. Today, Japan sets standards in world steel industry.

Industrial sickness

The Indian Industrial sickness which has been growing over the years reflects the impact of Government's policies and Industry's inability (mainly due to managerial inadequacies) to face challenges, particularly, market forces through flexibility and imagination. Apart from the number-majority of SSI units this industrial sickness results in locking up scarce capital leading to loss of output, income, employment, demand, and, above all, investible surplus.

In the case of large scale units, managements can be more active than has been the case all along. It is true that regulatory environment is a hindrance but, still, there is sufficient scope for better management if only the will is there. The Japanese industries, when they face similar situations, explore ways and means to utilise the resources either through increasing demand or making other products. This experience may not altogether be applicable to the Indian situation because of the constraints like market and so on. The message must not be lost sight of.

If the situation is allowed to grow, the employment situation may become worse. This will be unfortunate given the fact that the record of manufacturing industry has not been as satisfactory in regard to employment generation. The issue, then, is one of finding solution acceptable to both labour and management, without in any way compromising the need for using the assets in a more efficient manner. Apart from the employment aspects, which generates purchasing power and demand, there is this issue of enhancement of managerial competence, a strength required for enabling Industry to move into global markets.

Cost/Productivity

The increase in incremental capital output ratio (ICOR) in manufacturing reflects underutilisation of capacity and high cost of production. Labour productivity represents a small improvement in total factor productivity (TFP). Total factor productivity at 1% in 1960s and 1970s has improved in 1980s though this improvement is less than those in other developing countries. Our level of TFP has affected Industry's competitiveness in world markets and impeded efforts to improve export performance. Apart from Government's policies, weak managerial conduct,[32] as revealed by low capacity utilisation and slow technological change, should cause concern. The combined effect of Government's policies and manageria ineffectiveness has led to high cost structure of Industry.

The recent improvement noted in the TFP should spur managements to improve further especially when policy constraints are being removed gradually. This is a challenge and an opportunity to Indian Industry.

Industrial Performance

Indian Industry witnessed impressive growth in the 1980s as compared to earlier decadas. This is evident from the expansion in output, in diversification of products and in acquisition of new

technologies. These positive developments provide confidence about the future. However, "the fall in the share of value added in gross output from 23% in 1975 to 19% in 1986 is indicative of the input cost escalation[33] in industrial production adversely affecting price competitiveness of the products. Imported inputs are becoming increasingly expensive in the wake of the decrease in the value of the Indian rupee against key currencies. In general, there has been a fall in the non-wage share of the value added reflecting an increase in wages with no proportionate improvement in productivity."

Industrial growth has led to structural change in GDP. The share of manufacturing has gone up from 12% in 1950 to 18% in 1989; it was 17% in 1980-81. This means, there is enormous potential which can be tapped through better managerial initiatives. As compared to structural composition of GDP in other developing countries, the contribution of the manufacturing sector to GDP is low.

The Industrial sector, while performing well in some respects, has not been as dynamic as some of the developing countries, particularly, in Asia. In addition, Indian Industry has lost its potential in export markets. As already noted, factors such as high domestic market pull, high cost of production, low productivity, inadequate attention to quality and inefficient market initiatives have impeded the export driveof the Indian Industry.

Small size Markets

The markets for goods and services are small as compared to many developing countries mainly because of low income and low purchasing power. The demand base is still to expand significantly as unemployment and poverty are widespread among large segments of the population. Unless there is substantial increase in the growth rate (higher than the present 5%), it may not be easy to generate adequate opportunities for employment. This employment generation need not necessarily be in the manufacturing sector; it could be in primary and tertiary sectors. It is possible that it may be difficult to generate adequate employment oppertunities in the manufacturing sector with the adoption of modern technologies in order to produce products to match global standards.

That the demand base is inadequate is recognised by planners, policy makers and by industry leaders. It has not, however, been considered as a major constraint as others like infrastructure, for example, as somehow, Industry has been able to sell products even at higher prices. The volume consideration has started to enter Industry's calculations only recently with competitive pressures building up as a result of Government's liberalisation measures. With compulsions to export, cost and volume factors may become critical for improving the efficiency of Industry.

There has been estimates of the Indian market ranging from 100 to 200 millions. The performance of Industry does not seem to support this estimate and, in fact, foreign investors estimate the market at a considerably power figure. Whatever be the number, the fact of the matter is that the market sizes for a number of products are far less in India (as compared to our population) than in many of the developing countries. Even as industries are grappling with the small size markets, it has to face a formidable challenge from large scale smuggling of products. Smuggled products today

constitute a substantial proportion of Indian markets and, particularly, in consumer and consumer durable goods and this renders estimation of market size very difficult.

For Indian industries to be globally successful, capacity/volume has to increase substantially and this is possible only if the Indian market expands. This crucially depends on substantially higher growth rates in the economy and attaining higher levels of income and purchasing power (not eroded by high rates of inflation).

New Policy Initiatives

Government's Policy initiatives in recent months have vastly improved the policy environment. No longer it is possible to say that Government is standing in the way of Industry's performance. Admittedly, the responsibility is today with the Industry and it has to measure up the challenges posed by the new policy measures.

This policy environment is becoming favourable to Indian Industry. More than this favourable development, adequate infrastructure (both economic and social) are fundamental to Industry's performance. Adequate allocations of resources for infrastructure have to be made and adequate capacity built up for taking care of future requirements. This can only be done by the Government at any rate for the next few years.

Competitive pressures are bound to increase and internal competition should help Indian Industry to try to become efficient in terms of cost, quality and distribution. It is possible that attempts will be made to help industry to reduce the high cost of production. In the meantime, Industry can do a lot in managing the cost economics, especially when there is so much of knowledge available about the methods used by managements in countries like Japan.

Indian Industry, as noted earlier, will have to vastly improve its performance on several fronts including technology and has to demonstrate leadership skills and the ability to manage markets within and outside the country. With the existing strengths, India cannot become a significant participant in the global market, as the industry is unequal to the task. In India's share in world trade has to increase from 0.5% to, let us say, 2% as it obtained in 1950 it will be a very tough task indeed. Industry will have to understand the implications of the restructuring of industries going on at the global leve and the consequent changes in the dynamics of comparative advantage.

The Industry's future depends on technology availability as it will not be possible to develop indigenous capability in the next few years. It is going to take time. At the same time, efforts have to be initiated in right earnest to build up technological skills and high levels of performance so that, in the next few years, a respectable R&D base is established.

At the present time, access to the latest technologies seems difficult. As pointed out earlier, if we are able to improve the size of the market, scale up the level of managerial performance and technical capability, it may become less difficult to get superior technologies from triad countries. Indian Industry will then be able to bargain from a position of strength.

Harsh Global Environment

The global environment today, as noted already in Sections I and II, does present a grim picture. Given this situation, the question is : whether Indian Industry, which is today an insignificant player in the global market, can make a successful entry and sustain itself?

This problem for Indian Industry, for that matter, Indian economy becomes all the more difficult when we examine the global economic environment. The international agencies are pessimistic about the prospects in the next 2-3 years. Global economic prospects over the next few years look difficult. The pressure points will be the extent, depth and duration of the US recession; the ability of East Europe to maintain the momentum of its reforms; and the stability of the international financial system....." The long term growth prospects of both industrial and developing countries will depend on developments in the world trading environment." Apart from uncertainties in the international trading environment and the cost of the external finance, developing countries have to face uncertainties in regard to availability of the external finance. There are competing demand for the limited availability of funds from countries in Eastern bloc, China, and other developing countries. As in the case of technologies, access to funds may not be that easy.

The problem in India is compounded by the fact that she is facing serious macro-economic imbalances. The resource problems have to be sorted out with external assistance—so far encouraging-but this is going to add to the already heavy burden the country is bearing because of large external debt.

Encouraging Response From Industry

The success of Indian Industry's efforts will, to considerable extent, depend on the performance of the economy in the next 2-3 years. If the problems are sorted out within the time-frame of three years, as envisaged by the Finance Minister, this will facilitate the launching of Indian Industry into global markets. This will, of course, depend on political stability and continuity in policy management (?)

Indian Industry today is much more conscious of its shortcomings than ever before. Many industry leaders are aware of the global trends discussed in earlier sections. They are giving serious thought as to how they should grapple with them. Many managements are looking to markets beyond the borders of this country and are learning new skills to manage costs, improve their human resource systems and honing their managerial and entrepreneurial skills to become active participants in the world markets. A few of them have achieved quality (ISO-2000) matching global standards. Many of them are attempting to improve their quality and performance of their products and are seeking acceptance in sophisticated markets in triad countries. That Indian Industry is coming to terms with the new realities both in Indian and International scene is recognised today. But the task is not easy as they have to overcome many of their shortcomings. They have to improve in many areas in order to stand comparison with some of the best companies in the world. Some of them are already exploiting the opportunities which are provided by the networking of markets. They have however, to improve substantially their design and engineering skills to exploit the opportunities provided by the out-

sourcing of components by major companies in triad countries. Design has always been a weak spot in Indian Industry[24] and this has prevented technological change and export efforts. There is need for swift and decisive action to improve the design capability to world standards if Indian companies are aspiring to be become reliable suppliers to global corporations.

Conclusion

Some issues have been raised in this Section to highlight the weaknesses in Indian Industry and to discuss the urgency for quick corrective action by both Industry and Government. Any delay will mean greater cost to Industry and to Society. Industry cannot afford this, nor can the country any longer. It is therefore, incumbent upon both Government and Industry to work in concert with the sole objective of succeeding in making the country a globally competitive power.

Indian Industry has a tremendous stake in this effort and it cannot afford to miss this opportunity. The global market is a harsh judge and the Indian participants will be tested as per the rules of the game in a ruthless manner. Indian Industry has to respond to this challenge and given a reasonable time-frame, it should be possible to succeed.

Notes and References

1. World Bank, Oxford University Press, 1991, Roundtable discussion on Development Strategies : the roles of the State and Private Sector. Supplement to the World Bank Economic Review, 1990.
2. Considerable implications for Indian Economy and Industry.
3. Power Shift, Bantam, 1990.
4. Alvin Toffler, op. cit.
5. First Shift : disintegration of Soviet Bloc ; Second Shift : Breakup of the South.
6. The Rise and Fall of the Great Powers, Fontana Press, 1988.
7. The Changed World Economy, Foreign Affairs, Spring, 1986.
8. Peter Drucker, op. cit.
9. Peter Drucker's 1990s, The Economist, October 21, 1989.
10. A Survey of World Trade, The Economist, September 22, 1990.
11. The Borderless World, Kenichi Ohmae, Collins, 1990.
12. The Marketing Imagination, Theodore Levitt, Free Press, 1983.
13. Triad Power, Kenichi Ohmae, Free Press, 1985.
14. Global Logic of Strategic Alliances in The Borderless World, op.cit. Harvard Business Review, March-April 1989.
15. The Competitive Advantage of Nations, Michael Porter, Macmillan, 1990
16. Made in America : Regaining the Productive Edge, MIT Press, 1989.
17. Computer Integrated Manufacturing : An Introduction with Case Studies by Paul G. Ranky, Prentice Hall, 1985.
18. Harvard Business Review, May-June 1990.
19. World Class Manufacturing, Richard Schonberger, The Free Press, 1986.
20. Post-Industrial Manufacturing by Ramachandra Jaikumar, Harvard Business Review, November-December 1986.
21. Manufacturers's Crises : New Technologies, Obsolete Organisations by Robert H. Hayes and Ramachandra Jaikumar, Harvard Business Review September-October 1988.
22. How Information gives you competitive advantage by Michael Porter and Victory E. Miller, Harvard Business Review, July-1985.
23. An excellent analysis of the impact of Information Technology on industry : A Survey, in The Economist, June 16, 1990.
24. The Borderless World, op.cit.
25. Innovation : Attacker's Advantage by Richard Foster, McKinsey & Co. Summit Books, 1986.

26. Dynamic Manufacturing By Robert Hayes, Steven C. Wheelwright, and Kim B. blark, The Free Press, 1988.

27. Power Shift, op.cit.

28. As organised knowledge or as embodied in new products and new processes.

29. Technology Acquisition and Application : Interpretations of the Indian Experience, Ashok V. Desai in Indian Economy its recent Development and Future Prospects—Edited by Robert E. B. Lucas, and Gustav F. Papnaek, Oxford University Press, 1988 ; Technology Absorption in Indian Industry, Edited by Ashok V. Desai, Wiley Eastern, 1988.

30. India ranks 14th in the world with its stock of economically active scientific and technological manpo we —"Statistical Outline of India 1989-90", Tata Services Limited, Bombay, 1989.

31. Contrast with Honda's 'strategic thinking process' to beat competition and emerge as a world leader—KAISHA : The Japanese Corporation, James C. Abegglen & George Stalk Jr. Basic Books Inc. 1985; Honda's case as typical of Core Competence (engine expertise) -The Core Competence of the Corporation by C.K. Prahalad and Gary Hamel, Harvard Business Review, May-June 1990; Yamaha's strategy as explained by Kenichi Ohmae in "Borderless World" op.cit; Samsung's success Story : Fast Heat : How Korea Won the Microwave War", Harvard Business Review January-February 1989. These are typica entrepreneurial initiatives with strategy and vision. No wonder, these Japanese and Korean corporations are global players.

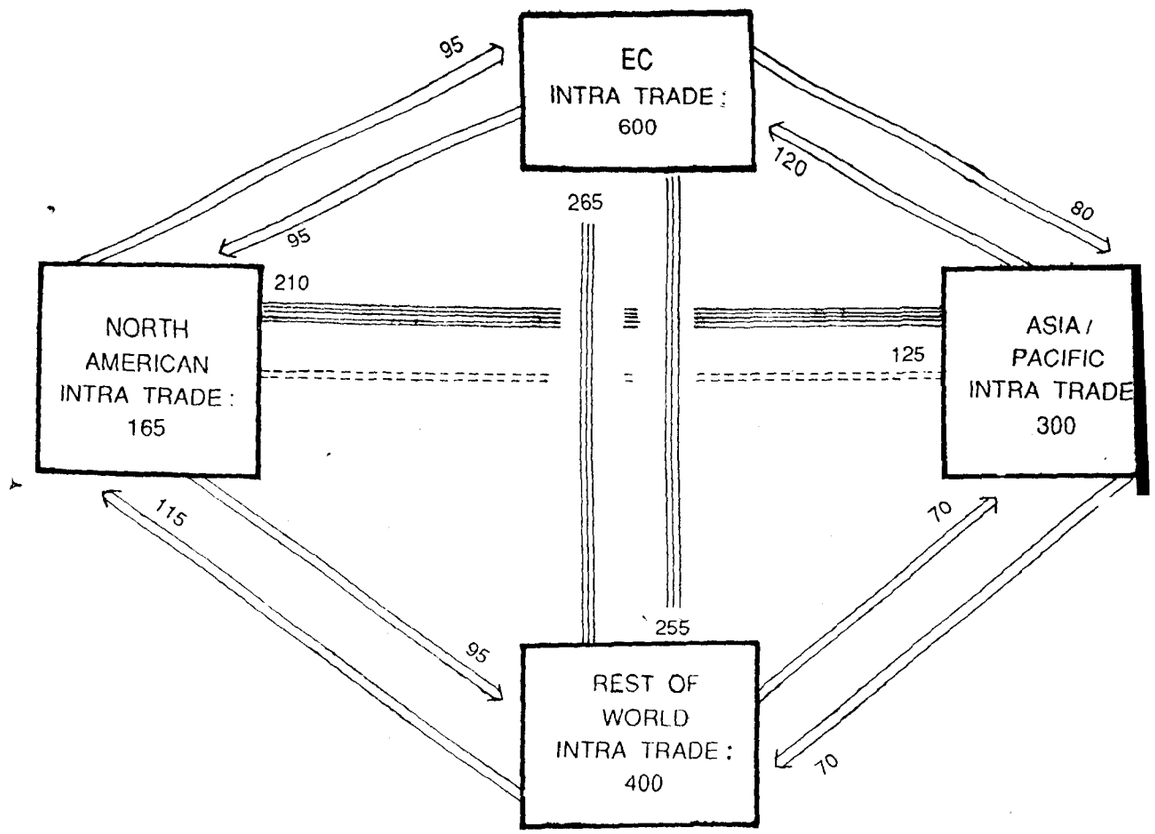
32 India : Industrialising Economy and Transition, World Bank 1989, op.cit. Industrial growth in India : Stagnation since mid-60s I.J. Ahluwalia, Oxford, 1985.

33. India : New Dimensions of Industrial Growth, UNIDO, 1990.

34. Mark Frankena's analysis of the Industrial and Trade Control. Regime and Product Designs in India quoted in "India's Second Revolution" by Lawrence A Veit, McGraw Hill., 1976.

Annexure I

World trade flows, 1989 $bn
(Figures have been rounded to nearest $5bn)



Source: A survey of World Trade, Economist, September 22, 1990

Annexure II

India : Structural Changes in GDP, 1966-83

(% of GDP)

	India	China	Brazil	S. Korea	Developing Countries	World
Agriculture						
1966	47.8	37.5	15.9	34.9	28.6	9.4
1978	38.6	29.8	14.0	20.2	21.4	7.2
1983	35.6	35.3	13.4	13.9	20.8	6·4
Mining						
1966	1.0	4.4	0.8	1.9	4.7	2.5
1978	1.4	5.5	0.7	1.4	6.2	2.5
1983	2.9	6.7	1.2	1.4	7.8	4.6
Manufacturing						
1966	14.3	30.3	27.2	18.6	21.1	27.9
1978	15.9	37.5	27.5	27.8	22.2	25.6
1983	16.7	32.5	27.2	27.4	20.6	23.0
Construction						
1966	5.1	3.2	5.4	3.7	4.5	5.8
1978	5.3	3.7	5.8	7.9	5.9	6.4
1983	5.0	4.6	4.4	8.4	5.7	5.6
Services						
1966	31.7	24.5	50.8	41.0	44.1	54.4
1978	37.7	23.6	52.0	42.7	44.3	57.3
1983	40.0	20.9	53.8	48.9	45.1	60.3

Source : WORLD BANK

Summary of Discussion

The Seminar started with the Chair person's introduction on Global Trends and Indian Industry. He gave a note on changing trends of Indian Industrialisation and said that Indian Industries are facing crisis due to various reasons like population explosion, lack of encouragement to foreign investment, heavy investment in the public sector etc. These crises have contributed to a slow industrial growth. Apart from this, it could also be seen that in the industrial sector the dynamism is not in par with the dynamism taking place in agricultural sector, like that of green revolution for example. Moreover the fiscal measures are so severe that unless they are removed industry cannot grow by itself. Mediocre leadership involving national building activities have led to poor management and backwardness and thus had not been efficient enough to make the liberalised economic policy a reality.

This was followed by the author's presentation. He highlighted the Macro level trends in global economy (Governments role, power shifts, dynamics of world ceonomy, Trade blocs, Triad-Inter linked Economy and the global transformation), and Micro level challenges to the same (Globalisation of markets, Strategic alliances among big companies, importance of manufacturing in corporate strategy, fundamental changes in manufacturing, information technology, rapid dispersion of technology, fixed cost management, importance of design, discontinuities in technology, non-inter-changeability of employees etc.). Here he emphasised that research and development is vital in all industries, for it captures the gaps due to discontinuities in technology and also helps the industries to cope with the global development Other developing countries are not sympathetic for the industrial backwardness hence the linkages between industries and research institutes should be strengthened and not neglected. Finally he analysed the capacity of the Indian industry to intergrate itself with the world economy. He brought out the stand of Indian Industries in terms of technological dynamism, scientific and technological skills, enterpreneurial/managerial skill, industrial sickness, cost/productivity, industrial performance, innovative capacity, small size markets, new policy initiatives, harsher globa, environment, encouraging response from industry etc. He brought out the weakness in Indian industry and discussed the immediate need for corrective action plan. He concluded by saying that technology not only changes the structure and organisation but it also changes the dynamics of industry itself. Efficient technology management becomes the central task of the industrial enterprise. Hence we should not blink/run away from the global industrial scene but identify the gaps and bridge quickly to cope with industrial development.

The discussion started with Mr. Gopalan's remarks. He opined that Industrialisation is at a fast pace in America because they trade with intelligence accumulated from other countries ; it is so in Russia because Russians monopolise all the intellectural properties ; and in Japan it is due to their patriotism. He made a comparison of the industrialisation of Japan and India : Japanese did not conduct much research (this, the author refuted) but they were aware of/well informed about the latest invention in other countries, which they suitably implemented in their industries. They concentrated on few fields and utilised the intellectual property of others and succeeded in it. In Japan, certain factors like individual and group incentive schemes, and the self correcting society itself are instrumental in increasing the production. Whereas the Indian industrial development depends on import of technologies, that soon become outdated. Ignorance of the Indians mainly due to poor information technology hinders quick development of industries. Though the Indians invent tehnologies, it is often practiced abroad rather at home. He also said that while Indians work not for themselves but often for others, Japanese work for their own self and also with a spirit to increase production : Japanese are driving their own taxi and Indians are driving someone else's taxi."

The author, in response said that while the Japanese encourage competition for their products within and across boundaries, Indians, by repeated imports are wasting the scarce resources, and the problem becomes acute since access to funds is also not very easy. He made an interesting observation that in countries like Brazil, China, Thailand and Mexico, 50 percent of their investments are directly done by foreigners, and hence these countries have prospered a lot. He pointed out that economists and policy makers may take time to analyse the existing situation and plan for development. However, UNIDO and other International organisation will give warning signals and global deveopment will not wait.

The chairperson also mentioned that Japanese producers are very flexible; they design their product according to the demand. They try to get knowledge through their intellectuals and update their production technology, and their reaction to demand is phenomenal. For them marketing is as important as technology.

Dr. Padmini Swaminathan quoted a study on Research and development Published in Economic Times, where a comparision of the Industrial development of Korea and India is made. The paper, she said, has criticised the basic research that has takan place in our laboratories saying that there is no linkage between our industries and labs. The paper is also said to have criticised the Indian business community and the Government policies also, in the context of the slow industrial development.

Mr. Karunakaran said that sharply focused studies of industries are essential. Research should be done at micro levels for which autononous circles should be formed. Only then we can integrate with the world.

The discussion came to an end with the author's remark that Japanese do not sponsor research in universities but in labs.

MILLIE NIHILA

Report on the Seminar: The Union Budget and Economy*

A seminar on the Union Budget and Economy, sponsored by IEA Trust for Research and Development, Madras Institute of Development Studies and Madras University School of Economics was held at the MIDS on August 10, 1991. Apart from the over-view presented by Mr. S. Guhan of MIDS, there were the following four sessions, each devoted to a specific aspect of the economy and the budget :

Session I : "New Tax proposals and their Impact" ;
Discussion initiation :
Mr. K. R. Ramamani
Tax expert.

Session II : "External Economic Transactions and Budget"
Discussion initiation :
Dr. S. V. Bokil, IFMR.

Session III : "Fiscal Deficit and Macro-economic Implications" ;
Discussion initiation :
Dr. U. Sankar
Madras University

Session IV : "General impact of the Budget" ;
Discussion inititation :
Dr. C. T. Kurien, MIDS.

A summary of the discussions in these sessions is given below :

It was generally agreed that the macro-economic adjustment sought to be achieved in the budget should be viewed within the larger socio-economic context ; and this for a number of reasons : *First* of all, a budget, eventhough it is an instrument largely for short and medium term adjustment, does have far reaching, and long term consequences for the simple reason that the state plays a major role in any economy and the budget does set and define a large part of this role. *Secondly*, such a role of a budget becomes particularly important in a context where the economy is in crisis, and the Indian economy today, by any reckoning, appears to be in a deep crisis. Thirdly, in a context where the planning process has been given a go-by, the budget takes on the role of setting and defining broader, long-term policy issues and goals for the economy, and this appears to have happened in the Indian context today.

Given this broad perspective the discussions in the seminar can be broadly divided into two broad groups :

* Synthesis of the Seminar persentation on the Union Budget and Economy sponsored by IEA Trust for Research and Development, MIDS, Madras University School of Economics and held at MIDS, Aug. 10, 1991.

1. Issues relating to the macro-economic adjustments sought to be achieved by the budget : and

2. Broader economic issues within which the short-run adjustment process has to be viewed.

Section I: Macro - Economic Adjustments

It was noted that the 1991-92 budget is essentially an *adjustment budget*, attempting fiscal adjustment and macro-economic stabilisation during the current financial year to be followed by a continued consolidation of these processes during the next couple of years or so.

In more concrete terms the budget has set itself the specific purpose of reducing various types of deficits, like the fiscal deficit, the revenue deficit, the balance of payments deficit etc. It was also noted that according to the Finance Minister, expenditure adjustment constitutes the core—or the central instrumentality—of these corrections during the current year. And this adjustment, the government claims, would be made without affecting the growth impulses adversely, and without touching the poor.

Given this, the questions that have to be raised seem fairly obvious:

1. What the budget has sought to achieve in terms of macro-economic adjustments, is it possible, credible and sustainable?

2. Is the adjustment process consistent with growth, stable price regime, social justice etc?

In order to answer these questions—the first question in particular—a framework for analysis, in terms of a set of identities, was presented in the seminar:

The *revenue deficit* is the gap between total revenue (plan and non-plan) expenditure and total revenue receipts, i.e.,

$$RD = RE - RR \qquad (1)$$

The *budgetary deficit* is the difference between total receipts (revenue and capital) and total expenditure (revenue and capital accounts under both plan and non-plan heads); i.e.,

$$BD = RD + \text{net capital disbursments (NCD)} - \text{Borrowings (B)} \qquad (2)$$

The fiscal deficit is government's total expenditure on revenue and capital outlays (net) minus revenue receipts, or

$$FD = RE + NCD - RR \qquad (3)$$

(Note that in all the three equations above the deficits have a +ve sign)

From the equations above, one can write :

$$FD = RD + NCD = BD + B$$

Now, one of the ways of reducing fiscal deficit is to reduce borrowing, B. This is a preferred option since government borrowing crowds out private investment, results in dependance on external borrowings and most importantly increases the future interest and repayment obligations of the government. But from equation (2) it is clear that a decline in borrowing B leads to an increase in budget deficit BD, unless either the revenue dificit, or the net capital disbursments—or both—are held in check. So, a macro-economic adjustment process sought

to be achieved through a reduced reliance on borrowings has to face a trade-off between (a) a reduction in revenue deficit either by increasing revenue receipts and/or reducing revenue expenditure and (b) a reduction in net capital disbursments. As how this trade-off is sought to be resolved in the budget, would have very serious implications for the economy.

Given this broad framework, the budget may be evaluated by looking at various items on the receipt and the expenditure sides. *Table 1* provides some data on these items—in relation to GDP—for 1990-91 (revised estimates) and 1991-92 (budget estimates). A large part of the discussions in the seminar centred around each of the items given in the table-whether the decrease or increase envisaged in each is possible or credible, and what would be the implications of each such change, etc.

Table 1 : Fiscal Adjustments in 1991-92 Budget

	Item	1990-91 (RE) (as per cent of GDP)	1991-92 (BE) (as per cent of GDP)
1	Revenue receipts	11.1	11.6
2	Revenue expenditure	14.5	14.0
	(a) Non-Plan revenue expenditure	11.8	11.0
	(b) Plan revenue expenditure	2.7	3.0
3	Revenue defict	3.4	2.4
4	Net capital disbursments	5.0	4.1
5	Borrowings	6.3	5.1
6	Budget deficit (3+4—5)	2.1	1.4
7	Fiscal deficit (5+6)	8.4	6.5

On the revenue side, the estimated revenue receipts for 1991-92 are higher than the revised estimate for 1990-91 by 17.7% ; and there is a marginal improvement—of a 0.5 per cent point increase — in revenue receipts as a percent of GDP. This is partly due to an increase in tax revenue, which is stated to increase by 18.5 per cent over the revised estimate for 1990-91.

It was generally felt that eventhough there are some attempts at increasing direct taxes—a five per cent point increase in corporation income tax rates, a 3% tax on interest earned by banks, financial institutions and companies, a reduction in the depreciation rates etc—the budget could have, should have, done much more in this sphere, by say, widening the direct tax base, by taxing

agricultural income taxes etc. As for the indirect taxes, it was noted that a sharp increase in customs revenue—of the order of 26% - is largely due to the devaluation of the rupee, and hence, being a one-shot affair, is not sustainable. The increase in excise duties on luxury items like VCRs, VCPs refrigerators etc., it was felt was not adequate.

All in all, it was pointed out that tax revenues as a per cent of GDP has remained constant, at 8.6% both in revised estimate of 1990-91 and the budget estimate of 1991-92. It was felt that in this context where tax revenues are not elastic the budget should have addressed itself to a number of important issues like : (a) attempts to tackle the problem of black money in a more fundamental fashion—by attacking it at the sources where it gets generated—rather than dealing with it in half-hearted, admittedly ineffective schemes providing amnesty to tax-dodgers ; (b) attempts to reduce tax evasion by plugging loopholes, with-drawing various tax concessions etc; and (c) attempts to simplify and streamline the plethora of tax laws.

On the non-tax revenue, it was pointed out that the performance of public sector undertakings in terms of internal resource generation continues to be dismal : This is considered to be the major reason why non-tax revenues as a percent of GDP have remained stagnant at 2.5%. The need to improve efficiency in public sector undertakings was acknowledged by one and all. It was also pointed out that the sale of shares upto 20% of equity of profit-making public sector undertakings, which is stated to bring in Rs. 2500 crores will be in the nature of a capital receipt and should be appropriately netted out of budget support for equity investment in PSEs. The soundness of this move, even in strict financial terms, was questioned. The consequence of such a sale, it was pointed out,will be that money which was earlier going to the exchequer—and because it was going to the exchequer was available for public purpose—will no longer reach there. Instead these incomes will accrue to a narrow section of affluent savers.

Coming to revenue expenditure, as a per cent of GDP it is in fact stated to decrease from 13.8% (RE) in 1990-91 to 12.6% (BE) in 1991-92. In absolute terms the increase is stated to be only of the order of 8.6%. Serious doubts were raised in the seminar as to whether it is possible at all to peg revenue expenditure to levels envisaged in the budget, and this for the following reasons: *First*, of all, two major heads—interest payments and subsidies—which account for roughly 70% of our non-plan expenditure appear to be inelastic at least in the short run. While interest payments by nature are such, reductions in subsidies often involve political considerations, and hence, are not always politically feasible. The experience with regard to fertiliser subsidy testifies to this. The decline in export subsidy again a consequence of devaluation, and hence is not sustainable over the years. *Secondly* while the defence expenditure has been contained—as a per cent of GDP it is in fact stated to decline from 3.4 to 2.7, and the absolute increase in percentage terms over the previous year is stated to be only 3.8—serious doubts can be raised on this in an inflationary context, where nearly 30% of this budget is for salaries and another 30% for stores (provision of food, petrol, clothing, medicine, vehicles, spare parts etc.) *Thirdly*, other non-plan revenue expenditures—consisting of items like police, pension, grants to states etc.—are in fact stated to decline, even in absolute terms, by 3.4%. This, it was felt, was totally unrealistic, given the inflationary context, the law and order situation etc. It was noted that the expenditure on this head had in fact increased by 15% in 1990-91 over 1989-90. *Fourthly* it was also noted that plan revenue expenditure is to register an increase. While the purpose for which this expenditure incurred — like poverty allevation programmes, say—cannot be questioned, it was felt that what is needed here is a dispassionate analysis of the efficacy of expenditure for these purposes.

In sum it was felt that the budget has been totally unrealistic in terms of the claims made regarding containing revenue expenditure. And given the inelastic nature of revenue receipts, this would naturally raise serious doubts regarding government's ability to contain revenue deficits.

In a context where borrowings are stated to decline-by about 7.8% in absolute terms—the inability to contain revenue deficits will mean, as noted earlier, a decline in net capital disbursments, if fiscal deficits are to be contained. And this, it was noted would be a real possibility. As budgeted, net capital disbursments—including net capital investment in public sector undertakings—are stated to increase by about 10% In a situation where a double-digit inflation is very likely, this would mean that in real terms there would hardly be any increase in net capital disbursments : This, it was felt, would very seriously affect the performance of the infrastructural sectors like power, transportation etc., and would have serious consequences in terms of overall industrial stagnation, import substitution, export promotion etc. it was also feared that if the calculations regarding receipts and expenditures go awry during the course of the year — as they are very likely to happen given the inflationary situation — either the deficits will be much higher than what the budget has estimated, or there will be further cuts in net capital disbursments — or more likely both, a potent situation for the development of stagflationary conditions.

Turning to the balance of payments situation, it was felt that the strategy pursued is unlikely to ensure even balance of payment adjustments, and even if such adjustments are achieved it would have serious, deleterious consequences.

Given the enormous external debt — of the order of 180,000 crores — built up over the years, the repayment burdens would be enormous, and cannot be adjusted in the short run. Moreover, there is a perceptible, declining trend in net invisibles : and since the NRIs look for essentially a stable price situation — and since what obtains in the country today is an inflationary situation—there is no reason to assume that the situation with respect to invisibles will improve in the near future. Given such a context, even if our export earnings improveconsiderably in response to rupee devaluation, the country it appears will have to live with a stiff inflationary contraction, if we have to adjust balance of payments. Now if the first claims on our import bill would be bulk imports (like edible oil etc), and imports required for exports, the axe, in such a situation, would necessarily fall on imports of capital and intermediate goods which would once again have serious recessionary consequences.

As for the effect of devaluation on our balance of payments position it was noted that the success of this move would depend on some crucial conditions—like an elastic demand for imports within the country, and an elastic external demand for our export items : a relatively stable price regime where our inflation rate would not be higher than the rates outside etc—which are unlikely to obtain. Furthermore, it was noted that devaluation, along with the 40% premium enjoyed by the REP licences (or Eximscrip) can have very deleterious consequences : while the imports in general be much more costly because of these factors, sectors that follow a cost—plus pricing formula—luxury goods with low price elasticity fall in this sector—can pass on the burden of consumers, but it can have recessionary consequences for the rest. This, it was felt, would lead to a pattern of economically and socially inefficient import substitution.

Thus in terms of the major macro-economic adjustments, the general feeling in the seminar was that either the adjustments attempted were not possible, credible or sustainable; or, the consequences of such adjustments in terms of inflation, recession etc. are deleterious—or, perhaps both. As already noted, while discussing these adjustments a number of broader socio-economic issues were also raised in the seminar, What follows is a brief summary of discussions on these issues.

Section II: Broader Economic Issues

There was a good deal of discussion in the seminar on broader economic issues relating to traditional liberalisation and opening up of the economy, deregulation and privatisation of the economy, aspects of employment and human resource development policies, inflationary situation in the economy, poverty alleviation programmes etc.

Regarding trade liberalisation and opening up of the economy, the assumption that such a move will lead to greater competition was questioned; Competition and markets, it was pointed out, are very closely linked with economic power, and in a context of unequal economic power, represented by transnationals, there is no possibility of world trade becoming genuinely competitive. There will also be an attempt within the country for the bigger units to conglomerate, partly in order to withstand the pressure of unequal competition that comes from outside and partly to take advantage of it. The proposed policy measures for restructuring the economy — like downgrading of the MRTP—would just strengthen these tendencies.

It was also pointed out that liberalisation in the sense of debureaucratisation, and a change in control mechanisms may be a welcome move, there has been a tendency to equate liberalisation with a shift from prudence to lack of prudence, or a move towards profligacy, with serious consequences for the economy: These consequences—in terms of stagflationary tendencies in the economy, the possibility of a deepening balance of payments crisis etc.—have already been touched upon earlier in this report.

Elaborating the point that the alternative to a system of poor, bureaucratic system of control is not a system of non control leading to profligacy, but one of proper controls, it was pointed out that the success of late industrialisers like Japan or South Korea was not based on indiscriminate investment by private investors pursuing market signals, but industrialisation guided by a highly interventionist state that influenced important decisions on technology upgradation, marketing strategy, labour relations etc.

It was pointed out in the seminar that one of the issues that has not been given enough attention—whether by policy makers or by academic circles—is the impact of the whole gamut of policies —liberalisation, restructuring, privatisation etc.--on labour; the level of unemployment that is likely to increase, the living standards for the workers, and the socio-political consequences these can generate. It was pointed out that the decade of eighties, with its record of high growth performances in industry and agriculture, was also a period of near—stagnation in employment levels, and this was particularly true in the private sector. In this context, it was pointed out, one has to worry about the consequences of policies which would give us, more of the same.

It was also pointed out that the increased emphasis placed on human resources development in the budget this year is a welcome move, the emphasis within this has been on education as usual. The need to view human resources development comprehensively—education being only a component of it—was pointed out.

In sum, the seminar emphasised the fact that the present budget—and a number of economic policy initiatives announced just before it—do have serious, and often disquieting, implications for a number of important socio-economic issues relating to the very nature and role of the state, the living conditions for the deprived sections, the potential for stagflationary conditions in the economy, and the macro-economic adjustments attempted in the budget should be seen in the context of these larger issues.

Book Review

The Politics of Regional Cooperation
Regional Cooperation in Industry and Energy : Prospects for South Asia

Arif A. Waqif (Ed.)

Sage Publications, New Delhi 1991, p. 264, Rs. 235/-

The papers contained in the above volume were presented at a Regional Seminar on Identification of Specific Areas of Regional Cooperation in Industrial and Energy Sectors in South Asia among the SAARC countries organised at the Administrative Staff College of India, Hyderabad, in August 1986. The two major questions addressed by the contributors are :

(a) in which specific areas, and why, would regional economic cooperation be mutually beneficial and feasible ?

(b) what are the constraints and issues which need to be resolved to facilitate such cooperation ?

We do not propose to discuss the papers/sections seriatim, (since there is quite a bit of repetition). We intend however to highlight some of the issues thrown up by these papers and concentrate specially on the constraints that may prove hard to overcome in the effort to cooperate in the economic field. By way of introduction, the SAARC Declaration signed by the seven South Asian Countries in New Delhi in August 1983, included among others the following objectives :

— to accelerate economic growth, social progress and sectoral development among the member countries of South Asia :

—to strengthen cooperation among themselves in international fora on matters of common interest ; and

—to promote active collaboration and mutual assistance in the economic, social, cultural, technical and scientific fields.

As pointed out in Sanjeev Gupta's paper, the SAARC group of countries are characterized by heavy demographic pressure with accompanying problems of unemployment and poverty. In all

countries a large proportion of the total population derives livelihood from agrarian activities. In terms of per capita income and gross national product all countries rank low and belong to the low income countries listed in the World Bank tables with a per capita of less than $400. Agriculture continues to play a vital role in the respective economies while the share of industry continues to be relatively low (p126-127).

While the above characteristics (and given the proximity of the countries to each other) should theoretically, give, immense scope for regional economic cooperation, the same is not discernible in practice due to a number of factors—politics dominating the scene. A spirit of optimism runs right through the papers. The papers, in general, list out a number of areas in the field of industry and energy that could enhance cooperation and mutually benefit the region. This, inspite of the fact that (as S.S. Mehta points out in his paper), of all the various forms of cooperation, industrial cooperation has proved most controversial and achieved the least success in the case of a number of regional groupings all over the developing world. "The stories of stalled progress in industrial cooperation are far more than the instances of success" (p. 27).

Reviewing the industrial cooperation programmes of other regional groupings it is pointed out that only those of the RCD (Regional Cooperation and Development) and the Andean have attained some measure of success. Generally, allocation of industries among member countries have led to complicated negotiations due to sharp differences in the degree of development achieved by various members of the groupings. The tendency has been to recommend location of industries in the economically more developed countries. Other difficulties pointed out include the lack of adequate finance for industrial projects, problems in marketing of output and shortage of facilities for training and manpower development.

Similarly in the case of the South Asian countries it is acknowledged that production cooperation would not be easy for the following reasons (even assuming away for the moment the political factors); (p. 62)

(1) Competitive economies, given the present economic structure. (For instance India and Bangladesh have a common interest in maintaining jute prices, yet they compete fiercely for the same markets abroad. Similar is the case between India and Sri Lanka with regard to tea as also for India and Pakistan with regard to carpets and textiles (p. 123). Another instance is the discriminating attitude of the Government of Pakistan towards India's exports in contrast to the non-discriminatory policy followed by India (p. 132).

(2) Continuing and high level of growth —centre —periphery relationship with the developed countries.

(3) Continuing influence of multinationals of the developed countries inhibiting domestic resource-oriented industrialisation. (South Asian nations face considerable opposition from transnational energy corporation's towards any attempt to achieve energy independence through the development of solar energy (p.252).

(4) Extreme unequal division of economic capability dominated by India and followed by Pakistan (India's GNP and its population are more than three times the size of all the other six SAARC

countries. Consequently there is a feeling that perhaps India will be the major beneficiary from regional cooperation and this may accentuate dependency of other countries in India (p. 128).

(5) Extreme inequality in purchasing power, for example, on the one side is Pakistan with per capita GNP of $260 and on the other side is Bhutan with per capita GNP of $80.

(6) The perception th atproducts from developing countries are of inferior quality acts as a psychological hinderance to production cooperation.

(7) Chronic foreign exchange shortage for acquiring necessary inputs from the developed countries for production cooperation activities.

(8) Resistance from the developed countries' finance institutions to provide financial accomodation to development projects in developing countries which do not call for technologies from the West.

(9) Serious unemployment situation dictates adoption of protectionist policy for development of local industries.

Despite the recognition of all the above factors, despite the explicit akcknowledgement of the fact that the "South Asian economic decision — makers are inadequately oriented towards if not biased against their neighbours" and despite realizing that, "not all problems can be ameliorated through regional cooperation", the papers in Section II dealing with the 'Country Perspectives on Industrial Cooperation' are disappointing in as much as they fail to qualitatively assess in political terms :

(a) the workings of the development policies *within* each of the countries and the inability of these countries to keep their house in order,

(b) the financial — fiscal — industrial (specially defence) nexus that each of these countries has built up, especially with the developed world and consequently the limited autonomy in decision making that they now posses ;

(c) the implications of the differences in the political systems that characterise and govern each of these countires and therefore the mutual distrust and suspicion that dictates their behaviour towards each other despite exhortations to the contrary.

It is futile to make comments such as 'political differences should not come in the way of economic cooperation, or that 'SAARC countries should desist from competing with each other in these items as it would negate their own individual interests', given the tremendous internal and external pressures that face these economies. It is equally futile to expect visible changes of a viable nature to occur in economic cooperation *between* countries before substantial changes occur *within* each nation.

On the whole then, the collection of papers in the volume is useful as a starter and even so far as it delineates the *potential* areas of cooperation between the SAARC nations. The uneasiness stems from the inability of the volume to critically study and analyse the root cause inhibiting *real* cooperation, which exercise, would, infact have called for a different framework of analysis — namely one where politics dictated the prospects for South Asian Cooperation in Industry and Energy.

Padmini Swaminathan

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BULLETIN

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MADRAS INSTITUTE
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The Institute was founded by Dr. Malcolm S. Adiseshiah in 1971 and was reconstituted in 1977 as a National Research Institute within the framework of the Indian Council of Social Science Research, New Delhi.

The aim of the Institute is to contribute to the economic and social development in Tamilnadu and India.

The activities of the Institute are:

—Research leading to Ph.D. Degree

—Studies and action-oriented research in micro-development problems

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—Exchange and dialogue at the State, National and International levels on development issues

—Publication of papers and results of the Institute.

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I. General Economic Scene

State

The State (final) budget 1991-92

The state government introduced the final 1991-92 budget in the legislature at the start of September. At a glance, Budget details are summarised below :

Items	1989-90 Accounts	1990-91 Budget Estimate	1990-91 Revised Estimate	1991-92 Budget Estimate
			(in crores)	
I Consolidated Fund				
Revenue receipts	4251.57	4397.47	4975.65	5347.34
Expenditure met from revenue accounts	4730 79	4814.09	5295.16	6249.83
Surplus or deficit on revenue account	(—) 479.22	(—) 416.63	(—) 319.51	(—) 902.49
Capital Receipts	2328.36	1773.59	2119.95	2110.56
Expenditure met from capital including loans advances (net)	2416 52	1764.27	2096.42	1896.00
Deficit or surplus on Capital Account	(—) 88.16	(+) 9 32	(+) 23.53	(+) 214.56
Total Consolidated Fund (net)	(—) 567.38	(—) 407.31	(—) 295.98	(—) 687.93
II Contingency Fund (net)	(+) 250.00			
III Public Account (net)	(+) 326.77	(+) 57.95	(+) 90.70	(+) 110.52
Total transactions (I + II + III)	(+) 9.39	(—) 349.35	(—) 205.26	(—) 577.41
Opening Balance	*(—) 12.05	(-) 160 74	**(—) 2.66	(—) 207.94
Closing Balance	**(—) 2.66	(—) 510.10	(—) 207.94	***(—) 785.35

*Taking into account the adjusted closing cash balance for 1988-89 with Reserve Bank of India the adjusted opening cash balance for 1989-90 will be Rs (—) 7919 crores.

* The adjusted closing balance for 1989-90 with RBI gives the adjusted opening cash balance for 1990-91 of Rs (—)153.23 crores.

***After taking into account various economy and additional resource mobilisation measures the net deficit will be Rs. 575 35 crores.

The budget projects a total deficit in 1991-92 at Rs. 738.38 crores, including the closing deficit of Rs. 204.94 crores at the end of 1990-91. The Revenue receipts for the year are Rs 5347.34 crores against Rs.4791.79 crores set forth in the interim budget. The revenue expenditure for 1991-92 is set at Rs. 6249.53 crores (against Rs. 5956.03 crores in the interim budget). While total deficit (including the closing deficit) is shown at Rs. 785.35 crores, taking into account various economy measures to be set forth later and additional resources to be mobilised the deficit is finally reduced to Rs. 575.35 crores, and taking into account the net effect of transactions in other accounts, the overall deficit is at 577.41 crores. This involves tax and other rationalisation measures in the balance 6 months this year. The tax measures in the budget are: a) increasing sales tax on diesel from 14 to 16 per cent, on paper and paper board from 4 to 6 per cent and on soap from 8 to 10 per cent, b) a new tax of 2 per cent on steel scrap sales to rerolling mills, c) a new sales tax on rubber, d) rationalising the surcharge uniformly at 15 per cent, delinking entry tax from general sales tax and specifying the rate of tax in the entry tax Act itself, e) imposing a 4 per cent levy on the sale price of energy for all consumers other than domestic connections including hut connections, agricultural consumers and self generators, f) revising the duty on IMFL from Rs. 60 to Rs. 70 per litre, enchancing the sales tax on IMFL from 20 to 25 per cent, g) extending urban land tax to all special grade and selection grade municipalities, h) raising the motor vehicles tax, i) tax on 2 wheelers above 50 cc upto to 170 cc rising from Rs. 90 to Rs. 150 a year and (less between) 170 and 300 cc from Rs. 90 to Rs. 200, those exceeding 300 cc from Rs. 100 to Rs. 300 per annum, tax on vehicles with a capacity exceeding 700, 150 kg increase from Rs. 1050 to Rs 1500, varying for vehicles upto 3000 kg, on whether imported, or owner based or others. The rationalisations and exemptions include: a) tax on gold bullion reduced from 2 to 1 per cent and tax on silver articles reduced from 4 to 2 per cent and gold jewellery from 8 to 2 per cent, b) a uniform rate of 6 per cent on all drugs and medicines against the current 8 per cent, with 6 life saving drugs completely exempted, c) the sales tax on fertilisers and pesticides reduced from 3.5 per cent to 0.3 per cent, d) trailer spares from 15 to 4 per cent, for fully built vehicles from 15 to 7 per cent and on 3 wheelers from 15 to 8 per cent, e) motor cycles of 50 cc and below exempted from MV tax, f) full tax exemption for dry leaves which poor rural woman stitch to make a living, besides rickshaws without motors, and bullock carts, g) tax on tanneries, clinics, tamarind and soaps reduced from 6 to 4 per cent. Together with the economy measures which will save Rs. 140 crores and the additional taxes (and exemptions) will mobilise Rs. 70 crores this year and Rs. 160 crores in a full year. The new levies will yield Rs. 140 crores in a full year —excise and sales tax rationalisation, additional Rs. 40 crores and Rs. 20 crores, motor vehicles Rs. 30 crores, urban land Rs. 10 crores. The various concessions will cost the government Rs. 17.45 crores in all, Rs. 10 crores in ST and 7.45 crores in other taxes. Hence the net yield from taxes will be Rs. 70 crores. Among the projects set forth in the budget are: a) a new dairy with a capacity of 4 lakh litres a day in Sholinganallur, b) conversion of 70,000 old type handloom into power loom in the next 10 years, c) a massive 5 year programme to modernise 50,000 handlooms at a cost of Rs. 42.30 crores, d) the setting up of power generation to take up all new generator projects (it will immediately take up a 300 MW power project based on cauvery offshore gas), e) a special repair programme (Rs. 150 crores) to relay 800 km of poorly maintained roads in 5 years, f) improving 800 rural market roads connecting 19 market centres in 5 districts at a cost of Rs. 45.28 crores, g) constructing this year 1.22 lakh houses, h) a Rs. 20 crore programme to provide education to school dropouts in the age group 6-14 by utilising the services of educated unemployed, i) a total literacy campaign to cover 78 lakh persons in the age group 15-35, j) a 10 point programme for the welfare of SC/STs and an integrated women's development programme to provide sustained self employment to 1 lakh women and special assistance to women on the informal sector of small business like running pavement shops, flowers and vegetables. The welfare measures proposed include: a) a time bound pension scheme for the families of handloom weavers in the cooperative fields if one of the worker died, b) a talent search scheme for rural women, c) restoration of free rice to old age pensioners, d) a massive water supply for habitations that still do not have a single source of drinking water and e) a health fund for government employment. The budget is on the whole a good and encouraging document Given that the last few issues of the Bulletin, starting with Vol. XXI p315 which recorded the first decision of the new government to close down the cheap liquour scheme in the state, involve a loss to the budget of 1991-92 of Rs. 322 crores and about Rs. 600 crores in the following full years, and going on to the next issue which listed the new projects which the Chief Minister announced in replying to the debate on the Governor's speech —which pointed to an overall deficit for 1991-92 of over Rs. 1100 crores, and the worrisome question as to where this would come from, particularly from the union which itself faces a resource crunch. the fact the deficit has been brought down to Rs. 577.41 crores is an encouraging point This is still a large uncovered amount, but the two programmes that resulted in this still large uncovered sum—partial prohibition and essential welfare scheme promised in the election manifesto—are the inescapable responsibility of the state government. There are two means by which this large uncovered deficit can be covered. One is the resources to be transferred from the Union government on both these grounds. The other is through the faster development of the industrial sector and the power scheme developed with the help of Indian industrialists—for example the Jayamkondan lignite project and the new thermal system that it can help develop (see Vol XX 488), the southern gas grid, the petro chemical projects, particularly the aromatic project which has been long hanging fire. The budget also makes some effort at equity even though it is largely limited to indirect taxes. For instance, the tax on two wheelers and motor vehicles, the lower value items are either exempted and tax lowered, while there is a steep increase in taxes on vehicles exceeding 9000 and 12000 cc and tourist cabs. Again the urban levy has been directed at the well to do and the land tax of Madras, Madurai, Coimbatore, Tiruchi, Salem and Tirunelveli rationalised. Similarly the agricultural income tax has been abolished for non plantation crops such as paddy, sugarcane, turmeric, betelvine, plantain, coconut, cholam, cumbu, groundnut, cotton and gingelly benefitting 45,000 farmers, and even on plantation crops

the larger estates are to pay more, as the exemption has been raised from Rs. 10,000 to Rs. 20,000, and finally the new agricultural tax rate of compounding per acre on a slab base—Rs. 150 from 8-12 acres, Rs. 200 from 12-20 acres, Rs. 300 from 25 to 40 acres and Rs. 500 from 40-50 acres. This is also technically sound. In other words, the budget has done the job it could in an extremely difficult financial and overall economic situation. There are problems. The most serious is that of power whose subsidy keeps increasing as the tariff charged does not meet the cost and the cost itself rises because of poor maintenances. There are also losses on transport and minor irrigation works due to low charges. On the public distribution system the budget subsidy this year is Rs. 346 and all subsidies above Rs. 1700 crores and these should be pruned. The Agricultural sector is not paying its share of the tax revenue of the government. The complete tax exemption of the large paddy farmers is inequitable. The belt tightening of the well to do is inadequate, so that there could be more of a contribution to the lessening of the deficit. These are essentially political and policy decisions with which government should face and make. The concessions announced during the examination of the grants especially those for the sales tax, are either cosmetic or will plunge the state into further deficit. After 4 weeks of examining the demand for grants by the Departments and Ministries, the Assembly approved the appropriate bill which appropriates Rs. 8469.22 crores for 1991-92 against the Rs. 8145.83 crores expenditure presented in the budget set forth earlier. In approving the bill, the Assembly noted the Finance Minister's concluding observations: 1) the members should help create a climate to bring down the mounting subsidies comprising: a) Rs. 326 crores for the public distribution system which will rise to Rs. 500 crores in 1992-93 at 65,000 tonnes of rice at the current rate. and where the offtake has risen from 65,000 tonnes a few years ago to 1.5 lakh tonnes now. There should be fair price shops, not low price shop: but the real problem not brought out is to limit the PDS rice distribution to the poor and not for it to be available to every one, b) Rs. 550 crores subsidy on power where the cost is Rs. 1.45 per unit and every consumer including HT industries gets electricity with a subsidy and the farmers free supply. The free supply to farmers should pay cost plus, c) Rs. 58 crores as the combined loss on the State Transport Corporations which can be met only by raising bus fares. Not only do these subsidies deprive the state and people of resources for major development works, the current practice of financing the current account revenue deficit from capital resources, as is proposed in the budget, is thoroughly bad as, it means that funds meant for capital investment are being expended on current consumption : 2) The minister concluded by demanding fiscal decentralisation which will relieve the state of the Rs. 612 crores which it had to pay to the union government/RBI as interest this year and on top borrow Rs. 75 crores this year, as will be reported later. Also this situation has resulted in the government having to privatise sick public sector units or closing them down. If any private sector firm offered the take over of one of these sick public sector units the government will be glad to negotiate on it. Otherwise the unit will have to be closed down. We looked forward to the time when the state will not need overdrafts and had a balanced fiscal situation.

Planning Commission

Now that the decision that the VIII Plan will run from 1992-93 to 1997-98 has been made at the All India level, the new State Planning Commission will have to work on the restructuration of the state's VIII Plan to cover this 5 year period. As at the all India level, the Annual Plan for 1990-91 and 1991-92 will be treated as annual Plans, not being part of the VIII Plan.

Climate and Prices

The climate in September was cool and cloudy. The south west monsoon tail was in action with continuing rains all over the state including Madras and the Northern districts which normally do not receive the south west monsoon. The positive effect of these rains both with regard to irrigation and agriculture and the drinking water situation in the state may be noted Rainfall for the South West monsoon ran from June 1 to September end and is in excess at 64 cm for Nungambakkam which is a surplus of 29 cm over the normal rainfall for this season and at 54 cm for Nungambakkam (surplus 13 cm). The catchment areas received good rains in the last week of September, Red Hills 7 cm, Sholavaram 5 cm and Tamarapakkam 4 cm during the 24 hours ending 8.30 a.m. on September 26. As for prices, there has been a sudden spurt in the despatch of CSO's monthy abstract of statistics which in the last issue of the Bulletin for October reported on the price data set forth in its February issue : now as at the end of September, four issues for March, April, May and June 1991 have been received and are reported here in that order. The index number of consumer prices for Tamil Nadu as reported in the March issue rose by 2 points in December and 5 points to 200 in January 1991, the April issue reports a I point rise in February, the May issue reports a 4 point (2 per cent fall to 197 in March and the June issue reports no change at 197 in April : the index number of consumer prices for agricultural labourers as reported in the March issue shows a I point fall to 780 in January 1991, the April issue a sharp rise of 19 points to 799 in February due mainly to the steep 24 point rise in the prices of food, the May issue a fall of 4 points to 795 in March due to fall in food prices by 9 points and the June issue a rise by 3 points to 798. The consumer price index numbers for non manual employees in the March issue shows a rise of points to 177 for Madras, a rise of 2 points to 169 for Coimbatore, a rise of 3 points to 170 for Madurai, a rise of 6 points to 170 for Salem, a rise of 5 point to 174 for Tiruchirapalli — all for the month of January the April issue shows for February for the 5 cities a rise by 1 point to 178 for Madras, no change at Coimbatore, a fall by 7 points to 174 at Madurai, a fall by 2 points to 168 at Salem and a rise by 1 point to 175 for Tiruchirapalli and for March a 2 point fall for Madras, no change for Coimbatore, a 1 point fall for Madurai, a 2 point fall for Salem and no change for Tiruchirapalli, the May issue repeats the above figure for March for the 5 cities, and the June issue also repeats the April data. Looking at the price situation reported, it is noted that i) there are upward price movements even in non manual employees index despite their prices being heavily subsidised, which is an indicator of the force of inflation, ii) the price of foodgrains in the rural areas rising sharply particularly in May in a year when there is reported a continued good harvest and a comfortable

foodgrain stock position, iii) while both industrial and agricultural workers have had to face the rigours of inflation, the latter the agricultural workers, have had to bear a sharper, higher inflation rate.

Power

The power situation in the state in the second half of August and September was comfortable because of the good rains which have filled the hydel reservoirs as reported in the last issue. Along with adequate coal stocks, TNEB reports having supplied 3100 MW on August 23. In terms of plans, the fifth unit (210MW) of Tuticorin thermal will go on stream in February 1992. It also reports that the union government has approved Rs. 28.75 crores for setting up 2 mini hydel stations at Lower Bhavani and Sathanur dam. 5 more mini projects at Perunchami, Pechiparai, Amravatty, Tirumurti, and Aliyar have been prepared and posed to the World Bank for aid. The state government reported to the Assembly that the first phase of the lignite power project of 500 MW in the joint sector with an outlay of Rs.1500 crores is expected to be completed in 5 years. The total capital cost of all phases of this project based on Jayamkondam lignite is estimated at Rs. 5000 crores. The Assembly was also told that a new power generation corporation is to be set up, which will immediately take up a 30 MW. Cauvery offshore gas based power project and all future power projects in the state. From September 1, the power tariff has been increased for all consumers excepting agriculturists. This increased levy on domestic consumers, industries availing LT and HT supply, cinemas, studios, laboratories, olleges and educational institutions is expected to bring in Rs. 134 crores this year to TNEB and Rs. 270 crores in a full year. The exception made in the case of the farmers raises a basic question which is raised in the next section.

For the country, the good south west monsoon (except for the North West patch) has eased the power situation in all states when it was normal in August and September. In terms of plans, the Department of Atomic Energy has reduced its target of producing 10,000 MW by 1000 to 9000 MW because of the non availability of inputs. Of the reduced target, Tamil Nadu's Kayamkulam Soviet reactors are expected to produce 2000 MW. The major issue in the power sector that has come up in September is its management, rather its financial mismanagement. The World Bank which has a large share in financing the country's power project is sharply critical of this mismanagement and the inability of the power sector to keep its promises and commitments to the Bank, leading to the Bank's freeing, suspension and notice of even cancelling the loan. The Bank has set a target of 3 percent surplus generation by the Boards, which only 2 out of 17 Boards have been able to meet, 5 of the Boards have had a negative ROR for the last 5 years. There is also the growing and heavy debt of the Boards to Union authorities. They owe Rs. 1000 crores to BHEL, Rs. 1800 crores to the CIL and Rs. 2200 crores to the union government, and its affiliated bodies — NTPL and NHPL etc. The union government has asked the Boards on September 7 to submit each an operational and functional action plan setting forth the steps they will take to clear the dues to the above union bodies with a time bound frame, as otherwise the union has threatened to cut off funding these projects, amounting to $1.5 billion annually (Rs. 3750 crores). The only

way in which they can meet this claim to clear their debt under a plan that each is to submit by October 3 is by introducing cost based tariffs, revamp the loss making Electricity Boards, and agree to a uniform agricultural power tariff which also the World Bank was insisting on. Under these condition, the decision of Tamil Nadu which is a power deficit state to raise the tariffs for all consumers, except agriculturists is wrong and will involve the state losing external funding. External funding agencies are holding back because as at 31 march 1990, the SEBs owed Rs. 3819 crores. But even more seriously, this situation also acts as a serious bottleneck to the country's development. The 2 immediate issues confronting each SEB are 1) to make the power tariff cost based and 2) to accept a national minimum for agriculture. The Power minister's conference in early March has made a sound start in unanimously deciding a) to fix a common minimum power tariff for farmers—with the power to each Board to charge more and b) a minimum 3 per cent return on the net fixed assets of each board. Both these are not adequate, but they are a good start and must be adhered to. In this connection the power tariff rise should not be because of the inefficiency and poor management of the Board. To avoid the consumers being saddled with this burden, there should in each state be a normative cost guide which would take into account the average age of the plant and equipment, the state of the distribution network and problem in input supplies. On the operational side, the Central Electricity Authority reports that it has cleared 39 renovation and modernisation programmes for Rs. 112 crores during the VIII Plan. Also the newly established National Power Transmission Corporation reports taking over in mid August management of transmission qusiness from NTPC, and will become the sole union institution for power distribution. NTPC reports that the interregional first high voltage direct cum transmission line between Maharashtra and AP will supply 1000 MW from the western grid to the power starved southern states. An important development was the passing in September of the amendment to Electricity law widening the scope of private sector participation in power generation, supply and distribution. This is to meet both the paucity of resources in the VII Plan for power and as a sequel to the new industrial policy outlined in the last issue. When the President signs the Amendment, the government states that it will set up a high level committee to process quickly the applications from the private sector.

Water

The World Bank aided Rs. 321 crores water supply and sanitation project now being implemented by the Tamil Nadu Water Supply and Drainage Board is to be completed by June 1993. The union government is now studying a Rs. 505 crores World Bank aided drinking water supply project for Madras and surrounding areas. The project will make available 400 millilitres per day of water from the Krishna river—the Telegu Ganga project. It is running a little behind schedule and so both AP & TN government need to speed up its implementation. The government also reports that a Rs. 251 crores project has been prepared to prevent pollution in the cauvery. The discharge of sewerage from 35 plants on the banks of the rivers and effluents from a further 1130 industries are proving a serious threat to cauvery waters. The project involves proper treatment of disposal of waste water

let into the river involving suitable treatment methods.

Transport

Southern Railway completed in early September the EMU Service in the new broad guauge system. This is the first part of the long awaited Mass Rapid Transport System—the 2.75 km stretch of the Madras Beach—Park Town which when extended to Luz will run 8.5 km. Both trade and passenger travel will be assisted by this extension from Trivellore/ Gummidipoondi to Park Town. But the mass transport system whose final plans have not been subject to public debate raises several questions. Southern Railway also announced in mid August that electrification of the Madras-Salem railway line has been completed and work is in progress to extend it to Erode. This will help to transport goods, particularly coal to the Mettur Thermal plant. However questions about not taking into account the more efficient mode of intermediary stages and alternatives are bound. The partially elevated bus way to be used in 1996 and experienced in 2001 is based on questionable assumption of speed and capacity. The advantage of the Light Rapid Transport System have not really been explored nor that of the metro or the German Metro-Bahn. The state government also announced in mid August the formation of another state transport corporation. the MGR Corporation with its headquarters in Kancheepuram. This Puratchi Thalaivar MGR Transport Corporation is taking over the routes from Periyar and Pudukottai Alagirl Corporation and will function in Chengai - MGR district. The economics of this decision is not clear. Will it add to the already fiscally burdened state and the deficits of the transport corporations?

Revenue Collection and Permanent Trade Fair Complex

The Comptroller and Auditor General has in his report for the year ending March 31, 1989 highlighted the fact that the uncollected tax and non tax revenue was Rs. 443 crores in 1988-89, of which the uncollected sales tax alone was Rs. 273.4 crores. This is regrettable as there is a budget deficit every year which is attempted to be covered by additional taxation, rather than collecting fully the revenue due to government. This is particularly important for this year when the budget deficit is a high Rs. 575 crores. There is also under assessment and losses which the test audit has brought to light along with the incorrect grant of rebate to some transport corporations, grant of irregular revision of stamp and registration duty, substantial loss under urban land tax and short levy of royalty. The government should study the report carefully and avoid repeating these grave lacks and errors this year. The government announced to the Assembly that a permanent trade fair complex with an amusement park is to be established at Taramani in Madras.

The priority for this is doubtful.

National

Plan

The reconstituted 12 member Planning Commission (reconstituted on August 12) met on September 19 and decided that i) the Eighth Plan 1992-93 — 1997-98, will aim at a growth rate of 5.6 per cent, calling for ii) a gross investment of Rs. 7,92,000 crores at 1991-92 prices, with iii) the average rate of savings of 23 per cent of GDP and

ICOR of 4.1, iv) of the gross investment, the public sector outlay will be Rs. 3,42,000 crores, the private sector Rs. 1,48,000 crores and the household sector Rs. 3,02,000 crores, v) domestic saving is assured at 21.6 per cent and external savings at 1.4 per cent of GDP (Rs. 49,000 crores), vi) the export growth will be 13.6 per cent, vii) the emphasis in the new plan is to be on resource mobilisation and non inflationary deficit financing which has been fixed at Rs. 37,000 crores, which is an average of Rs. 7400 crores deficit financing over the 5 year period. The commission also set up a 3 man panel to work on the revised Gadgil formula to be presented at the next meeting of NDC. On the transfer of centrally sponsored schemes to the state, the commission agreed with the Narasimha Rao committee recommendations for retention of about 125 such schemes by the Union, 113 to be left to the states, and 24 to be treated as autonomous. The chairman's concluding comments called for detailed scrutiny of public sector units — both on union and state levels with proposals for improvement in their efficiency, for conceptual reconciliation of the confrontation between environmental protection and development needs for a strategy for technology which will forecast ahead of time, technology appropriate for the country along with a futuristic approach of the technology needed, for a medium shift in the energy policy which may move to the hydro and coal based power generation, and for diminishing non plan expenditure by rationalising the manpower in the union and state governments. The Plan's main merit is that it represents continuity in the plan exercise, as, for one matter the 5.6 per cent growth rate fixed for the VIII Plan is the VII Plan growth rate. The discontinuity with the approach of the two previous minority governments is justified by the intervening circumstances, namely the Gulf war and its impact on the economy and the prolonged political inability. The two years 1990-91 and 1991-92 are treated as Plan holidays and given the fact that the current year's growth rate is forecast at a low below 4 per cent, the attainment of the 5.6 per cent growth rate in the 5 years of the VIII Plan becomes feasible. It is pointed out that the present Planning Commission is looking for impressive, not satisfactory growth by reschedulisation of the VIII Plan from 1992-93. As its base (1991-92) is low, it can achieve positively and surpass, the projected 5.6 per cent. As for the aggregate outlay of Rs. 7,92,000 crores at 1991-92 prices, given the near 15 per cent inflation and the aggregate of inflationary pressures, this target can be achieved by both the public sector which has a smaller share (compared to the V.P.Singh government's Approach Paper) with the private sector having a larger share. The aggravation of inflationary pressures on the basis of the double digit inflation current now for 2 years will have a bearing on both the resources availability and the attainment of the physical targets. In this context, to talk of non inflationary financing of the Plan seems unrealistic. The major issue, however, is the purpose of any growth rate and the level of investment. We have now for 7 Plans (near upon 40 years) set growth rate and investment targets. They have had little impact on the major issue facing the economy and the Plan — the reduction and elimination of poverty. We have not been able to correlate our growth and investment target with poverty reduction. But is that the only purpose of the Plan and its envisaged growth and investment rates? Will the VIII Plan be an exception and will the correction be made? That will call for a number of measures on prices, on education and health, on

environmental pollution, population control and above all on developing an economy where inequalities are diminishing, giving some hope and motivation to the poor and deprived. Will the VIII Plan address, itself to these issues to achieve the major goal of poverty reduction and inequalities dampening?

Prices

The inflation rate for August was over 3 per cent (with a rise of 6.4 points), the whole sale price index standing at 208.3 per cent on August 31. The annual rate of inflation on August 31 was a high 15.3 per cent, up from 12.9 per cent recorded for July and 12.2 per cent recorded for the year 1990-91. The rise in the price of primary articles continued, particularly food articles. Prices of as many as 173 commodities out of 447 used in the whole sale price index rose continuously during the 6 post budget weeks ending August 31. The increase was more than 10 per cent for 50 commodities. The index for food articles increased by more than 7 per cent from 229.4 per cent in the pre budget week to 245.6 on August 31. This is puzzling because food supply was not in short supply, neither the devaluation of the Rupee nor the budget touched food articles. Increase of more than 10 per cent is recorded in prices of wheat, masur, chick, tea, jowar, barly, fruits and vegetables. One explanation is that these items are being increasingly exported to earn the high prices abroad which the producer wants and the foreign exchange which the government wants. Non food articles rose only by 4 per cent from 221.4 to 236.6 during this 6 weeks period. All other groups, mineral, fuel, power and lubricants, textiles, beverages and tobacco, wood and wood products, paper and paper products, leather and leather products, rubber, chemicals, non metallic minerals, basic metals, machinery and transport equipment—also rose by 1 to 4 per cent each, except tobacco which because of the tax in the budget went up by 10 per cent, paper by 7 per cent because suppliers of paper put up their prices, and even machinery dependent on imports rose only by 5 per cent. In this context, the Finance Minister's assurance that the process of disinflation will start by mid October can be realised, if food prices are controlled, though his estimate of inflation of 9 per cent for the year seems an underestimate. The best forecast is that the year's inflation will be between 12 and 13 per cent.

Budget and Union loans

Parliament passed the budget for 1991-92 with the Rajya Sabha returning the Finance Bill, the Lok Sabha having approved the Appropriate Bill for the expenditure of Rs. 2,26,211.35 crores. The Finance Minister announced a series of concessions in direct and indirect taxes amending the Finance Bill with the statement that he would present comprehenesive tax proposals on receipt of the report of the 5 mamber taxation reform committee headed by Rajah Chelliah which has been set up in late August to review the direct and indirect taxes and recommend a more broad based and elastic tax system. The concessions announced included tax incentives to boost exports under 80HHC of the Act, reduction of the basic and auxiliary customs duties on jumbo films (cost Rs. 20 cores in a full year) full excise waiver of agro based products like fruit based beverages, soups, powders of fruits and vegetables (cost Rs. 9 crores) as part of 23 such relaxations. The budget remains very largely

untouched, though the concessions are not the usual routine ones, but are aimed at major policy goals—like the proposal to treat profits on the sale of ex-imp scrips as export profits eligible for exemption under section 80 HHC is aimed at boosting exports as is the dispensing of prior approvals for export of technical know. There are questions on some concessions announced such as the large loss of revenue from the customs duty reduction on jumbo films and the extension of the deadline for unaccounted incomes which will send the wrong signals to black money operators. But the main thrust of the budget and the concessions are on the right lines. The latter include the extension of time span to calculate the average market price of shares from 5 to 10 years with tightening of depreciation norms, the tax incentives granted to tax operators, the restriction of the luxury tax to air conditioned hotels, inclusion of deposits other than those with commercial banks from the requirement of tax deduction at source etc. One of the major issues relates to the Parliament's procedure on budget approval. With years, fewer and fewer ministries are examined by Parliament. This year the grants only for five ministries—industry, agriculture, food, rural development and defence were examined, (even the 5 became possible because food and agriculture were combined), after which the guillotine was applied. This means that 90 per cent of the budget, over Rs. 2 lakh crores, have been approved in minutes without any examination. Part of the reason for this is the time wasted by the Lok Sabha on non budget matters, so that the budget discussion which was to begin on August 6 did not start till August 20. Further with 34 ministers, 4 autonomous departments plus other wings of government such as Parliament, the presidents secretariat, the union public service commission — all totalling 98 demands for grants, Lok Sabha can never in plenary examine all these. So the time has now come for Parliament to work through Finance Committee te devote adequate time to every demand for government, otherwise there will continue to be wastes built into the budget. In end August, the Union government announced the issue of 4 loans for Rs. 2000 crores. At the end of September, 21 states announced loans for Rs. 1000 crores, ranging from Rs. 170 crores for UP and Rs. 125 crores for West Bengal down to Rs. 2.96 crores for Arunachal Pradesh. Tamil Nadu's loan is Rs. 75 crores. In late September the Finance Minister announced a 5 per cent cut in the allotments to all departments which will save Rs. 2500 crores and help meet the target of keeping the fiscal deficit for the year to 6.5 per cent of GDP.

Stock Economy

In September, two development in the money market should be noted. First the Bombay Stock Exchange index crossed the 1990 mark and at this rate will soon reach 2000. This operation of the market by the brokers show a complete insensitivity to the crisis that the country is passing through. There is no doubt that the wayward movements of the Bull operators should be countered and for this the financial institutions must play a more active part. This background accounts for the recommendation of the Pherwani high power committee for the establishment of new stock exchanges that a national stock market system (NSS) with a national stock exchange at New Bombay be established with the 5 principal exchanges and 14 regional exchanges. The recommendation is for the NSS to be

implemented in 4 phases — phase I will provide for the dissemination of 2 way quotes, company and exchange announcements and indicative transaction prices, phase II a network connecting individual member offices with the central offices, Phase III an automatised trading system and Phase IV the system to cover all scrips. It is not surprising that this recommendation for the NSS has called for strong opposition, starting with Bombay Stock Exchange (BSE) and including all exchanges which point out that this will lead to confusion : the brokers of course do not want change, do not like outsiders, they are against the entry of professionals, they oppose curbs on badla trading and want to keep BSE and every exchanges as exclusive clubs of their own. But the present chaotic system cannot go on. There are pros and cons to this question. The need of the hour is not more new exchanges but mainly improved functioning of existing exchanges. As the preferred system will be a non starter if there is general opposition from the stock brokers community, one way forward is a) for RBI and the government to help develop a flexible interest rate policy with all instruments earning the same rate and b) for the NSS to be entrusted to BSE which might be given a time limit to start and operate the system as the Pherwani committee recommends. The other development in September was the recommendation of the Dave committee for the functioning of mutual funds that may be permitted in the private / joint sector. The private sector is to be permitted to sponsor mutual funds only through Fund management companies with a minimum equity capital of Rs 2 crores each It will be open ended with no limit to the maximum fund. They should enjoy tax exemption like UTI. They will not be permitted to invest more than 3 per cent of their funds in affiliate companies. These are sound and necessary recommendations which will augment capital mobilisation in the country and should, after scrutiny; be acted upon.

Economy

In September there were two major and several other developments to be noted. The first was the announcement of September 13 which continued the liberalised trade reform including a new deal for 100 per cent export oriented units and export processing zones (EOUs and EPUs), strengthening of the system of advanced licenses, reduction in import items and the redesignation of the office of the chief controller of exports and imports as Director General of International Trade. On September 19 the government also announced a higher rate (40 per cent instead of 30 per cent) of ex-imp scrips for 22 categories of engineering products. This further trade liberalisation is the result of the trade data for April and May 1991 showing that the trade gap has declined because of import compression and not because of export expansion. In fact there has been a decline in exports in dollar terms in these 2 months despite the July devaluation of the Rupee. There is one problem with our foreign trade data and the precise amount of the current trade deficit. For 1990-91 the government announced the deficit as Rs. 10,644 crores, while RBI announced the deficit as Rs. 15142 crores. This difference between government and RBI has persisted since 1984-85. The reason for this differance is that the government figure does not include items that do not pass through the customs like the large defence imports, payments for ships and aircrafts purchased. This difference should be settled by them because our

trade policy depends on it. What is not in doubt is the large deficit—the argument is the amount. Hence the further trade liberalisation package announced for EOUs and EPUs and strengthening of the advance licensing along with provisions for transferable advance licenses for general currency countries in respect of the export thrust areas of textiles, leather goods and engineering. Further export houses, trading and star trading houses have now a leeway to import a wider range of items against advance licenses and are allowed to open foreign currency accounts and raise external credit to pay for their export related imports. All this does not solve the problem of the exporters in finding, under a regime of tight foreign exchange, which the Commerce Minister rather unfairly discribed as involving "savage curbs on imports". With BOP crisis and limited foreign exchange, there is no alternative to the present austerity. The extended liberalised policy should lead to increase in exports. Similarly the September 26 government decision to allow all industries one time additional import of machinery to the extent of 15 per cent over and above the value of capital goods already approved will help EOUs and EPZ to export more. The 11 member committee headed by the Secretary of the ministry, MS Ahluwalia on trade policy reforms will be looking into the possibility of eliminating all licenses and quantitative restriction on capital goods and raw materials and to place them under OGL except for a small list of items. The $6.7 billion loan aid, to be referred to later, should help the foreign exchange situation. Except that there is a disturbing report from a study (of ISID) that half the country's importers obtain 92 per cent of the value of gross imports. This unbalanced state of the country's imports should also be examined by the committee. Also even as we mourn the shortage of foreign exchange, government reports to Parliament that over $12 billion from the World Bank and IDA given to India are lying unutilised as at June 30, 1991. The second major issue is the series of overview of the economy that came out during the month RBIs annual report for 1990-91 refers to the critical balance of payments position which involved rationing of credit for some sectors like exports, the devaluation of the rupee, the imposition of severe curbs on imports along with high cash margin and rise in interest rate. There has been accentuation of inflationary pressure despite a good monsoon and bumper agricultural harvest. Agricultural production will increase by only one per cent this year 1991-92, because of the high base in 1990-91. Industrial production will decline this year and GDP growth is estimated at 5 per cent, compared to 5.2 per cent in the 2 previous years. The deceleration in industrial production by some 2 per cent to 6 per cent, will involve GDP growth of around 3 per cent in 1991-92 and what is more important that the new industrial policy, trade liberalisation and loans and aid should lead to a relaxation of the restrictions and the tight monetary policy (the government has imposed a 5 per cent cut in expenditures as noted earlier), so that in next 2 years industry can grow and help reduce poverty. The report also argues in favour of deregulating interest rates on government securities, bank deposits, priority sector lendings and company deposit and allowing the development of a flexible interest rate policy which will respond to the overall liquidity position of the economy. So deregulation of interest rates of banks and financial institutions in relation to large borrowers, money market and debenture rates is good, but this

needs to be exceeded. The Planning Commission listing the major areas of concern as the failure of PSUs to mobilise adequate additional resources, the persisting fiscal deficit and increasing non plan expenditures and rising current account deficit in its annual report for 1990-91, forecasts a 5 per cent growth on GDP (which is also the RBI projection) for 1990-91. NCAER's quarterly review of the economy asks the government to be unrelenting in implementing its policy package of reforms and its execution. The World Bank in its Annual Report refers to the country's macro economic difficulties along with the country's political uncertainty as dampening key economic policy reforms and many pitfalls facing the government. It refers to the country's major achievement of the decline of rural poverty from 40 per cent to 23 per cent and urban poverty from 28 to 20 per cent. It also analyses the effect of the oil shock on India's BOP and ends with a note of optimism if India adheres to the path of structural reforms. UNCTAD in its Trade and Development Report 1991 projects a 4 per cent growth rate for 1991-92 mainly due to the slowing of its industrial development caused by the difficult BOP and constraint on imports. It will be noted that this 4 per cent compares with RBI's 3 per cent GDP growth for 1991-92. Another issue which has come up in September is the government's banning of cotton yarn export to counter the sharp escalation in yarn prices. The handloom weavers, in particular, are hit hard, the rise in price must be stopped. But hanking yarn exports is the easy and wrong way out at a time when the external demand and prices are soaring. In the first 8 months, January-August 1991, yarn exports have risen to 9.6 million kg valued at Rs. 516 crores against the previous year's 53.82 million kg worth Rs. 310 crores. The country cannot afford the ban. Further it will do serious long term damage to our export standing as India will be classed as an unreliable supplier. Instead first the indigenous production of yarn through NTC in particular should be stepped up and hoarding, smuggling and speculation in yarn stopped. It was therefore good that on September 30 the government suspended and lifted the ban on yarn exports permitted through EOUs and advance licenses. India has recorded in the current year ending September 1991, high sugar production of 115 lakh tonnes, making the country the largest sugar producer. As a follow up of the August meeting of the 2 day Advisory Council on the Public Distribution system, the Prime Minister who presided over the meeting has asked the states within one month to identify blocks and villages to be given special attention for the streamlining and widening of the public distribution system. The council concluded with calling for setting up fair price shops in 1500 blocks coming under various special thrust schemes such as DPAP, DDPA, Integral Tribal Development project areas and hill areas.

Industry

Against the backdrop of the slow down in industrial growth during the year to 6 per cent referred to earlier (some economists place the prospects at 4 to 6 per cent), the CSOs data for IIP for April and May confirm this forecast. The industrial growth rates for first 2 months (April and May) records a negative growth of -0.3 per cent the growth rate for manufacturing declined by 1.4 per cent in August and by 3.3 per cent in May. The average growth for manufacturing for the first 2 months was lower by 2.3 per cent than that of the previous year. Other developments in September include the question of a code of conduct for 12 corporation takeovers, mergers, corporate decisions, involving the market deciding which firm should prosper, which should be liquidated, which products should sell, which flop — the code being devised by the corporate sector itself. This follows the events recorded in September on the Larsen and Tourbo AGM and even more important, the growing role given to the market. The government announced in September that the list of items whose manufacture in the small sector has been banned was withdrawn. Also in September the government announced the setting up of a 4 member Board for foreign investment headed by the Principal Secretary to the Prime Minister to negotiate with large international firms and approve direct foreign investment in selected areas. In this connection the liquidity of FIs is more serious than those of commercial banks because that will affect the investment ahead. The government has also announced a list of 34 industries for automatic approval of foreign technology as a follow up of its industrial policy. This continuing clarification on technology in the policy is welcome, if there is also a simultaneous clarification on its employment impact. The government states in Parliament that under the new industrial policy, the private sector is free to enter any field where the public sector is operating except in the 8 areas exclusively reserved for the public sector. On September 27, the government amended the MRTP Act through an ordinance to a) drop the requirements for large companies obtaining prior government approval for expansion, merger, takeovers, establishment of new units and appointment of new directors, b) give more power to the Commission to curb and regulate monopolistic, unfair and restrictive trade practices against public interest and to provide deterrent punishment for any contravention and c) to apply the Act to all public sector unit including railways, airlines, banks, electricity and water supply authorities. The government points out that while giving up present restrictions and other time consuming procedures, the concept of interconnection and market dominance (which is a 25 per cent of the market) have not been given off. They have been removed from the MRTP Act (Chapter III—A) and shifted to the Companies Act (Section 108—A to 110). The majority of the foundry units in North India reports continued shortage of pig iron, resulting in the closing of some units and the stand still of others. September presents a mixed, complex and rather gloomy industrial scene.

Public Sector Enterprises

The Department of Heavy Industries reports that its 32 unit performed well in 1990-91 recording production of Rs. 8346 crores and expect a production of over Rs. 10,000 crores in 1991-92, that they made a profit of 12 per cent in 1990-91, with BHEL and Maruti operating effectively in the export market. It reports that the concept of memorandum of understanding is a major step to increase autonomy and improve performance, and what is needed is a report on the internal generation of resources by the enterprises, their contribution to plan finance and the extent to which they are independent of budget subsidies. They are the critical issues on which the enterprises have been doing rather poorly.

National Production Front

Steel

The government informed Parliament that because of the new industrial policy and the financial constraints there will be no steel plants set up in the public sector. This immediately affects the Vijayanagar steel Plant in Bangalore, whose foundation stone was laid by Mrs. Gandhi. The Karnataka government informed its legislative Council that it has accepted the offer of the Essan Gujarat limited to set up the plant. Its investment is estimated at Rs. 2000 crores and that as the new industrial policy states the new steel factories to be established in the country do not now need the union government's permission. It is only approaching the union for release of foreign exchange. The union government states that it is studying the request. This is an interesting and important development, as it would be the first steel plant (apart from TISCO) to be set up without government help and funds. The union government also reported to Parliament that it is making every effort to ensure higher steel production over the last year's 7.36 million tonnes of saleable steel and improve productivity. The government states that it will disinvest 20 per cent of equity in SAIL in order to finance SAIL's modernisation programmes.

Crude

In order to accelerate the quest for oil and gas reserves, the government in August announced the fourth round of inviting tenders for the award of exploration contracts for oil and gas in 72 blocs (39 offshore and 33 onshore) spread over 17 basins. The additional feature of the production sharing concept, with the contract term period of 25 years in the case of crude and associated gas and 35 years in the case of non associated gas. So far the companies have spent over $124 million without discovering any hydro carbon. In this fourth round the company could bid for a timely seistolic option in the first phase. Given the urgency of increasing crude production, the conditions under which the companies operate need to be liberalised, taking into account similar firm in other countries' locations. If there is a commercial discovery of oil or gas, the company can participate in its development and recover costs and earn a reasonable rate of return on the investment. The returns would be in the form of profit in oil which will be shared between the companies and the government. It is to be hoped that there will be an adequate number of companies bidding and that their discoveries are impressive. Under these conditions of shortage of crude, the work stoppage by ONGC workers both in Assam and elsewhere which cuts the inadequate oil supply even further is a national scandal and should be prevented.

Coal

In August end, the government fixed the coal production target for 1991-92 at 228 million tonnes (16.3 million tonnes as the actual production in 1990-91), with CIL to produce 203 million tonnes and Singareni 26.5 million tonnes. CIL reports a high labour productivity in 1990-91 of 3.34 tonnes output per manshift in its open cast mines and the launch of a mission to augment availability of coal to small industries and the household sector. The government has directed CIL to

suspend supplies of coal to State Electricity Boards unless they made advance payments for their requirement. It is required to recover the dues of Rs. 1800 crores from the boards, if it is to continue receiving budgeting assistance in the future. In the 1991-92 budget, government has earmarked Rs. 500 crores as assistance to CIL. The Cash and Carry formula is aimed at making CIL run on commercial lines as a viable undertaking. Budget assistance to CIL has fallen from 99 per cent in the SDS to 19 per cent today and is to be zero in 1992-93. Is this practicable? The Central Mine Planning and Design Institute reports that its survey shows that India has a coking coal reserve of 29,000 million tonnes and the reserve of prime coking coal alone is 6063.96 million tonnes. This is good news for the steel industry.

Non ferrous

In September, the problem of copper availability is becoming serious. Taking into account indigenous production, opening stocks, domestic availability of the metal with MMTC and HCL and the limited imports now in the pipe line, only 40 per cent of registered demand for the metal will be met. The government has imposed a cut in the allocation of the metal on all users. Even so HCL is facing a serious situation as it has not been able to produce cc rods without the import of copper cathodes. So the ministry has recommended the import of 25,000 tonnes of wire bars and 30,000 tonnes of cathodes for HCL. So far only a small part of this import (for Rs. 70 crores) has been authorised. The copper crisis is also due to the new trade policy which has made import of copper wires cheaper than import of copper cathodes because of the premium payable on exim scrips for cathodes. The other issue is the diminishing share to the developing countries in the world trade in copper at less than 30 per cent, while they produce over 55 per cent of copper concentrates. UNCTAD and GATT have developed a strategy to raise the developing countries share in the copper trade.

Agricultural Production

With the rains reviving in August, the areas where precipitation had been inadequate improved markedly (Assam, Meghalaya, Bihar, Saurashtra, Rajasthan, J&K, Punjab and UP). However the inordinate delay in the onset of the monsoon and its subsequent truant behaviour in many parts of northern India impeded the kharif sowing operation as well as the healthy germination of the crop, which will act as an obstacle to attaining the kharif target of 103 million tonnes. August rains are welcome but have come too late to completely offset the impact of the bad monsoon in June and July. The estimate as at September 20 is that the foodgrain production is likely to fall short of the target of 103 million tonnes by 8 million tonnes, which has to be made up to some extent by the rabi crop. The agricultural ministry has fixed the rabi foodgrain target at 83.72 million tonnes, about 8 million tonnes higher than that of last year. The 2 day national conference on rabi 1991-92 expressed the hope that given the satisfactory water storage position and the abundant soil moisture availability, this high target will be attained, making up for the loss suffered in the kharif season. This is the rabi strategy outlined by the conference, which puts the onus of realising the overall foodgrain target of 182.5 million tonnes on the higher rabi output. The

government announced increased procurement prices for kharif foodgrains, based on the recommendation made by the commission for agricultural costs and prices (CACP). It is after 2 years that CACP recommended prices are being accepted. While this return to the commission recommendation is welcome, particularly after the last 2 government increased paddy prices by over 15 per cent, infact this year's 12 per cent increase, given the rise in fertiliser prices may be considered being modest. It is important to bear in mind that price policy connot be used to overcome the serious crisis facing agriculture. The government may not succeed in keeping the overall price increase close to floor level by use of the buffer and because of the kind of inflationary pressure today, cannot be insulated from the effects of higher procurement price. The government's justification that higher prices will lead to increase in agricultural investment is a long term view and will not affect the current kharif or even rabi. further it has unequal effect on agriculture. Procurement prices compensation does not reach farmers who do not enter the market and even others who do enter it, the net buyers of foodgrains stand to lose. Also the price strategy has various effects on the quality of land, with these higher yielding lands gaining more, the irrigated lands more than the unirrigated. And most important, this strategy does not provide the incentive to change the high cost character of agriculture. What is needed is the extension of the wide ranging reform characterising other sectors, to reach out to agriculture to make it more productive, more cost effective and more related to the needs of the poor for wage goods. The government reports that foodgrains — rice and wheat — stocks stand at 18.12 million tonnes as of August 1. A study of PHCC I concludes that the production growth of non food grains crops including cash crops and plantation crops has declined from 3.3 per cent per annum during 1956 to 1965 to 2.2 per cent during 1965–89. This needs checking by the department and CSO, for if it is so its causes need to be analysed. How far was this due to decline in area under cultivation and how can this be countered?

Foreign Trade and BOP

As noted earlier, exports are declining. Export growth was 14.3 per cent in 1986-87, 25 per cent in 1987-88, 29.1 per cent in 1988-89 and 36.5 per cent in 1980-90 but dropped sharply to 17.5 per cent in 1990-91. The fall in exports is attributed to the change in the international environment, recession in US, disruption of important Middle East markets due to Gulf crisis, the decline in domestic production in 1990-91, the rise in manufacturing cost, intensification of import curbs introduced in the last quarter of 1990-91 and steep rise in oil prices—increasing the prices of exports. Hence it seems justifiable that the commerce ministry is planning to scale down the current year's export target from 9 per cent to 7 per cent in dollar terms. In Rupee terms, the target would be Rs. 46,200 crores for the year. According to government, exports during April—June stood at $30 million, being —6 per cent over that of the previous year. Overall the balance of trade in this period stood at —32.1 per cent, which is against the commerce ministry forecast. The commerce minister states that for special products specific and market specific strategies are to be worked out for certain focussed sectors where export growth rates of 30 per cent per annum in dollar terms are foreseen in the next five years. This concept of extreme focus sectors for actively rapid export growth is under consideration by the reconstituted Board of Trade meeting in late September. The Board is to look into specific sectors in depth with particular reference to infrastructure, communication and crude so that constraints to export growth are speedly resolved. Similar Boards of Trade are to be set up in each state for foreign investment set up in August pushing exports from that state. The government at the end of August added 58 items to the list of items to be imported against ex—imp scrips as part of further rationalisation of import licensing. At the individual item level, a regionwise census of handicrafts is being undertaken to boost exports in handicrafts. Entitlement for spices import has been increased from five to 10 per cent and all curbs on cotton exports are to be reviewed. While export of synthetic textiles increased by 24 40 per cent in the first quarter April-June, the export of benzene derivates has declined leading to the import of 40,000 tonnes for the year. Engineering goods exports increased by 30 per cent. Tyre exports are booming and are expected to cross Rs. 200 crores. Engineering exports are reported to have increased by 71 per cent in August 1991. So at the level of individual export items, the picture is still not encouraging.

Aid and Loans

The major event in this area was the postponed meeting of the Aid India Consortium (see Vol XXI p279) which was held on September 19 and 20, which pledged $6.7 billion, including $2 3 billion in fast disbursing aid to meet immediate balance of payment demands. The pledge is a 6—7 per cent increase over last year, with $4.5 billion being from multi-lateral sources, $2.2 billion from the bilateral sources. (13 western countries attended the meeting and made pledges). In addition IMF will lend India $1.8 billion. There was unanimous noting of India's programme of macro economic stabilisation, fiscal adjustment and policy reforms which require difficult decisions and expressed hope that this will send strong signals to investors and financial and commercial markets about the international community's commitment to India's reform measures and its support for meeting its transitional difficulties. This $ 6.7 billion concessional loans and a few grants is the much needed resources help that the economy now needs and there is gratitude to the World Bank for having prepared and piloted the meeting to this end. While in nominal terms the 6.7 billion is higher than last year $6.5 billion and equal to the 1989-90 pledge, it is in real terms lower and lower than aid trends in past years. Further part of this sum has already been committed on an annual basis, so that the net resource flow will be that much lower. On the other hand not only is the fast disbursing aid $2.3 billion welcome, but also the project aid component has fallen from the past 90 per cent to 60 per cent which should improve aid utilisation, when the government reports that as of July 1991, total unutilised external assistance was Rs. 70,748.91 crores on government account and Rs. 4,412.19 crores on non government account. Japan for instance has agreed that part of its assistance could be used for crude imports. Hence the larger fast disbursing and non projects aid is a new plus point this year. There are, however, several cautions to be noted. First, most OECD countries face not only recession but also are preoccupied with aid related market expansion of

Eastern Europe and USSR and to that extent India takes a lower place in their thinking. Second, the pledge was against the World Bank's strong advocacy of the reliability of India's reform and so we need to maintain the pace and direction of our macro economic structural adjustments, particularly against the World Bank's warning of the many pitfalls facing the Indian economy. Third, there are the protectionist policies of the Industrial countries, the decline in the volume of world trade and to 5 per cent last year from 7 per cent in the previous year, the fall in the World Bank price index for non oil primary commodities by 6.4 per cent and the formidable tariff and non tariff barriers to agricultural production and textiles — all of which will restrict the effect of our liberalised trade policy and efforts to expand our exports. Fourth, this gloomy prospect of our earning foreign exchange is upsetting in view of the fact that our foreign debt was Rs.100000 crores in March 21, 1991, which means that the per capita external debt burden has risen from Rs. 618 in 1988-89 to Rs. 835 in 1990-91 with only the fall in the debt service ratio from 23.3 per cent in 1987-88 to 20.8 per cent in 1990-91 providing some relief. In this connection the report of the government and RBI, that $1 billion short term debt has been liquidated is good news and should be followed by running the remaining short term debt to medium term. Finally against this background, the loans should be used not for import consumption on which the pressure will come from the lending, aid giving countries but to augment the technological and export capacity of the economy — which is the only way that the country can graduate out of the aid receiving syndrome in which we seem to wallow and develop an economy which earns what it needs in foreign resources and dispense with the concessional loans. The World Bank has in a confidential report stated that India will need aid and extra aid till 1996. Atleast after that year we should do without this aid. In mid September, India drew $636 million from IMF's CCFF to meet the increased cost of oil exports. The World Bank announced in September an IDA credit of $214 million for improvement and expansion of India's national and child health programme from 1991-92, $200 million for road development and $872 million loan for gas development and $154 million for environmental programmes. In mid September, ADB provided a loan of $200 million for the control of industrial pollution. At the end of September, Japan gave a loan of Rs. 2000 crores as development assistance as pledge at the Aid India Consortium. In early September Germany gave DM 350 million to complete its last year's pledge. At about the same time UK gave $1 billion credit for 2 power projects in Haryana and Himachala Pradesh.

International

World Bank

The annual report of the World Bank for 1991 has three somewhat disturbing aspects. First, the decline in its gross and net disbursements for 1991 compared to 1990. Equally worrying is its ratio of net gross disbursements shrunk sharply from 41 per cent in 1990 to 18 per cent in 1991. Second, more and more of the Bank's resources — those of IBRD and IDA are going to middle income economies of East Europe — from $2.9 billion in 1990 to $4 billion in 1991 which is a 38 per cent growth, compared to the decline in lending to Latin America. (17.1 per cent) and Africa (12 per cent) and a lower growth for Asia (17.1 per cent). Third, the report shows the increasing prioritisation of the private sector and environmental protection, again to the detriment of the developing countries.

UNCTAD

The 1991 Trade and Development report of UNTCAD forecasts a decline in world production and growth due to deceleration of industrial growth in some industrial countries, the deep recession in Eastern Europe and the aftermath of Gulf crisis. It expects world production growth to decline from the low 1.8 per cent in 1990 to a lower 0.7 per cent in 1991, world trade from 4.3 per cent to 3 per cent. Towards the end of 1991 there will be a modest recovery, gathering strength in 1992 resulting in production growth of 2.3 per cent and trade growth of 6 per cent. Referring to regional variations the report points out that while the economic slack was speeding in the industrialised countries, some of the developing countries like China show accelerating growth. Even non oil exporting Latin America who had substantial GDP losses in 1990 is growing in 1991 in both production and trade. The oil exporting countries will experience growth due to their policy reform and increased oil earnings. India because of its large deficits — budget and current account — and Bangladesh because of the cyclone will have a slow down in 1991, while Sri Lanka and Pakistan with the economic liberalisation policies will have higher growth. Developing countries are losing annually $4.6 billion in exports because of the non tariff barriers put up by the industrial countries, from $25.6 billion developing countries export are cut by these barriers. For instance the major export losses are $1.59 billion in steel to US, Japan, EC and Canada, $569 million in seafood to Japan and $163 million in animal feed and $105 million in dried grapes to EC. Japan and US are the only industrial countries, whose imports exceed $1 billion from the third world and are subject to non tariff measures. UNCTAD also calls for more substantial debt reduction by industrial countries following the example of Poland and Egypt.

GATT

Trade ministers from countries controlling two thirds of world trade were meeting in September in Angers, France and decided to stay on till agreement was reached. The main negotiation is on agricultural subsidies and one strand of hope is that the trade representatives of US, EC, Japan and Canada are intensely negotiating the issue. The GATT secretariat states that the work put in since the collapse of the talks last December on agriculture, textile and clothing, market access are serious and give grounds for expecting the negotiation will be successful this time. For India, there is need for the commerce ministry to develop a flexible approach so that the talks succeed as no developing country can afford the talks' failure and the further tightening of protectionism. The US stance on India needs similarly a give and take bargaining to arrive at an agreement on Super 301 and 301. In this connection the warning of UNCTAD that present status of the negotiations will have only limited benefits to the developing countries must be taken seriously.

Labour participation

A study of several countries experience in regard to participation to employees and their organisation effectiveness as measured by job satisfaction, morale, industrial relations, quality of work life, organisation climate and organisation health shows : a) the association between the two is positive in 60 cases examined and negative in 12 and b) there exists a good scope to improve job description through participation of workers of 3 groups. Similarly morale, can also be improved. Improvements in industrial relations require the participation of all workers. Quality of work can be provided through workers participation The improvement of organisation climate and organisation health requires also participation of supervisors and executors.

OPEC

A meeting of OPEC at the end of September in Geneva decided to abandon individual output quotas and for each to pump to its maximum. They expect that there will be the strong demand for oil that they expect in the next quarter. In part this was the result of their not being able to agree on how to treat the production of Iraq and Kuwait. They set a fourth quarter output level fo 23.65 million barrels per day for a target price of $21 per barrel. The price of crude, of the OPEC basket of seven has now risen above $19 (actually $19.47) in a market nervous about dwindling Soviet Supplies. If prices fail to reach the elusive $21 level by the end of the year, the OPEC ministers will meet again to decide on what action to take.

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II. Agricultural Development in Tamil Nadu

Paddy and other crops

The paddy farmer has completed the kuruvai sowing, which is good from the point of the plentiful south west monsoon rains received in all districts. Also the Mettur reservoir was full in over a decade which will be needed by the second, samba crop. The fact that Karnataka has refused to honour the interim award of the tribunal to give Tamil Nadu 205 tmcft of water during the year has dashed the farmers hopes and restricted the kharif area of cultivation. Another factor which affected him and particularly the small and marginal farmer who are the majority outside the Thanjavur district is the uncertainty over the price he has to pay for fertilisers. The union government has indicated an allocation of Rs. 53.97 crores towards the fertiliser subsidy under the dual pricing system. The state government could not make a decision on the Tamil Nadu price for the fertiliser for the small and marginal farmer because it was awaiting the union guidelines. This has caused difficulties for the small and marginal farmers who have had to depend on the private dealers, resulting in black marketing in fertilisers

sale to him. Because of the early rains in some districts like Tirunelveli and Salem, most of them paid higher prices due to the delay in the issue of union guidelines. Farmers are demanding an increasing quantity of fertilisers because of the good rains and the Mettur flow in the case of Thanjavur and Tiruchirapalli districts. Nearly 64 per cent of cooperative membership is the small marginal farmers category and they have to pay the pre budget prices. The cooperatives have made available 10,000 tonnes of fertilisers to their members in Thanjavur district, in Tiruchi 3000 tonnes, Salem 34,000 tonnes, Chinglepattu 13,000 tonnes. Following the union government decision to raise the minimum support price for paddy by Rs. 25 per quintal, with the 3 varieties — average, fine and super fine fetching Rs. 230, Rs. 240 and Rs. 250 per quintal, coarse cereals also with a hike of Rs. 25 fetching the farmers Rs. 205 per quintal and Rs. 210 for maize (because of the increase of Rs. 30) and groundnut Rs. 645 for shelled and Rs. 800 for unshelled, which was a Rs. 65 increase. The farmers in the state are receiving these higher prices, which increased the subsidy of the government and which the government tried to meet by raising also the issue price, on which it, had to retreat because of the public outcry. The government's policy note to the legislature states that 21.10 lakh hectares under paddy will yield 62.50 lakh tonnes this year compared to last year's 57 lakh tonnes grown over 18.75 lakh hectares. The National Watershed Programme which is to cover 89,000 hectares in 14 districts in the state in the VIII Plan, is starting in Dharmapuri or where it is being expanded and restructured to increase the growth of rainfed agriculture covering 64 blocks. The other districts and blocks for the operation are being identified. It is important that the farmers be associated with the programme from the planning stage and then be made responsible for its effective implementation, so that the defect of a government programme which is not regarded by the farmers as their own is avoided.

Research results

Of the 42 reports received from mid August to September end, five groups are of immediate interest as they relate to practices which the farmers can straightaway adopt. The first group are six reports on rice ; starting with the report from the agricultural college and research institute, Madurai which has evolved a rice variety ACM 16 which tolerates cold conditions average 11-12, resisting grain discoloration, leaf blast, neck blast, sheath rot and brown leaf spot and is tolerant of galmidge and brown plant hopper which affects the paddy field in cold conditions : followed by a report from the Bangalore organic farm on ecological ways of growing rice — planting over a spacing of 17.5 cm by 17.5 cm, raising the nursery in a well puddled bed of 12 metres by 6 metres, tying the moist seeds in gunny sack till they sprout in 3 days which should be evenly sown with a sheet of water, using spray fluid to keep off pests, manually weeded and making the organic farming sustainable, farm grown green leaf manure and plant based insecticides forming the main inputs with a high yield : a report from the Vemban rice centre on using rice ratooning to increase production of banana, sugarcane and cotton : and a report from IRRI, Philippines on the biological control of pests as in the predation of the brown plant hopper by the mind bug as a naturally occuring biocontrol agent : from the Vemban

research centre on the 4 measures that the farmers should take to control rice blast : and from the TN rice research station Aduthurai on how iron deficiency in rice plants can be arrested. Second there are a group of 11 reports on various other cereals, the results of which the farmer can now use : from the Vridachalam research centre on how the growing of inter crop ward off groundnut pests, from the Tirupathi college of Veterinary science how to avoid groundnut poisoning in cattle by drawing the straw and using fungicidies, from the Kovilpatti research station on the 4 management practices to be followed to counter the leaf miner, *surulpochi*, in groundnuts, from CIAE, Bhopal on the control of flea beetles on soyabean, from the Hyderabad agricultural university of the use of soyabean waste to increase biogas production, from the Gulbarga research station on the 8 stages involving integrated control of pod borer, from TNAU, Coimbatore using fish meal powder as part to kill the sorghum shootfly, from the Hyderabad College of agriculture on the means to be used for the vegetative propogation of cashew, from Bijapur research institute on the BSS-1 and A1 developed by it for use as high yielding chick pea, from ICRISAT, Hyderabad on ICPH-8 that it has developed as a high yielding pigeon pea cultivation 4858, Norman, Prabhata, ICPL 95 and 96, and Plant A-10 which are resistant to pulses Namathod, from the Bhavanagar research station on how sorghum production can be increased by increasing its ratooning ability through extra application of fertiliser and maintaining the plant population, and finally from the Vemban research centre on how to apply zinc material to the soil to make up for its zinc deficiency. A third group on fruits comes from first UAS Dharwad on the 4 measures to be used to control the mango hopper pest, from the plantation crops research centre, Kasargod on the 3 hybrids that should be used to grow drought resistant hybrid coconuts, from the research station, Cuddalore on trashing in sugarcane to boost its yield 7-10 per cent, from UAS, Bangalore on the means of controlling the pomegranite fruit borer, and from TNAU station, Tiruchi on the 10 steps to take to keep cane pests — the lapid oprerous larvae borer at bay. Fourth, the research station, Yercaud reports on how the use of biofertiliser — Azospirillem acts as effective biofertiliser — arecanut, banana, cashew, cocoa, rubber and cardamom and Sakthi sugars, Coimbatore reports on growing cluster beans in drylands. The fifth group relates to the cattle farmer, starting with the report from the Division of Pathology IVRI, Izatnagar, on the means of avoiding or controlling Hohne's disease in cattle, sheep, goats and wild ruminants; from the Veterinary College, Bidar on the means of minimising the leakage of egg shells by selecting breeds in layer strains bred for both egg number and shell thickness, having only 3 birds in a 25 cm x 25 cm cage and avoiding stress and distribution, and from the TN veterinary animal sciences university, Madras on halting Anthrax spread in cattle, sheep, goats, buffaloes, pigs and birds by following 9 stages starting with not opening the carcas till the blood smear examination shows no sign of anthrox and ending with drainage or moist pasture of land.

Plantation Crops

Tea exports in 1990-91 to 23 countries of 195 million kg earned Rs. 1074.81 crores and in 1991-92 the target is a modest 200 million kg earning Rs. 1100 crores. With a production target of 735 million kg, export of 200 million kg is rather modest. Hence the commerce minister's call at the annual UPASI meeting for a fresh thrust to exports of tea, coffee and the plantation sector generally is understandable. As of now there is a sense of stagnancy in these sectors. In tea, India takes second place to Sri Lanka and is likely to yield the second place to China. In coffee the unit value of Rs. 27.31 per kg, is at that level for over a year, though the quantity sold was 1 lakh tonnes. The Gulf upheavel and the political changes in the Soviet Union and East Europe have introduced a note of uncertainty in the industry. (The Soviet Union accounts for 55 per cent of our total tea earnings). The government wants the industry to shift its emphasis from "exports to production" to production for exports, that is to say to reserve assured qualities of plantation produce for importing countries. But substantial changes are also required on the government side. Tea which was 6 per cent of all exports in 1980-81 is down to 3 per cent in 1989-90 due to the policy followed for this sector. The government has (to preserve its vote banks) conserved — tea supplies for domestic consumption at the cost of exports (See Vol XVIII p86), now a surplus has to be generated to meet both growing domestic consumption and exports. This calls for technological and administrative changes. For the surplus to be sold in the world market, it would have to be produced at cost levels comparable with the rest of the world. This calls for considerable quality improvements. Now with the devaluation and the favourable position of the plantation industry with regard to exim scrips, it should be possible to evolve a consistent surplus of quality produce and market it in a cost effective manner. For this the present way in which the plantation industry has been organised —with quite independent boards, each having its own policy following its original charter, so that there is either too much control as in coffee or no control on quality as in the case of spices which cost us our cardamom exports market. Hence there is need for a common set of guidelines for all the boards with the agreed aim of this role of encouraging and expanding exports. Some boards like tea and spices will involve expanding their marketing role. For others like coffee, the board's functioning may have to be reduced, allowing planters to market their products if they choose to do so. The usual argument that this will be against the interests of the small growers is not true. The board is there to protect his interest. And the government's call of producing for exports needs to be supplemented by a reorganisation of the plantation industry boards.

Rubber

The prospect of a marginal surplus in rubber emerging with a production of 3.65 lakh tonnes in 1991—92 has caused a fall and subsequent stagnation of prices at Rs. 21.15 a kg. It is time now for the Rubber Board to work with users for an agreement on total production, and its use for different purposes and for the function of the board on quality and pricing of rubber, particularly as the forecast for a rubber surplus for the first time in the 70s and 80s.

III. Industrial Development in Tamil Nadu

The September review of the major events in the state's industrial development must begin with the reiteration and expansion in some parts of the industrial policy referred to earlier (see vol XV p369, 370, 385 & 486) and the incorporation of some important aspects of the union government's new industrial policy referred to in the last 2 issues of the Bulletin. The statement of the policy made to the Assembly aims at the identification of the direction of state's industrial growth and the areas to be encouraged to grow. The policy incorporates suitable incentives, infrastructure creation and other supportive measures to move along the desired direction. The three fold aims of the policy will be to use the industries to generate income and employment, to encourage exports and to increase industrial productivity. The strategy for this policy is the protection and strengthening of existing industries, particularly those in which the state has a comparative advantage and has built up a tradition in them, and the identification of the thrust areas for growth, for which adequate power should be developed and in which the private sector will be associated. The strategy also includes the policy on privatisation and disinvestment, involving limiting the government's future investment to the core areas and utilising its equity as a catalytic role in industrial promotion. In this connection the government states that out of the 56 public sector units, 15 made a loss of Rs. 140 crores, 15 state transport corporation made a loss of Rs. 56.7 crores, 26 made a profit of Rs. 67 crores, resulting in a net aggregate loss of Rs. 130 crores. The government had invested Rs. 6000 crores in the public sector and got no returns. So the government under the policy, will : a) allow profit making units to continue, b) those making losses but with signs of recovery to be taken up for remedial action, c) those beyond salvage and which private entrepreneurs want to merge with their units will be allowed to do so and d) those which are a drain on the public exchequer will be closed down. To execute the public investment policy, an Infrastructure Development Corporation is to be set up with Rs. 4 crores from the state budget and growth centres set up in different parts of the state to achieve balanced dispersal of industry. Basic amenities in existing industrial centres like Tiruppur, Hosur, Manali and infrastructural development with the help of the union government will be undertaken in export centres like Vaniyambadi, Dindigul and Tiruppur. The private sector is to be encouraged to harness non conventional sources of energy and to help develop infrastructure like roads. As part of the policy, the state capital subsidy for new industries set up in the most backward taluks is being raised from 15 to 20 per cent of the investment upto a maximum of Rs. 20 lakhs, new units employing more than 30 per cent women workers will be eligible for an additional capital subsidy of 5 per cent upto a maximum of Rs. 5 lakhs. The activation of the single window clearance at district and state levels is reiterated, 10 industrial sheds with all basic amenities are to be provided in each of 107 backward taluks of the state. TIDCO is to give preference to backward taluks in locating joint sector and associated sector projects, in 1991-92, 15,000 registered small scale sector units are to be set up to generate employment

for 1.66 lakh persons as part of a 5 year Plan to set up 1 lakh small and tiny units, women are to be given industrial sheds, with 30 per cent of sheds and plots being reserved for women entrepreneurs, for whom a special entrepreneur development programme is to be initiated benefitting this year 800 persons. The announcement in the policy to exempt some small units from the Factories Act was implemented at this session itself through the issue of new guidelines under which units employing 25 persons instead of 10 for power based units upto now and 50 workers instead of 20 for units not using power, as well as those units using power upto 10 hp are exempted from the factories Act provision. Also an Industrial Guidance and Export Promotion Bureau of Tamil Nadu is to be set up to give information and service to entrepreneurs : the bureau is to identify new export areas and make available escort service to prospective entrepreneurs. Also a State Research and Development institute for fashion and design for textile garments and leather industries is to be set up. The industrial policy extension including its new features are far reaching and impressive. In particular its emphasis of developing the backward taluks, linking the setting of new small industries to employment generation, the encouragment of women workers and entrepreneurs and the provision for privatisation and disinvestment are important new Initratives. With the state governments' resource crunch the policy of disinvestment which has long been advocated by the Bulletin now set forth as policy is welcomed in the hope that the government will help the trade unions to understand and accept it. One consequence of it is to hand over some of the state industries (now being run badly to the private sector) and if that is what is meant by privatisation it should also be welcomed and supported The 4 point policy towards the public sector is on the right lines. There are however some reservations on the high sounding large figures about the number of sheds, number of plots, number of estates etc. that are set forth which make one doubtful whether with the state resource position these can be achieved. If they are meant to indicate the good intention of government and as a popular public relations stand, it should be so understood, and not allow its non realisation to affect the morale of the people and industrialists. On the whole however, industry in the state and in districts have received a shot in the arm, which is badly needed.

Now turning to the actual industrial development from mid August to September end, there is the usual balance short with its plus and minus events.

On the plus side, the *first* development has just been noted and that is the issue of *guidelines exempting* certain categories of small and tiny industries from the *Factories Act*. *Second*, the Atomic Energy Commission states that the Rs. 75 crores 1000 tonnes capacity *Titanium plant* (the first in the country) is being set up at Palayamkayal, 100 acres have been acquired for the plant and the preliminary engineering works are underway. The plant will begin operation in 1994—95 meeting the annual demand of 870 tonnes. *Third*, the Geological Survey of India has located massive deposits of *molybedium*. A moderate sized deposit of 1.6 million tonnes has heen located at Velampuri in Dharmapuri district. There is an immense deposit below it. This metal with its many uses, particularly mixed with ordinary steel to make it special steel open up large production and employment avenues for the state and country.

Fourth, the government has decided to delete the stipulation that potential *granite entrepreneurs* should have some manufacturing facilities to obtain a lease from quarrying. This is a long standing demand of the industry and will promote its accelerated growth which the private sector will ensure. *Fifth, Aruna Sugars* announced that it is diversifying into the hotel industry. It aims at serving non five star hotels and will set up a chain of 8 four star hotels in the four southern states. Aruna Sugars has also undertaken an extensive Rs. 20 crores modernisation cum expansion programme, funded from internal resources. This has increased its sugar production capacity from 4000 tonnes to 5000 tonnes a day. *Sixth, the NTC* subsidiaries in the state made a net profit of more than Rs. 15 crores during 1990—91. NTC states as a result it will be placing more emphasis on individual mills which are the profit centres, rather than dealing with subsidiaries as a whole. *Seventh, Madras Refineries (MRL)* has decided to set up new facilities for LPG separation from associated gas at a cost of Rs. 40 crores. This project is being set up along with MRL distilleries unit in Thanjavur to refine Narimanam crude with a capacity of 0.5 million tonnes at a cost of Rs. 120 crores. To meet the problems caused by importing increased amount of crude, MRL is also expanding its capacity by another 3 million tonnes per annum at a cost of Rs. 1100 crores to be funded by internal resources plus equity. The company's preparation for the aromatics project is proceeding apace, though the decision on the project has still not been made by the union government, while its cost has now escalated to Rs. 1725 crores against the original Rs. 1356 crores (see vol XX p 507). The project to expand the lube capacity from 1.4 lakh tonnes to 2.7 lakh tonnes at a cost of Rs. 165 crores has been approved by the union government and is underway. The project to process half a million tonne annually of cauvery crude, just referred to, will be commissioned in July 1992. The company's joint venture for manufacturing lube additives in the name of Indian Additives is progressing well, its phase comprising blending and succinimide plants being completed by May 1992. A boiler and turbine of 20 MW capacity at cost of Rs. 44 crores in being installed. The effluent treatment plant costing Rs 18.75 crores is being completed in December of this year. The sewage treatement plant with a reverse osmosis unit having a capacity of 2 5 mgd at a cost of Rs. 19.50 has been completed and is working to provide the plant with water. The scheme to manufacture food grade hexans with a capacity of 25,000 tonnes pa at a cost of Rs. 8.80 crores is also being completed in December. It plans another large Rs. 1100 crores project expanding its hydro cracking unit which will be presented to the government for clearance and targets to start it by 1993. Its funding will be from the public in deposits and debentures. MRL has also two small projects plus a Rs 110 crores plant to produce benzene at 54000 tonnes per annum from Rs.38.3 crores propylene plant with a capacity of 17,000-34000 TPA. This MRLs diversified production and actirities and high turnover of Rs. 1640 crores in 1990-91 are impressive not being held back by the delay in the aromatic project approval. *Eighth, Spic Fine Chemicals* producing the country's first reolite based phosphate from detergent reports that it plans to expand its manufacturing and widen its consumer products. It is moving into manufacturing import substitution materials like textile and leather chemicals and adhesives in addition to its current down

stream project producing reolite and detergent, out of LAB available from Tamil Nadu Petro products. *Ninth, engineering exports* particularly machinery, machine tools and parts, electrical machinery apparatus, appliances and supplies and transport equipment and parts from Tamil Nadu and the southern states after a period of stagnation in the 80s have now started picking up. But despite the vast range of engineering goods produced in the state only about 20 products account for 6.5 per cent of its export and so there is scope for an increasing contribution from the states. *Tenth, BHEL* has manufactured the first nuclear power machine of 500 MW for Tarapore. It has supplied 235 MW machines for Madras, Narora and Kakrapara. It has orders for 2 nuclear power machines of 235 MW for Kaiga and Rajasthan. Thus BHEL has emerged as one of the four companies in the world possessing frontline technologies in power and associated fields. *Eleventh*, the Rs. 315 crores expansion of *Madras Fertilisers*, increasing its capacity by 40 per cent and extending its econmic life by 15 years has been cleared by the union government. The Plants energy consumption will decline by 41 per cent. Its expansion will be achieved without any additional feedstock, naphtha and water. Its omissions will be considerably reduced, making it more environment friendly. *Twelfth*, in the *Handloom field*, 50,000 handlooms are proposed to be modernised at a cost of Rs. 42.30 crores. With aid from NABARD 37,500 old type handloom are to be converted into power looms over a 10 year period. For this year, an initial allocation of Rs. 30 lakhs, with finance by NABARD has been made. There is some question about the soundness of the decision to transform handlooms into powerlooms. Despite the withdrawal of CCS (see Vol XXI p389), exports of handlooms have made a record earning of Rs. 50.51 crores in July. In the first 4 months April-July 1991-92, handloom exports were Rs. 155.37 crores which is a 30 per cent more than that of the previous year. *Thirteenth, Madras Fertilisers* (MFL) has submitted a plan to the union government for setting up a Rs. 1080 crores ammonia, urea, DPAP complex using the gas in the cauvery basin. It is also bidding for an ammonium nitro phosphate plant at Chidambaram district in association with TIDCO, at a cost of Rs. 450 crores. Given the shortage of nitrogen and phosphates in the South, the company's project is much needed. The union government has cleared MFLs plan to revamp its plant at a cost of Rs. 315 crores. *Fourteenth, an industrial estate* for the manufacture of readymade garments, all handloom fabrics, is coming up at Kakkalur in Chinglepattu—MGR district. SIDCO has offered 100 acres for the project and in the first phase 50 acres are being developed. *Fifteenth, SIDCO* which has identified potential growth centres as stated in the policy referred to earlier, is constructing 200 work sheds during the VIII Plan. It is constructing the sheds at a cost of Rs. 8 crores and is selling 50 developed plots at a cost of Rs. 1 crore. The first industrial estates are being established in Periyar, Ramanathapuram, Madurai and Chengalpattu—MGR district. *Sixteenth, the Simpson group* which accounts for 90 per cent of the turnover of exports of the Amalgamations group is moving fast, in its output of engine demanded by TAFE. Addison is producing cutting tools and India Pistons widening its pistons with a new unit at Maraimalainagar. *Seventeenth*, another company doing well is *Spencers* whose gross

sales are reported at Rs. 70.67 crores for 1990-91—a 14 per cent increase over the previous year. Its exports earning are Rs. 13.92 crores, being a 80 per cent increase. It proposes to open a large super market in Madras and is becoming a diversified consumer products company. *Finally*, the Rs. 1.4 crores TN Industrial Explosives Limited reports being commissioned at September end. With the Rs. 1.55 crores small India cartridging system commissioned in April, the company's turnover for the year is expected to be Rs. 7 crores plus Rs. 14.82 crores on the first company. Despite its losses of Rs. 6.65 crores due to rise in new materials prices, its exports are increasing.

On the negative side, *first the Aromatic project* to be set up jointly by MRL and SPIC is as noted earlier still hanging fire. One unfortunate feature is that announcements are being made periodically that it has been approved, only to be contradicted soon after. Meanwhile its cost has risen as noted earlier by over 40 per cent and every day of delay will send up its cost. *Second*, the B and C mills is still closed as from April 1991. The bone of contention is the shifting of the processing unit which the trade union opposes. This should be settled now, if the plant is not to become sick and client for BIFR. *Third*, the *Standard Motor Product Limited* (SMPL) is still closed—and has been for more than 2 years. BIFR has with IDBI worked out a package, but IOB is unable to provide the additional working capital which is rather a large amount. IOB is already in the red to the extent of Rs. 26 crores on account of SMPL and is not able to pay more funds. Behind all this is the question of the viability of the enterprise. Will its demand be adequate to make it a viable firm? Possibly if it concentrates on producing LCVs it can function viably. *Fourth*, mills in the state are really facing cotton shortage, resulting in some mills reducing their spindle activity, while others face the prospect of closing down. The consumption of cotton can be reduced by blending it with vicose. The cotton situation needs careful scrutiny, as this shortage and the increasing of export of cotton seem contradictory. The demand for import of cotton is not sustainable, given our shortage of foreign exchange. *Fifth*, TIDCO's plan to disinvest in *TANCEM* (Tamil Nadu Cement Corporation) is a correct decision and is in line with the policy outlined at the start. This is a case where there are a number of attractive bids from private companies. TANCEM can be converted into a joint sector company at the first stage, with the state pulling out gradually and completely. The problem in not giving affect to this disinvestment decision is the opposition of the Trade Unions, office staff and in this case even the management which originally made the decision. Larsen and Toubro, India Cements, ACC, Madras Cements, Chettinad Cements are some of the private sector companies which have made a bid for the company. In this case, the government should combine its capacity for explaining to the trade unions the stakes involved and be firm with the management which is flaunting the ephemeral profit of Rs. 1 crore made in the first 4 months of 1991—92. This is no ground for changing the disinvestment decision. *Sixth, Tuticorin Alkali Chemicals*, a joint sector undertaking, has informed BIFR that it is a potentially sick unit, with its accumulated losses in the last 2 years, 1989-90 and 1990-91, having crossed Rs. 6.6 crores which is more than 50 per cent of its authorised capital. The company has been in trouble due to the very low retention prices allowed by the union for its ammonium chloride products. SPIC which has taken

over its management has presented a Rs. 160 crore modernisation programme. This capital should come from equity and public deposits and not from government. The government should allow its price to reach the market level under the dual pricing scheme. *Seventh*, the government has presented a *Rs. 400 crore tyre unit* project in Kanyakumari to the Assembly. This is now an old story and has been repeated for 10 years, with no effect in terms of actual follow up. The project itself needs reexamination by an outside expert group. It is suspected of being basically unviable. *Finally* as noted earlier, the project to convert *37,500 handlooms to powerlooms* has aroused stout apposition from the state's handloom society, with serious questions raised as to its employment effect on the families to the weavers. It might be wise to set up a commission in which the handloom society is represented to examine and clarify the issues.

Thus in September a major gain for the state is the major aspects of the Industrial Policy presented to the Assembly and the many positive developments which overshadow the negative elements. What needs watching is the strong pressures being exerted to start projects when the state's coffers are empty, and the private sector itself is strapped for cash.

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IV. Education Science and Health

Educational reforms

The government announced in the Assembly that education will be made compulsory upto standard 5 and will launch from 1992-93 and be implemented in a phased manner over five years. The grant of Rs. 1 crore to each panchayat union under the self sufficiency scheme will help construct 1000 primary school buildings. Under the school improvement conference plan, an additional Rs. 1.5 crore is to be mobilised in 3 districts for construction of school buildings. The drive to eradicate illiteracy is being undertaken under 2 programmes. First the Total Literacy Programme now in operation in 4 districts Pudukottai, Periyar, Kanyakumari and Pasumpon Muthuramalingam under which all adults in the age group 15-35 are being made literate is being extended to 3 more districts. The other districts will be covered next year. Second under the programme of Mass Action for National Regeneration (MANAR) universities and colleges are incorporating literacy teaching as part of the curriculum. 4 models have been developed — one by Anna University which has developed a package of 3 summer courses each of 6 week duration — STR-1, STR-2, STR-3 which may be exchanged for any electives : a second by the Madras Christian College with its 2 types of courses leading to preference for admission to post graduate courses and exemption from some electives : a third by Avinashilingam Institute for Home Science and Higher Education for women where student and faculty

engage themselves in the illiteracy campaign; and a fourth by Tamil Nadu Agricultural University in its village stay programme which gives direct exposure to the rural setting and life through the stay of one month in the village by students and staff and in which adult literacy is being incorporated. These models are being followed by the other 7 universities and the 24 autonomous colleges to start with in the state. At the University level, the government announced in the Assembly that a council for higher education as required in the National Policy on Education and recommended by UGC is being set up. Also an advisory council for education to suggest ways of improving educational standards in the state is being set up. A graduate course in computer science is to be offered in all 54 government arts and science colleges in a phased manner starting this year with 8 colleges. The UGC has set up 23 subject panels in social, natural, engineering, and management sciences to advise commission on the improvement of standards. It has set up 27 curriculum development centres to review existing curricula and recommend improvements and updating. There are some lacks—the quality of the COSEP and COHSSIP is low, summer institute have been discontinued, the follow up actions on some parts of NPE is delayed and rural colleges are being neglected.

Technical education

Polytechnics in the state are being upgraded using the Rs. 76 crore World Bank help for renewing their equipment. A scheme to upgrade technical education in the state at a cost of Rs. 400 crores is being presented to the World Bank for help. The setting up of a university of fine arts and film technology and the establishment of a film city at the Film and TV Institute, Adyar was announced by the government in the Assembly. Anna University reports that it is introducing a bachelor's degree programme to train a new batch of professionals specialising in biotechnology. It will meet the needs of industries engaged in biotechnology and will be a combined B Tech/M Tech course to be launched from 1992-93.

Science

UNCTAD warns that India and other developing countries may fall further behind technological development if agreement is reached on the trade related intellectual property rights (TRIP) now under discussion in the Uruguay rounds. The concentration there is on the static aspects of international property rights (IPR), completely neglecting the dynamic aspects relating to technology transfer and diffusion. India is under tremendous US pressure over IPR, with a US demand that its existing legislation concerning IPR be reviewed. The government feels that the recommendations of the Interdepartmental committee on colour TV net works and dish antennae to amend the copy right act to provide for distribution of programmes through cable TV as a distinct category of copy right has become dated. This is in the context of the proposal to offer telecasting and broadcasting rights to public corporations and allow them to compete with Prasar Bharathi. India's second operational remote sensing satellite – IRS-1B was put into orbit on August 29 at the Baikonur cosmodrome of the Soviet Union. The satellite is placed in the planned sun synchronous orbit and is fully operational. The India Petro Chemical Corporation (IPCL) reports that it has developed in collaboration with the Indian Institute of

Petroleum, Dehra Dun a Gasoline Reforming catylist, which has been put to commercial use by Madras Refineries. The Limetallic catalyst will be used in the field of refining and petro chemical packages and will save the country substantial foreign exchange. CECRI, Karaikudi reports developing a new process called 'rust converting primer' which avoids steps such as surface preparation and phosphate treatment. To produce it commercially the minimum economic capacity is 30 tonnes per annum at a total project cost of Rs. 4.35 lakhs. All the plant, machinery, raw materials are available in the country.

Health

The Ministry of Health reports that it is making steady efforts to achieve the goal of health care for all and achieving a net reproduction rate of unity by the turn of the century. During 1990-91, preventive and promotive aspects of health services were augmented (by September 1990, 20,552 primary health centres and 1,30, 512 sub centres were functioning), and action for greater child survival accelerated and quality of services further improved to make them more responsive to peoples' needs. The World Bank aided India Population Project—V now covering Madras and environment is being extended to more districts. It aims at improving mother and child care services and the project is to be completed by June 30, 1992.

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V. Employment and Labour Relations

The employment picture is rather grim. For this year the Jawahar Rozgar Yojana (JRY) has fixed a target of 900 million mandays of work to be provided. On the base of each unemployed persons getting 150 days employment, the target means that 6 million people will be provided employment. (The number of unemployed is in the region of 20-25 million). To make matters worse because of the resource crunch, the expenditure by the union government has been frozen at Rs. 2100 crores per annum and given the inflationary pressure, this means that the employment generation expenditure has been decreasing. Further as in most states minimum wages are being hiked and as one of the conditions of JRY is that those employed under JRY must be paid the minimum wages of the state, the coverage of the scheme shrinks still further. The state governments face an even more parlous financial situation than the Union, some of them have not been able to pay their salary bills and so there can be no relief from the Union source. And given the sharp rise in the price of food this year, the JRY wage will not cover the workers' food bill. There is need for the union government to economise on other items like defence outlays, DAs etc and increase the JRY allotment. There is also leakage mainly

in material purchases and employment of contractors. To stop this schemes with higher labour cost and lower material cost should be preferred and the use of contractors by the states should be penalised. These may be some ways of making the limited and contracting JRY funds go a little further. Given the large buffer stock of food grains atleast for this year should there not be a food for work programme, using a small part of this stock ? The data on unemployment presented by the Labour Bureau shows an unsatisfactory situation for all states including Tamil Nadu. Tamil Nadu is among 3 states which restructured (laid off) workers during April 1991 in 1 unit affecting 26 workers, it is one among 4 states which has laid off workers in April 1991 involving 1 unit during April affecting 486 workers and 6 units during part of the month affecting 851 workers, aggregating 9594 mandays lost, — the second largest among states, in terms of industries in Tamil Nadu, textile unit laid off 486 workers, 1 non metallic unit laid off 13 workers, 1 basic metal unit laid off 16 workers, 1 maintenance machinery unit laid off 45 workers involving 1170 mandays lost, and 2 repair services units laid off 291 workers involving 7566 mandays lost; in terms of causes for the lay off, 3 units laid off 74 workers involving 1924 mandays lost because of financial stringency, 1 unit laid off 484 workers because of raw material shortage, 1 unit laid off 270 workers (7020 mandays lost) because of shortage of power and 1 unit laid off 21 workers (546 mandays lost because of breakdown of machinery. The data from the National Employment Service is equally disquieting; of the 851 employment exchanges in the country, up from 660 in 1981, though the percentage increase in their live register has declined from 10.1 in 1981 to 5.7 in 1990 (mainly due to the higher base in 1991), and there were three fortunate years 1984, 1987, and 1988 when the numbers on the live registers were stagnant. On the other hand the grim reality is the growing increase in the number of those on the live register from 178.38 lakh in 1981 to 346.31 lakhs in 1990, recording a 100 per cent increase in less than 10 years. The number of vacancies notified by the exchange fell from 8.96 lakhs in 1981 to 4.90 laks in 1990, and the number of placements decreased from 5.04 lakh in 1981 to 2.64 lakh in 1990. As the law makes it obligatory for all employers in the public sector and those in the private sector who are engaged in non agricultural activities and employment 25 or more workers to notify the exchange on every vacancy and invite to submit candidates for it. The question arises whether the vacancies arising in these establishments have shrunk over the last decade, which means that development is not generating employment. There may be some cases of employers not reporting vacancies, and of employment exchanges not being able to effect proper placements, but the main reason is that the production activity is not employment oriented. The same is true for the apprentice training programme, where 37,153 identified seats for apprentices were unutilised in 1990. Is it true then that there are more training facilities than people willing or eligible to use them. Thus both in training and employment generation with its falling rate and declining number of placements by the Exchanges, the picture is increasingly disturbing. On conditions of labour, Parliament was informed by the Ministry of Labour that there are nearly 14 crore child labourers in the under 14 age group in the country. This is the record of the 1981 census which should be updated when the 1991 census data on it is available. The child labour act bans child labour below the age of 14 in factories, mines and in various hazardous occupations. The tragedy at Srivilliputhur highlights the need to enforce these provisions strictly.

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VI. Other Items

UNESCO Literacy Jury

The Unesco world Literacy Jury met in Paris on August 19, 20 & 21 and examined 34 submissions from government and non governmental organisation and decided to award the prizes for excellence in literacy achievement in 1990, the Nedesa Krupskaya Prize (USSR) to Pakistan, the International Reading Association Award (US) to Japan, the Noma Prize (Japan) to the District of Burdwan India, the Iraq prize to Venezula and the King Sejong Prize (South Korea) to Ghana. The Medals and Certificate as well as the 11 honourable mentions for outstanding literacy works were presented on September 9, for the International Literacy Day, (which this year fell on a Sunday) at a public meeting in Paris.

NABARD

A national seminar for rural bank branch managers on rural credit was organised by NABARD in cooperation with IOB. The managers were trained in methods of approving the request in rural areas by farmers and artisans for credit, the terms on which it should be given and the means of assuring the repayment.

SRC and TNBCE

There was a meeting of the Governing Council of SRC when the enlarged function and budget for 1991 for the centre were reviewed and approved. The centre is now largely concentrating on providing literacy materials for the 4 districts which are running the Total Literacy Programme and training its workers. TNBCE executive committee which also met reviewed the progress in planning for the annual conference which is to be held at the Annamalai University as the original site of Virudhunagar did not have enough accomodation. Also there was a review of its selection procedures for choosing printers and its financial disbursment rules which were changed and the secretary made responsible for the whole system.

National Council for Industrial Harmony

A meeting of the council was held at the end of September. It concentrated its attention mainly on the implications for industrial relations of the New Industrial Policy which had been announced and analysed in the previous

issues of the bulletin. One of the key elements of the policy — the right of exit and exit opportunities, has been omitted from the policy because of the opposition of trade unions. It was agreed that there was need for the trade unions to study and work on the new industrial policy and accept the exit element under certain agreed conditions. It was decided to run a national seminar on the New Industrial Policy and its impact on industrial relations before the end of the year in New Delhi in order to be sure to have the Prime Minister and the top management and trade union leaders to inaugurate and participate in the proceedings.

IIC

The India International Centre's Economic Affairs Group held a meeting of its Advisory Committee in late September at which the current programme of panel discussions, seminars and publications were reviewed and noted with satisfaction. One suggestion made was to decide the subjects for panels or seminars a little more in relation to the audience interest. The committee then made its recommendations on the subjects for panel discussions and seminars for 1992. On this basis, the chairman, coordinator and secretary have established the 1992 list of monthly panel discussions and five seminars for 1992. There was the final panel discussion for the year on the technology options and applications for the VIII Plan where the consensus was that there had to be a synthesis of the traditional and innovative with an eye on the employment aspects.

TN State Council for Science and Technology

There was the quarterly meeting of the executive council of the Tamil Nadu State Council for Science and Technology which apart from reviewing the current research projects, their evaluation and follow up by user ministry or firms, examined 3 new research projects in line with the thrust areas for the council which had been decided. The council also decided to continue with the plan for a state seminar with the new state planning commission secretary on the thrust areas in Science and Technology for the state. The council also approved the modified plan proposals for the VIII Plan now to run from 1992-93 to 1997-98. It also approved the budget for 1992-93 and the Annual Plan for that year to be forwarded to the State Planning Commission.

October Development Seminar

The paper for the October Seminar "Industrial Sickness in Tamil Nadu" by S. Swaminathan along with a synthesis of the discussion on the paper at the seminar appears as the first article.

Second article

A note on 'The Economic Crisis and how to meet it' appears as the second article.

Book review

The review by Prof C. T. Kurien of the book — Poverty Inequality and Prices in Rural India appears in the book review section.

M I D S News

Dr. Paul Appasamy attended a celebration of "World Habitat Day-1991" organised by the U.N. Centre for Human Settlements Information Dissemination office on 14th October, 1991 at Madras and spoke on "Urban Services in Madras".

He also gave a lecture on "Urbanisation and Pollution in Madras" to a group of American students who are spending a Semester in India, at the Madras Christian College on 18th October.

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Dr. A. Vaidyanathan has been appointed Chairman of a Committee to review Problems of Irrigation Pricing in the Planning Commission.

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Dr. Tushaar Shah, Director, IRMA, Anand delivered a lecture on "Aspects of Groundwater Irrigation and Groundwater Marketing" in the Seminar room on 21st October.

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Dr. C. B. Padmanabhan has been appointed as Senior Social Scientist to head the Adult Education Evaluation Unit of our Institute with effect from 1st November, 1991.

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October Development Seminar

Sick Industry — A Public Policy Perspective

by
S. Swaminathan
Vice-President Economic Affairs
CHEMPLAST, MADRAS

The purpose of this paper is three-fold. The first is to stimulate thinking on the need for a sustainable public policy matrix in relation to industrial units which become a drain on the community's savings. The second is to provide a diagnostic generalisation on how and why industrial enterprises degenerate. The third purpose of this presentation is to inquire into the modes of public intervention hitherto resorted to and seek to evaluate them in the light of a cost-benefit trade-off which could be economically viable and socially just. Although the paper focusses on industrial sickness in the Private Sector, the perspective presented here could hopefully be extended, mutatis mutandis, to public sector units caught in the cobwebs of non-performance.

Section I

Towards general theory of industrial sickness

Business failures, have always been an organic part of industrial metabolism in the capitalist economies. The system of private property and the law of contracts which have provided the institutional foundation for capitalism have also generated a sub-system, the law of bankruptcy which seeks to reconcile business failures of individual and groups of individuals called "Partnership Firms" with the need for continuity of the business system as a whole. The economic principle underlying bankruptcy law and its corporate counterpart—law of liquidation contained in Company Law—is that a business entity proven as a commercial failure and as being beyond revival should be terminated through transparent legal means rather than being kept going through the wasteful process of diversion of the community's savings. In this sense the legal framework of business in India already recognizes an Exit Policy although the enforcement of the policy has virtually been nullified by the law governing Industrial Disputes.

The concept of industrial sickness (as opposed to business failure) is perhaps a typical Indian contribution to the technical terminology. Sickness is not dissolution even though it could be a prelude of the collapse of the business unit. Sickness could range from the failure of a business unit to take-off (of even to reach the break-even point) to the stage at which it has lost all (the entire net worth — both capital and reserves). Incipient sickness in its rudimentary form is manifested by continuing cash losses and in its substantial content by persistent failure of the business to recover operating costs and depreciation. When does the sickness of an industrial unit give rise to legitimate public concern?

According to Section 23 of the Sick Industrial Companies (Special Provisions) Act 1985 (SICA), an industrial company attracts the provisions on the new law if its accumulated losses have already resulted in erosion of fifty per cent or more of its peak net worth during the last five financial years. This is only the concept of a "potentially sick company". What is a "sick industrial company" is defined in Section 3 (0) of SICA. An industrial company if, at the end of any financial year, it has accumulated losses equal to or exceeding its entire net worth and if it has also suffered cash losses in such financial year and the financial year immediately preceding such financial year. This definition not only covers moribund companies (ie. those which have practically come to a standst where operations are concerned) as well as those whose operations are financed entirely by external sources and which merely result in the accumulation of finished inventory, saleable or otherwise. The point to emphasize here is that SICA and its institutional creature, the Board for Industrial and Financial Reconstruction (BIFR) provide, at least intentionally, the mechanism for rehabilitation/exit for companies which are terminally sick. It is precisely this question — whether terminally sick industrial units can at all be rehabilitated in a credible manner—which constituted the enigma in public policy.

Industrial sickness — a diagnostic model

The symptoms of industrial sickness need to be distinguished from its etiology (the causes and malignancies leading to the sickness). Identification of the symptoms of industrial sickness generally turns on financial ratio analysis pertaining to both liquidity and profitability. Altman's technique of Multiple Discriminant Analysis (MDA) which is a predictive instrument for corporate bankruptcy in the US, involves five variables, viz (1) working capital (2) retained earnings (3) earnings before interest and tax (EBIT) (4) market value of equity and (5) sales.

The Tandon Committee, 1975, put the focus on "erosion of profitability" as the leading symptom followed by decline in liquidity, delayed payment to creditors and eventually to default.

Causes of industrial sickness

A lack of congruence between the firm's anticipations regarding customers and the markets expectations relating to the firm is an underlying theme in the study of industrial sickness. Internal mis-matches between production management and funding/marketing or between corporate plans and the personnel function very often breed operational inadequacies and thereby lead to sickness. An aggravation of internal mismanagement by adversities generated by the external environment (for example, government policy in the areas of administered price, exim and taxation, credit policy of the RBI), is a well-known feature of the configuration of industrial sickness. Unscrupulous managements sucking a company dry through unjustifiable appropriations towards managerial

remuneration and the 'expense account" are not unknown either. The complaint that the limited liability facility operates in favour of the "scorched earth" misdeeds of entrepreneur-promoters is commonplace. A comprehensive (almost encyclopaedic) cotalogue of "academic causes" of industrial sickness, can be found in the report of the Committee "to examine the legal and other difficulties faced by banks and financial institutions in rehabilitation of sick industrial undertakings....." (The Tiwari Committee of RBI, 1981-84). Among the internal causes listed by the Committee, the following may be highlighted :

1) Inadequate technical know-how
2) Locational disadvantage
3) Outdated production process
4) Uneconomic size of project
5) High cost of inputs
6) Overestimation of demand
7) Time and cost overruns
8) Poor quality control
9) Poor capacity utilisation
10) Excessively high wage structure
11) Overmanaging
12) Defective pricing policy
13) Faulty costing
14) Liberal dividend policy
15) Siphoning away of funds
16) Adverse debt-equity ratio
17) Excessive expenditure on R & D
18) Dissension within the management
19) Incompetent management
20) Dishonest management

In the Committee's perception, the external causes of industrial sickness range from infrastructural bottlnecks, haphazardness of government policies and market constraints to extraneous factors such as vagaries of the political situation and the multiplicity of labour unions.

Consequences of industrial sickness

A general theory of industrial sickness needs to reckon with the following economic and social costs involved in perpetuating sick units (or hospitalising them beyond the point of no return :

1) Inefficient allocation of scarce savings
2) Erosion of prospective investments in new productive ventures
3) Decline in return on investments at the macro level
4) Higher tax rates
5) Idle capacity-labour and capital
6) Losses sustained by banks and financial institutions
7) Preserving employment in sick units at the cost of employment for new entrants in the labour market.
8) Failure to upgrade/reequip labour for effective participation in new technology.
9) Lowering of morale in industry, banking and other services
10) Politicisation of industrial decisions with consequent impairment of the investment climate
11) Retardation of economic growth
12) Rigidities in the labour market

Methods of dealing with sick industrial units

The idea of a remedy for industrial sickness is a concession to the humanist

spirit of survival rather than a logical response to the commercial failure proclaimed by a sick unit. The one exception or so it appears to be is turnaround management which is not really a remedy but the infusion of a new managerial strategy very often on the basis of a management take-over. What then are the possibilities of ensuring the revival of a sick industrial unit? The Tiwari Committee envisaged seven routes to revival of sick units :

1) Change or take-over of management through reconstitution of the Board of Directors, or appointment of key personnel by the financial institutions and for banks
2) Reconstruction — restructuring of capital and liabilities
3) Merger/amalgamation
4) Transfer on lease
5) Sale as running concern
6) Take over by purchase of shares by a healthy unit
7) Fast-track liquidation on the basis of a summary procedure without recourse to the provisions of the Companies Act.

Section 2

The spread of industrial sickness—A long itudinal approach

The industrial down-trend which started in the mid-sixties with the decline in capacity utilisation and in new investment should perhaps be regarded as the progenitor of industrial sickness on a considerable scale. The Mid-Term Appraisal of the Fourth-Year Plan (February 1972) did, in fact, allude to the closure of units in several industries, mainly textile and engineering industries as also coal and sugar. "Among the reasons accounting for closures", said the Planning Commission, were "obsolete machinery and technology, uneconomic size, unsatisfactory industrial relations, raw material shortages, demand constraints, financial crisis and mismanagement".

The varying magnitude of industrial sickness is brought out in table A.

An aspect of the mixed economy regime has been the curious fact that the incidence of sickness in industry is being daalt with at an aggregate level by the Reserve Bank of India (Sick Industrial Undertaking Cell) and the Board for Industrial Reconstruction (BIFR). In a market-propelled economy, industrial sickness would be a matter for remedial action by the constituents of the uorporate concern — management, labour and creditors. Is it possible that it is this approach which has resulted in a situation where public policy instruments are constrained to deal with industrial sickness not in its incipient stages but in its terminal juncture? Approaching the problem in its aggregate form, the RBI has evidently found the task monitoring industrial sickness extremely cumbersome and time consuming. The data on industrial sickness available with the RBI is itself more than 20 months removed from current realities. As of now, the data available, as set out in tables A and B, relate to December 1988 at the outer limit. Even with the relatively inadequate data which the RBI has published, there is an inescapable pointer to the grave deterioration in the sickness scenario. Between 1980 and 1988, sick units, of all sizes have proliferated by nearly 10 times. SSI sick units which represented 94% of the total incidence of industrial sickness, 1980, have sprawled to a 99%

TABLE A

Industrial Sickness 1980 to 1988

Year DEC-31	Large units		Medium units		Small scale units		Total	
	Number	Outstanding Bank credit Rs. crores	Number	Outstanding Bank credit Rs. crores	Number	Outstanding Bank credit Rs. crores	Number	Outstanding Bank credit Rs. crores
1980	409	1324.46	992	178.42	28149	305.77	24550	1808.66
1981	422	1478.84	994	187.63	25342	359.07	26758	2025.54
1982 *	444	1790.60	1178	225.76	58551	568.97	60173	2585.33
1983	491	2014.33	1256	357.97	78363	728.99	80110	3101.29
1984	545	2330.12	1287	428.58	91450	879 69	93282	3638.39
1985	637	2980.24	1186	220.02	117783	1070.67	119606	4270.93
1986	714	3287.02	1250	281.37	145776	1306.10	147740	4874.49
1987	1837	4459.09	NA	NA	204259	1797.31	206098	6256.40
1988	2011	5564.30	NA	NA	240573	2141.00	242584	7705.30

SOURCE : CMIE

presence in the overall profile of industrial sickness in 1988. The number of medium units which have been caught in the maelstrom of distress is not known beyond 1986. This may be due to the lacuna in the monitoring system followed by the RBI. To some extent, the problem is compounded by the fact that medium-sized units cover a bewildering range of capital investment of Rs. 35 lakhs at one end and Rs. 20 crores at the other. If corporate acquisition trends are what one should go by, sick medium units would seem to be going through a process of restructuring, largely on the basis of take-overs by other medium units. This is one area of industrial sickness which seems to have escaped critical enquiry, both by the RBI and by researchers in the area of industrial sickness.

Table A also establishes what is widely perceived as the a-symmetry in the policy response to industrial sickness. Large units with capital investments of Rs. 20 crores and above, are numerically not even 1% of the total incidence of sickness. But in terms of locked-up bank credit, they represent 72% of the total bank credit outstanding from all sick units, as of December 1988. Although employment data are not available with regard to sick units, it is a general presumption that the SSI units have caused larger unemployment than what labour leaders often approched as the potential unemployment that would be caused by restructuring of the more than 2000 large units which are "non performing assets" of the country.

TABLE B

Viability Status of Sick Units 1985 & 1988

	31 DECEMBER 1985				31 DECEMBER 1988			
	Number	% Share	Amount Outstanding Rs. crores	% Share	Number	% Share	Amount Outstanding Rs. crores	% Share
Units found viables	8569	7.2	1987.33	46.5	13712	5.7	2891.75	37.5
Units found non-viable	99062	82.8	1790.73	41.9	224969	92.7	3417.88	44.4
Units for which viability was not determined	11975	10.0	492.87	11.6	3903	1.6	1395.67	18.1
	119606	100.0	4270.93	100.0	242584	100.0	7705.30	100.0

SOURCE : CMIE

Table B is a sombre reminder that the search for rehabilitation packages for sick units, is by and large, a process of hitting the blind alley. The percentage of sick units found non-viable has risen from 82.8% in 1985 to 92.7% in 1988; it is increasingly being found that the percentage of sick industrial units which are capable of being turned around, is getting reduced from 7.2% in 1985 to 5.7% in 1988. The only redeeming feature of the situation seems to be that the number of units hanging in the air (without their viability status

being determined) has come down from 11975 in 1985 (10% of the total) to 3903 in 1988 (representing 1.6% of the total). An alarming fact of the situation is that, as of 1988, bank credit outstanding of units which are found non-viable is of the order of about Rs. 3400 crores, ie., 44% of the total bank credit outstanding of all sick units, Rs. 7705 crores. The implication obviously is that amount of bank credit outstanding is, for all practical purposes, an erosion of working funds of the banking system, which is unlikely to be redeemed unless liquidation of these units is proceeded with.

TABLE C

Number of Large Scale Sick Industrial Units and Amount of outstanding credit from Scheduled Commercial Banks : 1985 to 1988

(Rs. Crores)

	December 1985		December 1986		December 1987		June 1988	
	No. of Units	Amount outstanding	No. of Units	Amount outstanding	No. of Units	Amount outstanding	No. of Units	Amount outstanding
MAJOR STATES	623	2942.38	697	3243.35	1044	2676.59	1093	2886.40
Andhra Pradesh	37	103.10	44	126.09	70	119.09	69	128.06
Assam	2	6.53	7	34.89	4	7.30	4	6.64
Bihar	17	44.51	17	50.28	29	56.66	30	75.26
Gujarat	62	301.51	68	323.21	131	356.57	134	402.79
Haryana	16	42.14	17	50.95	33	50.66	34	53.36
Karnataka	33	163.44	43	220.52	62	127.43	76	153.18
Kerala	16	129.19	20	142.35	27	124.75	33	112.49
Madhya Pradesh	22	89.46	26	98.58	36	87.59	36	91.31
Maharastra	146	835.62	161	893.83	252	832.61	255	866.69
Orissa	7	35.26	10	29.55	9	33.15	12	36.52
Punjab	4	6.14	6	17.80	21	12.73	22	14.14
Rajasthan	13	40.14	11	40.33	44	80.40	43	93.11
Tamil Nadu	50	189.64	53	184.08	107	228.90	112	229.92
Uttar Pradesh	66	279.37	68	251.08	68	136.37	70	155.33
West Bengal	132	676.33	146	779.81	151	422.38	163	467.59
All India	637	2980.24	714	3287.02	1119	2801.79	1172	3025.88

SOURCE CMIE

The Incidence of sickness among large units have increased between December 1985 and June 1988. Of the 1172 sick units, in June 1988, Maharashtra, West Bengal, Gujarat, Tamilnadu, Karnataka and Uttar Pradesh represent 69%. Between 1985 and 1988, Maharastra and West Bengal have continued to be the leading states where industrial sickness is concened; but the deterioration in the situation seems to have been worse in Tamilnadu and Gujarat. The increase in large sick units in Gujarat during the period, has been by 116% whereas in Tamilnadu it has been of the order of 124%.

TABLE D

Industry-wise incidence of sickness in the large and medium sector

Industry-wise non-SSI Sick units and amount outstanding : June 1988
(Units in Numbers : Amount outstanding : Rs. Crores)

	Textiles		Engineering		Chemicals		Paper		Total		% Share	
	Units	Amount	Units	Amount	Units	Amount	Units	Amount	Units	Amount	Units	Amount
MAJOR STATES	220	980.02	241	677.21	115	162.45	78	155.78	1089	2879.76	92.9	95.2
Maharastra	57	352.66	70	233.05	32	61.83	10	11.08	255	866.69	21.8	28.6
West Bengal	13	26.29	41	168.86	7	12.29	10	27.81	163	467.59	13.9	15.5
Gujarat	55	266.24	28	55.30	12	9.01	9	29.93	134	402.79	11.4	13.3
Tamil Nadu	22	90.51	25	53.20	15	15.93	8	8.14	114	237.58	9.7	7.9
Uttar Pradesh	10	52.15	10	28.55	8	7.27	9	9.23	70	155.33	6.0	5.1
Karnataka	12	38.83	16	28.95	7	3.99	8	12.00	75	145.61	6.4	4.8
Andhra Pradesh	4	19.68	14	18.81	12	22.60	7	20.47	68	127.97	5.8	4.2
Kerala	5	18.65	5	46.20	6	9.80			33	112.49	2.8	3.7
Rajasthan	16	33.21	3	2.18	3	3.25	6	6.49	43	93.11	3.7	3.1
Madhya Pradesh	8	61.89	7	5.35	4	2.45	3	1.55	36	91.31	3.1	3.0
Bihar	3	3.06	3	8.68	2	9.53	3	13.19	30	75.26	2.6	2.5
Haryana	7	10.65	13	26.01	2	0.68	2	1.61	34	53.37	2.9	1.8
Orissa	1	4.57	2	0.57	3	2 83	1	9.91	12	36.52	1.0	1.2
Punjab	7	1.63	4	1.50	2	0.99	2	4.37	22	14.14	1.9	0.5
Assam			1	0.29			3	6.35	4	6.64	0.3	0.2
Total	227	996.64	259	710.24	122	166.01	97	182.91	1172	3025.88	100.0	100.0
% To Total	19.4	32.9	22.1	23.5	10.4	5.5	8.3	6.0	100.0	100.0		

SOURCE : CMIE

Textiles, Engineering, Chemicals and Paper together represent 61.2% of the total number of sick units in this sector, in June, 1988 accounting for 67.9% of the outstanding bank credit. Among the textile units plagued by sickness, Maharashtra and Gujarat account for 49% of the total number and for 62% of the outstanding bank credit. In the Engineering industry, Maharashtra, West Bengal, Gujarat and Tamilnadu account for 63% of the total number of sick units, and for 72% of the outstanding bank credit. In the Chemicals industry, sickness is distributed mainly over 5 states namely Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh and Uttar Pradesh. These 5 states account for 65% of the total number of sick units in this sector and 70% of the outstanding bank credit. In the paper industry 7 states—Maharashtra, West Bengal, Tamil Nadu, Karnataka and Andhra Pradesh account for 63% of the total incidence of sickness and 64% of the total outstanding bank credit.

TABLE E

Industry-wise Non-SSI Weak units and Amount outstanding : June 1988
(Units in numbers : Amount outstanding Rs. Crores)

	Textiles		Engineering		Sugar		Paper		Chemicals		Total		%Share to Total	
	Units	Amount	Units	Amount	Units	Amount	Units	Amount	Units	Amount	Units	Amount	Units	Amount
MAJOR STATES	160	518.20	139	350.39	40	113.24	19	107.15	82	85.7	699	1851.87	94.1	96.4
Maharashtra	47	210.04	37	80.12	3	0.38	5	10.09	17	20.19	156	451.16	21.0	23.5
West Bengal	10	24.96	21	101.50			2	7.86	9	19.69	112	367.44	15.1	1.91
Uttar Pradesh	18	113.27	7	38.14	29	102.16	2	2.25	1	2.66	72	291.32	9.7	15.2
Karnataka	8	16.06	12	39.82			2	70.94	5	2.38	40	179.37	3.4	9.3
Gujarat	32	81.31	10	22.27			3	1.27	5	2.48	63	120.60	8.5	6.3
Kerala	5	4.28	7	11.82			1	11.48	3	8.61	29	117.45	3.9	6.1
Tamil Nadu	9	19.06	10	6.67	2	3.61	1	0.84	4	2.22	48	68.23	6.5	3.6
Andhra Pradesh	6	5.14	12	20.81	1	0.62	2	2.12	7	6.78	52	61.18	7.0	3 2
Orissa	6	18.30	7	5.66	2	1.41	1	0.30	2	0.86	24	38.47	3.2	2.0
Haryana	2	7.96	8	16.74					2	5.25	15	32.59	2.0	1.7
Madhya Pradesh	9	9.59	1	0.91	2	0.61			3	7.57	22	27.37	3.0	1.4
Bihar	1	1.04	3	3.37	2	4.45					11	19.02	1.5	1.0
Rajasthan	4	2.95	2	1.59					2	3.93	15	15.25	2.0	0.8
Punjab	3	4.24	2	0,97							10	13.35	1.3	0.7
Total	171	539.08	145	356.53	40	113.24	20	107.63	65	93.20	743.0	1921.52	100.0	100.0
% To Total	23.0	28.1	19.5	18.6	5.4	5.9	2.7	5.6	8.7	4.9	100.0	100.0		

SOURCE : CMIE

Incipient Sickness

The RBI has, in the wake of the enactment of SICA in 1985, started monitoring incipient sickness. The concept of 'weak units" is being used for the purpose of such monitoring. A weak industrial unit is defined as one which has accumulated losses equal to or exceeding 50% of its peak networth in the immediately preceding five accounting years and which has a current ratio of less than 1 : 1 and which has suffered a cash loss in the immediately preceding accounting year.

Table E sets out the data available regarding incipient sick units alias "weak units", in the major states.

743 units are in the category of weak units all over the country (compared to 1172 sick units). Maharashtra, West Bengal, Uttar Pradesh, Gujarat, Andhra Pradesh, Tamil Nadu and Karnataka, account for 73% of the total number of weak units. Will these units degenerate further to become eligible for therapy at the hands of BIFR or will they be enabled to achieve a turn—around is a question which is very much open.

Section 3

Public policy perceptions on Industrial sickness

Industrial units created by entrepreneurial enterprise are susceptible to vicissitudes whether of the internal or external environment. Risk-bearing - the forte of the entrepreneur—is confined to the contractual constituents in an enterprise in a free market economy. But in a heavily controlled economy mandated by a combination of socio-economic objectives and political priorities and compulsions risk-bearing is taken beyond the conventional contractual domain of an enterprise. To put it differently, risk-bearing itself tends to be socialised, with governments, quasi-governmental institutions (in the financial sector) and the community of taxpayers, increasingly sharing the costs of industrial inefficiency and failure.

Why should industrial failures be masked, for long, in the guise of attempts to revive sick units? The economic rationale for sustaining sick units is expressed in different ways. Preserving employment in a labour-surplus economy is the strongest argument in support of the status quo in sick units. Should not the issue be seen for what it really is — the willingness to make unviable or technologically obsolete industrial units remain a continuing drain on the nation's scarce savings? To the extent that working capital is not recycled in sick units, new investments and the concomitant additions to jobs in the economy are impeded. Protection of current unproductive employment and promotion of additional employment (and perhaps for a relatively higher - skilled new entrants to the job market) become conflicting objectives of public policy, with the probability that the weight of political expediency combined with a static concept of social justice (preserving jobs and the status quo of sickness along with the rigidities in the labour market) will overwhelm long - term economic considerations.

Mind-boggling as the dimension of registered unemployment is (32 millions as compared with the total employment in the organised sector of 27 millions), a further slippage in employment in the organised sector through rationalisation/ retrenchment as a part of rehabilitation of sick industrial units will cause undue

hardship for labour. What has been the traditional public response to this prospect of distress for sections of the industrial working class? The machinery of the Industries (Development and Regulation) Act 1951—IDRA — providing for takeover/nationalisation of sick units defying the process of restructuring, has been used till about 1982 without much success. The legacy of this policy is represented by 55 public sector enterprises (of which 28 are in West Bengal) which continue to be in the red. It is superfluous to add that the policy of state take-over of sick private sector units has only made for the aggravation of the maladies of public sector industry.

If neither closure nor state take-over has been found to be a sustainable policy response in the face of the spreading cancer of industrial sickness, a third course has obviously had to be invented. The concept of revival/rehabilitation through an ordered process of shared liquidation of claims and augmentation of funds — of management, labour, state governments and the financial institutions — has found expression through the BIFR created under SICA. Over the last four years, the BIFR has handled 1382 references (from the private corporate sector pertaining to the non-SSI sick units). Of these references, 352 were rejected at the threshold of inquiry and 1020 references registered as being fit for processing. Of these 954 cases have reached the stage of first hearing. What about the record of the BIFR, on the whole? 175 cases ruled out as being "not maintainable", 124 cases approved for "as is where is" state, 182 revival cases "floating" and 120 cases for winding up — This is the BIFR tally. Inadequacy of statutory powers is the grievance of BIFR. Or is it a faulty design of the BIFR to blame, in the sense that the concept of retrieval of a sick industrial unit through quasi - judicial process is itself patently contrary to the legal system — the constitution, the law of contracts and the law of industrial disputes? At another level, is the strategy implicit in the BIFR modalities consistent with what is fashionably called the market - friendly economy?

A Select Bibliography

1) The Fourth Plan — Mid-Term Appraisal — A summary — Planning Commission, February 1972.

2) Industrial growth in India, Stagnation since the Mid-Sixties — Isher Judge Ahluwalia — Oxford University Press 1985.

3) Report of the Committee on Rehabilitation of Sick Industrial Undertakings — Reserve Bank of India, 1984.

4) Industrial Sickness and the Role of Reconstruction Agencies — D.P. Gupta — Chanakya Publications, Delhi 1990.

5) Reserve Bank of India — Annual Report 1990-91.

6) The Sick Industrial Companies (Special Provisions) Act, 1985.

Summary of Discussion

The Chairman began the proceedings and mentioned that the concept of 'Industrial Sickness' was similar to medical terminology but the entreprenurial calibre was very crucial. Yet the root cause and the symptom of industrial sickness was a complex and difficult question which did not find easy answers and solutions.

The author clarified at the outset the purpose of his academic exercise with a three-fold objective viz., stimulate thinking on the need for a sustainable Public Policy matrix in relation to industrial units which are a drain on the community's savings; provide a diagnostic generalisation on how and why industrial enterprises degenerate and finally to enquire into the modes of public intervention hitherto resorted to and seek to evaluate them in the light of cost benefit trade-off which would be economically viable and socially just.

In the process he brought the whole analysis within the framework of a general theory of Industrial Sickness where business failures were often seen as an organic part of industrial metabolism in the capitalist economies. In this context the author was highly critical of the economic principle underlying bankruptcy law and its corporate counter part — law of liquidation contained in Company Law, of a business entity proven as commercial failure and as being beyond revival and suggested termination through transparent legal means than being kept going through the tradeful process of diversion of community savings. The author elucidated that Industrial Sickness as defined by Sick Industrial Companies Act 1985 (SICA) is one if at the end of any financial year, it has accumulated losses equal to/or exceeding its net worth and if it has also suffered cash losses in such financial year. It was the Board for Industrial and Financial Reconstruction (BIFR), the mechanism which rehabilitated companies that became sick.

The diagnostic model of industrial sickness according to the author is based on Altman's technique of Multiple Discriminant Analysis (MDA) and the variables comprised working capital, retained earnings, earnings before interest and tax, market value of equity and sales.

As to the causes of Industrial sickness the author was very much concerned about the Tiwari Committee Report of RBI (1981-84) which highlighted 20 causes, the external causes of which range from infrastructure to bottlenecks, haphazardness of government policies

and market constraints to extraneous factors such as vagaries of political situation and the multiplicity of trade unions.

As a sequel to the diagnostic approach and causation factors he further added another 12 points to the consequences of industrial sickness and the Panacea in dealing with sick units which was based on the above report.

In the discussions that followed questions were raised on the Tiwari Committee report of causes for industrial sickness. It was pointed out whether legislation on exit policy was frustrated on the law of industrial disputes, if it was so then going to court was seen as a panacea to clarify the issue.

To the question whether there was any feasibility study to quantify the role of the causation factors as listed in the Tandon Committee the need for a study was emphasised. To another question it was clarified that the erroneous feasibility study was implicit in the Tiwari Committee report itself. He mentioned the lack of congruence between market failures, research, distribution, internal mismanagement on the one hand and the adversity due to the influence of the external environment.

On the question of a sick industrial unit allowed to be revived or die it was argued that no system under any particular ideology allowed it except in India where the concept of industry closure was inevitable when public authority demanded so.

It was also pointed out that the industry could never be sick and it was the entrepreneurs who could go sick, if that was true then the whole exercise on sick industries would turn out to be a futile attempt.

Another view was that the entrepreneurial role was to bring all factors of production together. The judious mix in the production process also meant that labour as a factor of production in itself was different from others in as much as it involved legislation for labour. The entrepreneur had a social and moral obligation which involved a risk factor. The major part of industrial sickness involved merger and taken-overs by BIFR rather than with an intension of closing down units.

It was also pointed out that the very existence of firms was based on asymmetry of information but unfortunately in the Indian context the situation was made more complex due to government intervention. To the question of sustainence of sick industries being justified on the grounds of unemployment already existing in the country, it was pointed out that social security was a major concern, but the very fact of these industrial units not turning to be employment generating by itself was a matter of concern.

Another participant also raised the question of lack of any scientific method for analysis of Demand and Supply and feasibility studies based on appraisals for starting small scale units and the criteria for allocation of funds.

V. JACOB JOHN

The Economic Crises in the Country and the Actions it calls for.*

Consensus amounting to unanimity

There is a consensus amounting to unanimity in the country — among all political parties including the party forming the government, the entire business world, the academics, particularly the economists and social scientists, the man in the street—that the major issue facing the country and the government running the country is the all pervasive economic crisis. Every facet of the economy — apart from agricultural production (over the past 3 years) and the rate of industrial growth (also over the last 3 years)— is in the grip of very serious negative forces. This consensus amounting to unanimity about the grave economic crisis facing the country is important, because the way out and forward from the crisis will involve a hard and painful set of decisions for every one — for the government, for the corporate sector, for the farming community, for the citizen as both tax payer and consumer. The unanimity in the realisation that there is a crisis should lead, not to unanimity in regard to the solutions and actions called for (because every group would have its preferred way forward based on its ideology and its interests), but a majority agreement on the difficult options facing the country and the decisions in favour of some of them.

This also means that every one has to be taken into confidence by the authority dealing with the crisis: the government - both in regard to the nature and componants of the crisis and the relieving actions to be taken in regard to them.

This calls for a wide popular understanding of our condition and participation in the proposals for dealing with it involves, the new parliament meeting as possible, certainly within the next 3-4 weeks, to review the crisis and actions to meet it - through the budget to be presented and through the Eighth Five Year Plan or atleast the Approach document to it, which will open up to all members of the parliament and every one else, the issues involved and the difficult solutions envisaged.

*An article by Dr. Malcolm S. Adiseshiah for the Times Illustrated Weekly for the New Government June 26, 1990.

Quickly Present annual budget and Eighth Five Year Plan

It is imperative that in facing this economic crisis on which all of us are agreed, we avoid knee jerk reactions (reacting quickly in ad hoc manner to particular issues-), or dealing with problems, which are interconnected, in an isolated manner, or expecting quick results to the actions proposed. That is why the crisis and its resolution must be set within the frame of the annual budget (1991-92) and the Eighth Five Year Plan, which must reflect the crisis and its medium term aspects. This will ensure both that all aspects of every problem is attended to and that its relationship and effect on other problems are taken into account. For instance our permanent priority is to reduce poverty and inequality for which employment has to be increased and unemployment decreased, so that the income of the poor continues to be augmented. Nothing proposed on the crisis should worsen or slow down progress in these three areas.

Within the medium term frame of 2 to 3 years, there are various and varying time pressures that face the corrective actions to deal with the crisis.

Roll back prices

One such is the roll back in prices where inflation has reached a point that it is biting into the low levels of living of both the poor majority and the lower middle classes, and is distorting the production net work of consumer goods and durables. Here action is called for in three ways. The first is to stop the further rise in prices of a select number of goods—those that enter the consumption basket or the poor and organise that these prices return to the pre 1990 levels, until when their price rise was an annual average 3 per cent. Second, there is need to increase the supply and the availability of these goods plus of some machine goods on which the production of consumer durables and non durables rests. Third, there is need for a heavy cut in money supply, primarily by decreasing the continuing inflow of Reserve Money. This calls for reduction in government's indebtedness to the Reserve Bank and other banks, as for every 1 Rupee created by the bank for the government Rs. 3 are generated. This will also enable the lifting of the harsh overall uniform credit restrictions imposed on industry by banks on the directives of Reserve Bank. For it is not bank credit to industry which fuels inflation, it is bank credit to government that does.

Cut government expenditures

For this there is need to reduce government expenditures, seen in the rate of the increase of government deficit, particularly the revenue deficit. This calls for a number of inter-related measures. First, the rate of increase of government's non-plan expenditures should be reduced starting with some 10 per cent for the balance of the current year, increasing to 25 per cent for the next year, and 50 per cent for the year following. This requires that a start should be made by reducing the rate of expansion of big government expenditures, of which the defence outlay is the first. When I was a member of parliament, I had pointed out that as a result of my study the defence outlay can be cut by 15 to 20 per cent (and certainly not allow it to increase year after year particularly on the side of defence imports which do not even appear in the DGCS & I import accounts) and that this can be done by cutting out the fat in the defence outlay

without any reduction in the efficiency of the defence forces or our defence preparedness. This will give atleast Rs. 5000 crores now in reduced expenditure Second, there should be immediate freezing of all government appointments at existing levels and no filling of vacancies during the balance of this year and for the next year. This will give a saving of Rs. 3000 crores this year. Third, there should be a cut in subsidies — a) food subsidies which are used not for the poor but for the middle income well to do, so that subsidy reduction can be attained not by a direct cut on the subsidy but by ensuring that the subsidised PDS food rations are only for the poor b) the fertiliser subsidy which reduction will lead to a rise in the price of fertilisers which are used in the main by the large farmers and who can be compensated by allowing the price of their products — which are not for the poor—to rise; and c) the export subsidy whose reduction should be aimed at closing our wasteful offices-abroad which have not contributed to any noticeable increase in our export trade. From this some Rs. 3000 crores can be saved this year, rising to Rs. 5000 crores next year And there are the every larger hidden subsidies — hidden because they appear as harmless support items in the budget — such as the budget support to the 80 90 loss making public sector enterprises, including the Delhi Transport Corporation, the Delhi Milk Supply, the enterprises listed year after year by the Bureau of Public Enterprises. The present crisis is an occasion which should be used to close the books on these units, by selling them and using their valuable land for fresh investments and for redeploying of the labour force, or merging with units for which they could be ancillaries, or just straight shutting them down. This will give a saving of Rs. 12,000 crores in a full year — all of which appears as separate items in the budget and for this year may give Rs. 6000 - 7000 crores. This area is particularly important in the states sector where all their Electricity Boards, all Transport Corporations and irrigation water losses add up to over Rs. 25,000 crores a year. This will only indirectly help the crisis facing the Union government in so far as it (the Union) may not have to come to rescue of the states to meet their heavy annual deficits.

Increase government resources

The counterpart to the reduction of government expenditure and the narrowing of the fiscal deficit is to increase the government's financial resources. This involves maintaining the direct taxes and their surcharges at present levels, along with increasing the number of those paying income and wealth tax by bringing in all of the self employed professionals, most of whom are out of the income tax net. Similarly the Corporation tax should be made more progressive by ensuring that all large units pay the tax. At present over 100 of them are in the state of zero tax payment. There should be the start of an agricultural income tax for all large farmers who earn incomes above the income tax exemption limit. Agreement on this should be obtained at the National Development Council meeting next month as one small contribution from the states to deal with the economic crisis and reversing the rising trend of the fiscal deficit now at above 10 per cent of GNP. All this resource increase can be attained if a conscious decision is made by government to use the increased resource from direct taxes not for consumption purposes, but for

investment in the Plan. This will be possible also if the cut in non Plan expenditure proposed earlier is adopted.

Reduce Balance of Payments deficit

The balance of payment deficit has reached uneconomic proportions at Rs. 5000 - Rs. 6000 crores because of i) the trade deficit which this year is running at Rs. 13000 crores and ii) a sharp fall in invisibles - remittances, interest on invested capital, tourist earnings etc. The fist cause is within our control and calls for maintaining the compression of imports now under way, with particular reference to bulk imports, starting with POL, which calls for a policy of substitution and conservation on which unlike the industrial countries of Europe and America, we have not even made a start. Until the import cuts, which have been imposed and which will have to be continued for the VIII Plan are based on differential and differentiated policies for every major import item and not based on the present ad hoc, uniform criteria, the contribution of imports to our trade imbalance will continue and even more serious, will distort our production structure and system. The other and equally important medium term instrument to correct the balance of payment deficit is to expand exports, particularly of value added items as they also are domestic incomes and employment generating, such as items like garments and made ups, leather goods, software in which the country has a decided comparative advantage. These two instruments, imports compression and export expansion, will also affect the rate at which our debt servicing, which has reached a post danger point of 32 per cent of export earnings, can be brought down this year to 25 per cent and next year to 20 per cent. In the meanwhile, debt servicing requires a further IMF loan.

Get IMF loan and cut foreign aid

The International Monetary Fund negotiations for a loan of upto $4 billion should be completed and the loan should be used both for immediate debt servicing purposes and as stand by credit. The conditionalities that will accompany this loan — damping down inflation, reducing the fiscal deficit, cutting government's non plan expenditures and reducing the balance of payments imbalance — are already provided for in this note as actions stemming from our own understanding of the economic crisis in which we are entangled and the consequent corrective actions that we need to take. There are three residual issues—unimpeded direct foreign investment into our economy, allowing market forces free planning in every area and devaluation of the Rupee —which should be discussed fully and freely with the IMF and negotiated to conform to positions which are in our interest. This large IMF loan should also be an occasion when we should cut back on so called aid—so called, because the aid is really a series of loans and mostly tied loans, and though in gross terms they seem large, in net terms (after payment of interest and the instalment of the principle of the bilateral loans) is small and diminishing. Hence the VIII Plan should go back to the principle set forth in the Draft V Plan — of "Zero net aid" — that is the foreign aid should only be to help in payment of interest and repayment of principal of the foreign loans, with nothing used or left for internal investment.

Expand the production structure, particularly of wage goods

Both the budget and Plan should be directed to increase agricultural production including fisheries and animal husbandry. Here the most disturbing element is the continued heavy reliance of all of agriculture and allied activities on the monsoon, making the economy and the solution of the economic crisis from the production point of view a gamble in the monsoons. Our investments this year and in the VIII Plan both in underground water and refining of brackish and sea water would begin to decrease our reliance on this gamble. Second, the development of our dry farming areas, covering 70 per cent of our agriculture, about which we eave been talking incessantly and not doing much, needs to be budgeted for this year and become a major part of the VIII Plan. Further agricultural prices policy should be so ordered as to promote the increased production of pulses and oil seeds, in part in irrigated areas, replacing the water guzzling sugarcane crop, which is also producing the so called sugarbarons in Maharashtra and UP.

On the manufacture production side, the budget incentives and the Plan investments should move away from capital intensive, imports demanding goods and services. The automobile sector is one such capital and import intensive sector and its reduction will not affect any one except the well to do classes, including the black marketeers. What needs to be developed fast is the village industries and the really small industries (not the benami ones) which are not only producers of wage goods but which are also employment generating. There is need for continued investment in the basic and capital goods sector to help production of wage goods on a mass scale. The counterpart of this increase of wage goods production is the change in the life style of the well to do classes. All of us, reading this note who belong to this group, will have to tighten our belts and cut back on our consumption and demand for capital and import intensive non necessaries. There is no escape from such cut backs in our consumption and living patterns. In the end both the control of inflation and the improvement of the well being, rather the reduction of the ill being, of the mass of our people depends on making available wage goods on a mass scale. That is the touchstone against which all that has been proposed in this note, to deal with the economic crisis in the country and the means of meeting, it should be judged.

Book Review

Poverty, Inequality and Prices in Rural India

Nikhilesh Bhattacharya, Dipankor Coondoo, Pradip Maiti and Robin Mukherjee
Sage Publishers, New Delhi, 1991, pp 236, Rs. 195.

The book is a welcome addition to the literature on poverty, especially rural poverty. Its contribution is two fold. First, there is a wealth of statistical information, most of which is taken from the several NSS Reports, but converted into comparable time series, covering a period from 1952-53 to 1983, i.e., NSS fourth to thirtyeighth rounds. Along with these are also given time series data such as the Average Consumer Price Index Number for Agricultural Labourers (ALCPI) for corresponding periods. Second, the book attempts an explanation of rural poverty taking into account rural production and prices as well as urban incomes. And on both these aspects the contribution of the book is commendable To pose the issues differently, the questions being examined are : How do price movements affect the rural poor? Do the poor and the rich confront different prices, and if so how do they influence their consumption baskets? Is there a relationship between changes in urban incomes and the conditions of the rural poor? The hypothesis being probed is that incremental incomes usually appear in the urban industrial centres and given the positive income elasticity of demand for food it results in an increase in the urban demand for food. This may, in turn, lead to an increase in the price of food grains (the supply response, even if it is positive, being lagged). Granted that the poor in the rural areas (agricultural labourers, for instance) are net buyers of food and that their wages and incomes are unlikely to increase as these changes take place, it is reasonable to assume that they will become worse off in real terms and their consumption is likely to fall.

Both the manner in which the authors (all of whom are Professors at the Indian Statistical Institute, Calcutta) have formulated their hypothesis and the way they process the data will be of special help to young researchers and hence I would like to draw attention to some of these aspects. Table 2.3 (a) makes use of price indices and the weights based on the NSS consumer expenditure enquiries to generate price indices by fractile groups to test for price differentials. Tables 2.9 and 2.10 report respectively on Laspeyres-type and Paasche-typeprice indices for cereals, again based on NSS Consumer Expenditure Enquiries. Table3 4 has Engel Ratios relating to food by fractile groups from NSS Round Four to Thirty eight. Chapter 5 shows how a theoretical model to present the hypothesis is developed. It also has a simple diagrammatic representation of how poverty ratios are derived from Lorenz Curves. Chapter 6 has an analysis of available data pertaining to selected States probing the hypothesis at a more disaggregated level.

The study does not lead to any surprising conclusions. Different groups in the economy pay different prices. For instance, people belonging to the upper decile groups paid a higher average price for cereals as compared to the poorer people indicating that there may be differences in the composition and quality of cereals consumed by different sections of the population. All decline groups experienced an approximately fivefold increase in food prices between 1954-55 and 1973-74, the upper decile groups experiencing a relatively larger rise than the lower ones. But the rise in the "all commodity" index was much sharper for the poorer sections than for the richer ones.

As for poverty as much, it is seen that the growth in per capita cereal production would tend to reduce rural poverty. On the other hand, given the cereal output, any growth in per capita non-agricultural real income would tend to raise rural poverty. And the major conclusion: "Both the HC (head count) and Sen's index failed to show any clear time trend one could see only marked fluctuations in these indices over time. Broadly speaking, the incidence of rural poverty was observed to reach a peak during the mid-sixties and to decline fairly steadily thereafter until 1983, the last year for which data are available. However, it is possible that this decline is not statistically significant as the observations are small in number and the figures for the 32nd round are not entirely reliable. Further, as the HC value seldom fell below 40 per cent, one can infer that the bottom 40 per cent of India's rural population remained chronically poor", (p 185)

One aspect of the study may give rise to some misleading inferences. The model developed in Chapter 5 considers real incomes of the non-agricultural rural population and of the *entire* urban population to be determined outside it. This is certainly a valid procedure. But it overlooks the fact that a significant component of those living in rural areas and coming below the poverty line consists of non-agricultural workers such as artisans and those engaged in house-hold industries. Similarly, among those who come below the poverty line in the counfry as a whole, a sizeable proportion is to be seen in the urban areas. The authors are not guilty of confusing these issues, but readers may be warned not to interpret the findings of the study as implying that non-agricultural activities and the urban sector are responsible for poverty of agricultural workers in the rural areas.

C. T. KURIEN

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EDITORIAL – SOME HIGHLIGHTS

State

Climate and Prices

The weather in October was cloudy for most of the time, with bouts of rain, at the tail end of the south west monsoon. The south west monsoon in the state was satisfactory and the hydel reservoir have reached a satisfactory level as the last two issues of the Bulletin have stated. Towards the end of the third week of October the north east monsoon commenced - on time and within the week the state has received widespread rains. Both agriculture and the drinking water facilities are benefiting from this timely outbreak of the monsoon. The depression in the Bay which brought heavy rain has added 184 mcft (one month supply) to Red Hills. On prices, there is no report beyond that for June 1991 analysed in the last issue, except the government decision to extend till November the increased allotment through the Public Distribution System (PDS) of rice, wheat and sugar as a means of keeping fair prices under control. 30,000 tonnes of Palmolein is being imported by the Union and will also be distributed through the PDS, with 3000 tonnes for the state as a first instalment.

Power

The power situation in October in the state was normal. On the supply side, there were 3 positive developments in October. First, the second thermal plant at Neyveli increased its power generation, with its third and fourth units which had been repaired and set right generating 377 MW - (the third unit infact generating 2 MW more than its capacity of 210MW) - and the flow in all 4 units generating 762 MW against its capacity of 840MW. Second, the Tamil Nadu Electricity Board is taking advance action to avoid the kind of crisis caused by the shortage of coal stocks reported earlier, (See Vol XXI pp2,154 and 208) and is building up coal stocks from the current 7 lakh tonnes to 10 lakh tonnes against the onset of the North East monsoon, which has just broken. The problem with coal supply is that it has to

be transported a long way from Bihar or Bengal and on top there is the problem of industrial unrest which disrupted the supply through ships in the Madras harbour during the month. The situation was saved, with the navy helping to unload the coal stocks from the ships. One good result of these difficulties is the conjunctive use of hydel source in the state due to the adequate water storage in the hydel reservoirs. Third, the Assembly was informed that the states power gap will be 1700 MW in 1995 and 4300 MW in 2000 and for which some large new power projects have to be planned like the North Madras thermal and the Narimanam gas which has large potential. For the present, work is underway on projects to generate 119 MW by 1995. This includes the underground power house at Pykara to generate 150 MW thorough 3 x 50 MW units of which the first unit will be ready in 1997, a 7.5 unit at Sathanur from the irrigation dam there and which will be completed by 1995, and the two tiny hydel projects to generate 4 MW or the lower Bhavani right canal. To streamline the distribution system, 37 substations are being erected this year. The Assembly was told that the heavy losses sustained by the Board was due to subsidised power supply to domestic consumers for street lights and the Board and the TWAD free power supply to agriculture. The line loss is estimated at a high 18 per cent (against the national average of 21 per cent), the PLF of the Board was 58.3 per cent (against the national average of 52.8 per cent and NTPC's 90 per cent). TNEB reports a steep fall of power demand from a daily average of 60 MU to 49 MU because of the rains.

At the National level, the good south west monsoon has helped to bring about a normal situation, including in the perenially short supply areas of Karnataka, AP, Orissa and West Bengal. Some long term plans are reported in October. First, the country's first indigenously built gas based combined cycle power plant of 500 MW capacity by BHEL and supplied to Ahmedabad Electricity company is an important development for the increasing and massive use of gas based power plants. Second, the first stage in the revamping of power transmission net work in Calcutta by the Calcutta Electric Supply Corporation is being completed in 1992-93. This will help in the even distribution of the power shortfall between different users and segments, and can be used by all Boards and states facing a shortfall. Third, the National Thermal Power Corporation, referred to earlier, plans to spend Rs.28,600 crores in the revised VIII Plan (1992-97) to add 9881 MW in generating capacity. About half of this will come from existing projects, and the other half from new projects. Finally some issues in regard to our power planning have been raised. Projects under bilateral arrangements face two major limitations; they are costly and they cannot be fitted into the pattern of the local load demand. The addition of thermal plants should be given a lower priority against hydel and gas based power projects which have more producing capacity. Power planning should be done on a regional basis to make power generation optimal and power tariffs should be pooled to achieve economical power flow from within and outside the region. The Seventh Plan power performance was poor having attained an energy growth of

6 per cent against the planned 10 per cent. For the Eighth Plan, these lessons need to take into account, particularly in recalculating the power target which should be based on actual industrial/ agricultural use. The government announced that at the end of October, the second NAPP unit in UP attained criticality.

Urban Development

Three important development in the area of urban development in October may be noted. First in order to promote decongestion of the city, suburban areas are being developed. The first such area is Tiruvallur which is to be developed as a model, the MMDA being responsible for the grid development. This development of peripheral area would be a means of meeting the requirement of one million houses in the next 5 years. Second, the government is taking up the role of a facilitator in the field of housing, using about half of the Rs.630 crores from World Bank aided Tamil Nadu urban development project, not to build houses which the private sector and individuals would undertake but to provide the needed infrastructure - roads, bridges and slums improvement. Third, on the basis of this experience a guided urban development policy for the state is being drawn up, under which the state will not build houses but provide the basic services to develop the area, offering incentives to attract developments. Finally a density packed area development is being envisaged once the Telugu Ganga Project is complete and low cost housing technology spread. The building regulations needs to be revised to meet current needs.

Transport

In the field of transport, two developments in relation to road transport, and one in regard to sea transport need to be noted. As indicated in the last issue in the analysis of the state budget for 1991-92, the rise in bus fares from October 16 which was aimed at raising Rs.70 crores to make up for the projected loss of Rs.70 crores for the current year has given rise to wide spread agitation and protest against it - from political parties including those which are allied to the government, students and bus. October recorded an increasing number of strikes, dharnas and some violence in this issue. On October 26 the government announced reductions in the fare increases from November 1, for city travellers, for long distance ones and students. This will cost the government Rs.10 crores this year and Rs.25 crores in a full year. Second, the first state wide survey by the Institute of Road Transport presents an alarming scenario about drivers as the main road users: a)two thirds of the drivers are ignorant of road safety rules: two thirds of 4000 drivers interviewed did not know that mandatory traffic sign were given in circular design; five --- could not recognise a continuing sign (triangle) or an informatory sign (rectangle); over half that the traffic sign that permitted vehicle of more than a prescribed height thought it referred to the width of the road, only 8 per cent correctly assessed the distance that the vehicle will stop after brakes are applied: b) pedestrian crossings have become death traps, the annual number of pedestrian deaths being 2000: c) professional drivers are indifferent to other

road users and pedestrians in turn were ignorant of basic safety precautions. Some of the survey findings such as encroachment on pavements, poor quality of pavement surface, its not being continuous seem by the drivers but pedestrians are oblivious to them. There is need for a mass education covering both drivers and pedestrians in the cities. In the area of sea transport a second coal jetty which is urgently needed, is being constructed in Tuticorin Port this year at a cost of Rs.9 crores.

Population Project

The World Bank aided India Population project in being expanded from Madras Corporation and its 4 municipalties and 4 townships to 2 more corporations-Coimbatore and Madurai and 6 municipalities with the savings from the project of Rs.37 crores out of the Rs.69.13 crores alloted to it. The Government of India and World Bank have consented to their extension.

Supplementary Estimates

The government presented to the Assembly the final supplementary estimates for 1991-92, totalling Rs.31.58 crores. The estimates included the cost of 400 women police, upgrading 9 new police stations, purchase of modern fire fighting equipment from Japan, poverty programme extension, old age provisions and modernisation of cooperative spinning mills. What is not made clear, and should in future such estimates, is whether these will be set off by economics in the sanctioned budget or whether this will add to the budget deficit. The government announced one more DA to its staff from July 1 at a cost of Rs.85.44 crores this year and Rs.128.18 crores in a full year.

National

Plan

In October, the cabinet approved the Approach Paper to the VIII Plan. Its outline is familiar, as reported in the last issue - aiming during 1992-1997 at a growth rate of 5.6 per cent, an overall outlay of Rs.7,92,000 crores which was formally announced on October 26, with thrust on alleviation of poverty, population control, employment generation and provision of minimum needs. The public sector investment is projected at Rs.3,42,000 crores, an average rate of domestic savings of 21.6 per cent of GDP, a current account deficit (foreign savings). of Rs.49,000 crores (l.4 per cent of GDP), incremental capital - output ratio of 4.l, of gross investment of Rs.7,92,000 crores, investment by private corporate sector is estimated at Rs.l,48,000 crores and the household sector at Rs.3,02,000 crores, a l3.6 per cent growth rate in exports. The paper states that it opts for a conservative growth target which is already achieved in the VII Plan, keeping in line with the structural adjustments in the economy through the liberalisation measures and its negative impact at the start but with the reform yielding an improved ICOR in the next 2-3 year, which may make possible a higher growth rate than the target. The priority sector for the VIII Plan are 1)energy, transport and communication in the area of economic development, ii)employment generation, population control, literacy, health and rural development in the area of human development and iii)irrigation, export promotion of agricultural production, and diversification of agriculture, in the area of agricultural development. The Planning Commission has in a paper set forth the need for a drastic change of the current style of planning and procedures, as a means of tackling the imbalance in the overall economic management - a kind of counterpart to the governments' reform policy involving: a) weeding out of the plan schemes and projects which do not have economic sense: b)rationalising plan expenditure by a process of consolidation of currently scattered schemes: and c) ensuring that sections which demand increased plan outlays generate net additional resources to the extent possible through non inflationary methods, and those who because of government policies have surpluses in excess of their approved outlays divert them to those who need higher outlays but cannot raise financial resources from within. The present plan scenario is clogged with schemes taken up from time to time, most being admitted not on merit but because of group pressure. While both union and state plans show delayed projects and critical imbalances in financial terms, there are growing deficit in the union and shortfall in states' plan expenditure. However even these inadequate outlays are unspent, so that ministers, states and even Planning Commission plead for higher plan provision in the union budget. This procedure needs reorientation, with emphasis on the critical VIII Plan goals of infrastructure, social sector and poverty alleviation through increase in employment and satisfactory minimum needs of the poor. These macro economic statements are unexceptionable, the test will be when they are translated into micro projects and above all when the first unneeded scheme or project will be weeded out. While supporting a higher role for the private sector, the paper states that this should not be at the cost of the "minimum core investment in the public sector". But with the experience of government sector dissaving, the levels of public sector outlay currently cannot accomodate the reasonable requirements of the crucial sector and so it says an innovative approach is needed which will generate enough resources in the public sector to both finance current outlays and generate additional resources to the support of the critical goals of the public sector plans. Once more the language and advise is unexceptional, but what is the innovative approach which can wipe out the present dissavings and produce more savings. Some of the practical proposals to carry out the above worthy sentiments are a little more practical such as: a)each ministries proposals should show both schemes discontinued and resulting savings: b)after the VIII Plan is formulated, no new scheme will be processed by any ministry and on rare occasion only as part of the Annual Plan: c)no ad hoc presentation of the projects to the committee of secretaries to be permitted: d)annual provisions to the budget will not be enhanced ad hoc: e)the rural development ministry programme should be changed as integrated local area development programme incorporating a number of scattered projects: f)department of energy should review programmes of each Electricity Boards before April 1992 and lay down targets for each Board's improvement of PLF, reduction of transmission and distribution losses:

g)profit making public sector projects will give part of their profits to government as dividends. It remains to be seen how and in what precise ways these practical guidelines are carried out in the VIII Plan.

Prices, Inflation and credit policy

The rate of inflation for September was a rise of 0.15 per cent on a point to point basis, the whole sale index standing at 208.6 per cent on September 28. On an annual basis, the index recorded the first fall in over a year from 15.3 per cent at August 31 to 15.12 on September 28. The slowing of the monthly inflation rate and the fall in the annual rate recorded in September is in the short run due to the decline in the prices of food articles, notably jowar, barley, tea, fruits and vegetables. The government release of more wheat and rice through the PDS will check their further rise in prices. From January 1, PDS is being revamped to cover the poorest of the poor in 1693 development blocks through out the country. This inflation decline as from October was predicted by the Finance Minister. This trend will be strengthened by the busy seasons (October to March) credit policy announced by RBI under which was hiked the bank rate, all lending rates and savings deposit rates. It has i)raised the bank rate, from 11 per cent to 12 per cent (for the second time this year, as in July the rate was raised from 10 to 11 per cent, ii) raised lending rates across the Board by 1.5 per cent, so that lending rates for both term loans and working capital will range from ll.5 per cent to 20 per cent as against 10 per cent to 18.5 per cent, iii) discontinued refinance except for export credit and iv) has established a freeze on loans for consumer durables, shares and real estate at levels, obtaining on October 9. There is no doubt that this policy will dampen inflation by containing credit expansion by making credit more expensive, though the incremental bank credit for the first half of the year has been a mere Rs.97 crores and less costly and free credit is available to the corporate sector from mutual funds and finance companies as well as from the underground economy none of which is under RBI control. But the key to the success of the RBI clear money policy and deflation is the extent to which it can curtail net RBI credit to government, which is expected to fall in the second half of 1991-92, which will also reduce the usual trend of accelerated deposit growth during the busy season. The other object of the credit policy is to encourage exports by hiking the interest rates for preshipment and post-shipment credit. This is to be expected because with the trade policy, exchange rate policy and fiscal policy reformulated to encourage exports, monetary and credit policy have to follow in line with this national priority. There are problems. Banks will in the medium term find their asset portfolio falling, as the corporate sector may turn to non banking sources for their credit as earlier pointed out. Further the aggressive campaign for funds by the foreign banks for preemptive business will still reduce further the banks' resources. Second, one of the crucial elements for the success of the RBI's credit policy is the extent to which RBI can prevent credit from the RBI and other banks to government surging. Net incremental RBI credit to government was a high Rs.l0,279 crores upto August 30. Can this danger be controlled and not only the net credit to the corporate sector which will merely cut back on production.

Stock Exchange, Tax Performance and Union loans

On the stock exchange front, in October, the major stock exchanges in New York, London, Geneva and Singapore are of the view that the existing stock exchanges in India can be integrated to establish a National Stock Exchange which could provide equal opportunities to all investors in the country to trade in any listed security and that there is no need to set up a New National Stock Exchange, as reported in the last issue. With this world view, the committee proposal for a new stock exchange will be on hold for some time. The real lack is the absence of machinery to discipline companies in matters concerning investors' grievances. Here there is a ready machinery, SEBI which should be empowered to handle the problem. The government, however, is of the view that investors' grievances should be handled by the Company Law Board because investors protection is not only on matters concerning debentures interest payment, but many other matters which SEBI cannot handle. But the issue of investors protection is becoming important and urgent, with the rash of public issues coming out, some of which relate to weak companies which are hidden by the blaring advertisements which never mention the danger and risks involved in the investment. In October major stock exchanges are facing an acute shortage of funds which is leading to a sharp increase in badla charges. In the early October the rates ranged from 40 to 48 per cent in the Bombay and Calcutta exchanges leading to a fall in share prices, which could make the badla rates to continue to rise. Already the 300 share Bombay Stock Exchange index has fallen by about 100 points and to prevent its further decline, the funds in the market need to be increased and the control over the market made robust. Against this short term crisis problem, the general view is that the stock exchange and capital markets of the country will emerge stronger with the participation of the Mutual Funds, SEBI and the establishment of the Over the Counter Exchange (OCE), and the regulatory bodies are helping to build further the confidence in the market. On the tax front, the government states that it is planning to integrate laws relating to income tax, wealth tax and gift tax under a single National Code for Direct Taxes. While this is being done, the various proposals for tax reform made by its own (Rajah Chelliah) committee and the World Bank need to be taken into account, so that there is not only consolidation but also reform in the tax system. While the Rajah Chelliah committee is still at work on its analysis and recommendation for tax reference, the World Bank has suggested a) a substantial shift from customs tariff to domestic taxes to facilitate a reduction in tariff rates which is one of its major principles of structural adjustment for the country: b) the excise rate should be made much more uniform with higher rate for certain luxury goods and the introduction of the system of value added taxation: c)personal income tax should strengthen and the exemption limit kept constant to widen the tax now: d) tax concessions and

reduction should be rationalised, limiting them to long term investments. The philosophy behind these suggestions is a sound one, and that is taxation should not be increased to meet a worsening fiscal situation, which should rather be met by decreased government expenditure. On the Union loans, the government announced in mid October the issue of 4 loans for Rs.1200 crores. With this, net receipt from market borrowings this year will be Rs.3782 crores which is about half of the year's budgeted public borrowing of Rs.7500 crores.

Economy

There were several developments in the economy in October. First, the World Bank's assessment of the economy presented to the Aid India Consortium, which differs from that of RBI and the government states: i)the likely growth rate of the Indian economy in 1991-92 will be 2 to 3 per cent against the RBI forecast of 4 per cent, with the medium growth rate projected at 4 per cent as for the VII Plan against the government, the Planning Commission and RBI data of 5.6 per cent which has been incorporated in the Approach Paper: 2)the current account deficit is estimated at $9.93 billion for 1990-91, against the RBI estimates of $7.3 billion. (This is serious as it is a difference of 1 per cent of GDP, and seem to be more than a definitional difference): c)on this basis it recommends a further cut in government expenditure and a rise in taxes so that the fiscal deficit can be reduced to 3-4 per cent: d)the present crisis is traced to 1980 policies, with the Gulf crisis only precipitating matters and not causing it. The sober assessment is needed for our policy guidance. Second, the government announced in late October that the ceiling on the equity holding by non residual Indian and overseas corporate bodies is raised from 5 per cent to 24 per cent. This means acquiring 24 per cent through stock exchanges under the portfolio investment scheme, which is in accordance with the new policy to attract foreign funds. Third, the combined fiscal transactions of 25 state governments during 1991-92 are expected to show an overall deficit of Rs.2163.5 crores to be reduced to Rs.1459.2 crores through ARM by the states. The other feature of the states fiscal scenario is that in 1991-92 they will spend less on development and more on non development activities, particularly administration, interest, servicing of debts and pensions. Fourth, a series of monetary developments in October need to be noted: a)the foreign branches of public sector banks are estimated to have accumulated $1.6 billion to $1.7 billion of sticky credit of which atleast $1billion look like bad debts. They have already provided 600 million for bad loans and will need also another $400 million:b)the government launched on October 1 five scheme to tackle the problem of black money. Among the scheme is the issue of Indian Development Bonds denominated into the US dollars by SBI from October 1 to November 30. The second is remittances in foreign exchange to any one in India which will be immunity from direct tax laws. In this connection on October 25 the government and RBI eased the remittance norm in the immunity scheme. Further any one coming into India can bring up to $50,000 and use it freely without producing of the passport, or the source of the funds.

Third, persons can make a deposit with the National Housing Board by November 30 and no questions will be asked about the source of funds. And fourth the black money holders are being given much more opportunities upto 31 March 1992 to declare their undisclosed income. Fifth, the procedure for such declaration is simplified. The government reports that in the first week of this amnesty scheme, it has attracted Rs.800 crores. The Indian Development Bonds thus attracted $400 million, under the second scheme of foreign remittances India, it has attracted a further Rs.1000 crores. These early successes has suggested to the government the possibility of extending the date of the schemes beyond November 30. The government has warned all banks against black bonds which have begun circulating. In response to pleas by NRIs in the UK, RBI has launched on October 24 sterling bonds which carry an interest of 13.25 per cent. A fifth development is the implementation of the decision of the conference of Chief Ministers to complete the distribution of surplus land under land ceiling laws by March 31, which will help SCs and STs. Sixth, the RBI reports that the scheme to set up a National Cooperative Bank of India has run into difficulty, particularly in its relation with NABARD. Finally the sugar industry, in all 3 sectors, cooperative, private and public sector has incurred a loss of over Rs.700 crores. It is estimated that fertiliser imports will cost Rs.7000 crores in 1992-93.

Industry

The CSO index of industrial growth in June 1991 shows a decline by 1.9 per cent compared to June 1990 and for the 3 months April-June the fall is 1 per cent (from 200.7 to 198.7). For July the CSO index shows 10.6 per cent. During April-June 1990 the index of industrial growth showed a rise of 12.6 per cent. The major decline continues to be in manufacturing, in April it declined by 1.4 per cent, in May by 4 per cent and in June by 1.7 per cent. For April-June 1991 manufacture declined at 2.4 per cent compared to a rise of 14.6 per cent in 1990. In mining the index rose marginally by 0.1 per cent compared to last year's 4.7 per cent and in electricity the rise in April-June 1991 was 6 per cent compared to a rise of 9.8 per cent in April-June 1991. This confirms the forecast that the 1991-92 industrial growth record will be poor, possibly negative, which the tight credit and monthly policies may further strengthen. CEI reports that the engineering industry has registered a large negative growth rate of -8.8 per cent for April and May 1991, compared to the rise of 13.4 per cent in 1990-91. This will be a major contribuant to the negative growth of manufacturing. The revival of sick units might be a major condition for funding by financial institutions and banks of new projects and expansion of industrial groups. The government has asked banks and FIs to be cautious about providing funds to promoters with weak units. On the other hand, the government is said to be working on the exit policy for industry in which there may be tough conditionalities on entrepreneurs who have made their enterprises sick and wish to close them. For their revival on the basis of a BIFR package, the policy will insist on the entrepreneurs bearing a major part of financial burden. The exit policy under

preparation will ensure that that the units are not shut down in order to invest in more lucratic fields as happens now, as pointed out by BIFR. As part of liberalisation and reform package, at the end of October, the government announced a revised policy and procedure for investments by NRIs and overseas corporate bodies (OCB's): i)they can invest up to 100 per cent foreign equity in any industry, including small industries, except in industries reserved for the public sector with full repatriation rights: ii)100 per cent foreign equity is also permitted in hotels, tourism related industry, hospitals, shipping, export oriented deep sea fishing and oil exploration services: iii)the foreign eq- uity should cover the need for import of capital goods: iv) the proposed NRI and OCB's project must not be located within 25 km of an urban area : v) existing schemes of l00 per cent NRI investments in 100 per cent EOU units as also the scheme for the rural sick units to continue: vi)no indigenous clearance required for these schemes including import of capital goods fully financed by NRIs: vii)for licensing the existing 40 per cent and 70 per cent NRI investment schemes to be discontinued. It is expected that this decision will lead to increased flow of NRI funds. Another decision as part of the liberalised policy is to permit the private sector with an outlay of upto Rs.25 crores to enter the power sector, without any techno - economic clearance by the Central Electricity Authority. The power projects are also open to foreign investors who are allowed to invest 100 per cent equity. Also at the end of October the government announced guidelines on trading in exim scrips with a view to provide a)greater stability and transparency and b)remove the anamoly between phased manufacturing programme units (PMP) and the ones which had completed their PMP provisions. This means demand and supply forces (the market) will determine trading in the scrips in which in addition to importers, exporters, dealers and existing inter measures, FIs, banks, stock exchanges and Over The Counter Exchange of India (OTCEI) will disseminate information and trading in Exim scrips.

National Production Front

Steel

SAIL reports that in the first two quarters of the year, April-September records a positive trend. Its five plants, Bhilai, Durgapur, Rourkela, Bokaro and Burnpur (IISCO) have produced 0.538 million tonnes of steel in the current year compared to that from last year. This is part of the plan to increase SAIL output by 1 million tonnes in 1991-92. They have produced 9.29 lakh tonnes of hot metal, 8.14 lakh tonnes of crude steel, and 6.55 lakh tonnes of saleable steel during the last month, September 1991. Its deliveries have correspondingly increased. SAIL also reports an increase by 32 per cent in export of steel products during these 6 months and in terms of value the increase has been 72.5 per cent. Its exports are both diversified and increasingly value added.

Crude

The country will import in 1991-92,19.6 million tonnes of crude and 10 million tonnes of products at a cost of Rs.l2,500 crores compared to last year's import of 19 million tonnes of crude and 8 million tonnes of products costing Rs. 10,000 crores. Faced with a widening gap between the projected demand and supply of petroleum products, the government has decided to add about 8.20 million tonnes per annum of refinery capacity through expansion and debottlenecking of existing plants at a cost of Rs.l300 crores. This is to be done in seven refineries: another 6 million tonnes is needed for which plans have been established and clearance from the ministry of energy awaited.

Coal

The target for coal production has been fixed at 310 million tonnes for 1994-95, against the production of 212 million tonnes in 1990-91. This will cost Rs.20,400 crores which can be justified at some rationalisation of price and giving up of the present policy of artificially ruining of coal prices. Coal mines are losing heavily, even after allowing for improved efficiency and OMH. The government reports on the one hand that on October 1, the cash and carry scheme under which all union and state power plants will pay the Coal India in advance was launched and that on October 4 all curbs on coal movements have been lifted as all the State Electricity Boards have agreed to pay in advance for coal supplies. This is good both for the state boards and CIL. Also CIL states that it will introduce a new marketing policy from January 1992 which is to ensure direct contact between the coal companies and the final consumers, with no middlemen. This will call for complete restructuring of the marketing set up of CIL. One important decision by the Union government is to cut all budgetary support for CIL from 1992-93. Whether this sudden cut from this year's Rs.200 crores subsidy to zero next year will work without disrupting CIL remains to be seen. One piece of good news which counter-balances the many problems faced by the coal mines in Bihar of depleting coal stocks, and irregular power supply besides the coal mafia, is the report of the Central Geological Programme Board of the identification of 864.78 million tonnes of coal reserves including of 257.03 million tonnes of proven grade in the North Eastern coal fields.

Non Ferrous

The aluminium industry is reported to be experiencing a glut with major indigenous producer reporting mainly inventories of over 40,000 tonnes. NALCO reports that its expansion work will start in March 1992 and be completed by 1994-96. The estimate for the expansion is Rs.2801.4 crores involving doubling bauxite production from 2.4 million tonnes to 4.8 million tonnes and aluminia from 8 lakhs tonnes to 13.5 lakh tonnes and smelter capacity from 2.18 to 3.45 lakh tonnes. Hindustan Zinc reports signing a memorandum of understanding with the government under which its sales turn over will increase in 1991-92 to Rs.640 crores from Rs.436.77 crores, which is an increase of 47 per cent, and assumes that it will open and operate mines and smelter competitively and will maximise the internal generation of resources, providing for a minimum of 10 per cent post tax return for the year.

Agricultural Production

The 4 month south west monsoon which has just ended can be described as satisfactory as the Indian Meteorological Departments (IMD) does, or as unsatisfactory, as the North West states do. It is a case of a glass being described as half full or half empty. 28 out of 35 meteorological divisions had normal or excessive rainfall accordingly to IMD. But the rainfall was deficient in HP, the hills in Western UP, Haryana, Rajasthan and Saurashtra and Kutch. The result is that kharif target of 103 million tonnes may not be attained, the estimated shortage being by placed at 8 million tonnes. To make up for this deficiency, the rabi target has been raised from 79.5 million tonnes to 83.7 million tonnes. With subdued rainfall in the last month of the monsoon, September, and the questions about the adequacy of sub soil moisture, the revised rabi target is felt by some states to be on the high side. As of now it looks as if the overall foodgrains target of 180 million tonnes for 1991-92 will be difficult of attainment. The government in the Ministry of Water Resources announces that it will bring an additional 2.3 million hectares under the irrigation during rabi. There will be a 11 per cent increase of 21.2 million hectares irrigated during rabi 1990-91. Against this background the World Bank advice to reduce the buffer stock from the current 19 million tonnes to 10-11 million tonnes might cause some anxiety but it is also the advise of some of our own expert committee. If this level of 10 million tonnes is accepted with an investment fund of $150 million to import food if necessary, there will be adequate safety. In any case as both the World Bank and our own expert committee has said, there is need to improve our management system, review Food Corporation's role and trim the public distribution system.

Foreign Trade and BOP

DGCI reports that during April-August India's exports declined by 7.8 per cent in dollar terms (in August it fell sharply by 10.7 per cent). Imports shows a sharper fall than exports a 15.3 per cent - $7619 million (in August the decline is 20.4 per cent).The trade deficit during the period was Rs.2253 crores (which was a decline of 38.3 per cent) against the higher Rs.3141 crores in April-August 1990-91 (in terms of dollars it was $1002 million). In Rupee terms,exporters recorded a growth of more than 20 per cent, Rs.12374 crores over the same period last year. That was one effect of the 20 per cent depreciation of the Rupee. The government announced that following a review the duty draw back rates have been increased for export (thrust) products like engineering, electronics, chemicals, paints and pigment and textiles. This falling exports and widening BOP gap is serious for these reasons. First, it endangers the whole macro economic adjustment programme which rests on surging exports. Second, export from India is declining not because of high labour cost, not because of lack of technology not because of unreal exchange rates, not because its imports are increasing. The reason is the poor quality of our exports. The IMF has asked international commercial banks to support India in its commercial borrowings operations to help finance its BOP and foreign trade. In this connection the serious difference between the estimate on current

account deficit between the World Bank and RBI was earlier referred to - the World Bank estimates India's current account deficit in 1990-91 at $9.93 million which is 3.5 per cent of GDP, while RBI's estimate is $7.3 million (2.5 per cent of GDP). In view of India's international commercial transactions, this discrepancy should be quickly resolved. One set back in our foreign trade negotiations is that India has not been able to settle major issues between it and the US during the visit in October of the US trade representative. The problem areas are: a)the US demand for India to follow the Mexican example on intellectual property rights (IPR) under threat of trade retaliation under special 301: b)In addition to inviting foreign private investment with majority equity participation, it is demanded that dividend remittances should not be covered by tax free export earnings: c) In addition to India's offer to increase the period of process patent and royalty there on, India's export of bulk drugs which just about cover their import need to be cut: d) while India is required to increasse access to services from US and abroad, India's professionals and construction personnel are not given free entry into their countries to enable them to compete for job vacancies. Thus there is at present no fair deal or quid pro quo on IPR and trade negotiations with the US. On individual items, the oil import bill, on the basis of the Rs.3124.60 crores from the period April-August looks like totalling Rs.12000 crores for the year and not the anticipated Rs.15000 crores. To further promote the export Basmati rice which has now become internationally competitive, the government has simplified its export procedures, removing the requirement for separate licenses, using just the registration and allocated procedures. On this basis, 200,000 tonnes were exported in October. On jute exports, the government forecasts, jute product exports crossing Rs.1000 crores shortly, with the diversification into decorative textiles, furnishing fabrics and jelte rainforced plastics. Again engineering exports according to the Engineering Export Promotion Council will exceed the revised target of Rs.5000 crores for the year, on the basis of the 38 per cent income during April-August 1991. Exports of leather garments are set to reach a record of Rs.900 crores this year compared to less than Rs.600 crores in 1990-91. The export front is looking up.

Aid and loans

The government and IMF are negotiating in October successfully to convert the $2.2 million standby credit from IMF into a medium term arrangement under the extended fund facility (EFF) of the Fund. The first tranche of the $2.2 billion will be $800 million in early November. This EFF credit is important as the country is in a debt trap in respect of its short term borrowings, which is being met either by rolling over repayments or taking fresh loans to settle earlier loans. The long term debt burden in rupee terms has gone up by 21 to 23 per cent as a result of the July 1 and 3 devaluation. Servicing the debt, that is repayment of principal and interest in 1990-91 was Rs.9,614 crores which is 30 per cent of the export earnings. The country's foreign balances have risen from Rs.2616.78 crores, September 6 to Rs.3043.56 crores on September 13 and Rs.3974.02 crores on September 20, after paying of the gold loan (of $88 million) from the Bank of

England and Central Bank of Japan, mainly because of the $635 million from IMF, and stood at Rs.5300 crores on October 11. The World Bank and Consortium loans will swell the reserve. The World Bank/IDA has made a loan of Rs.104 crores for the West Bengal afforestation project. It has also sanctioned $156 million for environmental projects for the first time for the control of pollution caused by chemical industries in Gujarat, Maharashtra, Tamil Nadu and UP. It has also further approved $153 million for dam safety projects, ensuring the flood handling capacity of 940 crores large dams in 4 states. All the IBRD and IDA loans and credit should be speedily used and not allowed to accumulate as in the recent past. IFC announced an investment of $1.58 million to help establish the $10.5 million Indus Venture Capital Fund.

International

IMF-World Bank Annual Meeting

The Fund-Bank meeting was held in Bangkok this year in October 16-19. It was preceded as usual by a meeting of the developing countries (G-24) which this year emphasised the need for easy and successful conclusion of the Uruguay round in response to the increasing number of developing countries undertaking macro economic adjustment programmes and structural reforms which face a deteriorating external environment, seen in the use of non tariff barriers by industrial countries and the lack of genuinely multilateral trading system which face distortion and structural rigidities in industrial countries. Further, scarcity of capital and lower savings of the industrial countries due to increasing budgetary difficulties and the net negative transfers from the Bank from borrowing countries - all need immediate attention. The interim committee of IMF ended its 2 day meeting endorsing the call to comercial banks to provide support to countries engaged in strong economic reform programmes and which are servicing their debt despite very difficult external circumstances. It called upon all parities to work expeditiously towards a normalisation of financial relations in these cases when the restructuring of bank debt was a necessary complement of strong adjustment efforts. It called on the Paris club to continue its discussions on how to implement promptly additional debt relief measures on a case by case basis. The World Bank at the Bangkok meeting underlined the importance of the private sector in economic development and setforth a 5 point programme to achieve the Bank objective of reducing poverty. Scarce domestic and external resources should be used effectively to accelerate development, stimulate employment and reduce poverty. For this, the World Bank 1) must serve as a strong leader of the global demand effort by articulating the interest of the developing countries, 2)must support policy reform at both macro economic and sectoral levels, 3) must help to ensure that growth is equitable to serve the poor, 4)must mobilise funds in the capital market and stay strong and 5)must improve and accelerate services to the borrowers. At Bangkok, IMF classified USSR and the Eastern Europe countries as "developing countries" because of their economic problems. Its report says "two new member countries of Eastern Europe,

Bulgaria and Czechoslovakia and the USSR were added to the group of developing countries." The Bangkok meeting made no breakthrough on the question of additional SDRs which the development of developing countries urgently need and have been pleading for.

World Economy

IMF in its world economic outlook forecasts a 5 per cent growth for Asia in 1992 and a significant fall in inflation. This means that a relatively moderate rebound in the world economy in 1992, with output rising by 2.75 per cent. The strategy of economic reforms was beginning to pay, particularly in Latin American countries. The Fund and Bank are engaged in tackling poverty through promoting growth. The developing economies of Asia, particularly Thailand and Indonesia have entered a period of heating in the first half of 1991. Inflation and real wages increased and labour shortages and infrastructure bottlenecks became pronounced. Economic activity in the western hemisphere will be sluggish in 1991, with a small rise in GDP after the decline in the previous year of 1 per cent. Average inflation for the region will remain substantial and the combined current account deficit will widen by $12 billion to $18 billion. Output in developing countries will fall by half to one percentage point in 1991 mainly due to the decline in economic activity in E.Europe and USSR. This decline is due to the fall in regional trade among them and the adjustments following from the transition from the centrally planned to a market economy. The slow down in the expansion of the world economy and increasing stock of agricultural commodities contributed to a fall of 8 per cent in 1991 in nonfuel commodity groups. The slow down in economic activity in 1991 in North America and the UK will contribute to a fall in imports and a reduction of external deficits in these countries. The output of the developing countries will decline by half to one per cent this year. The Asian region will register the highest growth at 7 per cent this year. The report advises developing countries to shift the composition of their public spending programmes towards investment in physical infrastructures and away from less productive uses like subsidies and military spending. It warns that there is little prospect of an increase in the flow of external savings to developing countries or a rise of domestic savings rates unless there is improvement in macro economic and structural policies and less direct controls. It says that an open payments system and adherence to appropriate exchange rate policies are essential to attract inflows of external savings and the return of flight capital. It says it is essential for governments to win private sector confidence and build up credibility through persisting with policy reforms. A number of developing countries like India, Pakistan and Bangladesh are now welcoming foreign direct investment. The total external debt of developing countries reached $1.464 billion in 1990 end and will be $1.530 billion at 1992 end. UNCTAD in its report on the 1990s has warned that a large number of developing countries are locked in a vicious circle of over indebtedness, under investment, increasing macro economic instability and inadequate external support on which the earlier IMF report provides detailed data. It has warned that breaking out of this

vicious circle and moving on to a path of sustained growth is urgent and presents a challenge. The developing countries continue to face a policy overload unless they are given assistance that is both timely and on a state commensurate with their problems. The UN reports to the Bangkok meeting states that Asia's economic boom over the past 3 decades has failed to curb widespread poverty and the number living on the margin of survival is growing. A broad range of long standing social issues are unresolved in the Asia-Pacific region and rapid economic growth to which earlier reference was made in the IMF report has generated many new ones - particularly the widening scourge of poverty.

Uruguay Round

While the Director General of GATT is optimistic about the successful conclusion of the Uruguay now before the year end the developing countries, including India are faced with a take it or leave it text. This means that they are going to have to accept a series of high cost options without any corresponding gains. The text now being prepared will be tabled by the end of October, giving countries only two options - either accepting the proposals or opting out of the Uruguay round - both disastrous. Objection to the arbitrary mode of concluding the round by India, Pakistan, Brazil, Mexico and Egypt have been summarily dismissed by the industrial countries, with the European Community taking the lead.

Common Wealth Summit

The declaration of the commonwealth summit at Harrare on October 20 calls for a)the promotion of democracy, human rights and the rule of law as top priority for 1993 and has condemned the emergence of ethnic, chauvinist, racial biogotry and other forms of biogotry as a threat to peace: 2)all nuclear testing should be halted and curbs imposed on conventional weapons build up: 3)increased aid for development to the developing commonwealth countries which led by India successfully defeated the attempt of the heads of UK, and Canada to link aid with democractic reforms and human rights. The declaration is a set of empty platitudes as no one objects to the spread of democracy or human rights: what is needed is a time commitment to reduce debt and increase aid. This is not forth coming.

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II. Agricultural Development in Tamil Nadu

Paddy and other crops

The continuing rains in October have buoyed the state's farmers, who are engaged in both the kharif and the samba crops. The widespread and continuing rains have raised Mettur storage to 52.235 mcft (the full storage being 93,430 mcft) on October 28 and so the discharge has been reduced. Farmers are working on 9.53 lakh hectares compared to last year's 8.73 lakh hectares. In Thanjavur district alone, the farmers are cultivating 4 lakh hectares.

As a result of the wide spread rains, the Vaigai reservoir level reached 43.3 ft (full level 71 ft), and that of Periyar 113.3 ft (full level 152 ft). The Kanyakumari district paddy farmers are using the heavy showers of the last week of October, to expand the area under paddy and if the same is done by the farmers in Chengai Anna, Salem, Periyar and Coimbatore districts and if the North Arcot paddy farmers who are dependent on lift irrigation for their paddy crop - both samba and subsequent Navarai - receive as they expect adequate North East monsoon rains, they will use both lift irrigation and the surface flows of the Palar and South Pannar rivers for their cultivation. As of end October, the farmers in the state have brought 9.25 lakh hectares under millets (last year 8.62 lakh hectares), pulses 3.45 lakh hectares (last year 8.62 lakh hectares) cotton 98 lakh hectares (last year 1.09 lakh hectares), sugar cane 1.72 lakh hectares (last year 1.77 lakh hectares) and oil seeds 2.85 lakh hectares (last year 7.2 lakh hectares). They look forward to the short term crop loans totally Rs.275 crores which will be extended to them through the 4655 primary agricultural cooperative banks and some Rs.56 crores as medium term loans to be used for purchase of fertilisers, instruments and HYV seeds etc. On this basis, rice output in the state is estimated to increase to 62.52 lakh tonnes against the 58.51 lakh tonnes that the state's farmers produced last year. The crop on which they are at work are pulses to produce 4.60 lakh tonnes, millets 17 lakh tonnes, oil seeds 14.50 lakh tonnes, sugar cane 24 lakh tonnes and oil seeds 14 lakh tonnes. All the various crops are doing well and are likely to bring an adequate income this year for even the small and medium farmers and those farming in the dry areas. The introduction of identity cards for fertilisers distribution at first annoyed the farmers because of the delay involved, and the higher open market prices they had to pay made them realise that their fertiliser requirements will be fully met.

Research results

In October reports on 38 research projects were received, and of these five groups of reports are of immediate interest to the farmer, as he can transfer to the field now the reported result. There are four reports on rice in the first group. The college of agriculture, Koraikal which reports developing a new rice variety KKL4 bringing together 1R20 and ADV 38. It is a semi dwarf variety, is tolerant to salinity and alkalinity which is of special interest to farmers facing those 2 problems and matures in a little over 4 months. A report from Ponneri states that farmers using IR-64 during kharif were able to harvest 9375 tonnes of paddy per hectare. Paddy farmers are advised to raise the nursery in May and begin planting in June. TNAU reports that direct sown semi dry rice in Thanjavur is now becoming popular and meets the districts water scarcity. The problem of weeds can be controlled by hand weeding and herbicides: similarly the increase in deficiency can be treated by soil application of ferrous sulphate. The fourth report from Aduthural states that the cauvery delta farmers who face drainage problem are advised to use urea, DAP and gypsum as carrier materials for herbicide application. Second, three reports on groundnut are of particular interest to

Tindivanam groundnut farmers. One is the use of a high yielding HPS released by ICRISAT - called ICGV which is a heavy yielder. Second, is a report from Vridachalam on 4 non monetary inputs - timely sowing, optimum plant population, use of the TNAU improved seed planter, and irrigation management - which almost doubles the groundnut yield. Third, Pusa advises groundnut farmers that the TCGSI variety which is less susceptible to rust and leaf spot and VRI 3 which is resistant to collar rot, and TNAU 97 which is resistant to pests boost the yield. Third, five reports on various millets are of interest to the dry farmers in the state (one is TNAU's weed control for rain fed sorghum, a second in National Pulses Research Vemban's report of the 4 measures to control brown rust in cow peas, a third is from the Perumalpalli's research station on the sorghum based system for dry farming and fourth the Vemban report again on the means of checking the poddy fly in redgram and fifth the Kovilpatti research station report on the 4 means of identifying and controlling the destructive pest stem flies that infest pulses grown by the dry farmers. Fourth, there are a series reports on keeping the cotton pest at bay from TNAU, Trichy, the sowing of pregerminated seeds in bitter-gourd, from Palur vegetable research station, from Vemban base on growing hedge lucerne which is a protein rich legume, from TNAU, Udagamandalam on controlling the dreaded ring spot disease in cabbage through rotwater treatment of the seeds, from TNAU centre at Tiruchi on the 10 measures that the cotton farm can take to keep prudence and other pests at bay, from the CMFRI research Centre, Tuticorin on means of conserving the sea cucumber, from the Bellampal horticulture centre, on means of developing and growing crops on saline and alkaline soils, and the two reports on coffee, one from the horticulture centre, Thodiyankulam on foliar feeding of the crop and the other from the Pallur station on the control measures to be used to check the coffee berry borer. Finally to the sheep farmers, the Madras Veterinary college on the control measures to check blue tongue in sheep which can be immediately put to use, as well as Namakkal centre's advise to the cattle farmer on the various actions to be taken from prompt notification to the animal health centre and regulation of the grazing for ensuring nutritional efficiency and parasite control.

Sericulture

Mulberry cultivation and silk cocoon production are expanding in the non traditional area of Tiruchirapalli district. To meet the growing demand for silk domestically, the World Bank has aided a sericulture project which is now in the year out of the five year project life, which has quickened the pace of mulberry cultivation in the area which has traditionally specialised in rice, banana and sugar-cane but is now expanded over to sericulture. The World Bank's Rs.41 crores is covering Tiruchi district and 9 other districts. Mulberry farming till recently confined to Dharmapuri district has now become a state wide farmers' activity.

Plantation crops

The state and the country is doing well in the growing of plantation crops. A 19 member *scientific advisory committee* has been set up to promote and facilitate

concerted efforts in promoting and coordinating research and development in the plantation sector, export of agriculture and allied commodities and advise on the policies to be pursued in them. The committee's membership comprises the Vice Chancellor of the Agricultural universities, representation of UPASI and the different ministries. The committee will advise the commerce ministry on all aspects of research, science and technology in the plantation sector and will be an important instrument to push forward the new liberal trade policy with regard to the plantation products. With regard to : *Coffee,* Tamil Nadu produced 18,000 tonnes of coffee in 1990-91, the highest during the past 5 years. For the country, it has been decided by the Coffee Board and government that from the current year, 1.20 lakh tonnes of coffee would be exported annually in order to earn the valuable foreign exchange it will bring. For 1990-91 the coffee output is 2.10 lakh tonnes, upto August 1991 33,441 tonnes were exported and the coffee board has commitments to export 1 lakh tonnes. The Coffee Board has been urged by the government to concentrate on value added and speciality coffee to earn more foreign exchange within a given quantity of export. The Coffee Board announced that it is engaged in the task of producing speciality coffee under a brand name, of pushing cherry coffee, of segregating coffee according to plant strains and preparation of high altitude coffee. A representative of ICA stated to the Coffee Board conference that with the collapse of the International Coffee Agreement, and the future of the price stablization objective of ICA will lie more on the side of private market intervention such as futures, options, stock retention financing. He proposed that a corporation set up with private donations of a soft loan from the multilateral organisation can be vested with the mandate to stabilise the market without any fixed price range. In any case, the annual meeting of the International Coffee Organisation meeting in London at the end of September noted that the present system of quota less coffee trade will continue at last till September 30, 1992. Thus all efforts by the ICO to improve the system of quotas which has been criticised by both producers who feel that they are not receiving their shares of the quotas and consumers who complain that the quality of the quota coffee is poor and that non quota countries get coffee at cheaper rate, this attack from both sides led to the collapse of ICOs from July 1989. A search is now on for a more effective system and for this ICO has set up a working group to carry out a wide ranging review of all proposals on future international cooperation on coffee matters, ranging from the views of the African coffee produces that the quota system should be restored, to the Latin America producers view that a retention scheme should be operated to help stabilise prices. The group membership is open to all members and it should report to ICO before the last week of April 1992, on the basis of which the ICO council will negotiate on a new ICA and complete the negotiations by December 30, 1992 so that it can come into effect by September 30, 1993. In the meanwhile the ICO council has decided to extend ICA for another year from September 30, 1991 to September 30, 1992. This decision has to be accepted by alteast 20 exporting and 10 importing countries to come into effect. If that does not happen, ICA will have to

be liquidated, which is unlikely given the attendance and honour of the last meeting. On *tea,* Tamil Nadu produced a high 106 million kg in 1990-91 and expects to produce 110 million kg in 1991-92. While the international agreement in coffee has collapsed as noted above, resulting in both producer and consumer suffering, India as a relatively small producer of coffee does not have a great stake in it. But with regard to tea, India is the 5th major producer and till recently the most important exporter. Hence it is very important that both the national and international setting for tea production and its price and unit realisation should be carefully guarded and developed. On *rubber,* Tamil Nadu production was 1,26,000 tonnes in 1990-91. The problem with rubber in the country is the widening demand/supply gap. The total area under rubber cultivation is 4.4 lakh hectares (predominantly by small growers with 400,000 units) and its production in 1988-89 was 2.75 lakh tonnes. With the increase in production of automobiles, the consumption of rubber is constantly increasing to 341,800 tonnes in 1989-90. While the demand for natural rubber has doubled in the 80s, production growth has been slower. The gap between supply and demand is filled by imports since 1935. The deficit now is between 12-19 per cent. The demand in 1994-95 is projected at 4.84 lakh tonnes and at 7.07 lakh tonnes by the turn of the century. Hence the Rubber Board successful programme of reducing the deficit from 18.2 per cent in 1987-88 to 17.4 per cent in 1988-89, to 13 per cent in 1989-90 and to 7 per cent in 1990-91 nearly through increase in productivity and the area. This needs to be pushed so that the gap is closed. The question of using synthetic rubber also needs to be explored. STC's record in importing rubber and distributing it has not been satisfactory and should be reviewed.

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III. Industrial Development of Tamil Nadu

The industrial development scenario in the state in October had the usual pluses and minuses.

On the positive side, *first* the revival of *Standard Motors* is now ready with BIFR: a)having worked out a Rs.34.36 crores rehabilitation scheme, b)decided on the discontinuation of the production of the cars by the company which was the main loss making factor, and as earlier issues of the Bulletin raised the question of its viability as it did not have the critical minimum demand to pave its way with no import content, c)also calls for a more fuel efficient engine for its light commercial vehicle (LCV), d)the funding to be the promoter to provide Rs.5.54 crores in equity, i) the financial institutions Rs.15.69 crores and ii) the state government Rs.3 crore as loan, e)decided that Rs.10.75 crore will be used for capital expenditure, Rs.16.71 crore for meeting labour dues, and cost rationalisation of labour and Rs.3.20 crores additional margin money for working capital and f)further decided to get labour's agreement to terminate 999 workers, payment of wages relating to the closure period in 2 or more instalments during 1992-93 and a wage freeze, and reinduction of workers in a phased manner in line with production plans. Thus at long last there is agreement on starting the factory and the next 2 months are to be used to agree on the modalities of the reopening. The promoters hope that the company can be restarted in early January 1992. *Second, Ashok Leyland* is being expanded by its joint owners Hindujas and IVECO. Hindujas are planning to use Ashok Leyland as a flag ship for all their future investments in India, IVECO will use it as its India manufacturing branch. The Hindujas plans include a lignite based power plants in the state, a bagasse based newsprint plant in the state and a tyre manufacturing unit in the state or AP. IVECO will use Ashok Leyland to launch a range of 6-9 tonnes trucks which are intermediate LCVs, with Ashok Leyland's mother plant at Ennore manufacturing Leyland engines, trucks and axles, the Hosur plant manufacturing low volume speciality vehicles and use its closed plants at Bhandara and Alwar. *Third, the Salem plant* to manufacture *High quality sintered magnesium (HQSM)* with a Rs.80 crore equity, of which the Common Wealth Development Corporation will provide an equity of Rs.12.58 crores, Tamil Nadu Magnesite will provide 26 per cent, Khaitan supernoy 25 per cent, and in addition there will be term loans of Rs.144 crores. The plant will start in March 1990 with a capacity of 30,000 tonnes of HQSM. *Fourth, Ankut Granites* the flame finished granite manufacturing plant at Hosur is about to be complete and will start up in February 1992 producing, being the first to manufacture flame finished granite hills in the country. *Fifth, the pilot rural housing project,* a joint Rs.22 lakh effort of the state government, HUDCO and Anna University School of Architecture and Planning is new ready. Each house costs Rs.6000 in the 4 villages in the plan and slightly more for serumalai houses. One problem faced by the project is the inadequacy of the loan for each house because of the steep cost escalation. *Sixth,* the Centre for Electro Chemical and Energy Research of the *SPIC Science Foundation* reports a break through in the development of process technology for fabrication of fuel electrodes which are used in solid polymer electrolyte fuelcole. *Seventh, the Tamil Nadu Energy Development Agency* (TEDA) in cooperation with the World Bank is starting a Rs.100 crore wind farm project in Nellai Kattaboman district. The project which produce 50MW is part of a 400 MW project. *Eighth,* at the *Perungudi industrial estate,* commercial production of statics the only load cells which is a critical component of electronic weightage systems has started. It is a joint Indo-US project. *Ninth,* the state government has taken the initiative in setting up *Acqua culture estates.* These are being set up within all the needed infrastructure - roads, tanks, storage places etc in a 200 hectare area. It has also decided to give 25 per cent of the capital as subsidy. The project will both provide rural employment in the prawn hatcheries being set up and promote export trade in prawns. *Tenth* one of the most encouraging developments is that the present government has decided not to reverse the decision of the

previous government (see Vol XXI p286) for the government through TIDCO to disinvest in the Tamil Nadu's cement corporation *TANCER*. It has accordingly moved the high court to vacate the court's interim order staying the disinvestment. This is the policy set forth by both government for the state not to enter areas where the private sector is able and willing to do so, because of the states limited entrepreneurial facility. *Eleventh, IDBI* has reopened the *B&C* closure case and has revised upward its modernisation package by 33 per cent. It has in its report to the labour commissioner stated that the revised cost of revising B&C will be Rs.84.13 crores to be contributed by the financial institutions and the Bank. IDBI has also reiterated the need to shift B&C process house from Madras to Bhuvanagiri. Finally the plan for establishing the first Tamil Nadu's *gas turbine power* project at Vengidangal near Nagapattinam, using ONGC's Narimanam 57,000 cubic metre of gas to produce 600 lakh units of power annually is progressing well. The Chief Minister laid the foundation of the project on October 18. This could be one means of meeting the 4300 MW of power which is needed in the state to meet the anticipated shortage in the power sector.

On the negative side, *first* a state level review to evaluate the performance of Tamil Nadu banking system, it was found that though credit availability in the state is among the highest in the country - the *Credit Deposit Ratio(CDR)* of Tamil Nadu being 98 per cent in 1990-91, with total deposits at Rs.13,636 crores and total advances at Rs.13,290 crores - the actual credit flows to the various sectors, including the priority sector has fallen short of the norm, in that year - 1990-91. While banks had done well in the implementation of the special foodgrains production programme, oil seeds production programme and IRDP, the schemes which fell short of credit targets were: a)self employment scheme for educated unemployed (SEUY), b)self employment scheme for urban poor (SESUP), and c)self employment scheme for urban micro enterprises (SUME). The percentage of priority sector advance to total credit in the state had fallen to 38 per cent against the 40 per cent norm. This calls for the recycling funds so as to take the bank credit to a greater number of needy priority sector projects. *Second*, the NAPCO Aromatics projects is still hanging fire with the file on the project sitting in the minister's dick without any action despite repeated reminders by the state and union officials. One result is that the cost estimate is escalating and is now Rs.1730 crores. *Third*, the winding up of *MALCO* is dragging on. The Madras High Court on July 10 stayed the operation of the notice issued by BIFR to wind up the sick MALCO. This needs to be countered and BIFR on its sides has yet to file the counter writ to vacate the interim order of the court. BIFR should move on the case and end the agonising suspense of the workers, the management and the government as soon as possible. *Fourth*, as noted in the last issue the *handloom industry* in the state has taken strong exception to the state government's recent policy decision announced in the final budget for 1991-92 (referred to in the last issue of the Bulletin) to convert 37,500 handlooms into 75,000 power loans over the next 10 years. This the industry regards as a move to liquidate

it and throw the weavers and their families out of employment. It will also give authorisation to thousands of benami power looms now operating in the state, on payment of some bribe - and so promote corruption. It is reported however that some handloom weavers in Kancheepuram who have switched over to powerlooms which cost them each Rs.50,000, welcome this change as it will double their earnings. *Finally*, the much publicised plot for a Singapore corridor in MEPZ has not come off and probably will not. The project would benefit Singapore relieving a little its industrial overcrowding. It will also benefit Tamil Nadu where MEPZ will give the zone new life and justify the vast 100 acres of land specifically allocated by MEPZ for this project. On the Singapore side, the stringent policy pressures and complex procedures have held back the industrialists. On the MEPZ side, the policy restriction on foreign investments till recently and the fluidity of the political situation (its instability) has acted as a damper.

Thus in October the trends show that the industrial development of the state in moving forward inexorably, with the restructuration of existing factories and many capital intensive industries being planned or launched. The negative forces are fewer and are caused by some errors which can be speedily corrected.

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IV. Education, Science and Health

Educational reforms

The statement was made in October in the Assembly that Tamil will be made compulsory in nursery schools which are all using the English medium. It states that orders are soon to be passed making the Tamil medium of learning compulsory in the 30,000 nursery schools in the state with LKG and UKG classes. This wide spread of the pre school education is catering to the needs of the middle and upper classes. The high schools and higher secondary schools in the state are joining on the states' literacy drive. In standards IX and XI the literacy campaign will be part of the curriculum of the student. Each one is to identify the illiterates in the slums and in villages nearly and 'each one teach one' technique is to be used to provide the illiterates with literacy. The Central Board of Secondary Education (CBSE) has also launched a special adult literacy drive in all its schools from October 1. To start with, students from classes IX and X are in this programme. Being part of the curriculum, an incentive is the award of upto 10 marks for each student depending on the number of literates developed out of the illiterates. Each school will have its own system to review the programme and for each state will also set up a state wide monitoring committee. All secondary schools of CBSE will be in this programme from the 1992-93

academic year. A SAARC (covering Asia) report issued in October states that 50 per cent of children of primary school age in this region are out of school because of a)poor quality of education, b)irrelevant curriculum and c)the high opportunity costs and d) limited access to educational facilities. Higher education has received a higher priority at the expense of primary education despite its having a higher pay off. It makes a strong plea for preprimary education, which is at present neglected, left largely to private initiatives which copy blindly foreign models or are commercial enterprises. It asks that special attention should be given to non formal education, literacy and the education for women and girls. It proposes institutional capacity for teacher training and production of learning materials of quality which can benefit from mutual cooperation among the countries through the vast communication net work which has been developed but not put to use. At the university level, the annual conference of vice chancellors held this year in Thiruvanthanapuram emphasised: a)the need to reform the system of appointment of vice chancellors so that they can serve fully and freely by making universities autonomous: this would also require that the power of dismissal of VCs should be taken away from the chancellor: they should be under the discipline of UGC: b)on the UGC, there was a demand that the system which over years had become monolithic should be decentralised. Such decentralisation will give the universities greater freedom to formulate their own academic programme within the broad framework of national priorities. This would also correct the present tendency of universities to ignore regional industrial and economic development and concentrate in a routine way on "national passage" : c) the need for financial autonomy, allowing universities greater flexibility in spending government funds allotted to them. This presupposes a certain degree of freedom for them to raise their resources: d)it will also face the serious financial crisis facing all universities - union, state and agriculture. Over 40 per cent of them reported deficits over the 5 year period. The financial picture is dismal for the universities. It was also stated that in view of the growing numbers of students and the difficult and weak financial position of the states, the state cannot go on subsidising them and so they should be free to levy fees, 'receive' donations and raise their own resources, including interest free bank loans for poor students: e)many suggestions were made to improve college education including rationalisation of the existing fee structure, entrance examination for PG studies and the use of UGC grants: it was recommended that the fees, for PG course should be paid by students: f)central advisory boards of education should be set up to avoid changing policies when governments change: g)college development council should be entrusted with the authority to disburse UGC grants: h)as state council for higher education would probably end up being just another body between universities and the government, an inter-university council was recommended with powers to take decision.

Science

Some of the scientific and technological breakthroughs reported in October were earlier referred to under the state's industrial development. India has

expressed its repeated concern on ozone depletion, acid rains and climatic changes and has suggested international conventions and regulations in these issues. Refusing to consider measures to make forestry also an internationally regulated subject and Canada's provision for private industries to cut 20 per cent of timber from the compensatory afforestation taken up by them, India is of the view that forest should remain a national asset and not be interfered with. The urgent need for a global norm on ozone depletion was stressed. The need for liberal consultation on environmental issues especially industrial pollution, impact assessment and waste management was noted.

Health

The extension of the World Bank aided Population Programme in Tamil Nadu to two more corporations, and six municipalities was earleir referred to under Aid. As a result of the universal childhood immunisation programme, UNICEF and WHO report that in 10 years 3 million children were saved every year from the crippling polymyetis and the killer tetanus in the new borns. They are on the point of world wide elimination. A health check up for all will be organised in the state through 10,000 medical camps to be organised over a period of 20 week each of one day duration. Each camp will cover a population of 5000. Minor ailments will be attended in the camp, where further detailed examination is needed, in particular, will be referred to the PHC, or taluk or district HQ hospital or hospital attached to medical college. The Royapettah hospital in Madras has launched a pilot project on child health care by dessiminating preventive health care messages among primary school children, using a few class leaders for this programme. Each class will have a peer leader who will educate the other classmates on basic personal and environment hygiene. This little doctor scheme has been successfully tried out in Indonesia.

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V. Employment and Labour Relations

In the state, graduate teachers report acute unemployment - particularly science, of history and geography teachers. This is brought out in the seniority list of graduate teachers recommended by the Coimbatore employment exchange to the Teachers Recruitment Board for appointment of high school teachers. For the post of science graduate teachers, only SC/ST candidates who have registered before December 31, 1986 were recommended by the Employment Exchange. In the case of the most backward classes, only teachers registered before December 31, 1988 have been recommended. In the case of open competition only those who registered before December 31, 1978 are eligible for recruitment. This means science teachers

from open competition will start their teaching career at the age of 35 and above. In the case of history and geography teachers, the cut off date for SC/ST teachers is Decmber 31, 1986, for most backward classes 3l December 1987 and for backward class and open competition the cut off date is 31 December 1980. So no non backward teacher who has graduated in the 80s and the SC and ST teacher who have graduated in the last 6 years can find employment. Trade union is at last reaching out to rural artisans. The Hind Mazdoor Kisan Panchayat (HMKP) is reaching out to the unskilled rural artisan. Trade union which cover only 10 per cent of the country's work force, has ignored rural workers who are self employed and scattered and face all the perils of the unemployed, under employed, low wages and very bad conditions of work. The HMKP's Dastkar Haat Samiti covers craftsmen who for over two thirds of the samiti, has developed constructive linkages between urban trade union with their counterparts across villages and taluks. HMKP has been able to persuade units like Coal India (CIL) to use handloom fabrics for uniforms, and soft furnishings for all the workers and work places, union to distribute linen for Dastkan bazaars and such mass orders now boosted incomes of the artisans and strengthened the rural artisans both in organised action to better their conditions of work. Four SAARC countries, India, Pakistan, Sri Lanka and Bangladesh have decided to form a Confederation of Foreign Employment Agencies Association to improve and bring about uniform wages, good working conditions and better amenities, to weed out and blacklist undesirable Gulf employment and security agents from the SAARC countries and to formulate uniform rules for the emigration of workers to the SAARC countries.

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VI. Other Items

RDI & ICC

In early October there was the annual general body meeting of Reader's Digest which reviewed and approved the year's audited account and noted the report of the Board of Directors which showed an excellent record of work. It also approved one final instalment of the dividend for the year as recommended by the Board. The India International Centre had two functions: the Standing Finance Committee reviewed the approved audited accounts for l990-9l: it also approved the revised budget for l99l-92 which had to be completely revised to meet the rise in prices. It approved the budget for 1992-93. All these are for presentation to the Board of Trustees and the General Assembly in March 1992. The second event was the seminar on zonal planning for the North East and Eastern zone. For the North East zone there was agreement about its great potential of resources oil, gas, minerals, water, power, but also the great

handicaps that its inadequate infrastructure of roads, railways and other form of transport face. This bottleneck is further complicated by its being surrounded by Bangladesh with only a narrow neck for entry into India. The urgent need to improve relations with Bangladesh to help develop this region was emphasised.

FICCI & ASSOCHAM

In a rather rare event, the chairman for both these top industrial and trade organisation have been elected from Madras, Tamil Nadu and a function to facilitate them was organised at which the minister of commerce was present. The occasion was used to congratulate the government on the economic restructuration and reform under way and an appeal was made to the members of the two bodies to use this opportunity fully to develop industry and trade. Also the problems in this area facing the government, namely the full and precise implementation of the policies by the officers of the government and the need for the two organisation to work with trade unions to develop an exit policy for fairly enterprises as well as identifying sickness in the private sector and taking remedial action on it were emphasised.

Education for Expanding Population and UCO Group

A group of young US students were helped at the institute on the question of education and population. It was noted on the basis of detailed data that the rate of growth of education has not only not checked population growth, basic formal education growth was still lagging. Another problem area noted was the growing problem of educated unemployment, which was referred to earlier in the case of graduate teachers, and the need for the economy to grow in keeping with the rate of growth of labour force entry. A meeting of UCO bank officers and customers was held at the end of October, when the state of banking in the country and particularly of UCO bank was discussed. The means of improving the bank were discussed and it was agreed that UCO bank should develop norms and follow them for safe and profitable banking business.

November Development seminar

The paper for the November Seminar, "Perceived Nature of Crimes in Madras" by A.Sivamurthy together with a summary of the discussion of the paper at the seminar appears as the first article.

Second Article

"A note on Some Random thoughts on Population and Regional Development" appears as the second article.

Special Section

The special section in this issue comprises selected articles proposed for the summer workshop on Management of Renewal Resources held at Hyderabad from June 5 - 8, 1991 as follows:

1. Problems faced in Implementation of Rural Energy Projects In Gujarat and Their Solutions - Anant Vyas, Senior Executive, RED, CEDA Gujarat and K.S.Shah, Deputy Director (Tech), GEDA, Gujarat.

2. Energy use in Agriculture:Efficacy and Sustainability - S.Girlappa, SBI Chair in Rural Development, Mangalore University.

3. Some Problems in the Implementation of Strategies for Managing Energy Demand in the Rural sector - R.Natarajan, Professor of Mechanical Engineering, IIT, Madras.

4. Socio Economic Aspects of Implementing Emerging Technologies such as Improved Chulahs, Solar Cookers and Biogas - Rachel George, Faculty of Home Science, M.S.University, Baroda.

5. Institutional Aspects Of Rural Energy Programmes - P.Venkata Ramana, M.R.Suresh, Veena Joshi, TERI, Delhi.

6. Renewable Energy Programmes - An Assessment of the Prospects - T.V. Venkataraman, Chief Secretary, Govt. of Tamil Nadu.

Book Review

The review by Mr.V. Jacob John of the book Import Canalisation appears in the book review section.

M I D S News

Dr. Paul P.Appasamy attended a Seminar on "Employment Generation for a Million in Three Years in Tamilnadu" sponsored by the Department of Economics, Annamalai University on 9th to 10th November, 1991 and presented a paper.

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Mr.S. Subramanian attended a Seminar on "Employment Generation for a Million in Three Years in Tamilnadu" sponsored by Dept. of Economics, Annamalai University on 9th and 10th November and presented a paper.

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Dr.Padmini Swaminathan attended a Seminar on "Employment Generation for a Million in Three Years in Tamil Nadu" sponsored by the Department of Economics, Annamalai University on 9th to 10th November and was a discussant for a session and presented a note.

She also gave a lecture to RBI officers at the RBI Staff Training Colleve, Madras, on 2nd December, 1991 on "Issues Related to the New Industrial Policy Statement".

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Dr.Nirmal Sengupta participated in a Workshop on "Performance Measurement of Farmer Managed Irrigation Systems", sponsored by the IIMI and INCYTH, held in Mendota, Argentina between 11th to 15th November.

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Mr.S.Guhan chaired a session in the Seminar on 'Gender and Poverty' sponsored by the Planning Commission and the World Bank, New Delhi on 5th to 7th December.

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Dr.C.T.Kurien, delivered the R.C.Dutt Lecture's in Calcutta "On Markets in Economic Theory and Policy" on 5th and 6th December.

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Dr.S.Neelakantan delivered two K.K.Sha Endowment lectures on "Institutions, State and the Individual" in the Politics Department of the University of Madras on 20th and 21st November.

He also presented a paper on "Tamilnadu Social Forestry Programme and its Impact" at ISEC, Bangalore in the seminar on "Towards Greening India's Waste Lands" on 11th December.

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Prof.David Washbrook delivered a lecture on "Some Aspects of Dravidan Movement" on 10th December 1991 in the Institute.

The Pattern of Crimes in Madras City

by

Dr.A. Sivamurthy
Controller of Examinations, University of Madras

The City of Madras, the Capital of Tamil Nadu is situated in the eastern coast of India. It is the 'gateway' to the South India. Its corporate area is 172 sq.km. with a population of 3.2 million in 1981. The city stretches its 19 km length along the Coromandel Coast and extends inland about 9 km at its widest.

Of the urban population of Tamil Nadu, approximately a fifth lives in the city of Madras. It is the fourth largest city in India after Calcutta, Bombay and New Delhi.

The corridors and growth of Madras City were each combination of the two: (1) to the north, the railway and the T.H. Road, (2) to the west, the railway, the New Avadi Road - Konnur High Road and the Poonamallee High Road, (3) to the South, the railway and the Anna Salai; the Great Southern Road. The rapid growth of population is found along the transport corridors. The highest percentage of increase in population is recorded in the north, north-west and west.

The population density around older parts of the city are being continuously intensified. The northern part of the city has a great deal of new industrial development, (small and medium) while residential development is increasing in the major portion of the Southern part of the city.

The per capita income remains exceedingly low with 40% of the population falling below poverty line. The low income group is concentrated in George Town and Perambur areas. The high income group is found in Nungambakkam and Saidapet.

About 30% of the people are crowded together in slums. The slums are scattered throughout the city. Out of the total slum area, 38% is in North Madras, and 62% in South Madras.

Crimes in general and property crime in particular are the big city phenomena in developing countries. The physical growth in various parts of Madras is an impetus to the occurrence of crime because the newly developed areas provide greater environmental opportunity. The structure of Madras city approximates to a semicircle with extensions in all directions expect the east. Early in the development of the city, George Town and the harbour area had become the commercial centre of the city.

TABLE 1

Incidence of selected IPC crimes in Cities in India during 1989

	Murder	Rape	Kidnapping & Abducting	Dacoity	Robbery	Burglary	Theft	Cheating	Counterfeiting	Total
1. Ahmedabad	96	13	125	16	94	810	4186	163	20	13364
2. Bangalore	111	31	80	19	188	1712	7399	727	657	23107
3. Bombay	375	108	267	56	670	2282	14802	1196	47	37309
4. Calcutta	60	27	110	28	155	375	6873	478	56	13738
5. Delhi	295	137	797	11	200	1450	11805	1069	33	28467
6. Hyderabad	123	16	47	13	59	1367	3241	424	29	8063
7. Jaipur	36	19	124	1	35	424	1480	255	15	6269
8. Kanpur	121	18	163	38	115	59	1651	229	39	5526
9. Lucknow	96	30	113	28	119	604	2228	270	5	5336
10. Madras	62	25	33	3	87	461	4415	475	199	14168
11. Nagpur	126	50	74	20	323	856	2612	222	28	9368
12. Pune	81	28	47	21	168	872	2887	137	20	10380

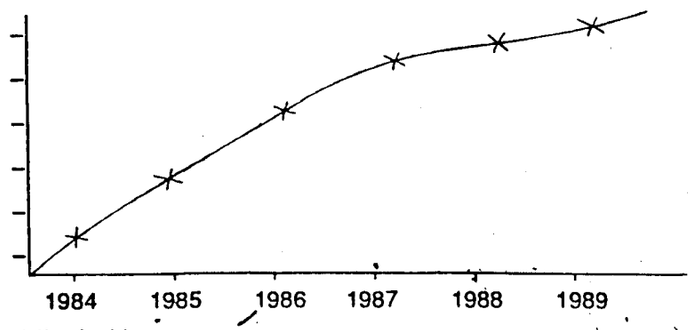
Crimes reported under IPC in major cities

Table (1) shows that Madras is only ranking 4th in the incidence of IPC crimes. Bombay being the first followed by Delhi and Bangalore. The total crimes reported during 1989 in Madras is 14168. It may be noticed that slightly more than 1/3 of the crimes is under the category of theft. Other important crimes are burglary, cheating and counterfeiting.

TABLE 2

The Trend of IPC Crimes in MADRAS during 1984 - 1989

Year	No. of Crimes
1984	10561
1985	11834
1986	13466
1987	13827
1988	13947
1989	14168



However, it is found that the incidence of crime is steadily increasing over the last five years eventhough the rise has not been that sharp as compared to other cities as in table 2.

Temporal and seasonal variation

Conditions of weather, temperature and season have all been mentioned as direct causes of anomalies in human behaviour. May be criminality as well.

When the month and yearwise data relating to occurrence of burglary are put to analysis of variance test, it is found that there is a significant difference between months in the occurrence of burglary. It could be concluded that the occurrence of burglary is seasonal and that the peak month is January, the coldest month in Madras. Winter nights provide better opportunity for committing house-burglary since people go to bed early; the windows and doors are kept closed and roads and streets are deserted at early hours. Under such physical conditions, the offenders have a free access to the houses in which occupants are away without the fear of being watched by anybody.

There is greater frequency of occurrence of hurt during summer months. This may be due to the greater frequency of contacts among human beings or because of the climatic pressure, one may get irritated easily on a slight provocation and this may lead to physical assault.

Season has significant influence only on burglary, hurt and gambling in Madras.

Ecological aspects

An analysis of ecological pattern of crimes and criminal behaviour in Madras city demonstrates that the occurrence of crimes and the residence of criminals can

be explained by physical, social, demographic and occupational characteristics of various census divisions of Madras city. The property crime environment according to the study comprises of census divisions with high occupational status - trade and commerce and service economic prosperity, high educational status, low physical congestion horring density, and low political participation. In such environments the rate of occurrence of house-burglary and theft is higher.

The study also shows that the census divisions characterised by high proportion of membership in SC/ST, low occupational status (workers in transport) low-educational status and low housing status (slums) have a high rate of criminals charged with house- burglary and theft.[1]

Commuting of property offenders

The journey of criminals is often the result of differential environmental opportunity. In the localities of North Madras where the environmental opportunity is low, the degree of commuting is relatively higher. In the commercial and high income residential areas of South Madras, the commuting is relatively lower owing to greater environmental opportunity.[2] When these journeys are summarised, it is found that the spatial interaction is more significant in the inner commercial and high-income residential areas. The peripheral zones do not show this kind of interaction since the majority of crimes are committed locally.[3]

The Spatio-temporal variation

The highly crime-phone areas of increasing trend with regard to theft are found in the peripheral parts of Adyar, Anna Nagar, Semblum and Agaram. The localities of North Madras such as Tondiarpet, Seven Wells, Kondithope etc., show a decreasing trend, because they are congested and occupied by low income people.[4]

Mean Centre of House burglary and Pocket-picking

The mean centre of distribution of house-burglary in Madras is found at Thousand Lights. It can be said that nearly 66.15% of the incidence of house-burglary occurs within a radius of 4.10 km from the mean centre. The study also shows that the pattern of house-burglary is not a normal distribution. This skew distribution is influenced by the variation in the land use pattern which is not normal.[5]

The mean centre of pocket-picking is located at the junction of Pantheon Road and Montieth Road in Egmore. It can be said that nearly 52% of the incidence of pocket-picking occurs within a radius of 3.1 km from the mean centre. For a normal distribution, the standard distance will contain 68.27% of the points. In this case it is lower, indicating that the distribution is not normal. This skew distribution is due to the influence of the layout of roads which is radial.

Public perception of Crime in Madras

Fear of crime leads to withdrawal which further increases the danger of crime and therefore fear responses to crime.[6] By an awareness of environmental pressure and their location, we are in a position to know where to concentrate our

preventive and rehabilitative efforts.

There is a significant variation in the pattern of public perception of crime. A study shows that the areas with high score on perception of theft are located far off from the CBD. The lowest score on perception of theft is confined to North Madras only. The perception of theft however does not correlate with actual rate of theft. The study shows that the perception of crime is inversely proportional to neighbourhood satisfaction. In other words, the respondents who are satisfied with the neighbourhood are perceiving less crime in the area, particularly in the North Madras.

The people residing in their own houses perceive more crime as compared to those who are living in rented houses. Those who reside away from the police stations perceive more crime as compared to those who live near the police station. The respondents who read local news papers perceive more crime as compared to those who read English newspapers only. The score on perception of crime decreases as the number of years of stay increases. In other words, those who stay longest tend to depreciate the crime rate. The perception of crime risk increases with the experience of victimisation in the past.

Conclusion

Behaviour is reaction to forces in the environment. Defensible space means creating territoriality, attachment, possessiveness and control in order to inhibit crime. To defend means to control space which is potentially dangerous. The above analysis helped us to identity the location of crime-phone areas and also the relationship between crime and the changes in the physical, social and land-use characteristics of specific areas of Madras city.

The newly urbanised peripheral areas of Madras city provide better opportunity for criminals than the old inner areas.

In the law enforcement planning the attention may be focussed on the effects of changes in the land-use and transport network as well as dynamics of social process. The police must know much earlier, the growth of environmental opportunities for crime.

References

1. A. SIVAMURTHY, 1981, Urban Ecological aspects of Crime in Madras City, Indian Journal of Criminology, Vol.9(2), P.91-98.

2. A. SIVAMURTHY, 1979, Spatial pattern of Commuting of property offenders in Madras City, The Indian Geographical Journal, Vol.54(2), P.79-83.

3. A. SIVAMURTHY, 1985, The Spatial Behaviour of property offenders in Madras City, The Indian Geographical Journal, Vol.60(1), P.43-48.

4. A. SIVAMURTHY,1982, The Spatio-Temporal Variations in the incidence of Theft in Madras City, Indian Journal of Criminology, Vol.10(2), P.108-115.

5. A. SIVAMURTHY,1989, Pattern of House-burglary: The application of centrographic Technique, Indian Journal of Criminology, Vol.17(1), P.53-57.

6. C.R. JEFFERY, 1977, Crime Patterns through environmental design, Sage Publications, London.

Summary of Discussion

The author elucidated the physical growth in various parts of Madras over the last two decades as being an impetus to the occurrence of crime since the newly developed areas provide greater environmental opportunity. Early in the development of the city, George Town and the harbour area had become the commercial centre of the city, he further added.

It was also mentioned that under the Indian Penal Code (IPC) Madras ranked fourth in the incidence of Crimes, Bombay being first followed by Delhi and Bangalore. He further emphasised the incidence of selected IPC crimes in cities in India during 1989 with its various manifestations.

Among the casual factors emphasis was laid on weather, temperature, and season as direct causes of anomalies in human bebaviour. Ecological pattern of crimes could also be explained by physical, social, demographic and occupational characteristics based on various census divisions of Madras city. The census divisions comprised of high occupational characteristics, trade. commerce and services, economic prosperity, high educational status, low physical congestion and low political participation.

The author in his presentation also used numerous transparencies to illustrate commuting of property offenders, spatio temporal variations of highly crime prone areas and the mean centre of house burglary and pocket picking. According to him, nearly 66.15% of the incidence of house - burglary occurred within a radius of 4.10 km from mean centre and 52% of pocket pickings within a radius of 3.1 km from the mean centre.

The author was however critical of the public perception of crime in the city and said that there was a significant variation in their pattern.

In the discussions that followed a query was raised by a participant on the incidence of IPC crimes during 1989 being lower in Calcutta than in other metropolitan cities. One of the participants also pointed out that in the event of rise in population, absolute number of crimes rose but relative crimes in terms of population fell and this hypothesis needed clarification.

One of the participants also drew attention to the parameters of offenders - whether they were residents of the city or outsiders or people coming from other states and those that were of a migratory nature.

A crucial point raised was the caution to be exercised while interpreting gross aggregate figures. In this context it was pointed out that the study based on every 1000 inhabitants as in the case of number of crimes per 1000 relating to various dimensions of crime was very essential.

Social scientists ought to give more attention especially in the Calcutta context where people had a distinct culture and were better off at the slum level, with higher average incomes which reflected a sense of togetherness among the slum dwellers.

Another comment raised was the issue in discussing the nature and extent of IPC crimes with the Police personnel and to address them which may have policy implications for their effective implementation.

In the case of thefts in Madras Port Trust and pilferage of goods laden lorries at traffic signals, check posts and junctions, the involvement of an organised gang was suspected in such pilferages rather than the slum people. In fact the slum people were being used as pawns by such people for their own vested interests, it was asserted.

It was also pointed out that where the infrastructural facilities were undeveloped it was conducive to crime as in the case of isolated houses in villages and those that were away from towns. Linking the incidence of crime and relating it to population would give a different picture and there was also a positive correlation between slum dwellers and criminal activity.

The assertion that there is an association between crime and high population of SC/ST was however questioned.

On the question of crime against women it was pointed out that as long as it offended their modesty it was a serious criminal offence. It was also pointed out that over the past 10 years, women criminals themselves had increased especially pick pockets.

The chairman Dr.P.Chandra Sekharan, Director Forensic Sciences Department, while summing up the proceedings agreed with the view that too much of police deployment was there where it was least needed. However it was essential to bring the public and police closer. Therefore a change in the perception of crime by the public themselves would go a long way in mitigating their own hardships to a greater extent.

V. JACOB JOHN

Some Random thoughts on Population and Regional Development*

Prolegomena

The relation between Population and Regional Development in India was recognised from the start of National planning, when it was decided that Plan asistance to the states will be divided with the following weights: population 6, income tax effort 1, development effect 2 and others 2. By giving the largest weight to population relative to income and performance, it was recognised that development must result in inter-state income redistribution and correct inter-state income inequalities. This means that the goal established was that of a new regional economy which would be characterised by a different level of income distribution and a new output structure, involving optimum utilisation of material and human resources and maximisation of productive efficiency. From that point of view, the traditional division of the country into 5 regions and the percentage distribution of population as between them from 1901 to 1971 is relevant and is set forth in the table below:

TABLE 1

Region	Area in Kms	1971	1901	1911	1921	1931	1941	1951	1961	1971	1981
Northern (78 states & Territories)	21.79		11.30	10.52	10.56	10.66	10.95	10.59	10.94	11.27	11.4
Eastern (12 states)	20.93		24.71	24.94	25.02	25.11	25.40	24.90	25.88	26.00	26.3
Central (2 states)	22.42		27.47	26.81	24.20	25.50	25.27	24.73	24.10	23.71	24.1
Western (3 states & 1 UT	15.45		12.17	12.62	12.56	12.91	12.92	13.55	13.86	14.24	13.2
Southern 4 States & 2 UTs)	19.41		24.75	25.11	25.66	25.84	25.46	26.17	25.17	24.75	24.8

Source: Census of India

* A note by Dr. Malcolm S. Adiseshiah for the 19th Annual Session of the Indian Science Congress, Calcutta, August 16, 1991.

The table shows a certain degree of stability in the population percentages as between the 5 regions in the 8 censuses, with a trend to a decline in the central region and an increase in the western and eastern regions.

Science, Technology and Development

There is a close nexus between Regional Development, Science and Technology and Population to which attention is next drawn. The 5 regions referred to above have been further divided on the basis of (a) homogenity in demographic structure, that is, the impact of the demographic structure (density and growth rate of the population), (b) resource potentiality, particularly areas with a strong natural resource base as against those with a weak or nil base, and (c) the level of socio, economic development, into 19 sub regions grouped around three broad heads.[1]

First, the dynamic group (comprising the West Bengal sector, the lava area of Gujarat and Maharashtra, Tamil Nadu, the Punjab plain and Ganga-Yamuna doab area and the South Eastern Karnataka plateau, which feed developed industrial areas and urbanisation with science and technology inputs that both keep moving knowledge and information forward, and use and exploit all natural resources, for absorbing population from the over populated rural hinterland. Here there are endless possibilities for the application of science and technology to both better the levels of living of the populations and spread them out more even spatially.

Second, what is termed as the prospective group, comprising the north eastern area with its plentiful resources, the Godavari basin with its marine, weather, forest resources and more recently its crude oil and associated gas potential, the Aravalli hills and Malwa Plateau with its unique copper and zinc resources, the western and southern part of the Karnataka plateau including Goa noted for its iron ore, manganese, limestone, forests and hydel resources awaiting the development and the possibilities of application of science and technology for opening up its vast mineral and other resources, including the removal of the burden of tradition, superstition and inter-state feuds, holding up its technological and social transformation and pushing forward the small industrial and agricultural models and nuclei that have been recently established, and Third the problem group comprising Middle and East Ganga Plain which is deficient in almost everything, the Orissa and Kerala coast with their abundant marine, forest and hydel resources and the North East Karnataka, Rayala-seema, Marathwada and Konkan which have high potential of mica, limestone, manganese resources, facing in most areas poverty and destitution, the major reason for which is their over population expressed in their per km density being 3 or 4 times that of India as whole, along with a very weak and poor natural resource base.

Migration

Another issue that the question of population and regional development raises is with regard to migratory movements which are a spatial phenomena, involving movement and communication over space. Is there a model or pattern that can be derived from these movements? There are theories which suggest a standard pattern.[2] But those seem to be derived from metropolitan travel movements and industrialised countries. More generally, the spatial movements of a population are sparked by the desire for improved levels of living, rapid economic growth and a better physical and human ecology. Regional development arises out of the dispersion factor, the centrifugal elements in operation among the population. Migration which is both a cause and consequence of regional development is a fall out of the operation of both centripetal force leading to clustering of the population and its activities, and centripetal forces which lead to its dispersion. One is seen in the immigration into towns and cities and the other is seen in the outmigration from the rural areas. Regional development at any point of time is the net result of the pulls and pushes exerted by these forces. Applying these factors to a country, population movements are described as involving concentric rings around a growth pole,[3] or a homogenous plain with an even distribution of natural resources and population[4], or one comprising a heirarchy of central places from the lowest order to the highest order centres, involving the clustering of spatial activities, specialisation and division of labour among them.[5]

Spatial Planning, including migratory movements in India are the foci of population and region development. As earlier noted, migration - both in migration and out migration - is the outcome of people's desire to improve their standard of living, starting with earning a little more. The censuses contain abundant data on migration in the country. These show a certain stability in the total population involved in these spatial movements at around 30 per cent. Taking the 1981 census, which is the latest census for which migration data is available, it is seen that 166.7 million out of a total population of 548 million were involved in migration. The analysis of the 1971 and 1981 census shows that urban India is growing at 46 per cent, against the country's economic growth of 24.46 per cent. This trend will continue as the growth rate of the 4 main metropolitan cities between 1985- 2000 set forth in the table 2 shows:

TABLE 2

	Population in million				Growth rate (percentage)	
	1985	1990	1995	2000	1970-80	1980-90
Calcutta	11.0	12.6	14.5	16.6	30.0	32.0
Bombay	10.1	11.9	13.8	16.0	36.0	40.0
Delhi	7.4	9.2	11.1	13.3	49.0	55.0
Madras	5.2	6.1	7.1	8.2	36.0	38.0

Source: UN Estimates and Projections of Urban Population 1982.

The above table highlights the overall migratory movements in India and shows that it shares the characteristic migration pattern of underdeveloped countries. This rural-urban migration is determined by

- Cost factors : the cost of migration which varies with the distance to be covered from exist to entry
- employment and income perspectives based on information from relatives in urban areas, which itself may be based on rumour or guess work
- mental make up: willingness to take action on the lottery of urban like
- other socio, economic, cultural factors such as kinships, caste etc.

The major feature of this spatial movement is that the majority of the people on the move are in the middle adult age groups, with a low dependency ratio, comprise majority of males, are illiterate or semi-literate, with low level wages, skills, and productivity.

The 1971 ans 1981 census show that capital investment is heavily concentrated in some 20 urban agglomerations as against the majority of other towns. Migration flows in increasing volume to areas of low agricultural productivity, that is areas of high investment and tractorisation do not attract labour migration, whereas labour intensive traditional methods of cultivation encourages increased migration flows.[6]

The continuing and expanding rural - urban migration has given rise to slums, street sleeping and squatting. To deal with

or atleast ameliorate this problem, rural development involving accelerated growth of farm production, the further growth of non farm activities, the employment relief programmes and the land reform programme, programmes equalising or reducing inequality in income and assets distribution, and an effective education programme involving improved and high skill formation in rural areas, needs acceleration. At the receiving urban end, the informal sector and tiny and small scale sector can and do help the employment of the migrant labour force. There is need also to address the housing needs of the urban poor, of whom rural migrants are major part, through low cost housing, sites and services, and community development support.

A Research agenda

In this kind of spatial planning, population, and regional development, there are unanswered, unresearched issues to which attention needs to be paid urgently. These have been debated and attention needs to be paid urgently. These have been debated extensively.[7] Following this note, I would set forth the main issues thus:

- The measurement of gains and losses of spatial planning for regional development.
- The question of over urbanisation of the country
- The cost of continuing rural/urban migration in:
  - The misallocation of labour and human resources between rural and urban areas
  - The costs of providing the minimum infrastructural facilities for rural migrant in the urban area versus their provision back home in his rural home site.
- The need for area based technical education and applied science and technology in the rural regions to meet rural infrastructural and human needs.
- How science and technology application can deal with the intractable problem of rural under-employment.
- The Rural Development Strategy and population policies that would fit into various regional development problems and scenarios.

References

1. P Sengupta: Formation of Economic Regions by Population Characteristics and Resource Development in Population Geography, (Ed) K M Sundaram and Sudesh Nangia: Heritage Publishers, New Delhi, 1985.
2. W Isard: Introduction to Regional Science, pp39 & 40, Prentice Hall Inc. Englewood Cliffs. New Jersey, 1975.
3. JH Van Thunen: The Isolation State: Oxford University Press, 1966. - (A translation)
4. BJL Berry and A Fred: Central Place Studies: Philadelphia Press, 1963.
5. A.Losch. The Economics of location, New Haven, Yale University Press, 1954. (A translation)
6. State of India's Urbanisation: National Institute of Urban Affairs, New Delhi, 1980.
7. RP Misra, KV Sundaram and VLS Prakash Rao: Regional Development Planning in India, Vikas Publishing House Ltd. Delhi, 1974.

Book Review

Import Canalisation : Dilip K.Das, Sage Publications, New Delhi, 1991, pp.151, Rs.185/-

The above study commissioned by the World Bank has two basic focus viz., elucidate conceptual aspects related to import canalisation and canalisation as a policy instrument for Less Developed Countries (LDCs) than the Developed Countries (DCs). Secondly, it examines basic issues related to import canalisation with the help of a case study of India. The book has nine Chapters with 3 appendices giving details of various questionnaire on canalisation.

Chapter I is an attempt at elucidating the concept of canalisation. Functionally canalisation is a mechanism of import by the government sponsored organisations, when such an agency determines the goods to be imported as well as their price and quantity, imports are canalised. The author at the outset has admitted that import canalisation had evaded a neat and precise definition (p.15).

The distinction between import canalisation and free trade is also drawn. Under free trade regimes basket of goods to be imported is guided by profit motives led by the "invisible hand" and the price, quantity, direction of trade are also determined, whereas such manoeuvrabilities are limited for canalising agencies. These agencies are state owned, directed, managed or controlled. While public ownership is not a necessary condition, public control and management implies trade by bureaucrats.

The conceptual and theoretic part of the analysis pertains to Chapter II and III as well. The neo classical prescription of free trade and liberalised imports with a greater role for price mechanism is based on market forces to deliver the goods. This however in reality does not work as there is asymmetry in market power between DCs and LDCs and also among LDCs themselves.

Chapter III mentions that as long as canalising agencies import for the whole country they are bulk buyers in international markets and hence do possess monopsonistic transactional price

making powers. But surprisingly all of them do not exploit such power. The author has shown clearly why prices are lower in monopolistic market than under competitive situations (Fig.3.1, p.50) and the disadvantages of holding monopolistic powers in the domestic markets (Fig.3.2, p.51).

In Chapter IV the Indian case study is basically meant to critically evaluate the role of canalisation of imports in India with respect to the officially stated objectives: to desire benefits from bulk buying, implicit in them are the idea of improving terms of trade, benefiting from the scales of economies, ensure equitable distribution of scarce resources of imported materials among user industries both small and large that need them; eradicate malpractices of underinvoicing and overinvoicing in import trade; mop up large premia on imported items that arise from the scarcity of these items in domestic markets and enhance bilateral trade and payments with Centrally Planned Economies (CPEs). The canalised products selected for study are: edible oils, newsprint, natural rubber, iron and steel (pig iron), carbon steel, alloy steels); non-ferrous metals (aluminium, copper, nickel, tin, zinc) and steel scarp and sponge iron (p.57).

Chapter V discusses Indian canalisation process, organisation and modalities in detail. The State Trading Corporation (STC) is an autonomous body owned by Government of India and the powers are vested in the Board of Directors. The principles of specialisation in commodities for trade date back to 1963 and hence the Mineral and Metal Trading Corporation (MMTC) was created.

Chapter VI discusses the decision making process along with the various influences and control variables. Until *Perestroika* the CPEs had monopoly over trade. The free trade regimes in hard currencies of US, W.Europe, and Japan linked to India had implications for Indo-Soviet trade.

Chapter VII examines the specific experiences of major industries that were depended on canalised raw materials and inputs. India during 1930's was the largest exporter of *Edible Oil* in world markets and continued to do so till 1950's. Presently the trend is reversed basically due to higher domestic demand. Whether edible oil should be decanalised or the present policy should continue, the Vanaspathi industry is divided on this issue. In the case of *Newsprint* imports, the stringent procurement quotas were viewed as cumbersome and the task of stock management proved onerous.

For *Natural Rubber*, entry into international markets by STC was not considered as proper, as the practice was adopted only in the lean season, which need not necessarily be the period when international prices are lowest, and moreover buy only when the committee authorises them to do so. The large tyre manufacturers that import on advance and rep licenses frequently buy at better CIF prices than STC. In the case of *Iron* and *Steel*, imports through MMTC is different from other items and industrialists requisition is for number of heterogeneuous items made of iron and carbon sheets, low carbon steel sheets, cold- rolled, non grain oriented electric steel sheets, stainless sheet flats etc. Due

to variety of imported items unified price structure is not maintained.

In Chapter VIII the author has raised some questions regarding functioning, efficiency/inefficiency of the Canalisation process objectively. From Indian experience there seems to be little evidence of monopsonistic gains and benefit from scale economies mainly due to the small purchases from the stand point of international markets. In actual practice the foreign exporters to Indian Canalising agencies perceive them as "opportunity markets" (p.119) and the structure of international market for several commodities and raw materials is oligopolistic in nature. The decision making process of STC and MMTC has been curtailed by bureaucratic factors and business acumen tends to be replaced by risk-averse and procedure oriented approach in India. The empirical data however does not indicate economies of scale and trade with COMECON countries by STC and MMTC seems to be marginal.

Chapter IX is the concluding chapter and defines the policy options at hand.

However, the weakness inherent in the system has to be viewed in a global perspective. The lack of professionals suitable for expertise and specialised knowledge in import trade is only one aspect of the problem. Bilateral agreements and counter trade arrange- ments between DCs and LDCs and among LDCs, exists. Multilateral trade forum's like GATT and UNCTAD are forced to be bilateral in their functioning thereby catering to the needs of DCs themselves. This has implications for LDCs terms of trade and weaken their bargaining power considerably.

The author's plea for partial canalisation (p25) where imports are permitted by private houses or by user industries under the supervision of a pre-specified canalising agency has to be on a priority basis based on thorough study and scrunity to safeguard national interests.

The author mentions that in designing the study a reasonable indepth examination of a few product has been preferred to an essentially superficial and wide coverage (P.57). Accordingly products like crude oil and petro chemicals, fertilizers, synthetic yarns, rock phosphate and drugs have not been covered. Incidentally the above items cannot be ignored even though they involve complicated policy questions and canalisation is only a minor variable in the industrial policy relating to them as justified by the author.

The Indian experience being relevent in numerous LDCs which are presently groping with import canalisation issues (p 56) needs further study and analysis. Even within SAARC or ASEAN region, trade regimes are based on national priorities. Replicability of their role is a questionable proposition with socio/ economic and geo-political considerations playing a major role in both inter and intra-trade relations of these countries.

Whether canalisation has improved terms of trade; scale of economies, reduced unit costs of imports is indeed a difficult question to answer because the very definition and scope of the concept of canalisation is open to debate and

interwoven with the intricacies of the various political interventions and priorities of individual countries.

More attention on monitoring of the scheme and treating buffer stocks as a crucial price stabilisation mechanism and whether the desired results has been achieved in this direction through the process of canalisation is also desirable. Neverthless the authoritative work is indeed a significant contribution to the ongoing debate concerning trade policy regimes of LDCs.

The policy makers and bureaucrats in the field of international trade have a lot of home work to perform as several gaps in this area has been exposed by the author. The author has taken pains to criticaly examine the whole question of import canalisation from a policy perspective and the study has been one of the very few attempts in this direction.

V. JACOB JOHN

Problems Faced in Implementation of Rural Energy Projects in Gujarat and their Solutions

by

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Energy plays an important role in the life of rural and urban population. The rural population which forms about 78% of the total population in India, uses energy predominantly for cooking, water heating and space heating. Agriculture consumes about 12% of the total energy consumed. Gujarat Energy Development Agency (GEDA) was constituted by the Government of Gujarat in 1979 to promote renewable resources of energy. GEDA has contributed significantly to the development of the rural areas of Gujarat. Programmes have been chalked out to bridge the gap between energy demands and supply. Strategies of development of rural poor are often dependent on energy resources available locally. Presently the country is going through a serious energy crisis which can inhabit and strangulate the growth and development. It is estimated that by the end of the century, the chunk of the total energy requirements of the country will have to be met from new and renewable energy sources. GEDA's primary objective is to promote the hardware dependent on renewable energy resources. The main areas of thrust of GEDA's projects are solar, thermal, solar photovoltaic, wind pumping and wind turbine generators, biomass gasifier, biogas programme, rural energy surveys, urjagram projects, integrated rural energy programmes (IREP) and mass communications.

Detailed study of the energy consumption and energy resources

availability is a pre-condition to implementation of energy projects. Such a study was sponsored by GEDA covering 50 villages in seventeen districts belonging to different agroclimatic regions of Gujarat.

The study was conducted in 1981-82 jointly by Jyoti Consultants, Baroda, The Indian Institute of Management, Ahmedabad and Bhavnagar University. Jyoti Consultant carried out the survey work of Central and South Gujarat, Bhavnagar University, Kutch and Saurashtra and IIM was entrusted the survey work of North Gujarat. The consumption pattern included domestic activities (cooking, lighting, water heating and space heating) Agriculture, transport, industry and artisans. A total of 1334 households, large farmers and artisans were surveyed. A survey of 32 industries was also conducted as a part of the study. The study included assessment of the potential of locally available resources which can be used as alternate renewable energy resources. The end result of the study was expected to assess the gap between the demand and supply of energy in rural areas. All the the studies highlighted a common factor that the domestic sector consumes by far the largest proportion of the total energy consumed in rural Gujarat. On an average crop residues produced and total sold fuel used can be taken as an index of pressure on village forest lands. The deficit that remains in the villages varies from 13 to 80%. It was observed that forests can be a major source of fuelwood supply.

However if each district were to depend only on its own production of wood only one district (Banaskantha) could meet its need and have some surplus. It was observed that some districts like Mehsana which is almost devoid of forests could meet scarcely 10% of its need. With the increase in population and even increasing demand for fuel for cooking, measures like energy plantation, biogas plants, improved chullas, solar thermal devices etc. can only sustain the capability of the region to supply itself with the energy sources required. The studies indicated that the use of kerosene for cooking will grow. It is already being used as supplementary fuel in some of the villages surveyed. The quantum of energy used in lighting of domestic households were also surveyed in the three studies. Even after electrification, the study indicated that kerosene has remained a major source for the lighting need. It was noted that in agriculture sector water lifting and agriculture transport are the major energy consumers, and there is a big potential for energy savings. These studies identified the problem areas which needed attention on priority basis.

The main findings of the Rural Energy studies were as follows:

Priorities in rural energy sector - Gujarat State.

Total fuelwood needed per anum.	133 mil. tonnes
Available fuelwood	49 mil. tonnes
Energy gap	84 mil. tonnes
Availability of forest wood	20 mil. tonne
Net energy gap	60 mil. tonnes

This is an indicator of crisis to come in the face of growing population. The studies highlighted the average energy required for various activities.

1. Water heating	2.2 Kg/HH/day-wood
2. Space heating	43.60 Kg/HH/season -wood
3. Cooking Fuel	1-1.5 Kg/Capital/dy of - wood
4. Lighting	3.8L/HH/month of kerozene
	or 19-38KWH/HH/month electricity.
5. Agriculture-Men output	52 K Cal-Hr.
Bullock pair	52 K Cal-Hr.
6. Estimate of energy required for wheat cultivation	0.45-1.64 Mil K.Cal.Per ha.
7. Average yield of wheat	300-500/Kg/Ha

The studies confirmed the need to implement forestation in all government wastelands, forest lands, roadsides, railwaysides, canal side plantations, village common plots and periphery of private farm lands. The studies also indicated the potentials for gobar gas, for example North Gujarat has a potential of meeting 40% of calories required in cooking. As the rural energy survey studies were carried out by 3 different consultant agencies, problems in approach, methodology and reporting were anticipated. However, the objectives, methodology and other details were discussed jointly by the principal investigators and GEDA and diversities and variations were minimised. It was decided to bind the studies together in one volume so as to build a comprehensive uniform picture of the energy scenario in rural Gujarat.

In implementation of the rural energy survey quite a few problems for the investigators were presented. Further to identifying the 60 representative villages, ideally 10-15% of the population should be surveyed for the reliability of the results. These problems are solved by deciding on a norm that 50% of the population or 100 households whichever is greater shall be surveyed. The proportionate random sampling technique based on land holding sizes was applied. The sampled household consisted of landless labourer, small and marginal farmers, large farmers and artisans. Such a survey is not an easy affair and the target population had to be informed, taken into confidence and educated regarding the objectives of the studies. In all the three studies of voluntary agencies which were already working in the area were involved. These agencies made it possible to get cooperation for the enumerators when it come to the household surveys. The presence of a person representing the voluntary agencies ensured that the householder answered the question in the survey seriously and truthfully. Participation of the rural population is extremely vital in such surveys.

Participation in this joint assessment of local situation through voluntary agencies also helped to promote our programme philosophy. People were made aware about the energy crisis and the possible solutions. The issues of socio-economic

development of rural areas through planned energy inputs were also discussed with the villagers. Energy survey studies have highlighted a good deal of commonality in the energy consumption patterns in domestic agriculture, industry and artisan sectors in the rural areas. Based on the information obtained, GEDA has planned decentralised, area specific, energy packages utilising locally available renewable energy resources. GEDA has also realised the relevance and importance of tackling the energy problems in an integrated and comprehensive manner.

The Department of Non-conventional Energy Sources (DNES) Ministry of Energy, New Delhi and GEDA are equal partners in promotion of renewable energy resources to minimise the energy crisis in rural Gujarat. Voluntary agencies who are involved in the implementation of the programme and the villagers have also been made to share the responsibility of achieving the goals of GEDA/DNES with meaningful impact.

Integrated rural energy centres (Urjagrams) were some of the primary projects of GEDA. The agency made efforts to satisfy the energy needs of village by generating energy locally in a decentralised fashion using the locally available resources. GEDA presently has 31 Urjagrams all over the state of which 14 can be called full-fledged. One such Urjagram Khandia, was set up in 1983. GEDA, Gujarat Electricity Board (GEB) DNES and Khandia Gram Vikas Mandal were the partners in this experiment. The lighting energy needs of more than 100 households and cooking energy needs of 47 households were satisfied by means of biogas.

A community colour television working on photovoltaic and a solar water heating system were provided for the community use. Improved smokeless chullah was provided to each household. Electricity was generated using a gasifier engine generator set.

30 (KVA) and electricity was supplied for domestic consumption and street lights. On an average electricity was supplied for about four hours a day. A community biogas plant of 60m3 capacity supplied piped gas to those who opted to use biogas for cooking and water heating. Nominal charges were collected for the electricity and the gas consumed. GEDA and a voluntary agency Bhailal Amin Trust shouldered the responsibility of the operation and maintenance of all systems for about 2 years. In 1985 Khandia Urjagram was dedicated to the people of the village and Khandia Gram Vikas Mandal took over the operation and maintenance of the project. Khandia Project posed many problems from time to time. It was realised that the maintenance of the engine, generator, gasifier and distribution lines needed trained, competent persons. Efforts were made to train local youths in carrying out such duties. We were successful in minimising some of the problems. However major repairs had to be brought to Baroda. Some of the repairs took a long time and this period without much needed electricity brought about complaints from the villagers. This problem was solved by installation of a stand by spare gasifier

engine generator set. This corrective measure brought about some relief. 2 years of experience in operation and maintenance of the system taught us that regular servicing and maintenance of the engine generator is essential. We signed service contracts with a diesel engine mechanic and an electrician to service the sets after every 300 hrs of usage. However problems of breakdown continued. Maintenance of a diesel engine generator in a village far away from a city is a difficult proposition.

Especially during the monsoon months the village could not be reached by road. Heavy loads could not be carried to and from the village. These conditions caused breakdown in regular supply of power. The dissatisfaction of the villagers grew every time there was a disruption in supply. It was decided that the village may be given some photovoltaic street lights which would light the streets into early hours in the morning. The solution made quite a difference. The streets were lit up and brought a feeling of safety to the villagers. However the Gram Vikas Mandal failed to live up to its responsibility and people misused the batteries meant for photovoltaics, to play public address systems etc. Due to the misuse and careless maintenance photovoltaic lights were often out of use. The Gram Vikas Mandal could not collect bills for the electricity consumed and the gas used for cooking. To add to all these problems, the nature cursed Gujarat State with 3 years of drought. The anticipated income from the energy plantation disappeared in thin air due to drought conditions. GEDA came to the rescue of the farmers when the village well etc. dried up and drinking water supply almost dwindled. Two borewells were sunk by the agency which brought about a sigh of relief as water was made available for the human and animals. One of the borewells had a submersible pump which was energised with electricity. The other well was installed with a turbine pump which was attached to a gasifier diesel engine system. Both these systems provided some surplus water which was used to grow the much demanded green fodder for the live stock. The drought conditions continued for such a long time that most farmers were unable to feed their animals. The population community biogas plant had to be closed down for the want of dung and water.

Khandia has been a great learning experience for GEDA, the villagers, GEB, DNES and all the development workers. Khandia project highlights the socio-economic and institutional issues involved in implementing rural energy programmes. The primary lesson learnt from Khandia is the fact that the best high technology implemented to solve the rural energy crisis does not give the desired impact if the population cannot afford the technology. Provision of energy to rural areas is only a means and not an end in itself to rural development. Provision of energy alone does not solve some of the most taxing problems in rural areas. However, an entry into a village on pretext of providing energy, quite often brings along other need based technology along with it. Increasing the purchasing power of the villagers is the priority of the day. Often supply of drinking water is perhaps more of a priority than the energy required for lighting houses etc. People of Khandia were not quite responsive to accepting

piped, clean and easy to light biogas fuel. Our assumptions that people will readily accept this fuel in preference to burning wood was not correct. The villagers could not be convinced to pay for the piped gas fuel. Most of the villagers were getting firewood free of cost and they expected the biogas to be supplied free of cost as well. They did not put any opportunity cost on the time spent by women in collection of firewood. Unfortunately, Khandia was given so much of publicity in terms of taking VIP visitors to see the project that the villagers started treating this project as GEDA's project and not their own. They quite often verbally expressed their feelings openly. This sort of feelings was also a reason for non- cooperation of the villagers. The villagers felt that in trying out new systems of renewables, we had deprived them of the commercial source of energy. Active participation of the beneficiaries in the programme designed to bring about their development is of utmost importance in achieving positive results. GEDA's all efforts to make people participate in one or other income generating activities failed. Ambar Charkha, plastic bag making, poultry farm, dairy farm, seed plots etc. did not succeed. The major activity in which the villagers participated actively was the loan of quality seeds and fertilisers. The Khandia Gram Vikas Mandal distributed these commodities at 50% of the cost with a condition that the farmer will pay the remaining 50% balance after the harvest of crops. Actually this system did not work well as only those farmers who had some water resources of their own could produce crops. More than 80% of the farmers produced meagre yields and could not pay up their loan amounts. Water resources are the top priority for the farmers and any development activity which ignores this reality will fail to have the desired impact. It was observed that the Khandia population did not have the desired cohesiveness and linking for the communal services. Individual selfishness and vested interest usually came in the way whenever some new developmental activities were planned.

Khandia project has highlighted the fact that cooperative infrastructure is an absolute necessity for the operation, maintenance and day to day management of a project. Participatory approach to projects is the only way to make projects self sustaining and viable. Most hightech projects will not have the desired impact if it is not made appropriate to the local situation and acceptable to users. Our role as management, technical back up support unit should not be underplayed. Our systems must be technically reliable and the users must have full confidence in us to help them out in the time of breakdown and crisis. A project can fail for the lack of after sales service. An integrated approach is a must in promotion or Urjagrams. Villages have to be energised and not just electrified. Economic and other priorities of the villagers should also somehow be addressed.

Khandia experience was quite useful in implementation of another Urjagram, Methan, taluk Siddhpur District, Mehsana in 1967. The implementation of this project was planned in such a way that active participation of the villagers was given the top most priority. Methan Urjagram started as a community biogas project and later on it was declared as an Urjagram with the

implementation of improved chullahs, solar cookers, photovoltaic lights, improved bullock carts and energy plantations. The unique feature of this Urjagram is the monetary contributions of the 320 consumers of biogas adding upto more than Rs.120 lakhs. Secondly, the consumers took a vow to loan dung to the biogas co-operative and accept slurry fertilizer in return. More than 80% of the energy need of the village is being satisfied by biogas fuel which on an average is supplied for 6-8 hours per day. The village co-operative has managed, operated maintained and repaired this project since APR 1987. This is an example of true participation of people in running their own affairs. The society on an average generates an net surplus of Rs.15000 per annum. Bonuses have been distributed to the members of the co-operatives for the years 1988-89-90. Energy inputs in the form of easy to ignite, smokeless piped fuel has contributed to improving the quality of life of the women folk of the village. The slurry fertilizer rich in Nitrogen, Phosphrous and potash has helped to yield more crops and augumented farmers savings. This project on an average creates equivalent of 1 lakh mandays by direct or indirect employment. This is an example which highlights self reliance and economic viability. All development projects including energy supplementation if planned properly with the active participation of the beneficiaries succeed in making the rural population self reliant and economically capable of running their own shows.

In the year 1988-89 Urjagram Kalyanpura was implemented with a 4KW photo Voltaic Power Plant to satisfy the energy needed for lighting of the houses and the streets. This power plant energises 110 domestic lights, 16 street lights and energises a television set for 3 hrs. a day. Kalyanpura is a small village in Anand Taluka of District Kheda. The village has a population of about 300 persons with 57 households. All the houses are made smokeless with improved chullahs, 4 households have 2M3 family biogas plants and 6 more families have shown interest in having bio-gas plants. An improved bullock cart, 5 Gasifier Engine Pump Sets, Solar Cookers and a Solar Water Heating System have been installed initially. Energy inputs in the form of lights, television, biogas plants and improved chullahs have improved the quality of life of the villagers. The housewives are very happy with the latest scientific gadgets to help them in cooking and the television to provide them with entertainments and news. The women of Kalyanpura breathed a sigh of relief with the installation of Gasifier Engine Pump set on the Village well. The drudgery of pulling buckets of water from a 70ft. deep well has been eliminated from their life with the help of appropriate energy inputs. This project, like Methan Urjagram was planned with the active participation of the villagers. The villagers were informed about the project right from the stage of planning. They were asked to commit themselves in co-operating all the way in the implementation of the project. The co-operative infrastructure was created in the village and nurtured to such a level that now they are able to manage, operate and maintain on their own. Light bills are collected by the management committee of the society. The enthusiasm of the villagers in their own development surfaced when the

co-operative society requested us to do the needful to establish postal services, bus services and a co-operative milk society in their village. We saw this as an opportunity to win the confidence of the people and went out of our way to get postal services and established a co-operative milk society in the village. Integrated approach to solving the energy problems of the rural population is definitely the effective way of implementing projects.

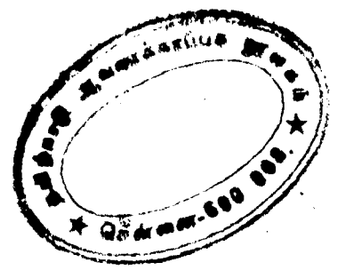
Recently an additional 4KW photo Voltaic Power plant has been implemented to provide lighting for longer hours and create some scope of use of fans. The villagers have requested for a 1000 ltrs. per day of solar water heating systems to satisfy their needs for hot water. A plan has been worked out for this as well. GEDA plays a resource person role when a project is handed over to a village based co-operative society. Efforts are made to train the villagers to carry out small repairs and maintenance. Villagers are also trained in management of the day today problems in operation of the system. GEDA staff remains as a member of a coordinating committee established in the village. A continuing contact is maintained with the project and whenever the villagers call upon our services, regardless of day or night a resource person reaches the villages to solve their problems. Technical breakdown in the systems have often created social sparks in the community. A continual backup support system both technical and in management are essential recipe for the effective operation of a project. Uptodate GEDA has received sanctions for 31 Urjagrams out of which 14 have been implemented.

Unlike Urjagrams Integrated Rural Energy Planning Programme (IREP) is a macro level planning of Energy inputs for improving the quality of life of rural population. IREP aims at block level planning. Our experience in IREP projects is limited to implementation of hardwares in 15 blocks in Gujarat. Efforts are being made to involve agencies like the Forest Department, District Rural Development Agency, Rural Electrification Corporation etc. GEDA has relied quite heavily on voluntary agencies in implementation of IREP programme. The voluntary agencies have worked as a two way channel between GEDA and the beneficiaries. The involvement of voluntary agencies has solved the problems of identification of beneficiaries, collection of contributions, implementation of hardware, operation, maintenance and training of persons at the village level. Voluntary agencies have also acted as a channel for providing feed back on GEDA's projects. Improvised motorised potters wheel was a result of the feed back received from one of the voluntary agencies. Some voluntary agencies have also helped in developing appropriate measures in stopping rain water seepage into houses from the chimneys of smokeless chullahs. It is very difficult to ensure that the benefits of development project reach the real needy, economically backward people. This problem has been solved by involving voluntary agencies working locally. GEDA has been able to deal with the socio economic and institutional aspect quite effectively by involving almost anyone who is countered with the development of people. Energy policy for planning is constantly changing, given the diversity of energy related

problems, diversity of solutions are called for. GEDA's endeavour will be to focus its attention on the future to come.

During 1991 GEDA has implemented one of the highest capacity wind based power plants. A 10 MW wind farm was inaugurated in the current year at Lamba in Junagadh district. In Energy Plantation 2500 Ha. Wastelands in District Kutch has been initiated. The state of Gujarat continues to maintain the lead over other states in popularisation of solar thermal systems. During the year 1989- 90 GEDA installed 213 large capacity solar water heating system with an installed capacity of 3,555, 400 lts. per day and 1000 domestic solar water heating systems with an installed capacity of 1.62, 100 ltrs. per day. These accounts for 25% of large capacity and 70% of domestic capacity systems installed in the country, these systems are expected to save approximately 0.55 crores unit of electricity for 0.08 crore liters. of furnace oil or equivalent of 5175 tonnes of fire wood annualy. In the field of energy conservation, 5,000 agricultural pump sets were rectified in the year 1989-90. These measures will result in saving of 0.04 crores litres. of diesel and 0.33 crores KWH of electricity.

The work of popularising improved chullahs have been continued in collaboration with voluntary agencies. During the year 1989-90, GEDA has implemented 63,034 improved chullahs making 109 villages smoke free. This programme has created a big potential for self employed workers. GEDA as a policy decision, trains local youths to operate, maintain and provide feed back on our systems installed. This has contributed substantially to employment generation in the rural areas.



Energy Use in Agriculture : Efficacy and Sustainability

by

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Energy and Agriculture

Traditionally agriculture has depended more on free energy subsidy than any other sectors of modern economy and its share in national energy consumption has been quite low. In spite of technology generation and adaptation, effective energy consumption by that sector remains at around 6 percent in both the developed and the developing countries with slight variations. But if the food sector is considered, energy consumption by the developed countries soars up to over 16-17 percent of total energy consumption, the developing countries showing a share of something between 8 to 12 percent. This is obvious from the fact that food processing and processing technology are either under-developed or that the food habits are slow changing. For example, in the United States, food system consumed about 17 percent of nation's energy, processing and distribution accounting for about 85 percent of that. Crop production consumed only about 2.5 percent of total energy.[1]

In the developing countries like India, energy consumption by agriculture has been increasing at a faster rate owing to modernisation tendency. Its share increased from one percent in 1953-54 to 2 percent in the sixties, 3 percent in the seventies and over 6 percent in the eighties[2] The introduction of seed- fertilizer technology coupled with increased electricity consumption for irrigation and tractorisation resulted in the marked increase recently. Moreover, the policy to produce more without recourse to social and environmental effects speeded up the consumption of commercial sources of energy with little development of non-commercial sources which have sustained crop production since long. It is estimated that food system as a whole consumes around 10 percent of energy consumption. A sad trend is that the estimated energy consumption by the agricultural sector in the year 2000 AD will linger around 6 percent.[3] Except a marked increase in electricity consumption, increase in oil, coal and other commercial sources would not be substantial. That gives the non-commercial sources a prime role to play in sustaining adequate energy for agriculture for a long time to come.

Agriculture is both energy-producing and energy consuming, the former aspect assuming a greater role due to free energy subsidy obtained through solar radiation, soil, rainfall, temperature and the specific agro-climate. Crop and animal production in terms of alimentary calories would outweigh the inputs in energetic terms directly and indirectly. If direct energy is imputed it could be in the nature of seeds, manures and chemicals, machinery, oil and electricity consumption, human and animal labour input and so on. If indirect energy is to be accounted, energy expended in seed, fertilizer, chemicals, machinery and other inputs manufacturing is to be considered. Also, when energy for processing and distribution is included, the system would envelope a greater degree of energy equivalence.

Indian agriculture has traditionally depended upon non-commercial sources of energy including biological, for sustenance. According to a study,[4] 77 percent of energy consumed by agriculture in 1971 was shared by bullock and human labour and commercial energy like fertilizers, electricity, etc contributing for the rest. During the eighties, the share of commercial sources of energy used by agriculture increased substantially but still the contribution of non-commercial sources was significant, though declining over years. Of the total commercial fuels, agriculture consumed only 2.9 percent[5] the remaining 3 percent contributed by non-commercial sources. According to a national survey, the contribution of commercial energy would go upto over two thirds by the end of the century.[6] Still agriculture would be left with a low energy intensity when compared to other sectors. Interfarm, the variations would largely depend on the nature of irrigation, quality of seed, usage of synthetic fertilisers and energy intensive plant protection chemicals. It may be pointed out here that the initial pace of increased fertilizer consumption witnessed during the early eighties has greatly subsided especially in years of unfavourable monsoon. It has been estimated that fertilizer consumption by the close of the century would be only at the 1980 world level and this also depends on the import capacity and other factors. A decline in the contribution of human and animal labour and a substantial increase in the contribution of irrigation pumpsets and agricultural machinery was foreseen[7] but it is doubtful whether the targets especially in respect of machinery could be achieved. There has been a tremendous increase in the installations of pumpsets which has necessitated an increased share in electricity consumption. Ineffective irrigation, low level of chemical consumption and other factors would compel productivity gains not to be attractive. This goes to prove that unless crop production becomes modernised with increased energy intensity, substantial increase in productivity would not be achieved. When the scope of commercial

energy is limited to agriculture, the attention naturally moves toward renewables to sustain the pace of agricultural growth.

The Role Renewables In Agriculture

Unlike the fossils which have limited but direct use as fuels, renewables have multiple uses and can be used indirectly or with low thermal efficiency only. Conversion would ofcourse demand higher energy intensity and technology best suited to the purpose. There are successful cases of solar and hydro power being utilised in different levels and types. Agriculture predominantly ruralised, performs well under conditions of full integration of different renewables and also commercial fuels in the rural system. Attempts to integrate the use of biogas, improved cookstoves and social forestry so that a larger share of renewables is made available to production have also been made with adaptations from other models. Since different sectors in the rural system are interconnected, energy use in one affects the other in so much so energy efficiency can be achieved only if it is throughout the sectors. The very fact that non-commercials dominate the rural system alludes that all the rural sectors suffer from inadequate and inefficiency in one sector will automatically lead to better effectiveness in the other. In this regard, it would be agriculture rather than the domestic sector which has to show the way.

Agriculture being both energy producing and consuming, it can consume a part of its production as in the case of organic compounds. Fertilizers and better quality seeds, along with labour-saving quick intensity methods would demand external and higher energy intensity. Crop and animal residues can be used as fuel, manure or for other purposes. If these show increased production, the fuel problem of the domestic sector could be contained to a large measure, for firewood, the fast depleting resource has to be substituted by other renewables or commercials for a long-term development process. Several estimates have been made as to the proportion of crop and animal residues that can be used as fuel or fodder.[8] Their availability can be increased through a complete shift to modern agriculture, meaning not only a fusion between modern and traditional methods of production and processing but also a sustainability without endangering the existing population of species, environment and the like. Given the limitations of energy intensity how best an energy shift would yield an optimal net energy productivity and biomass production. What structural changes have to take place for a better mix of foodgrain and cash crops, export crops and products, agroindustrial and energy plantations. Again, how the negative impact of residue burning, use of cattle dung, pesticides, fertilisers and other effluents in the system could be minimised. These and several other questions will bother for a long time to come. The dilemma is that if commercial energy intensity is not increased substantially, agriculture will suffer but a slowing down of the intensity would aggravate the crisis even more. Without realising a higher intensity as the developed countries, the developing countries seem to face the

negative problems of the former in such a short span of time.

Energy use In Micro-system

Energetics has little significance in agriculture owing to more than 99 percent of energy coming from the effects of solar energy. Yet to the extent the commercial sources of energy are being used and to the extent the renewables become scarce, the analysis would throw light on the importance of different inputs, differing levels of energy intensity and the relative sustaining capacity of the inputs. With this view, energy equivalence was attributed to different inputs based on their alimentary calorie value as in the case of seeds, energy (direct and indirect) in the organic and synthetic nutrients or actual consumption as in the case of electricity and other inputs. The study relates to some 175 households spread over the Udupi block of Dakshina Kannada district of Karnataka during 1988-89. An attempt was made to find out the energy intensity across different farms and energy efficiency in terms of a ration. Udupi is a heavy rainfall region with over 35 percent of irrigation and having about 33 per cent of net sown area under cultivation at a crop intensity of 1.4. Being a coastal taluk, fishing is an important activity besides agriculture. The taluk assumes importance owing to the launching of the integrated rural energy programme. The objective was to find out how far the programme has enabled improvement of the energy situation in domestic sector. Indirectly, that should also enable a better agricultural base which would benefit from such an integration. In the taluk high yield paddy (60% of the paddy area), cashewnut and coconut are the main crops. Most of the farmers would be having some paddy land, some coconut trees, chashewnut trees besides other crops.

Table 1 highlights the energy consumption pattern across different farmer g roups for all the crops combined. The energy intensity has been expressed in terms of joules. Energy productivity in terms of the ration of output energy to input energy has been worked out for comparision.9 It may be pointed out that the region is not an energy intensive area like Mandya and offers a moderate level. Among the different categories of farmers little difference is noticed, but it is the different levels of input energy that is striking. Seeds on an average share 3.6 percent of energy intensity, marginal farmers having a slightly higher proportion. The share of organic manure is 10.5 percent, the medium, small and marginal farmers having a higher share. It is the chemical input consisting of synthetic fertilisers, micro-nutrients, artificial soil amendments and plant protection chemicals that has the highest share in the consumption level ranging from 31.8 percent in the case of medium farmers to 35 percent in the case of artisans, service and business households and labour units. Next important input is labour, a combination of both human and animal labour. In the region, buffalo ploughing is most common and crops like arecanut are very labour intensive. The average share is 20.2 percent, showing variation from 18.5 percent in others to 21.8 percent in small farmers.

Irrigation accounts for 8.1 percent of energy, the share being higher for the big farmers. Irrigation in the region is resorted only in the non-monsoon period and the intensity varies according to the crop intensity. Though in value terms the share would be quite less, in energy terms the tendency shows one of increase. Other inputs like tractors and power tillers, supervision, transport and storage and home processing consume considerable amount of energy ranging from 20.3 percent in the case of marginal farmers to 25.9 percent in the case of medium farmers.

Total energy consumption per hectare works out to 13.6 gigajoules. The per ha intensity is higher in the case of marginal farmers with a total of 14.5 GJ and the others group has the lowest intensity of 11.3 GJ. The big and medium farmers have a relatively lower energy intensity than the small and marginal farmers. Paddy was the major crop raised followed by coconut, arecanut and other crops. In energy intensity, paddy leads other crops especially in the case of manure and fertiliser consumption, irrigation, etc.

The energy ratio expressed in terms of input and output energy shows that the medium and small farmers register a ratio of 2.4 net (main production) and 4.5 gross (including byproducts), followed by the big farmers. The marginal farmers and others register a lower ration. Energy analysis of this sort has little meaning unless compared with the economics and regional suitability of the production base over years. Risk factor may demand a shift to less problematic crops like coconut or arecanut than paddy in which case neither economics nor energy would hold the sway.

Conversion of inputs and outputs into common energy measure has its own problems and different methodological criteria are being adopted to measure different fuels and inputs. Direct and indirect energy consumption consideration influences much in this.[10]

Efficacy and Sustainability

A lot of controversy as regards the sustainability of developed as well as less developed agricultural system is being generated and the movement toward organic, bio-dynamic and sustainable agriculture mooted out in both the systems. When the ills of chemical technology was discovered on the system equilibrium and on the environment, lowering of the technology intensity, going back to traditional type cultivation system (where the energy ratio is the highest), reduction of livestock production which consumes higher energy than crop synthetic fertilisers and plant protection chemicals that are dangerous to living organisms, etc have been advocated and adopted. The rate of adoption of the so- called more sustainable agricultural system may not be even one percent, but the movement is gaining ground. Perhaps, the ills of modern agriculture are not severe as those of industry, transport or thermo-nuclear energy.

Energy mixes which can sustain the growth of agriculture and at the same time be efficient have been tried under several agro- climates. For example, the concept of sustainable agriculture reconciles with inorganic agriculture concept partly in that, since complete avoidance of chemicals may aggravate the pests and diseases problems and that without synthetic fertilisers, organic amendments would be very costly and highly impossible. Hence chemicals have to be applied for obvious reasons. Only in a total non-chemical system that complete biological agriculture will have meaning just achieving self-sufficiency and nothing more.

Increased energy intensity under Indian conditions has to safeguard not only increase in productivity but also in employment, equity, environment stability and other conflicting objectives. It may be that all the objectives may not to be achieved all at once but depending upon the priority of the objective. The major thing to be visualised is that the depleting energy sources are conserved focussing on the renewables. This issue will be debated until the time the renewables become competitive and efficient.

Sustainability can be achieved by integrating the different energy sources in

TABLE 1

Groupwise Energy Consumption in a micro-region (1988-89)

Farmer Group	Land area (ha)	% of irriga-ted	Seeds %	Manure %	Chemi-cals %	Labour %	Irrig-ation %	Others %	Total (GJ/ha)	NetER (Ratio)	Gross ER
Big Farmer	6.10	51.0	3.5	8.2	33.8	19.5	10.6	24.4	12.6	2.33	4.33
Medium Farmer	2.95	48.5	3.2	10.2	31.8	21.0	7.9	25.9	13.4	2.41	4.45
Small Farmer	1.31	57.5	3.7	11.8	33.5	21.8	8.7	20.5	14.0	2.40	4.51
Marginal Farmer	0.63	60.0	4.0	12.5	34.5	20.7	8.0	20.3	14.5	2.06	4.00
Others	0.21	50.0	2.8	6.5	35.0	18.5	9.5	27.7	11.3	2.21	4.11
Average	1.62	55.0	3.6	10.5	33.3	20.2	8.1	24.3	13.6	2.34	4.32

Notes: GJ = 10^9 joules; Energy Ratio (ER)= main (net) or gross output energy + input energy;

Energy equivalence @ MJ/kg : Seeds 14.6, manure nutrients 28.6, combined fertiliser nutrients and plant protection chemicals 32.8; human labour 6.6/day, animal labour 21/day, irrigation 2.2/cu.m (@ 50% share by IP sets for total irrigation) and machinery according to break-power.

Seeds include combination of different crops; other inputs include machinery, supervision, home processing, transport, storage and miscellany.

Total sample size was 175, distributed as 10, 40, 50, 55 and 20 as per the above groups. The micro-region refers to Udupi block of Dakshina Kannada district of Karnataka. Apart from the 4 farmer groups, others include labourers, artisans and service households.

the rural system as such, by devising proper measures as to quick-yielding vs long-enduring processes of conversion, by diversyfying the rural system to lay greater emphasis on cash crops, export crops, improvement of agro-industries and by selective policies aimed at development of both commercial and non-commercial sources of energy.

Among different types of energy, development of biogas and integrating it with livestock, cookstove and forestry resources would pave way for increased release of residues for crop production and better quality energy in manures and household fuels. Electricity ofcourse has to be made available in a larger quantum to the agricultural sector so that the pace of irrigation development is speeded up. Renewables no doubt can plan an important role but whether agriculture can hope to depend upon them fully is open to question. Renewables are not energy sources per se and the hope should lay on perhaps utilising the abundant solar energy and ocean energy. In the region of the sample study, tendency was noticed that the integration process would take its own time and the problem of efficiency and stability may not assume due importance as they are not the immediate basic needs.

Notes

1. RP Poincelot. **Towards more Sustainable Agriculture,** Avi publishing co, Connecticut, 1986, p.34

2. As calculated from the Report of the working group on Energy Policy, Planning Commission, New Delhi, 1979

3. As calculated from Energy Requirement in 2004-5, Advisory Board on Energy, New Delhi, 1984

4. R Ravelle, 'Energy Use in Rural India' **Science,** 1976, pp969-75

5. Tata Energy Research Institute. 'Tata Energy Data Directory and Yearbook', New Delhi, 1988, pp 14-27

6. As per the estimates of Working Group on Energy Policy, New Delhi, 1979

7. Report of the National Commission on Agriculture, 1976, vol X, chap 50

8. D Lahiri and R N Chattopadhyay, 'Rural Energy-Agricultural Interactions: Case Study of West Bengal State', Rural Development Centre, IIT, Kharagpur, 1991 cite ranges from 25 to 35% of crop residues and animal dung as use for fuel.

9. For issues regarding energetics, see C R W Spedding and J M Walsingham. 'The Production and Use of Energy in Agriculture', **Journal of Agricultural Economics,** 1976, vol.27 no 1, pp 19-30

10. For methodological issues and comparative energy consumption data in agriculture, see T K Molik et al. 'Energy Demand Forecast for Agriculture in India', **Economic and Politictal Weekly,** December 29, 1990, pp.A-165-75

Some Problems in the Implementation of Strategies for Managing Energy Demand in the Rural sector

by

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Summary

Energy, in different forms, is a pre-requisite, not only for basic minimum needs, but also for economic development, of our rural and remote populations. A large proportion of these population is very poor and cannot afford to buy commercial fuels. The decentralised energy systems offer possibly the only means of providing an opportunity for them to participate in the national development processes. At current levels of development, renewable sources of energy may play only a limited role in the global scene, but their importance at the local level should not be under-estimated. The objectives of investing in the development of improved renewable energy technologies are manifold, and a wide range of technological options is available for exploitation of renewable energy sources; the economic viability, in many cases, however, has not been established yet.

The indigenous R and D needs are principally dictated by two factors: the gaps observed in the levels of technology development and utilization in the national and international scene; and the relevance and priorities taking into account our context and needs.

The area of DES is extremely vast, and has the potential of improving directly the living standards of rural or isolated populations. Since the choice of systems is also wide, unless efforts and resources are focussed, the plans will not yield the desired results.

The agencies for planning, implementation and monitoring the DES programmes are identified, and some recommendations covering both technological and economic factors are offered for effective implementation of the strategies for managing energy demand, particularly in the rural sector.

1. The Role of Energy in the Rural Sector

The majority of our population lives in rural areas, with at least 25% living in small remote villages. Energy, in different forms, is a pre-requisite, not only for basic minimum needs, but also for economic development. The prospects for improved living conditions, leading to a better quality of life, depend to a large extent on the availability and exploitation of energy resources. The contribution of energy availability would be to raise the standard of living, and to generate employment by providing basic energy requirements for agriculture, local industry and for domestic purposes.

Rural energy needs are primary for domestic purposes, such as cooking, lighting and heating; motive power for agriculture and light industry; transportation; construction; services; and communications. At present, approximately 90% of the rural energy supply comes from non-commercial energy resources, such as firewood, charcoal, animal dung cake and crop residues. A large proportion of the rural population is very poor and cannot afford to buy commercial fuels, such as coal/coke, kerosene, LPG or electricity. In spite of committed efforts by the Government for rural electrification, extending the grid to remote and isolated villages is extremely cost-ineffective because of the enormous transmission and distribution losses.

2. Decentralised Energy Systems as a Strategy for fulfilling Rural Energy Needs

Under the circumstances discussed in the earlier section, decentralised energy offer possibly the only means of providing an opportunity to the rural populations to participate in the national development processes. Decentralised Energy Systems (DES) may be considered to refer to the fulfillment of at least some of the energy needs (of essentially isolated and remote populations) by means of locally available energy resources.

Their effectiveness can be maximized by suitably matching the quantity and quality of the energy needs with an optimal mix of available energy resources.

In principle, DES may include non-renewable energy systems leading to, for example, captive power generation, independent of grid power, but by and large, they involve renewable energy sources. In the context of energy for rural development, these are the principal focus of attention. Among these, in the case of flux type of resources, the concern is for efficient utilization, whereas in the case of 'stock' or 'capital' or 'material' type of resources, such as biomass, biogas etc. the problems of cultivation or production and of utilisation have to be tackled.

3. Technological Options for Exploitation of Renewable Energy sources

At the present levels of development, renewable sources of energy may play only a limited role in the global scene, but their importance at the local level should not be under-estimated. The objectives of investing in the development of improved energy technologies for the cultivation and utilisation of renewable energy resources are :

* to manage these resources more efficiently
* to increase the energy base, for overall increase in productivity in different sectors of economic development
* to minimise environmental degradation
* to reduce drudgery and human labour
* to extend the finite supplies of non-renewable energy resources.

Quantitative prediction of demand for different types of renewable energy equipment is extremely difficult in view of the fact that they are intended primarily to satisfy the needs in the unorganised non-commercial sector. Extrapolation of per capita electricity or non-renewable fuel consumption figures would be unrealistic. Furthermore, the economic and even technical viability of many of the DES are yet to be unequivocally established, and the production volumes would be dictated by the success achieved in field use and the subsidy policies. It is necessary to encourage private enterprise through suitable schemes for propagating successful devices.

4. Classification of Renewable Energy Sources suitable for Exploitation as DES

4.1 Solar Energy

Solar Energy is by far the most abundantly available renewable energy resource.

*** Solar Thermal Energy**

While the technology for the use of solar energy in space heating and water heating is sufficiently well-developed for application on a large scale, it has not achieved economic viability or convenience in use.

*** Solar Photovoltaics**

Direct conversion of solar energy to electricity by means of photovoltaic devices has the following characteristics: high reliability, low maintenance requirements, no fuel costs, modularity, intermittent output without storage, and continuous output with storage. The disadvantages are the low conversion efficiency and the inability to use (electrical) storage.

Electricity is not only one of the most versatile forms of energy, but also unsubstitutable for some applications, such as TV, radio, telephones, etc. The availability of electricity in the rural areas can bring about significant improvements in medical facilities, communications, education, etc.

*** Solar Passive Architecture**

Passive systems exploit the orientation, design and constituent

components of the building so that the energy collected by the building is distributed by natural draught and fans for maximum thermal comfort. This design strategy can be very cost-effective and environmentally beneficial.

*** Biogas**

There is a wide range of organic material with potential for biogas generation: drop wastes (such as weeds, straw), wastes of animal origin (such as cow-dung, poultry litter, fishery wastes, wool wastes), wastes of human origin, by-products and wastes from agriculture-based industries (such as twigs, bark, branches, leaves) and wastes from aquatic growth (such as water hyacinths, marine algae, seaweeds). The potential use of biogas in the domestic sector is for cooking, lighting, hot-water heating and space heating. Additionally, it can also be used in gas-burning appliances, internal combustion engines, water pumping and generation of electricity. The residue of undigested materials leaving the biogas plant is an excellent fertilizer. The latrine- based biogas plants contribute to the improvement of sanitation.

*** Biomass**

The term biomass includes all organic material obtained either directly or indirectly from the growth of plants, and encompasses a wide range of materials, such as wood, coppice, agricultural residues, and including human and animal wastes. Under the UN terminology, in addition to agro and forestry residues, biomass includes municipal solid wastes (MSW). Presently biomass provides multiple uses ranging from food, fodder and fibre to fuel. When considering biomass as a source of energy, two uses should be distinguished: the use of vegetable matter (trees, plants, algae etc.) directly, or as an energy crop; and the use of refuse from earlier use of such matter (animal droppings and industry etc.).

The basis for all of these is the solar radiation through photosynthesis. The annual primary photosynthetic production of world's forests is over 50 x 1012 W, which is approximately 10 times the total annual present production of oil and natural gas.

One of the principal routes of utilisation of biomass for DES employs biomass, in gaseous or liquid form, in prime movers, such as spark ignition, compression ignition, or steam engines. Gasification of biomass is an essential intermediate step in these processes. Conversion of biomass into combustible gas is effected either through bio-degradation processes or thermochemical processes. Biomass materials such as animal and human excreta are more amenable to the former, while wood, coppice and agricultural residues can be gasified thermochemically.

Biomass materials have inherent problems of collection and storage except for residues from agro- and

forestry-based industries and municipal solid wastes. Gasifiers and engines have problems of low efficiencies and environmental pollution. In all cases of biomass combustion, there is considerable dust problem; in addition, very often carcinogenic sludges and tars tend to be formed.

*** Wind Power**

Wind power is location-specific, and being a distributed resource available at the point of application, affords the possibility of providing remote villages with electrical/motive power without a distribution network. Wind power technologies are well-suited for water-pumping, mechanical power and electricity generation.

Windmill designs are basically of two types: vertical axis and horizontal axis. Both the conventional vertical axis machine have undergone intensive development over the past three decades. In wind power utilization, the larger the machine the more economical the performance; however, maximum sizes are limited by structural problems as well as by the non-uniformity of wind velocities over large areas. The size of windmills is also limited by the economic analysis for a specific site. Multi-vane machines produce high torque but low rpm, and hence are best suited for lifting tasks such as water pumping. Two- and three- vane machines produce high rpm and low torque, and are best suited for generating electricity. For every specific location and task, an optimum size and design exist. One of the commonly stated constraints to the successful introduction of wind power programmes in developing countries like ours is the lack of trained manpower to organize, plan and implement programmes for assessment of windpower magnitudes; to advise on silting, designing, selecting and installing hardware; and to collect and interpret field test data. Regional wind energy training centres are necessary for this purpose.

*** Small-Scale Hydropower**

This energy resource affords a viable option for supplying electric power to populations at significant distances from electric grids. Currently, a lot of attention is being paid to small installations of 100 KW or less. It is estimated that a 100 KW facility could be installed in a waterfall with a 6 m head and a flow of 1.5 m^3 per second. The cost of mini- and micro-hydel plants varies widely, depending on topography (slopes, storage evaporation), geology (dam location, run off) and stream flow (rainfall, drainage basin area).

The effective utilization of hydropower requires a site with adequate head and flow. For rivers where the flow is seasonal, dams must be built to permit flow regulation to meet demand. Where good hydro sites are available near load centres it is the least expensive source of energy available, but with increasing length of transmission lines the cost of power produced rises rapidly. While electricity has only marginal value for low-income

people who usually cannot afford it, small-scale hydro installations have the potential for meeting their basic needs.

The utilization of hydropower in developing countries is often thwarted by lack of hydrological, typographical, geological and economic data. Conventional microhydel power systems, suffer from the disadvantages of relatively higher cost, non-standard ratings, extensive ancillary civil construction, long executive times and the need for mechanical governors.

*** Energy from Municipal Waste**

There are at least two different strategies for deriving energy from urban (or municipal) waste :

(i) incineration, leading to steam generation; and

(Ii) anaerobic digestion, leading to biogas generation.

*** Hydrogen Energy**

Another possible form of DES is through the production of hydrogen by thermochemical or electrolytic methods, storage in solid-phase, metal hydrides, and utilisation through H_2-O_2 fuel cells for operating electrical appliances.

*** Integrated DES**

Rural populations in developing countries like ours subsist with very low levels of energy consumption, most of which is in the form of non-commercial energy. Strategies to improve the level of energy availability and to ensure uninterrupted energy supply should emphasize the use of non-commercial fuels and adopt new technologies to maximize the benefits from renewable energy sources. The location-specific and intermittent nature of most renewable energy sources dictates the necessity for an energy-storage facility. The storage capacity can be minimized by employing DES comprising more than one type of source.

Most of the R and D efforts on the use of renewable energy sources to date have concentrated on the applicability of a single source, exploited either as a substitute for a conventional source or as an energy supplement to meet growing demands. An integrated approach combining the use of all locally available resources, including commercial ones, where available, will not only maximize the benefits obtainable from the renewable sources, but also ensure an uninterrupted supply of energy. Examples are combinations of solar and biogas energy systems, solar PV, and windmills or watermills, etc.

The feasibility of integration of different energy sources should be examined for the perspectives of increasing the conversion efficiencies, providing reliable energy supply, having the least adverse environmental impact, and enriching the quality of life in the existing socio-cultural context. It is ofcourse to be recognized that there are no universal solutions, and it is

necessary to employ an optimal mix of the available options and technologies for achieving maximum benefit to the local populations.

5. A Review of the Status of DES in India

5.1 Solar Energy

*** Solar Thermal Energy**

Solar thermal energy technology has been under development principally for the following devices: hot water systems, stills, cookers, hot air systems, thermal pumps, and intermittent or continuous refrigeration and air-conditioning systems.

The hot water systems fabricated and installed in India differ widely in workmanship and performance. Many users are dissatisfied with the systems, mainly because of poor workmanship, faulty installation and absence of guidlines for the users. In many instances, flat plate collectors are offered to yield hot water at upto 85°C, which is a poor design feature. In many instances, the installation of the systems has been faulty.

For ready acceptance of solar hot water systems for domestic use, appropriate design, trouble-free operation of the system with minimum maintenance, and clear operating instructions and guidlines to the user, must be offered and ensured.

The commonly available solar stills are rather carelessly fabricated. Scale deposition on the absorbing surfaces will result in reduced absorption of solar radiation and consequently low yields. With the presently available designs, frequent cleaning is cumbersome. If the user does not ensure a continuous supply of water, the still gets dry and promotes the formation of algae, which are difficult to remove. The addition of a black dye to the water to be distilled will enhance the absorption of solar radiation.

There are two principal types of solar cookers:

* Simple hot-box solar cooker, with a booster mirror
* concentrating type of cooker, with multi-booster plain mirrors, concave reflecting surface, or lens.

In our country, the hot-box type has been popularised because of its simplicity and ease of manufacture. The cooking pots, with covers, are generally made of an aluminium alloy or stainless steel, and are painted dull black on the outside for increasing the absorption or radiation.

The present models are meant for a family of upto 5 members, and for cooking only once during the day. The energy required for each cooking operation is equivalent to that required for heating two litres of water to the boiling point. The efficiency of a solar cooker is usually estimated in terms of the temperature history of water kept inside the pots for a couple of hours.

The materials and workmanship of most of the currently available solar cookers are of low quality. The cooker is too bulky to carry, and cleaning the pots without scratching the paint is difficult. It is also not possible to fry foods with these cookers, e.g. preparation of chappattis.

Intermittent or continuous solar refrigeration and air- conditioning systems are still in the laboratory stage of development, as also solar thermal electric devices, employing either flat-plate collectors or concentrators.

*** Solar Photovoltaics**

At the national level, the solar PV activities intiated during the Sixth Plan have resulted in the development of indigenous technology for manufacture, installation and maintenance of PV systems, and have promoted awareness among the potential uses. The Seventh Plan envisaged a significant expansion of the programme, and the development of newer techniques of solar cell production, and the deployment of PV systems for meeting the rural energy needs. In addition, a high-priority S and T project in amorphous silicon solar cell development has been launched.

The objectives of the R and D programme are the development of low-cost solar cells, and improvements in efficiency, life and reliability of modules and systems. The potential of amorphous silicon for bringing down the cost of solar cells has been recognised, and projects on characterisation of the amorphous silicon films and solar cells, preparation of silane gas through different routes, including one starting from rice husk, study of deposition parameters and different conducting coatings for use as substiate material etc. have been initiated.

There are three Public Sector Undertakings and another 8 firms who are engaged in the manufacture and installation of PV systems. The current production capacity in the country is a few MW. Plans exist for the installation of PV-powered water purification plants, based on reverse osmosis and electrolysis techniques, and of 20-25 kwp power stations.

At present, the module efficiency achieved by Indian manufacturers is only about 9%, mainly because the indigenously available glass has poor transmissivity (of about 0.85 vis a vis 0.93 abroad), on account of high iron content. The major problem faced by Indian manufacturers is the non-availability of indigenous waters.

5.2 Biogas

The two most popular designs in many developing countries are the deep digesters with floating steel gas holders developed in India, and the fixed dome plants developed in China. Changes in digester design in India have been slow but continuing. The most persistent problems with the Indian type are those related to the floating steel gas holder. Due to large heat losses, this type is not very effective in areas with ambient water temperatures of 10 to 15°C.

Community biogas plants are disigned to provide cooking gas to a large number of families in a village. A few hundred community plants have been built in our country. About two-thirds of these are large versions of the typical Indian family biogas plants with floating steel gas holders. The present experience shows that the success of the community plants depends more on social rather than technical innovations.

Biogas plants are also important as a source of organic manure for farmers. The slurry from the biogas unit contains a full range of plant nutrients; digested slurry is better manure than farm yard manure.

5.3 Biomass

Some of the innovative technologies currently under development in our country are fluidised bed combustion/ gasification, which facilitates flexibility of biomass fuels, multi-fuel combustion, high burning rates, high combustion efficiency, and acceptance of low-grade and high-moisture fuels; and stirling engines, which are external combustion hot-air engines, capable of accepting a wide range of low-grade fuels, such as rice husk, saw dust, coir pith etc.

There are several models of improved cookstoves or chulhas under development and commercialization in the country; the materials of construction range from clay, brick, steel etc; and both fixed and portable models have been developed. A major breakthrough recently has been the development of three damper-less models, which afford convenience in operation and bring down cost. It has been found that efficiency and heat transfer are highly fuel- sensitive for cookstoves.

Clean fuel has also been prepared through partial pyrolysis of biomass, followed by briquetting using a binder. In this process, the volatile matter, including tar and other heavy liquids, are removed during the pyrolysis process.

5.4 Wind Power

Indigenous development activities have resulted in at least two new types of wind pumps and modifications/ improvements in the existing 12-PU-500 wind pumps. In addition, several horizontal - and vertical - axis windmills for water pumping applications have been field tested. Several proven windpower systems popular abroad have been identified and acquired for adaptation to local conditions and performance evaluation.

5.5 Small-Scale Hydropower

The small-hydro potential in our country is estimated at around 5000 MW, out of which about 3000 MW is expected in low head regions.

The Alternate Hydro-Energy Centre, set up by DNES at Roorkee, has completed indigenous design and development of hardware-civil, mechanical and electrical - for low-cost micro-hydel applications. Currently, attention is being focussed on the development of velocity head turbine, variable-speed constant-frequency generator and microprocessor-based control system, and modification of pump as turbine, for micro-hydel applications.

5.6 Integrated DES

At the national level, the concept of Urjagrams which are the DNES programmes for decentralised integrated village-level rural energy projects, is being pursued recently. The Urjagram projects are based on the utilization of non-conventional energy sources, and are conceived in terms of a mix of energy sources to meet a major portion of the energy requirements in a village. The programme is aimed at evaluation of technical performance of individual devices, and systems, integration aspects, socio- economic viability, and the impact of the project on the process of overall rural development.

The Urjagram projects are designed on the basis of the survey of energy needs and resources, which takes into account the energy requirements not only for basic minimum needs, but also for agriculture, cottage industry and community facilities. The development of Urjagrams is a continuous process, having linkages with various other development schemes at the village level. So far, about 40 projects have been completed, and about 30 are in different stages of implementation.

6. Agencies for Planning, Implementation and Monitoring

The principal responsibility for the development and promotion of renewable sources of energy, at the national level, rests with the Department of Non-Conventional Energy Sources (DNES), established in 1982. Research and Development projects in this are undertaken by the IITs, Universities, CSIR and other research laboratories, KVIC etc. Manufacture of the commercial devices is taken up by both private and public sector industry. In addition, technology is imported from other countries, such as Denmark, for adaptation, absorption and upgradation.

7. Some Strategies for Implementation

The area of DES is extremely vast, and has the potential of improving directly the living standards of rural or isolated populations. Since the choice of systems is also wide, unless efforts and resources are focussed, the plans will not yield the desired results. In some areas, even indigenous experience is available, both positive and negativel but, the will to terminate non-productive efforts with little promise, and to strengthen programmes which offer reasonable promise of success, is not exercised in a timely fashion, in many cases.

Some strategies with technological and economic implications are listed below:

- Low-temperature solar thermal device have intrinsically low

thermodynamic efficiency of conversion to mechanical or electrical power. Hence the objective of all low-temperature solar thermal programmes should be restricted to utilisation of these sources as thermal energy only.

* From an economic analysis, the solar cooker is a good replacement for electrical cooking, or for cooking with non- renewable fuels. For the user, however, the purchase of a cooker is beneficial only when a subsidy is available; the subsidy is justified in the national context, if it avoids need for electric power, or for commitment of non-renewable fuels. From the point of view of convenience, the present designs leave a lot to be desired.

* The subsidy policy must be dictated by the net energy savings (useful energy collected during the lifetime of the system minus the energy employed in the manufacture of the system), not only in terms of the quantities of energy, but also in terms of their quality. In addition, the monetary and energy costs of alternative ways of achieving the tasks must be taken into account.

* An important aspect related to the propogation of the renewable energy equipment is market and user acceptability of the different devices. The translation of laboratory or even pilot plant processes and products to field use must follow a systematic procedure of competent engineering design and production practices.

* In addition to the development of technology for renewable energy equipment, suitable downstream infrastructure must be developed for manufacture, delivery, maintenance, operator training etc.

* Necessary policy changes must be introduced to permit private generation of electricity by small-scale hydropower.

* A high priority should be accorded to the development of integrated energy systems. For this purpose, it would be necessary to make an assecessment of the energy demand and the resources (both conventional as well as non-conventional) in a region, and to arrive at an optimal mix of technologies for maximum effectiveness and minimum cost. This exercise should be conducted for the representative combinations of demand and resources, to serve as guidance to planners at district, block and village levels. The emphasis should shift from proving and propagating specific technologies to meeting the energy demands, employing a mix of

conventional and non-conventional resources in the most effective manner.

* Wood-based fuels are an important resource for rural low-income population in developing countries. As wood resources become scarce for these populations, they burn dung and crop residues which are essential for maintaining soil fertility. This problem can only be tackled through efficient utilisation of biomass and establishment of new biomass reserves. The former involves the development of efficient cookstoves to replace open fires, and the efficient production and utilisation of charcoal.

* For easy acceptability and effective functioning of the DES, the users must be involved in the design and development of the devices.

Socio Economic Aspects of Implementation Emerging Technologies Such as Improved Chulhas, Solar Cookers and Biogas

by

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Cooking is performed ever since humans learned to build fire and convert raw items into cooked foods to increase the variety of foods they could consume. The technology for burning fuel to cook food (hearth) in rural areas underwent little change though the fuel and cooking units in urban kitchens changed with times. The government initiated energy intervention technologies like biogas for rural women to shift from conventional open hearth or shielded chulhas to modern renewable energy technologies. The cooking energy needs of the rural households are met mostly from biomass which is basically a non commercial commodity. The share of non commercial energy forms in the national estimations may reveal a drop in proportions though its share in absolute terms have increased. This trend is going to remain the same for years to come and hence non commercial fuels will continue to play an important role in India. There is a dearth of authentic information on the demands on non commercial energy forms due to the complexity in collecting data over various periods of the year. However it is observed that nearly 90 per cent of rural households, 75 per cent of semiurban households and 25 per cent of urban households depend on firewood stoves (Gupta et.al.1983). According to Planning Commission (1982) estimates the fuel-wood demand was about 133 million tonnes which shows a shortfall of 94 million tonnes. The population in India is likely to touch 1 billion by 2000 AD and the fuel-wood consumption is expected to be 250 million tonnes against 170 million tonnes of 1980's (Shyam and Nagaica 1981).

Cooking an Essential end use of Energy: Urban/Rural Scene

There is a disparity in the energy consumption in rural and urban sectors. Commercial and electric energy used per capita is nearly 20 and 28 times greater in urban sector than in rural areas. Though 56.1 per cent of the villages are electrified, it is beyond the purchasing capacity of majority in rural areas and hence is not an energy source for nearly most of the rural households. The fuel consumption for lighting and cooking in urban and rural areas shows that 84 per cent of lighting is met through kerosene while 94.5 per cent of cooking needs through non commercial sources in rural areas, while in urban sector 53 per cent of lighting from electricity, 45.2 per cent from kerosene and for cooking 85.1 per cent through non commercial and 26.5 per cent through kerosene and the rest from commercial cooking gas. The number of households in rural sector is 100.9 million against 32.1 million in urban sector. In other words for 80 per cent of the population more than 56 per cent of energy is met by biomass. (ABE, 1985).

Fossil fuels being inadequate and costly due to heavy transportation charges, cannot be reached to every nook and corner of the rural areas to meet the need of food, shelter, health, sanitation, hygiene, agriculture and industry. The per capita energy consumption of rural India is one of the lowest in the world and it is limited to satisfy the basic necessity of food. The cooking energy need is the most prominent energy need in rural India which accounts for anything between 70 to 90 per cent of total energy demand. This energy need is met by fuel wood gathered and purchased, animal dung and agrowastes and these are burned in traditional cookstoves with abysmal thermal efficiencies leading to untold health hazards.

In the poverty stricken areas of the Indian subcontinent, fuel gathered meets not only domestic energy needs but also is used to earn a living through the sale of excess. Biogas technology has led people to conserve dung for biogas units thereby affecting wayside collection of free dung. The poor with little resources at their disposal are left with no choice but purchase fuel. Then the question here is whether they can afford it or not? As fuel crisis worsens they would be forced to reallocate part of the resources spent on food, to meet fuel costs thereby affecting their already poor and imbalanced food intake. Non availability of fuels, and restrictions imposed on fuel gathering can foster antisocial behaviours like stealing, illegal felling of trees, encrochment of forests, and corruption amongst controlling officials which can adversely affect development process.

We are moving into an era where there will probably be adequate food supply to feed the growing millions - thanks to the green revolution - but without enough fuel to cook food. The shortage is so acute that we are heading to probably another more alarming energy crisis. It is therefore necessary to relate energy crisis to quality of life and development rather than to fuel shortage.

Biomass : An Irreplaceable Cooking Fuel

Biomass is a renewable from of energy which is a sink for CO_2 and helps to

conserve soil and water, prevents soil erosion, curbs surface run off and reduce receeding forests. When biomass is used as fuel the gap between supply and demand widens leading to many ecological imbalances. Advisory Board on Energy to Government of India has estimated that the demand is going to increase from 120-130 Mt. today to 375.5 Mt. by the turn of the century, if biogas is also produced from dung. The fuel food needs are met partially from forest lands and partially from freelands.

Regeneration is slow due to repeated destruction of natural system by man and also due to drought. The present regeneration capacity of the forests in India is 32 million tonnes and about 20 million tonnes of fuel wood is available from waysides and private lands. Social forestry projects supply another 12 million tonnes. Thus the total availability of fuel wood per annum is 64 million tonnes against estimated demand of 140 million tonnes. (Mahajan, 1990). Fuelwood (biomass) is the main cooking fuel to almost all the households using biomass burning stoves. It would continue to be so for many years to come.

Alternatives to using wood for packaging, paper manufacture, railway sleepers, construction, furniture and the like are needed to reduce pressure on timber in forests. Grazing too reduces vegetal cover. Sawdust and other waste fuels as well as low dense fuels need briquetting to improve its burning efficiency. Generation of producer gas is also an appropriate alternative to tackle shortage of fuel wood through thermo-chemical reaction.

Agrowastes

Agrowastes may be used as fuel, fodder, fertiliser, building material and as raw material for industrial activities. It is estimated that about 100 million tonnes of agrowastes per year is available as fuel (NPC 1984-86). If the agrowastes are left in the fields it would add to the fertility of the soil.

Animal Dung

The livestock population of the country has been estimated at 260 million. The annual availability of dung is of the order of 1100 million tonnes @ 4.2 tonnes/ cattle/annum. Assuming 75% collection out of which 33% is available for fuel, will yield 275 million tonnes of wet dung. This is equivalent to 55 million tonnes of dry dung per annum (Mahajan, 1990)

Women and Energy Crisis

It is needless to mention that women play a pivotal role in almost every economic and development activity. Nearly half the productive human resource of the country comprises of women. Women in rural areas work as hard as their men (if not harder). Much of their work in life supporting activities, which are crucial and essential for existence and survival of man, households and community at large go unnoticed and unappreciated. Fuel, fodder and water collection absorb a major part of such work time of women. A lot of productive time and energy are spent in attending to daily chores. They suffer heavy opportunity cost (George, 1989).

Rural woman is entangled between two processes - one increasing scarcity of fuel forms and second increasing concern about protecting the environment and conservation of natural resources which limit the availability of free resources. The multiple roles she assumes are burden-some. Her personal problems are relegated to the background. The poor rural women - pregnant, old, young, disabled, working or non working - have the awesome responsibility of meeting crucial household needs like that of fuel gathering and cooking day after weary day. The fuel shortage hits the women and children the most.

Poverty compels women and children to depend on what is available free of cost. Due to denudation of forests and increasing scarcity, such free fuels are becoming increasingly scarce. The policy of government on forest conservation also has ironically led to increasing drudgery of women. Women from households are required to make more frequent long trips to gather fuel which lead many a time to decline in the quantity of fuel gathered. Additional need for fuel storage space can put a constraint on space available for family living.

Due to increased effort, less fuel and less cooking, the health of women who get the last morsels deteriorate. Time spent in economic or productive work declines causing a drop in real and/or money income. Women are forced to make uneconomical use of agrowastes and dung by burning it under the cooking pot reducing fertility of land leading to a gradual drop in productivity. Cooking at open hearth or traditional chulha itself is a hazardous and cumbersome task to which a woman is exposed to from a very tender age of 10 to 12 years. Basically she accepts this without exploring the scope for improving her work environment and resigns hereself to fate (George R., and Vangle, V.)

At present in most rural kitchens biomass is burnt in conditions that lead to low efficiency emitting pollutants that are detrimental to human system. But our rural women are blissfully unaware of the poisonous gases to which they are exposed while cooking at traditional chulhas. WHO in 1984 reported respiratory diseases as a primary cause of death in developing countries. The incidence of chronic obstructive lung diseases (COLD) among rural adults in Nepal is shown to be associated with exposure to smoke from chulhas. Acquired respiratory infection (ARI) is a major cause of high mortality rate of children in developing countries (Smith, 1985). The presence of chronically ill adults is an economic liability on the family which is already in the grip of abject poverty. A means to reduce human and economic burden is to introduce measures to reduce smoke exposures. The emerging cooking technologies are appropriate in this regard.

Renewable Energy Technology Option: Improved Chulha (Cookstoves)

Improved cookstoves (ICs) have thermal efficiencies well above 20 per cent and if prudently used, save about 40 per cent of conventional fuel with the minimum saving being 20 per cent or a little more in adverse conditions of operations in the

field. The average annual saving in biomass may be between 219 to 440 thousands tonnes in the worst to best conditions of operation from about 5,00,000 ICs.

The IC technology is very close to traditional chulhas requiring no drastic change in cooking habits and meal timings but requires prudent fuel, cooking and chulha management on the part of its users. The resultant benefits are remarkable in terms of fuel saving, drudgery relief and health added to time saved in accomplishing tasks related to cooking fuel cycle. The pottery liners/ceramic liners add to the efficiency of the chulha as well as its life. Any layman can fix it into the platform and mud or brick after observing once thereby making refitting it into new platforms as of when needed an easy task. Any conventional fuel can be burnt in IC with better thermal efficiency values. Use of grate in the firebox depends on the fuel burnt.

Solar Cookers

Solar Cooker (SCs), on the other hand, is a renewable energy technology very different from conventional stove and fuels. It calls for changes in cooking habits and meal timings. This device is not a total replacement to conventional chulha for cooking though it is an ideal technology for stewing, boiling, baking, steaming but not frying. It requires minimal input from the cook (Women) in attending to cooking and one can dovetail safely another active task alongwith solar cooking while it is not so possible with IC or biogas unit. For example one can load cooker and go for shopping or to office. The cook (woman) needs to exercise preplanning to prepare items together to load 2 to 3 items simultaneously in the SC and also should learn how to operate it and attend to minor repairs and maintenance. An area safe and easily accessible close to conventional kitchen where unobstructed sunrays can fall on to the SC facing southern hemisphere is an essential prerequisite to its use. Solar cooking is slow cooking, nutritious cooking and safe cooking which can conserve 70 to 80 per cent of conventional fuels in cooking with sauting and cent per cent in cooking without sauting i.e., in baking, boiling, stewing and steaming (George, R., 1990). India is blessed with intense solar radiation in plenty during most of the year. Solar cooking is cooking outside in the open which is practised by most rural households with traditional stoves during most of the year due to illventilated and ill-lighted kitchens. If the household so desires, it can have its cooking done near the field where it labours, if it has a safe storage for SC near its place of use. The daily raw food items need to be carried to the site of work where SC is to be put up for cooking. A change indeed from traditional way but a change for the better.

Solar energy, as we all know, is renewable; non polluting, plentiful, (no cost presently), ensures cooking without smoke and tears, no soot deposit on vessels, no scortching or burning of food, no hassles with cleaning vessels and fuel procurement. What more women need to get relief from laborious cooking responsibility to enable them to participate in development process and weave a better morrow for themselves and their daughters. The transition has to occur. The will and determination have to come from

themselves and not from external forces. They should decide their lives, their future and their involvement as partners in economic growth and development.

For a country like India solar energy can be one of the most important alternative energy to meet cooking energy needs. It can play a vital role as a decentralised energy source in remote areas especially where commercial energy may reach after many many years.

Solar cooking is an attractive option as it is ecologically, environmentally, economically and socially sound. Though SCs do not offer a panacea for energy crisis it definitely has the potential to conserve conventional fuels and buy the time needed to develop appropriate alternate energy for cooking. However SC is not a technology for each and every household. It would satisfy only a selective group. SCs are yet to find popular acceptance. The problems associated with it are psycho-socio-cultural in nature though a few technology related issues (technical problems) may also be observed. Some problems are related to absence of local infrastructure for repair and cooking cannot wait until things are set straight. Orienting users in the right perspective with reference to it can do wonders to its successful transfer.

Biogas Stoves

Biogas from animal dung is an attractive option in places where dung and water are available as it is environmentally sound. The annual production of 22425 million m^3 of gas from dung would replace 13904 million litres of liquid fuel per year. The slurry obtained would be 206 million tonnes of organic manure which would replace 1.4 m.t. of Nitrogen (N_2), 0.9 m.t. of Potash (K_2O) and 1.3 m.t. of Phosphate (P_2O_5). The soil composition and soil fertility would improve leading to better agriculture yield. It is estimated that '50 thousand biogas plants would save 600 thousand tonnes of wood equivalent per year, i.e., a return of Rs.500 million per year (DNES, 1981). In India out of 140 million households about 16-22 million can meet cooking energy needs through biogas (ABE, 1985).

The cookstove - biogas stove - is a variation from cooking gas (LPG or natural gas) stove used in urban kitchens and by the well off in rural kitchens. Biogas is clean, fast, less polluting but requires considerable input from user in daily operation and maintenance. Adequate supply of animal dung (4 to 13 bovine heads) and water are prerequisites to ensure generation of biogas in sufficient quantity to fuel cooking.

The multiple benefits, households reap justify the extra effort required in running the unit and in its care and upkeep. Cooking with biogas is again close to traditional cooking in that the user can experience heat from flame, use of a stove and traditional pots for cooking with little variation in cooking time and meal habits. Community biogas units may make the community more close knit if managed and handled properly, as when run on a cooperative basis there is collective efforts directed towards a common cause. The major factors in successful operation of domestic/community biogas unit is the availability of dung and water throughout

the year and infrastructure to maintain the same. In addition to fuelling cooking it can serve lighting needs of the household as well.

Biogas technology helps in generating economic benefits in terms of saving firewood and chemical fertilisers as well as balance of payments generating employment besides social benefits like clean, healthy and sanitary cooking environment, reduction in drudgery to women and children, better soil fertility and less pollution. Alongwith biogas technology, dairy farming, too need to be promoted to ensure continuous feeder stock supply.

Women's Development and Emerging Renewable Energy Technologies

There exists vital linkages between technology, human being and nature which are channelised and accelerated through effective flow of different energy forms. Rural development is a strategy designed to improve the conditions of 52 crores of people living in 5.67 lakhs villages. Development results through change and adaptability and through the creation and use of human and material resources. The transformation process in reality begins with the people themselves, their problems, their needs, their motivations and their aspirations. Any technology used as a means to development should increase productivity, improve working conditions form a way of life, merge with culture and social traits, ensure economic benefits, involve the participation of the potential beneficiaries in all phases of technology development, transfer and use and be ecologically sound and compatible with tradition.

Emerging cooking technologies can be viewed as appropriate means for women's development in addition to upgradation of environment quality. Economic independence, even partially and roles in making decisions of direct concern to the women empowers her and helps her overcome any apathy, self dejection or phobia she may have. A desire ought to be generated amongst women to seek possibilities of improving work environment within and outside their homes whereby they can increase their productivity. It should dawn on them that while they are puffing at traditional chulhas, elsewhere their counterparts are indulging themselves in microwave cooking. Though microwaves and cooking gas stoves are beyond their reach, there are equally good cooking technologies (ecologically, environmentally, drudgery relieving) like Solar Cookers, Improved Chulhas and Biogas Stoves which they should opt for. There need be no two opinion about the utility of these to women.

Though women are the primary participants in cooking fuel cycle, rarely they are the decision makers in related matters. They work with the crudest of tools for completing their tasks. By and large their men exhibit little concern regarding the tools and technologies with which they accomplish the multitude of tasks in supporting life or her household of which cooking is the major time consuming task.

It needs to be brought home to women (rural/urban) that they are no less in potential for development and it is only the society and they themselves, that bar their participation in development. In other

words, it is necessary to remove social barriers through their active participation in development acitivities.

The women need to be given the necessary information input to critically assess their existing cooking technology and fuels to decide and effect change. Once change is effected, they should become competent to repair and maintain it.

The care and maintenance of these are often left to men because of which they suffer a set back. Often they get assistance not when needed but when their men consider it fit. Tradition and social barriers need to be broken. This can be achieved only through training.

Cooking technologies are primarily used by women in all cultures. But in its development and transfer the role of women has been very little. Rural women do not express their right to choose. Women can be a powerful tool to free women from a lot of hardship in cooking, save their time in fuel collection and cooking,enable them to take active part in skill development programmes and income generating activities. It is necessary to examine and see the extent of involvement of women as decision makers, promotors, self employed workers in transfer of energy technologies for cooking which is a major task that absorbs more than 50 per cent of the household work hours.

In solar cooker programme, biogas programme, chulha programme, the involvement of women at different phases has been practicaly very low. This could be one of the reasons for its low success. Their participation in development process is minimal for want of skill, time and due to fatigue and social restrictions and personal inhibitions.

During the period when land is lying fallow in anticipation of monsoon women are a little freer and this is the time for planning community outreach programmes for them. This normally falls from mid March to June and coincides with completion of reports and the slack period before the tasks are taken up in the new financial year for most of the national programmes. Women are receptive to skill development programmes whereby they can contribute to household income and family well being. However it needs to be provided at times when they are free and should be linked to immediate, visible/tangible benefits.

These three emerging energy technology options ideal as cooking technology have passed well beyond the experimental stage and we can say that these are somewhat mature technologies which need nominal modifications to make it user appropriate. These are taken up as national programmes in view of its potential to conserve biomas ensuring clean cooking and frugality in fuel use contributing to better quality of life.

Nearly 60 lakh improved cookstoves, 11 lakh biogas units and 1.5 lakh solar cookers are promoted so far under national programmes (DNES, 1989-90). The economics of using solar cooker against wood/dung burning chulha kerosence stove and 'Sigdi' using soltcoke assuming two meals per day are cooked in the cooker during 260 days in a year and that

of improved chulha against conventional chulha using fuelwood and dungcake for 365 days are estimated (Table 1). The findings presented brings to limelight the saving in momentary outlay in purchased fuels and saving on biomass and commercial fuels like soft coke and kerosene possible per solar cooker and per improved cookstove. The magnitude of the positive impact can be understood when savings is worked out for large number of households if SCs and ICs are used to the optimum.

It is needless to mention here that a chulha is put to other user other than cooking and the economics worked out here is only for preparing a standard meal planned for the experimental study. The health benefits due to smokeless cooking, time saved in fuel gathering and the like are over and above these tangible benefits.

Transfer of Emerging Energy Technologies

The policies related to energy programmes assume significance in this context. The focus of our energy programmes should not be merely to instal certain number of biogas units or improved chulhas or distribute certain number of solar-cookers (target oriented approach) but should be directed towards creating sustainable development models wherein energy and other infrastructure to meet essential needs, generate job opportunities, improved education and productivity both agricultural and industrial, better sanitation, hygiene, health and nutrition, repair and maintenance of these in a decentralised manner and cater to social, cultural and mental development in an appropriate milieu are available.

The energy intervention programmes should not be an end in itself but should be a means to achieve rural growth and development in its true sense with the physical and emotional involvement of the rural community in the process of identification of existing resources and creation of new resources.

It is imperative here to consider the factors that would act as facilitators or constraints in a programme of cooking technology transfer as those of solar cookers, improved chulhas or biogas units.

Cooking is not a new task as it has been practised by man since millenium though the cooking devices introduced are new and the fuels in some cases are new. To deviate from any traditional practice/ habit means to bring about change. To bring about change it is necessary to unfreeze the old elements, learn and accept the new level and this implies management, determination and commitment. If the benefits of the changed situation are visible/tangible to the actor, then change can be brought about more easily. In order to bring about change therefore it is necessary to analyse the practice, the new element (cooking unit and fuel) and the changes required within the socio economic millieu of the actor (beneficiary/user) of the technology. Many socio-economic factors come to the fore along with tradition/habits. To break tradition requires the support of various factors like the immediate family, need of the community and the society.

TABLE : 1

Economics of Cooking Two Meals Per Day on Improved Chulha Vs. Conventional Chulha and Solar Cooker Vs. Conventional Cookstove

Fuel Type	Fuel Consumption In			Cost per kg fuel (Rs.)	Savings Due to Improved chulha		Savings Due to Solar cooking on 260 days	
	One Meal (kg)	Two meal per day (kg)	365 days (kg)		Fuel (kg)	Outlay (Rs)	Fuel (kg)	Outlay (Rs.)
Fuelwood @								
Traditonal shielded chulha	1.870	3.740	1365.10	1.00	–	–	77.00	778.00
Improved chulha Twopot Mamta	1.170	2.340	863.00	1.00	502.00	502.00	488.00	488.00
Dungcake @								
Taditional shielded chulha	2.600	5.200	1898.00	1.25	–	–	1082.00	1352.50
Improved chulha Twopot Mamta	1.800	3.600	1314.00	1.25	584.00	730.00	750.00	937.50
Soft Coke **								
'Sigdi'	0.265	0.530	193.45	4.50	–	–	155.00	697.50
Kerosene**								
Wickstove	0.172*	0.344*	125.56	3.00*	–	–	102.00	305.00

@ R & D, TBS Unit, 1990
** George, R., and Ogale N., 1987

In-built Component of Economic Growth

Any of these technology programmes should have an in-built component of economic growth. It is needless to mention that Solar Cooker distribution leads to earning commission, improved chulha production in pottery generates income to the potter, its installation gives an employment opportunity to the chulha maker (Self Employed Workers) and similarly biogas unit construction too gives rise to job creation. Repair and maintenance of components too essentially create employment. In spite of this we do not have a steady skilled work force retention in all these cases. The trainee identification, the remuneration delivery system, the service delivery system from the chulha maker/biogas construction worker (mason/supervisor) and the monitoring system should be streamlined to sustain the motivation and commitment of the worker in each case.

The technologies trasferred should meet nearly all the functions served by the traditional one which it is to replace. Therefore an insight into the purposes served by traditional technology and the flexibility possible through new technology needs to be established before venturing into its application/transfer in the field.

Understanding Local People and their Lifestyle

Before entering into a region with the idea of transfer of these technologies it is necessary to understand the prevalent social economic and power structures, the traditions, customs and cultural patterns centering around fire, stove and foods, decision making bodies, key/contact persons, model/catalyst change agents, superstitious beliefs, inhibitors, energy crunch/shortage/scarcity in the area, potential energy sources, education level, motivation levels, enthusiasm, basic attitudes, prejudices, preferences and the like.

Understanding socio-cultural milieu is important to plan appropriate entry with the idea of the technology. Need/desire for the technology should come from the people as they face the problem. Do not impose any of the technologies as appropriate but throw an idea and generate a desire to experiment with the idea so that the technique is something conceptualised together. Install demonstration model for people to see and experience, learn from failures and improve upon them. Generalise the cultural patterns only on the basis of a number of similar observations. Existing cooking practices and relevance of a kitchen inside and outside, cooking position of the cook (standing/sitting) and the number of persons for whom cooking is done are worth studying to decide on the sitting and model of stove. Social restrictions too should be understood to involve appropriate worker by gender. Language should not be a barrier in communicating with target group. Involve key decision makers and women too at various levels of decision making. In our experience we have found that mother-in-law plays a vital role in decision making though the daughter-in-law may be the cook who works at the stove - yet she has no say in decision pertaining to the stove she will operate.

Taboos and rituals revolving around fire should be understood. The difference between rich and poor in a community needs to be clearly studied. Enter a community through known people who are held in respect by the community. Live with people, understand them, their culture and win their confidence. Be very patient to get good results.

A consumerist model may not be appropriate to promote these technologies as here the emphasis would be product centred and not human centred. Promotion and disseminations of these emerging technologies require raising public awareness, setting up an approach, training centres and involvement of users particularly women. Local women could be used as motivators, demonstrators or extension workers and promoters.

Community participation in problem identification, selection of solution and application of solution is important for the success of the problem solving process. Acceptability of a solution increases if it is not imposed. The promoter should address the issue pertaining to energy crisis, which is most relevant for a community. Each of these emerging technologies should be advocated as per the needs, use, viability/feasibility and appropriateness to user. To a particular group ICs would be the best while SC would prove to be inappropriate. Biogas units if installed in dry zones would be a waste. Highlight on points relevant to each target group like smoke removal, time saving, durability, cost, ease of operation, money saving, aesthetics, fuel conservation and manure generation and so on. A participatory model wherein the target group members/representatives are active participants in decision making would in the long run lead to a self sustaining stage in each of these.

Training

The users ought to be demonstrated cooking and fuel management so that they learn by seeing, the art of operating the IC or SC or biogas units which are different from traditional cookstoves. Transfer of these technologies implies development of skilled manpower which out of necessity means organisation of training programmes. Trainers of trainees are required. Trainee selection is crucial so also is the content of the training programme to ensure quality chulha construction or transfer of technology, user training and education, repair and maintenance in the field.

Demonstration and training are key to successful operation of the technology by its potential user. The primary objective here is to expose the potential users to the new technology. First exposure need to be well planned and of the best quality as it is very critical. The audience need to be convinced of its benefits. Once it fails to make an impact it is difficult to overcome initial resistance. Tall claims should not be made as disappointment after using would lead to loss of faith and rejection of the technology. Live demonstration and an opportunity for the audience to experience working at it enhances the understanding of the potential user.

Women being users should be trained to build (if possible), care and repair these as well as identify problems and its causes.

Followup and Monitoring

Infrastructure facility need to be created in the village itself to tackle problems that arise in the process of transition from traditional to emerging new technologies. A skilled workforce to motivate, install, repair and maintain these technologies thus is an imperative at the village level. Monitoring and supporting systems at block and district level will strengthen the programme. Followup is [illegible] to assess responses, modifications, boost morale of users and chulha makers and sustain motivation of users.

These technologies have tremendous potential to improve women's lives, quality of environment and life of the household. But if badly delivered it can make people shy away from it for a long time.

Subsidy

Selection of site and the mode of introducing the technology are crucial to its effective dissemination. No cost or heavy subsidies are constraints to effective use of any technology at national level as it devalues the credibility of the technology. However as a promotional strategy a nominal subsidy can be attached to it and this could reduce the shock when subsidy is withdrawn at a subsequent time.

Our recent experiment in IC would be worth sharing here. As an experiment TBS Unit, Baroda introduced the concept of *Improved Chulha to urban slum dwellers* who had expressed their concern regarding increasing cost of kerosene and scarcity of free fuelwood. The women felt the need to conserve and the idea of IC was thrown open to them and they were told the cost sharing pattern i.e., if they share the cost of chimney (Rs.35/-) then pottery lined chulhas would be installed in their houses free of charge. Approximately 50 per cent cost is borne by the beneficiary. They were exposed to the options or choices available and they made their own decision pertaining to the model of chulha (Mamta Single/Double Pot Chulha) they would like to opt for. the chulhas were then installed and they are using it since last two months. In the same slum single pot, two pot small and medium size ICs are installed. Now it is too early to comment on its continued use. But chances are bright that they would continue using it or approach us if they face any problems as they have purchased the chimney pipe and a value is added to their possession. The smokelessness in cooking is well appreciated by users in addition to fuel and time saving. In this instance there is people's participation and value attached to the technology. Yet another strategy could be where the users would bear the cost of entire set of hardwares - chimney and pottery components - liners, cowls, tunnels etc. The expected survival rate of the technology is more. Nearly 90 per cent of the cost is borne by the user and the value of the chulha is high. Attachement and the feeling of owning it is more. Hence the tendency to care for it is likely to be more. The technology in all the cases should meet their requirements as close as their traditional ones. The pottery liner production is a commercially viable item. Once a user adopts an appropriate IC in

daily cooking, then she would not like to go back to her traditional stove. Under such a situation in case she desires a replacement to chulha liner after some period of use, say, a few years, then she can purchase it from the market. The technology becomes self sustainable. TBS Unit, Baroda is intending to field test this strategy shortly. The Unit provides reducer rings (pottery) along with the stove to increase the flexibility of the use of pot hole to use vessels ranging from 15 cm to 28 cm or 15 cm to 32 cm in diameter depending on the model of chulha, viz. Mamta/Priya Chulhas (Annual Report, TBS Unit, 1988-89).

Post Training Support

Post training support is equally importants to back up regular training programme in developing skilled work force to handle these technologies. Experience away from site in hypothetical situation (laboratory/premises of training institute) is very different from pratical experience at site under the supervision and guidance of experienced trainer/ officer. Trainer or supervisor should be a good teacher and quick to make adaptations for location specific needs. All field level functionaries cannot be trainers. Trainees/grass root level workers should be held responsible and accountable for their work. Unskilled/untrained/non committed persons who know little about design parameters, working principles, merits/ demeritis, limitations of each technology, changes needed and the like should never be involved in the transfer or promotion of these emerging technologies at any cost. Such persons can kill a programme and this is precisely the major contributing factor for the failure of these technologies, if any, in the field.

Scheduling of targets, timely placement of orders and proper management are crucial to the success of these technology transfer programmes. I am reminded of the monitoring survey we did sometime ago. We found that the mud body of the chulhas where installed without chimney and since then a couple of months had lapsed without any further developments. The beneficiary households got tired of waiting and they started using traditional mode of cooking. In such instances the credibility of the worker and implementing agent is questionable. The whole programme would suffer a set back because of a particular implementor. In installation and in payment to chulha-makers bureaucratic delay should not occur as delayed work can demotivate its users and SEWs/chulha makers. Local power structure should not be by passed under any circumstance. Efforts to understand village politics and play accordingly would pay dividends in the long run.

In technology transfer programme of this kind, various levels of personnel with varying backgrounds are involved. To mention a few are engineers/technocrats/ scientists, bureaucrat, social scientists, trainers, extension workers, artisans/grass root level workers, and users. Appropriate means of communication hence is very important. Often those who draw policies/strategies are well versed with it while those who manage at local level have little insight. This would jeopardise the programme. The attitude and ideas of policy makers, planners, designers,

scientists and consumers need to be attuned to facilitate interfuel substitution and use of an appropriate alternative energy and technology for a give end use instead of continuing the use of conventional technology for personal gains and reasons.

Pricing structure of conventional fuels ought to be made such that it automatically forces consumers to make the necessary shift. A study on consumer behaviour with reference to energy forms has shown that users are willing to change energy consumption behaviour to conserve energy only if it impinges on their purse.

Conclusion

In the prevalent energy context the household can either continue their lifestyle in haphazard manner disregarding limitations of biomass or can be forced to change behaviour through highly controlled systems established and regulated by government or can be assisted to change their behaviour voluntarily through increased individual responsibility. To exist beyond mere survival the best option would be increased individual responsibility coupled with government intervention programmes. This would ensure smooth transition.

In the case of these emerging renewable energy technologies, switching over from one technology to another for the same energy form (from traditional chulha to improved chulha) would be easier and faster if implemented in the ideal manner than from one technology to another powered by an entirely different energy form (from traditional chulha to solar cooker).

Centralised energy system in these cases may not be ideal due to various reasons. To offset the problems associated with centralised energy systems, and to make each site - village - a sufficient, self sustaining unit in energy supply - decentralised energy planning and management are appropriate. Decentralised energy systems function independently matching energy supply to demand taking into consideration geography, metereological environment, socio economic background of the people, their education level, biases, prejudices, beliefs, customs and so on. This is conducive to ecological and environmental upgradation. Local people should be involved in decision making with the assistance of expert consultants. Each site should have adequately trained manpower to plan, install and look after the various systems. The technology systems introduced should be compatible to the capabilities of the community so that in addition to opting for the same, they can operate and maintain it too. This would lead to village autonomy and self sustainable development which should be the ultimate goal of any development programme.

Marketing of these energy technologies is very important. A ready market does not exist as of today. Hence large entrepreneurs may not enter into production leaving the challenge to small scale industries which may not be very much committed to maintaining quality without external pressure. It is therefore necessary to evolve ways and means of motivating reliable well established manufacturing units to enter into production of these technologies.

Cooking is a female oriented task. Men being the decision maker and dominating factor in Indian social set up, should feel the need for improving household cooking technology and support their women to switch over to these emerging technologies. If focus for energy conservation is shifted from domestic cooking to industrial application then women's needs would be relegated to the background. Biomass conservation programme should focus on women.

The cost benefit analysis in social and economic terms clearly shows that the benefits of any of these technologies taken independently or together outweighs the cost and hence an attractive option to curb ecological imbalances and contribute to women's development as well as overall development of the community.

An integrated energy system wherein due recognition is give to existing socio-economic, cultural and psychological milieu, and options on fuels and technology are available should emerge as an ideal choice which would lead to a revolution in the lives of the masses that would change the face of communities giving rise to better sanitation, greenary, beauty, better health, less pollution, higher incomes, less hardship and better well being and welfare - development in true sense.

References

1. ABE (1985), "Towards a Perspective on Energy Demand and Supply in India in 2004/05", Advisory Board on Energy, GOI, New Delhi.

2. Annual Report 1984-95, Department of Non Conventional Energy Sources, GOI, New Delhi.

3. Annual Report 1988-89, Department of Non Conventional Energy Sources, Ministry of Energy, GOI, New Delhi.

4. Annual Report, 1988-89, Technical Backup Support Unit, Department of Home Management, M.S.University of Baroda, Baroda.

5. Annual Report, 1989-90, Technical Backup Support Unit, Department of Home Management, M.S.University of Baroda, Baroda.

6. CASE, 1981, UN Conference on New and Renewable Sources of Energy, National Paper-India, Nairobi.

7. "Conservation of Conventional Fuels in Cooking Through Improved Cookstoves", 1990-91, Technical Backup Support Unit - National Programme on Improved Chulha, Home Management Department, M.S.University of Baroda, (Unpublished work).

8. **Fuel Saving Cookstoves,** 1984, Dentches Zentrum Fur Ent Wicklungstechnologien - GATE in : Deutsche Gesellschaft Fiir Technische Zusammenarbeit (GTZ) Gmbtt, Firedr, Vieweg and Sohn.

9. George, Rachel, 1989, 'Improved Chulha An Appropriate Technology for Development of Women', paper presented at the Regional Workshop of Rural Women', SPRERI, S.D.University, Vallabh Vidhyanagar.

10. George, Rachel, 1989, Renewable Energy Systems for Cooking Applications : Status and Prospects, Renewable Energy for Rural Development, eds, Kishore, V.V.N., and Bansal, K.K., Proc.NSEC, Solar Energy Society of India, Tata McGraw Hill, New Delhi.

11. George, Rachel, 1990, **Solar Cookery Book,** Gujarat Energy Development Agency, Baroda.

12. George, Rachel and Ogale, N., 1987, **A Study on the Performance of Boxtype Solar Cooker,** (mimeograph), Department of Home Management, M.S.University of Baroda, 1987.

13. George, Rachel, Vingle, Vandana, 1987, Response of Rural Women Towards Improved Chulhas and Field Testing of Improved Chulhas, Home Management Department, Faculty of Home Science, M.S.University of Baroda (unpublished report).

14. Gupta, C.L., Rao, Usha, K., and Prema, U., 1983, 'Improved Chimneyless Fuelwood Cookstoves (Pondicherry Region)', eds. Krishna Prasad, K., and Verhart, P., **Wood Heat For Cooking,** Indian Academy of Science, Bangalore.

15. 'Improvement of Agricultural wastes and Agro-industrial by products Utilisation', 1986, National Productivity Council (NPC), New Delhi, 1986.

16. Mahajan, R.C., 1990, Energy Availability, New Options and Alternatives', paper presented at the National Seminar on 'Energy Management and Environment', Baroda.

17. Shyam, M., and Nagaica, B.B., 1981, Prospects of Meeting Energy Demand in Rural India', Agricultural Engineering Today, 5:15-21.

18. Smith, K.R., 1985, Biomass Fuels and Development, A Project of Resource Systems Institute Energy Programme, East West Centre, Honolulu, Hawaii, (Personal Communication).

Integrating Renewable Energy Technologies with Production in Agriculture and Rural Living - A Case Study

by

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Background

In order to develop energy and plant nutrient supply systems and their management practices suiting to different sections of rural community in an identified village, Operational Research Project on Integrated Energy and Nutrient Supply System was initiated at CIAE, Bhopal in March, 1984. An Energy Census and Resource Assessment Survey was carried out in 1981 to assess the energy use pattern by different categories of farmers for production agriculture, post-harvest operations, cattle raising and domestic activities (Maheswari, R.C. et al., 1981). In our study the village Islamnagar had 224 households with a total human population of 1529 and total livestock population of 1436. Out of 16 TJ of total energy used in the village, the crop production accounted for 0.49%, livestock raising accounted for 0.8% while the major theme of 83.76% went to the domestic sector (mainly for cooking).

The village was surplus with regard to cereals, vegetable, sugarcane and milk. However, there were deficit with regard to fuelwood by 20% (98.8 tonnes), cattle feed by 30% (812 tonnes), oilseeds by 71% (23 tonnes) and pulses by 32% (7.2 tonnes). Out of 46,000 TJ of solar energy received by the geographical landmass (717 ha) of the village, only 40.44 TJ is converted into food; feed, fuel and fibre. In order to achieve this conversion, 0.27 TJ from chemical fertilizer, 0.37 TJ from machinery, 0.46 TJ from diesel and 0.16 TJ from electricity are consumed as illustrated in Fig.2. The aforesaid energy census survey has become the basis for planning and implementation of the village development based on alternate and renewable energy sources for achieving the self-sufficiency in fuelwood, fodder, pulses and oilseeds

production and its processing at village level. This was the Gandhian concept fifty years ago.

The survey of resource availability and consumption patterns has identified the area of deficiencies and excesses in the village ecosystem. Even before independence, the Gandhian Philosophy had advocated to make the village self-reliant at the village level itself. Forty or fifty years back, economic conditions were not ripe for its success, whereas in today's economy and development in India, such efforts have much greater potentiality to bear fruits as demonstrated in this paper.

Presented in the present document are the planning, implementation and to some extent, monitoring, of the above mentioned self-sufficiency plan with regard to fuelwood, fodder, pulses and oilseeds based on renewable energy sources.

Planning for Self-sufficiency in Fuelwood Supply System

The daily per capita consumption of fuelwood and dung cakes for cooking in the village amounts to 0.85 kg and 0.88 kg, respectively. Thus, village consumes 474 tonnes of wood and 448 tonnes of cowdung annually for cooking. Besides augmenting the fuelwood supply, attempts have been made to reduce the demand of fuelwood and cowdung for cooking by (i) improving the thermal efficiency of wood stoves, (ii) installing the individual and community biogas plants. It has been estimated that 50 individual and community biogas plants (4 to 8 cum capacity) and three community biogas plants of 85, 35 cum capacity would be able to meet the NPK requirements of crop production by 28% (so far, 42 individual and two community biogas plants have been commissioned in the village. Out of 224 households, 150 houses have been provided with smokeless stoves). In order to remove the twenty percent deficit of fuelwood the planning is as under:

(i) Total annual deficit : 98 tonnes

(ii) Annual tree yield : 4-6 kg/year

(iii) Number of tree required (assuming kg/tree/year) : 20,000 nos

(iv) Number of tree to be planned (assuming 50% mortality rate) : 40,000 nos

(v) Number of tree to be planted/ha : 1000/ha

(vi) Area required for plantation : 40 ha

(vii) Area available for plantation : 61 ha

Planning for Self-sufficiency in Fodder Supply System

The village ecosystem carries a total animal population of 1353 numbers (excluding poultry birds) and has a pasture land of 132 ha. The total fodder available on dry weight basis is 129.3 tonnes of berseem, 1186.3 tonnes of grasses and 662.4 tonnes of crop residue amounting to 1928 tonnes of fodder. However, the requirement of fodder on the basis of standard feed requirement works out to be 2740 tonnes (dry weight). Thus, there is a

shortfall of 29.65%. The above shortage can be overcome with the following planning:

(i) Animal fodder deficit : 812 tonnes

(ii) Available land for pasture development : 132 ha

(iii) Potential of high yiel ding grasses 4 t/ha : 528 tonnes

(iv) Grasses from affores tation land at the rate of 2 t/ha (40 ha) : 80 tonnes

Planning for Self-sufficiency in Pulse and Oilseed Production

The village has 224 households with a total population of 1529. Presently they consume about 245 tonnes of cereals, 25 tonnes of pulses and about 14 tonnes of edible oil annually. Considering the standard diet as per the National Institute of Nutrition, the production system is presently deficient in pulses by 32% and in oilseeds by 71% and is surplus in cereals.

The reallocation of land in the village Islamnagar based on the land use planning prepared by the NBSS & LUP, Nagpur (Deshmukh, 1983) has been done by using systems engineering approach to make the village self-sufficient in pulses and oilseeds.

The survey of resources availability and their utilization has shown the scarcity of irrigation water in the village to the extent of 28 per cent. To overcome this problem, installation of 6 units of hydram lift irrigation system of Patra river has been planned and the renovation of the existing water harvesting pond 11.33 ha-m capacity is being carried out. A package of energy efficient implements and tools has been worked out for the village as a whole to increase the yield through tindiness of operations.

Implementation and Monitoring of the Programme

Installation of 50 individual biogas plants of 3.5 a.m./day average capacity and three community biogas plants of 35, 35 and 85 cum/day capacity would produce 72270 cu m of biogas and 578 tonnes of farm yard manure from the biogas slurry. The biogas generated would meet 58.2% of cooking energy requirement. On the other hand, 9.25 tonnes of nitrogen, 1.73 tonnes of phosphorus (P_2O_5) and 2.45 tonnes of potash (K_2O) are required at the level of self-sufficiency in crop production (Fig 3). So far, two community and 43 individual biogas plants have been installed in the village and 150 houses have been provided with smokeless stoves. To cover 20% fuelwood deficit, energy plantation on 25 ha land at the hillock has been developed. This has led to the protection of more than 10,000 existing root-stocks of 20 species of trees. The village has 132.7 ha of pasture land and planting of high yielding grasses and fodder under social forestry programme will cover 70% of the deficit. During the first phase, an area of 10.72 ha was taken for seeding with *cenhrus setigerus* and *cenchrus cilliaris* grasses and an area of 0.98 ha was transplanted with *cenchrus setigerus* grass

seedlings and adopted for silvipastural farming system. 80,000 Napier grass slips were brought from BAIF, Urli-Kanchan (Maharashtra) and a nursery has been raised.

Land in Islamnagar has been reallocated on the basis of the land use planning done by the NBSS&LUP, Nagpur, by adopting systems engineering approach to make the village self-sufficient in pulses and oilseeds production. Efficient soil and water management planning forms the basis for increasing production and productivity. In addition, a package of improved tools and implements has been adopted for the village as a whole.

The survey of resources availability and their utilization has shown scarcity of irrigation water in the village. Only 14.5% cultivable land is under irrigation at present from the existing sources of water. To overcome this problem, installation of hydram lift irrigation system on Patra river has been planned and installation of three units of 12 ô 2.5 in size double pipe hydram has been initiated. Renovation of the existing water harvesting pond of 7.14 ham capacity and installation of additional tubewells have been planned and measures have been taken. The drainage system has been designed and its execution is underway.

Implementation or various programmes for making the village self- sufficient has led to better resource utilization and increased harnessing of solar energy for its conversion to food, feed, fuel and fibre. The original and changed scenario with regard to solar energy flow in the village ecosystem in our study shows a rise from 40.4 TJ to 67 TJ and the overall photosynthetic efficiency goes up from an average of 0.0868 to 0.144%. It is also true that when the ecosystem becomes a surplus one in terms of food, feed and fuel, the actual energy requirement goes down from 16 TJ to 15.5 TJ. This has become possible through (i) reduction in wasteful use of thermal energy with traditional stoves and achieving higher thermal efficiency with the use of gas burners for the biogas, and (ii) harnessing of solar energy for additional fuelwood and grass production.

The employment potential in making the village self-reliant through production agriculture, post-harvest operations and animal raising activities also goes up by about 1,00,000 man-hours (12,500 man-days). In addition to removal of drudgery in the domestic sector to the extent of 1,45,500 man-hours there and grasses (79,000 man-hours) development programmes. Thus, there is additional generation of 12,500 man-days in a year in the village. To manage the renewable energy technologies, a housewives society, named as "EKIKRAT URJA, POSHAK TATVA EVAM GRAMIN VIKAS MAHILA SAMITI" has been organized in the village and registered with the Registrar of coppoeratives. The Samiti has raised an amount of Rs.10,000 to repair and maintain the biogas plants.

The impact of all the technologies introduced on the productivity of the land and income of the farmers has also been assessed.

References

Bhandarkar, D.M. (1986). Efficient soil and water conservation planning for village Islamnagar.
CIAE Tech. Bull No. CIAE/CPE/86/48 CIAE, Bhopal, India

Deshmukh, S.N. et. al., (1983). Soil survey and land use planning for village Islamnagar
NBSS Report No.453 CIAE, Bhopal, INDIA

Maheswari, R.C. et. al. (1981). Energy census and resources assessment of village Islamnagar in dist. of Bhopal.
CIAE Tech. Bull No.CIAE/81/81/28

Maheswari, R.C. et al., (1988) Planning and implementation of an integrated energy and nutritional security system for village Islamnagar.
CIAE Tech. Bull No. CIAE/RES/88/83

Maheswari, R.C. et al., (1988) Planning and implementation of an integrated energy and nutritional security system for village Islamnagar.
CIAE Tech. Bull No. CIAE/RES/88/83

Intitutional Aspects of Rural Energy Programmes

by

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Rural energy planning has become a prominent issue in India in recent years. The need to plan for energy supply has been recognised by the government after the "oil shock" of early 1970s and the growing concern about the rate of deforestation and its deleterious effect on the fuel supply situation as more than 75 per cent of rural energy is contributed by woody biomass alone. Therefore, the government launched in early 1980s, in addition to the ongoing rural electrification, several energy development programmes. These include community forestry, family biogas plants, community biogas plants, improved cookstoves, solar devices and wind energy. National level projects involving huge investments and elaborate planning were initiated for promoting these projects.

However, in spite of these impressive inputs, most of the programmes had achieved only limited success. Though several reasons like centralised planning, target orientation, poor infrastructural facilities, financial inadequacies have been cited, poor institutional arrangements has been one of the most important reasons leading to poor implementation and consequent failures. The objective of this brief paper is to study the institutional aspects relating to rural energy programmes (REPs) and to examine how they affect the programme implementation. The National Project for Biogas Development, one of the largest energy technology dissemination programmes promoted by the government, has been used to illustrate various aspects.

What are the principal institutional aspects relating to rural energy programmes that have an influence on their performance?

First of all, rural energy programmes, unlike a thermal or hydro power plant which is situated at one place under a centralised control, have a wide geographical spread involving hundreds of thousands of people. Therefore, absolute control of such programmes cannot be in the hands of a single agency. For instance, nearly 1.3 million biogas plants have so far been installed under NPBD in a decade covering nearly all the states and Union Territories in the country.

Secondly, the main goal of the REPs is to directly meet the needs of individual users and hence, the planning effort is actually at the household level. For instance, to determine the energy needs of the family, dung supply capacity and financial requirements. This involves considerable efforts by the implementing agencies.

Thirdly, most of REPs are promoted mainly for social benefits (arresting deforestation through reduced energy demand, providing clean, efficient fuel, etc) rather than financial benefits for the individual family. Thus, motivating the beneficiaries is an important aspect of the implementation. Therefore, financial incentives and education play an important part in creating demand for REPs. This requires proper infrastructural and training facilities within the reach of the beneficiaries.

Finally, implementation of REPs requires active involvement of various groups like different government departments at national, state, district and block levels, non-governmental organisations, financial institutions, manufacturers, research and education institutions, village level organs (Panchayats) and individual beneficiaries. This means that a very high degree of coordination is required if REPs have to be successful. The matrix shows the complex organisational arrangements of NPBD.

However, in spite of such elaborate organisational structure, NPBD has not achieved the kind of success expected. Some of the organisational problems identified as reasons are:

a. At micro level (block and village), the responsibility of implementing the programme has been entrusted to regular government departments like DRDA, Forest Department, etc., which normally implement multiple programmes. Consequently, there is tremendous pressure on the functionaries and it is difficult for them to pay special attention to any of the programmes.

b. Since the emphasis has been on target orientation, that is to complete a certain number of plants in a financial year, training, one of the most critical requirements, has been neglected. This resulted in poor construction undermining the people's confidence in the technology.

c. No attempts have been made to create any organisation at village or block level to provide post-installation maintenance service and monitoring of the working plants. This has seriously affected their performance.

A Typical List of Interest Groups in NPBD

Level	Group	Orgns/Depts.	Functions
National	Agricultural Finance Commission	Planning Commission, Various Ministeries, CASE, DNES, NABARD	Policy Making Budget allocation
	R & D Instiutions	Universities, IITs, RRLs, etc.	Thrust in R & D
State	High Powered Committee	Chief Minister, Ministeries, Secy (Agri), MD (Agro Ind)/ Nodal Agency.	Target fixation
	Executive Committee	Director (Agri), DCs, KVIC, Agri Engineer, etc.	Overall execution, Raw material supply Monitoring, etc.
	Coordination Committee	Secy (Agri), NABARD, Commercial Banks.	Loaning facilities, Distribution among banks
District	Coordination Committee Committee for Fixation of Rates for	DC, CEO (DRDA) Commercial Banks DC, CEO (DRDA), Asst. Agri Engineer, Asst. Soil Conservation Officer, Dty. Director (Agri).	Loan processing Progress review Fixing rates for fabrication of gasholders, Approval of fabricatiors to various banks.
Block		BDO, Agricultural Inspectors, Khadi Board, Banks, etc.	Motivating users Service delivery Quality control Target achievements.
Village		VLWs, NGOs, Panchayat Beneficiaries	Motivation, Facilitation

d. Coordination was poor among the various organisations involved in the implementation of the programme which caused delays in supply of raw materials like steel and cement and also disbursement of subsidies and loans.

e. No proper feedback mechanisms has been developed so that target fixation could be rationalised on the basis of the past performance. Functionaries at micro level have not been trained for this purpose.

f. R & D organisations working in the field are mostly confined to laboratories, so there has been no orientation as to what the actual needs of the programme are.

g. Since most of the potential beneficiaries could not perceive the economic benefits, considerable educational efforts are needed to motivate them. But due to inadequate manpower and training, this has not happened. The involvement of voluntary organisations, which would have redressed this situation to some extent, has not been up to the expected mark.

Although the above factors are mentioned in the context of NPBD, the observations made are relevant to all the REPs. Therefore, if REPs have to be successful in meeting the local needs in a sustainable manner, some of the following suggestions will have to be adopted.

a. The analysis of the implementation processes of REPs shows that planning for REPs has to be decentralised. That is, institutions and mechanisms capable of designing and managing energy development programmes have to be developed at micro level with organisations at state and national level playing a coordinating and supporting role to provide technological and financial inputs. Encouraging the participation of more voluntary organisations will have a positive effect.

b. Targets should be fixed for a region after determining the capacity of that region to absorb a particular technology in a certain time period. For this, a close study of the region in all its aspects is necessary and only a decentralised set up is capable of achieving this.

c. Proper integration of energy needs with the development priorities of the region is necessary for ensuring success of REPs. If people do not perceive energy as a top priority, the propagation of REPs will be that much more difficult needing more efforts.

d. On the organisational side, efforts should be made to achieve better coordination among various agencies involved so as to ensure smooth functioning. Efficient Management Information Systems (MIS) should be developed for effective feedback on the performance of REPs. Special

attention should be paid to training and information needs of various interest groups in the REPs. Compact maintenance and monitoring mecha- nisms should be developed.

e. Education to the beneficiaries often proves critical in the success of REPs. Special attention should be paid to this.

References

1. Ramani, K.V. (ed), Rural Energy Planning, APDC, Kuala Lumpur, Malaysia, 1988.

2. Joshi, Veena and M.R.Suresh, Institutional Aspects of Rural Energy Planning, FAO/ESCAP Regional Training Workshop on Comprehensive Approach to Rural Energy Assessment and Planning, China Centre of Rural Energy Research and Training, Beijing, September 1989.

3. Joshi, Veena and Venkata Ramana, Rural Energy Surveys: Review of Methodologies and Issues, Proceedings of Workshop on Decentralised Rural Energy Planning and Implementation, Operations Research Group, Nagpur, September 1989.

4. Developing Methodology for Rural Energy Planning at the District Level - Interim Report, Tata Energy Research Institute, New Delhi, September 1990.

5. Ramana, Venkata et al, Institutional Credit for Biogas Plants, National Seminar on Institutional Finance for Rural Development, Indian Financial Management Association, New Delhi, January 1991.

6. Ramana, Venkata, Biogas Technology in India - A Status Report, **TIDE JOURNAL**, Forthcoming.

Renewable Energy Programmes - An Assessment of the Prospects

by

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1. This paper seeks to make an evaluation of the prospects of the renewable energy movement in the light of my own experience as the Chairman & Managing Director of the Tamilnadu Energy Development Agency and goes into certain policy questions relating to the scope and the limitations of the renewable energy programmes presently administered by the Government of India in the Department of Non-Conventional Energy Sources and by the various State Governments through their respective nodal agencies. This paper is not descriptive of the various programmes in this connection and does not abound in information or statistics except where strictly needed.

2. This writer is of the view that, before we discuss the question of administrative or other implications of renewable energy programmes, it is necessary to discuss the question of our readiness to accept the concept itself.

3. It is granted, that in the context of the growing energy crisis, the growing concern for environmental consideration, the increasingly difficult supply and demand position with regard to energy consistent with the growing developmental requirements, the search for renewable energy resources and their commercial utilisation has assumed enormous significance. The main goals therefore are - to pursue actively and vigorously, at national, state and local levels, the possibility of identifying and locating renewable energy resources and by utilising them in an optimal manner by the adoption of an appropriate technology or technologies in order to meet the variety of energy needs of the community.

4. The first task is to define the goal at the national level, break it into

components, translate it into programmes, fix interse priorities, provide adequate finance for the various programmes, select appropriate national and field level agencies for implementation and monitor the results of the programmes, constantly keeping in view the need to provide for technology upgrading so as to increase the efficiency levels of the utilisation of renewable energy resources, particularly in the rural areas.

5. The writer's submission is that all these have to be spelt out in national policy on renewable energy programmes fixing a clear time limit for the implementation. It is high time that we had such a national policy. The national policy will help the national policy makers as well as planners to understand and appreciate the value of the programmes and to commit themselves to these programmes so that there would be no difficulty in funding the programmes or in providing the needed organisational or logistic support.

6. Remarkable work has been done in the promotion of the concept of renewable energy resources during the last few years by the Department of Non-Conventional Energy Sources of the Government of India and notable success has been achieved in the areas of wind energy, biogas utilisation and the like but these are piecemeal successes which only underscore the fact that given the proper thrust in terms of policy direction our country can achieve much better results in other areas of renewable energy resources. What is needed is a total appreciation of the role of the renewable energy resources and a commitment to the cause of their promotion. However judging from the volume of funds provided by national and state planners and the administrative machinery which is available for implementing the various programmes anyone will come to the conclusion that lot more remains to be done in getting the whole concept accepted without reser- vations.

7. The projections of the country's energy requirements by the end of 2000 A.D. will call for financial investment of staggering magnitude for electric power generation, coal mining and transport and the production and import of petroleum products. Rightly all our planners are exercised over the question of finding these resources. The talk of mega investments, international and bilateral assistance is really impressive and makes one feel with a sense of anxiety that the role of the renewable energy resources in this race will be minimum.

8. The writer's main worry is not so much about the provision of an adequate amount or funds for the programmes, because funds themselves should not be a problem since in the current context renewable energy resources will demand and absorb the volume of funds which the nation can certainly afford to provide. The main worry is the real possibility of the marginalisation of our own approach to the concept and the strategy for development of renewable energy resources in our country.

9. One additional point to be kept in view in this connection is that the renewable energy development to meet location specific energy needs and individual consumer oriented patterns is justified, perse on the basis of a systems

approach and not merely as an appendage or supplement to an environmental health programme. There should be no mixing of objectives here. That will be the real strength of the renewable energy programmes.

10. In other words, they are not supplement to or substitute for massive power generation programmes or are an answer to environmental issues.

11. The renewable energy scenario is most aptly discussed in the rural context, where the high status enjoyed by these resources to meet fuel and other requirements is bound to undergo change over a period of time consequent on economic development and where if we do not have to create difficult condition we could bring about upgrading of technology resulting in improved utilisation of the existing resources, a problem which can be solved with commitment to certain logical priorities. The prevailing situation in the rural areas throughout the country (Tamil Nadu being no exception) will be somewhat as follows:

(i) Intensity of energy consumption is much lower in the rural areas, as compared to urban areas. Also, relative share of the various consumption categories in urban is basically different from that in the rural ares. In rural areas, household energy consumption dominates the energy situation (80% of total energy demand. 70% to 90% of energy is consumed for cooking and heating), in urban areas, industrial and domestic users are the main consumers of energy.

(ii) A major portion of the energy supply for rural needs is secured by private efforts of individuals at a very low or even zero private cost. Fiscal and administrative controls on energy distribution therefore make little impact in the rural areas.

(iii) A large fraction of the rural population is too. poor to buy commercial energy (including electricity, non-conventional energy technologies, etc.) even when the supply of those are made available. For example, the number of electrified houses and wells are only a small fraction of the total number of houses and wells. This calls for large scale investments through provision of subsidies and incentives to bridge the gap between private and social cost.

(iv) Rural Energy problem has also to be viewed in the overall context of low per capita energy consumption in India which is only about 175 KWH in India as against for example, 8000 KWH in Switzerland. The rural sector contributes significantly to the low per capita consumption of commercial energy in India, even though non-commercial energy consump- tion has been rising.

(v) Rural areas continue to starve for energy and per capita consumption

in the urban areas is more than 10 times that of the rural areas.

(vi) Thus, it is not enough merely to invest more in the production of energy. The energy so produced has to be equitably distributed and utilised to meet the growing developmental needs especially of the rural areas where around 75% of the country's population lives and whose buying power is extremely limited. This imbalance between the development of the rural and urban sectors can be corrected through micro level or decentralised planning for energy through the preparation of integrated area based energy plans.

(vii) Moreover, the Rural Energy problem is multi-dimensional and needs to be tackled through a multi-dimensional integrated approach which would include augmentation of energy supply resources, technology transfer for optimum and productive use of resources, R&D inputs, in particular for developing low cost energy options for the rural poor, education and training for rural users, linkage with various rural development programmes, including village and small scale industries programme, and adequate institutional support.

12. The rural context provides the ideal scenario in which the significance of the role of the renewable energy can be brought out effectively as the least cost solution to the energy problem in many ways. This calls for a systematic analysis of the energy demand, supply position. In each village or group of villages under a viable administrative unit, say, a block or a taluk. Methodology for rural energy survey has been greatly improved in quality and content and such methodology can be adopted to get the necessary data on the basis of which the necessary planning exercise can be done. We have made some beginning in this direction in the Integrated Rural Energy Programme blocks and Urjagrams. Based on the survey and monitoring experience that we have gained in these areas we will have to undertake surveys on much wider areas with special reference to the unique nature of renewable energy resources that may be available in the areas. It is also for consideration whether the survey should be territorial or should be based upon the nature of the renewable energy sources that may be available over a well defined area.

13. Another focus of this survey should have to be the nature of the demand for energy as compared to the supply of energy. Such a shift in the focus will help to plan for meeting specific local energy needs with locally available energy potential. As a result, the demand for energy is not tailored to the available supply. Rather supply of various kinds of local energy can be geared to meet a variety of local demands. This is the chief strength of any renewable energy programme.

14. More R & D work is called for with regard to technology, whether it is windpower for water pumping, chulhas for cooking, gasifiers for utilising biomass, there is a crying need for technological breakthrough which will really attract the rural people to take to the various applications without giving thrust upon them through incentives or subsidies etc. R & D work should be user-oriented and application-oriented such that the products available in the market attract the users' attention naturally from the point of view of the utility and cost effectiveness. Renewable energy applications must become business propositions and not Government sponsored programmes. The thrust of technology must be to bring about cost effective mass production of gadgets which can provide a satisfactory answer to the use of systems involving conventional energy.

15. This calls for an overall and critical review of the R & D work that has so far taken place in the country and laying down a direction for further R & D works to be completed within a specific time span. There is alarming lack of knowledge regarding renewable energy systems, even simple ones among even the administrators and the policy makers. Their sound education in this regard deserves to be given a very high priority so that in whatever area they serve, they give due importance to renewable energy programmes.

16. Basic to the success of the whole programme is an understanding of the proper roles of these programmes by the whole community. "Conserve energy - Renew energy" are two sides of the same coin. Society, over the years has developed certain insight into the handling of this problem consistent with its social, economic and cultural levels. Owing to scientific progress and technology thrust which are vitally affecting the area of economic development, these social, cultural and economic situations are undergoing a vast change. This is affecting man's attitude towards energy, often producing misplaced sense of direction. It will be necessary to enhance the understanding of the people to this problem and to help them to identify the known resources with which they are familiar and to utilise them better, which will make them depend less upon new resources with which they are unfamiliar. The concept of exploitation creeps in here and man feels alien to his environment developing perverse attitude towards both conventional and renewable sources of energy. This is a big job, the job of restoring the sense of balance and this is the job involving the political, administrative, economic and sociological groups. More intensive studies are called for.

17. It goes without saying therefore that an integrated approach to the problem of development of renewable energy resources is called for. With much less prorata investment on renewable energy resources, it is possible to bring about a much more dispersed energy generation and utilisation programmes. This should be our major task in the coming years. It will call for two most important approaches on the following lines:

On the scientific and technological level the necessary data must be provided and technology transfer encouraged and supported here is a field for close cooperation between the pertaining institu- tions and organisations in industri- alised and developing countries.

Furthermore political visions, national energy supply concepts, economic and strategic advice from professional organisations are indispensable to help to shape such national energy policies. Renewable sources of energy must be taken into account in an overall context and must be regarded as an integral part of our country's energy economy and as a possibility to develop national, country-specific solutions for this overwnelming problem.

19. Only a few issues of policy have been raised in this paper. Details have not been gone into. The approach has to be towards developing the right perspectives. Not the administrative structure, nor the funding could be the problem. Without the right approach there is a danger of the small efforts being made going into waste. A counter productive atmosphere may be developed. The perspective that is needed is to make the renewable energy programme understood and accepted by the people, who are the main users. The implication of the above statement involves having a close look at the current renewable energy scenario, its policies and programmes with a view to settle in the correct direction.

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